Program Partner

GBSM





# **Summary and Need for Action**

In summary, Project 7 needs to incorporate water supply resiliency to continue reliable service to its 60,000 customers. The purpose of this project would be to shift up to 33% of Project 7's water use from the Gunnison River and the associated existing infrastructure to new water supplies and infrastructure associated with Ridgway Reservoir, including approximately 11.25 miles of new pipeline and a new WTP.

The Dallas Creek Project, which included the construction and operation of Ridgway Reservoir and dam, makes available an annual water supply of 28,100 af for municipal and industrial purposes (which includes drinking water as well as additional irrigation waters), out of the total active storage capacity of 59,396 af. Project 7 currently provides treatment and distribution of approximately 23,000 af of potable/finished water supplied by a water exchange from Ridgway Reservoir. Because of the physical location of the current Project 7 North WTP east of Montrose (relatively far away from Ridgway Reservoir) and because of the low costs and infrastructure needed to treat waters from the Gunnison River, an exchange of Ridgway Reservoir storage water with water from the Gunnison River via the Gunnison Tunnel has been established with the UVWUA. Gunnison Tunnel water, up to 23,000 af per year, is treated for drinking in exchange for municipal and industrial water from Ridgway to be used for irrigation. Through this, drinking water is supplied to approximately 60,000 residents in municipal and rural areas of Delta, Montrose, and Ouray Counties.

Currently, all drinking water supplied by Project 7 comes from one treatment plant located in Montrose and from one water source, the released waters from the Blue Mesa Reservoir via the Gunnison River and through the approximately 116-year-old Gunnison tunnel. Should the infrastructure fail, or should a wildfire, drought, or other serious disaster occur that prevents the conveyance or treatment of water, nearly 60,000 residents of the Uncompangre Valley would be without potable water.

To mitigate supply issues, Project 7 intends to develop a new South WTP and utilize up to approximately 10,081 af of waters directly from Ridgway Reservoir. This would result in Project 7's ability to shift up to 33 percent of its water supply from the Gunnison River to Ridgway Reservoir. The proposed use of water from Ridgway Reservoir would occur in a series of phases. Initial maximum diversions would be up to 6,721 af/year (or 9.28 cfs) until approximately 2035-2085. In 2085 anticipated water diversions would increase up to 10,081 af (or 13.93 cfs), given the current projected population growth in the Montrose area. There would be no additional water depletions to the Gunnison River or Colorado River associated with this project, but rather a shift in the diversion of waters from the Gunnison River to the Uncompandare River at Ridgway Reservoir.

Any potential water shortage or interruption from the existing source on the Gunnison River would be mitigated by the proposed development of the pipeline and the proposed new WTP diverting waters from Ridgway Reservoir, allowing Project 7 to still meet minimum monthly residential water demands in the service area.

As mentioned, waters available at Ridgway Reservoir require more treatment due to hardness levels than waters in the Gunnison River and would require a traditional water treatment process. The raw water in Ridgway Reservoir is classified as "very hard" by the United States Geological Survey and contains moderate to high levels of total dissolved solids (TDS). This level is higher than the finished water currently conveyed to Project 7's service area. For reference, the hardness and TDS levels in the current finished water throughout the service area are, on average, 121 and 156 mg/L, respectively, whereas the Ridgway Reservoir has TDS levels at 291 and 353 (Garver 2023). Based on water available from Ridgway Reservoir, the proposed action needs to include the construction of a water treatment plant with softening to provide meet the primary drinking water regulations (safe) and secondary drinking water regulations (acceptable and palatable) water to customers.





# **Summary of Proposed Action**

Project 7's Regional Water Resiliency Program proposes to shift up to 33 percent of current water use (after the year 2035) from the Gunnison River and the associated existing infrastructure to water supplies and infrastructure associated with Ridgway Reservoir, through the construction of a 5.39-mile, up to 24-inch inside diameter PVC (polyvinyl chloride) or HDPE (high density polyethylene) raw water pipeline, diverting water from Ridgway Reservoir to a proposed 6.4-acre WTP facility at the terminus of the raw water pipeline. From the WTP, a 5.86-mile, up to 24-inch inside diameter, PVC or HDPE finished water pipeline would be constructed to deliver water to existing Tri-County Water Conservancy District (TCW) potable water delivery infrastructure. The new pipelines and water treatment plant would be able to treat and deliver approximately 10,081 af per year of water. Ridgway Reservoir and Blue Mesa Reservoir are geographically isolated making it unlikely for both sources to be impaired by the same natural disaster such as wildfire, or from infrastructure issues.

# **Proposed Action Details**

## **Raw Water Pipeline**

Raw water would be accessed by connecting to an existing 24-inch stub-out pipe located on the TCW hydropower building's penstock, which itself is connected to the Ridgway Reservoir intake penstock. The installation of the buried up-to-24-inch nominal inside diameter (ID), 5.39-mile (28,449 feet), PVC or HDPE raw water pipeline would be constructed using typical open-trenching methods for much of the alignment, apart from the use of horizontal directional drilling (HDD; "boring") to cross some canals and busier roads. Small ditches infrequently used dirt roads, Cow Creek, the Uncompahgre River, Wildcat Creek (an intermittent stream), and other minor surface features would be crossed using an open trench. The raw water line would be within a 40-foot-wide Permanent Easement (PE) area (aka, permanent ROW), totaling approximately 26.1 acres.

The pipeline would traverse BLM lands, Reclamation lands, private lands, Project 7 lands, and the Colorado Department of Transportation (CDOT) right-of-way (ROW), associated with US-550. All temporarily impacted lands would be revegetated per landowner requirements. There would be pig launcher/receiver facilities at the point of beginning (near Ridgway dam) and at the end (at the new WTP facility). There would be approximately four (4) vault locations within the permanent ROW to facilitate cleaning sediments from the raw water pipeline; no other permanent above-ground appurtenances would be associated with the raw water line, aside from pipeline markers.

## **Water Treatment Plant**

Approximately 1.3 miles south of Colona, the raw water line would terminate at the proposed WTP, located on lands owned by Project 7. The WTP would be an approximately 39,500 square-foot facility (approximately 200 feet by 200 feet), with two approximately 30-foot diameter, 40-foot-tall water storage tanks. The WTP would occupy approximately 6.4 acres for the buildings and water tanks, a truck delivery loop, parking, and supply storage. The construction process would temporarily impact an additional 33.7 acres (for equipment staging, parking, etc.), for a total of 40.1 acres of surface impacts. All temporarily impacted areas would be revegetated after construction.

The WTP will have nine chemicals needed for water treatment. The design and construction will include a separate chemical building for chemical storage and handling. The current design has caustic soda and aluminum sulfate storage in the Softening Building, a carbon dioxide tank in the yard, potassium permanganate at the Raw Water Control Building, and all other chemicals in the chemical building/annex building. The chemical storage areas will be designed to meet safety and regulatory standards to prevent leaks, spills, and potential hazards. The secondary containment will support storage of a range of chemicals, including Ammonium Sulfate, Carbon Dioxide, Chlorine Gas, Citric Acid, Coagulant, Caustic, Hydrochloric Acid, Sodium Bisulfite, Sodium Hypochlorite, Potassium Permanganate, and Sulfuric Acid.

**Program Partner** 

GBSM

### **Finished Water Line**

From the new WTP, finished water would be pumped into a 5.86-mile (30,944-feet), up-to 24-inch, buried PVC or HDPE pipeline. The pipeline would leave the WTP, paralleling the access road, and head north roughly parallel to US-550, to its terminus where it would tie into existing TCW potable water distribution lines. The finished water pipeline would be within a 40-foot-wide permanent easement. The permanent easement would be located on private lands, Project 7 lands, and on CDOT ROW.

There would be approximately five (5) isolation vaults along the pipeline alignment that may incorporate above-ground vents. Isolation vaults may also need to have drain lines to allow isolation valves to be closed and segments of the pipeline to be drained for work and maintenance. These vaults would be within the permanent easement area. Other above-ground appurtenances associated with the finished water line would include pipeline markers.

# **ENVIRONMENTAL ASSESSMENT (EA) TIMELINE**

# **Anticipated Milestones**

- December 2023 | Final Draft EA with consultations submitted to CDPHE, Reclamation, and BLM
- Jan.-Feb. 2024 | Official Public Comment Period
- March 2023 | Anticipated Finding of No Significant Impact (FNSI)







| Potential Environmental Impacts  | Mitigation   |
|--|--|
|  |  |
| Impacts on Uncompangre River Instream Flows  Description Applied To company the property of th |  |
| Reservoir Usage & UVWUA exchange agreement   | Project 7's consecutive entities have ample water rights in the Ridgway Reservoir, but usage of the reservoir will lessen the 1:1 exchange between Project 7 and UVWUA via the exchange reach on the Uncompander River between Ridgway Reservoir and South Canal, depending on UVWUA's user demand along this reach. |
| Reservoir Levels and Fishery Minimum Flow Requirements   | Please see analysis below  |
| Burying of Pipeline Under Cow Creek and Uncompangre River  |  |
| <ul> <li>Pipeline would be buried under Cow<br/>Creek during low-flow conditions.</li> <li>This would impact the river for<br/>approximately 1- 2 weeks, with temporary<br/>river impacts.</li> </ul>  | A cofferdam would be constructed in the<br>Uncompander River to facilitate the<br>burying of a pipeline. Cofferdam would be<br>used on one side, then shifted over to<br>other side to facilitate flows.   |
| Big Game Species   |  |
| Pipeline passes through elk and mule deer winter range   | <ul> <li>Project is shut down in winter to avoid impacts to wintering elk and mule deer, per CPW recommendations.</li> <li>Most impacts are temporary, and the pipeline would be revegetated.</li> <li>Much of pipeline is adjacent to highway, where elk use is low.</li> </ul>                                     |
| Threatened & Endangered Species  |  |
| No major impact to listed species, except<br>for Colorado River listed fish: Colorado<br>pikeminnow, razorback sucker, humpback<br>chub & bonytail.  | No net impacts to instream flows in listed fish habitats.  |
| Visual Impacts   |  |
| Pipeline is buried, so after reclamation<br>(predicted to be two growing seasons),<br>the visual impacts would be very minor.  | No mitigation required   |
| Water Treatment Plant is set back from<br>the highway corridor and is designed to<br>not be an eyesore.  | No mitigation required. Coordination with<br>Ouray County to meet Special Use Permit<br>visual impact requirements   |
| Water Rights   |  |





# Water Supply **Resiliency Program**

Program Partner

GBSM

| Project 7's consecutive entities have ample water rights in the Ridgway Reservoir for the project, and the project would not impact other existing water rights. | No mitigation required  |  |
|--|---|--|
| Agricultural Lands   |   |  |
| Pipeline is located at the edge of fields or outside of agricultural lands.  | Disturbances would be revegetated with landowner-prescribed seed mixes.   |  |
| Water Treatment Plant is on Project 7 lands, and not in agricultural production area.  | No mitigation required.   |  |
| Noise/Construction Impacts   |   |  |
| Construction process <u>is</u> noisy, with lots of heavy equipment.  | <ul> <li>Majority of the project is immediately adjacent to the highway, and in most cases, highway noise is louder than construction equipment.</li> <li>Construction would occur during daylight hours</li> </ul> |  |
| Some nearby residents will see dust and<br>have additional noise and traffic during<br>the two summers of pipeline construction.                                 | Construction crews are required to use dust suppression methods as needed.  |  |
| Some traffic delays may occur when pipeline crosses roads.   | Traffic control will be on-site. Large roads<br>(County Road 1) would be bored to avoid<br>impacts to busy road.  |  |
| Cultural Resources   |   |  |
| Several potentially significant<br>archaeological and historic sites have<br>been identified within the project area   | CDPHE is working with the State Historic<br>Preservation Officer and Native American<br>Tribes to evaluate impacts and any<br>needed mitigation   |  |

Ridgway Reservoir is operated by Tri-County Water Conservancy District (TCW) for several user groups that contract portions of the reservoir for decreed uses in "accounts" or "pools", namely: Project 7,<sup>1</sup> TCW, Uncompandere Valley Water Users Association (UVWUA), Colorado Parks & Wildlife (CPW), and the Bureau of Reclamation. Throughout the year, releases are made to meet water demand of the downstream users and to maintain flows for the fishery below the dam whenever possible. Historically, the releases from Ridgway Reservoir are used at the dam for hydropower generation, directly below the dam for fishery maintenance, irrigation for UVWUA, recreation for CPW, augmentation for well owners downstream, "bypass" of un-stored inflow, and other uses by the Bureau of Reclamation and TCW. See **Table 1** below.

Project 7's pool for M&I uses has not been directly utilized from Ridgway Reservoir; however, a portion of their pool is exchanged over to UVWUA based on the amount of water Project 7 diverts from the South Canal of the Gunnison Tunnel to its existing water treatment plant in Montrose. UVWUA then utilizes this water, in addition to their contracted pool in the reservoir, to meet their irrigation demands.

Acre-feet Ridgway Reservoir Pools and Uses Bureau of Reclamation Firm Yield Pool (1) 19,996 UVWUA (Irrigation) (2) 11,200 Water contracted by CPW (Recreation at State Park below the Reservoir) (3) 100 Active Storage City of Montrose 10,000 City of Delta 3,700 Project 7 (4) Tri-County (TCW) 12,860 (for M&I uses) Town of Olathe 300 Menoken Water District 640 Chipeta Water District 600 TCW Administrative Pool (to be used at their discretion) (5) 23,584 Deadpool (i.e., inactive storage) (6) 1.430 Total (7) 84,410

Table 1. Existing pools in Ridgway Reservoir.4

### Notes:

- (1) The Bureau of Reclamation pool can be used at their discretion and sold by contracts to water users. It is referred to as the Firm Yield Pool by the Division of Water Resources (DWR).
- (2) UVWUA has a contract with TCW for irrigation water releases from the reservoir. This contract does not include the exchange of water from Project 7's usage of Gunnison Tunnel water at the existing Montrose WTP.
- (3) CPW has a contract with TCW for recreational releases from the reservoir used at the Pa-Co-Chu-Puk park below the reservoir.
- (4) Project 7 water used for Municipal and Industrial (M&I) purposes, e.g., domestic treated water. A portion of this pool can be exchanged to UVWUA's pool based on the amount of water diverted from the South Canal of the Gunnison Tunnel to the existing Montrose WTP. Per water court decree 08CW150, a maximum of 200 cfs and a total of 15,000 AF per year can be exchanged with no carryover from year-to-year.
- (5) TCW holds an administrative pool in Ridgway Reservoir to be used at their discretion and can be sold by contracts to water users.
- (6) The Deadpool is the volume of water beneath the reservoir's outlet that cannot be released by gravity.
- (7) The actual maximum storage capacity of Ridgway Reservoir based on the dam crest elevation of 6,871.3 ft.
- (8) Others in Figures 1 and 2 is comprised of the following pools: Bureau of Reclamation Firm Yield Pool, CPW, and TCW Administrative Pool.

<sup>&</sup>lt;sup>1</sup> Project 7 is comprised of TCW, the City of Montrose, the City of Delta, the Town of Olathe, the Chipeta Water District, and the Menoken Water District

<sup>&</sup>lt;sup>2</sup> A mitigation measured established in the 1976 EIS for the Dallas Creek Project, section A.b (page A-7).

<sup>&</sup>lt;sup>3</sup> "Bypass" refers to a portion of outflow that is un-stored inflow that is not attributed to a storage pool. DWR describes it as released inflow. This value is estimated based on change in storage, measured outflow, and estimated evaporation from the reservoir water surface.

<sup>&</sup>lt;sup>4</sup> Based on data provided by the Colorado Division of Water Resources, Division 4 Office.



To quantify the effects on reservoir content and water surface elevation, a model of reservoir operations was developed based on the Division of Water Resources (DWR) data from water years 2018 to 2022,<sup>5</sup> This period of record includes two dry years (2018 and 2020), one average year (2022), and one wet year (2019). This analysis forms the basis of the existing conditions at Ridgway Reservoir. The proposed conditions were then modeled by overlaying the proposed Project 7 South Water Treatment Plant (WTP) demands onto existing conditions. In this analysis, the proposed conditions model depicts the user pools and outflows from Ridgway Reservoir as if the proposed Project 7 South Water Treatment Plant were operational from 2018-2022. The following assumptions were made for the reservoir model:

- Inflow = Change in Storage + Outflow + Evaporation
- Calls administered by DWR on the Uncompander River do not change from existing to proposed conditions.
- Total diversions into the South Canal of the Gunnison Tunnel do not change from existing to proposed conditions.
- Total WTP demands do not change between existing and proposed conditions. The proposed Project 7 South WTP will take a portion of the total demands with the balance going to the existing Montrose WTP.
- The timing of proposed demands for Project 7 South WTP match historical daily demands at the Montrose WTP for water years 2018-2022.
- Any additional releases required during the call would come from TCW's administrative pool.

# **Description of Figures**

**Figure 1** illustrates the effects of the Project 7 South WTP on the total reservoir content and on the content of the various accounts in the reservoir. The model shows that if the Project 7 South WTP were operational from 2018-2022, the total reservoir content would decrease slightly during a call (typically July, sometimes part of June and August) on the Uncompanded River and then rebound back up following the call. The drop water surface elevation would have been 0.6-1.3 feet during the call and then rebounded back to existing conditions in the months following the call. The net change in reservoir content is actually zero because the reservoir could have been refilled after the call was taken off. The table below the chart in **Figure 1** shows how accounts are shifted from one to the other, while the net change in total storage from existing to proposed conditions is zero and presents no significant impact on reservoir levels.

Figure 2 illustrates the effects of the Ridgway Plant on the total reservoir outflow and how those flows are attributed to various accounts in the reservoir. Outflow is comprised of water from various accounts in the reservoir as well as "bypass" of inflow. The model shows that if the Project 7 South WTP were operational from 2018-2022, the total reservoir outflow would have increased during years when call was placed on the Uncompahgre River (2018, 2020, and 2022). While the call is on, water cannot be stored in Ridgway Reservoir and outflow has to be increased to maintain "bypass" flow; in our model, that increased flow is attributed to an unallocated portion of TCW's administrative pool which can be used at their discretion. If there is no call, a portion of the "bypass" can be shifted to Project 7's account without changing the total reservoir outflow. The table below the chart in Figure 2 shows how the bypass portion of outflow is reduced commensurate with increases in the Project 7 portion of outflow and how additional releases can be made by Others to make up "bypass" flows whenever the call is on.

### Impacts of the Proposed Project 7 South Water Treatment Plant

<sup>&</sup>lt;sup>5</sup> Water Years 2018 to 2022 span from November 1, 2017, to October 31, 2022.

When the proposed Project 7 South WTP is brought online, it will withdraw directly from the Project 7 pool in the reservoir, thereby reducing the historical amount of water exchanged to UVWUA's account on a 1:1 basis. During periods with no call on the Uncompander River, withdrawals from Project 7's pool to the Project 7 South WTP can be replaced with additional storage of inflow while also reducing the portion of outflow attributed to bypass.

## Impact Analysis of the Proposed Project 7 South WTP:

Considering the assumptions stated above, if the proposed Project 7 South WTP had been operational during water years 2018 to 2022:

- Without a Call on the Uncompange River
  - o Inflow can be stored and reservoir levels would remain unchanged.
  - The Bypass portion of total outflow could be reduced and attributed to Project 7, commensurate with the proposed Project 7 South WTP withdrawals from the reservoir.
  - o Inflow could be stored, commensurate with the proposed Project 7 South WTP withdrawal from the reservoir, to maintain reservoir levels.
    - Note: the calculated inflow was sufficient to accommodate the storage to maintain reservoir levels.
  - o Total outflow remains unchanged.
- With a Call On the Uncompangre River
  - The Bypass portion of total outflow cannot be reduced because inflow cannot be stored.
  - The water surface elevation would have been 0.6 to 1.3 feet lower (532 to 1,274 AF less in storage) temporarily, only while the call is on. This corresponds to a reduction in surface area of 4 to 12 acres.
  - In the month subsequent to the call coming off, the reservoir inflow could accommodate the additional storage needed to rebound to existing conditions.
  - Total outflow could be increased by 8.6 to 11.5 cfs, commensurate with the proposed Project 7 South WTP withdrawal from the reservoir, to ensure that the downstream call is met.

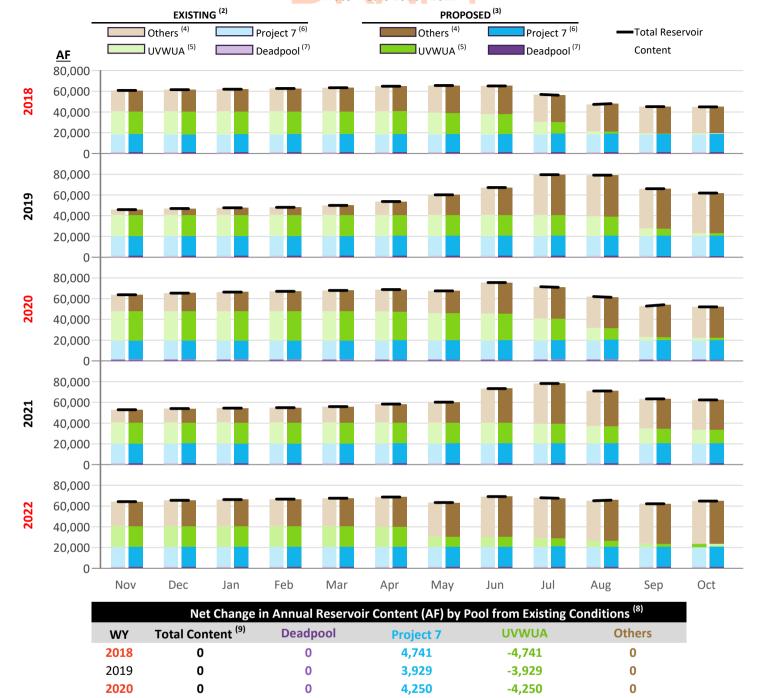
## **Key Takeaways:**

Based on the conclusions stated above, here are the key takeaways regarding the potential impacts to Ridgway Reservoir and the Uncompandere River had the Project 7 South WTP been operational from 2018 to 2022:

- 1) During periods without a call on the Uncompandere River, there would have been no impacts to reservoir levels or total outflows.
- 2) During periods with a call on the Uncompangre River:
  - a. The reservoir water surface would have been 0.6 to 1.3 feet lower compared to existing conditions, corresponding to 4 to 12 acres surface area. In the months following the call, the reservoir could have recovered back to existing conditions based on available inflows.
  - b. Outflows from the reservoir would not be decreased due to the proposed Project 7 South WTP. If the proposed WTP had been operational from 2018-2022, flows could have been increased by releases from TCW's administrative pool to meet the call.
- 3) The amount of water available for exchange from Project 7 to UVWUA would decrease by the amount of water used at the proposed Project 7 South WTP.
- 4) Project 7, TCW, and UVWUA should develop new operational guidelines to operate the exchange and ensure that irrigation demands are met when the proposed Project 7 South WTP is operational.

Figure 1: Monthly Average Reservoir Account Content (AF)

Water Years 2018 - 2022



### Notes:

2021

2022

0

0

(1) Analysis utilized data from Division of Water Resources (DWR) and US Geological Survey (USGS) and new demands from the proposed Project 7 South Water Treatment Plant (WTP) were scaled by existing demands at the Montrose WTP.

3,867

3,759

-3,867

-3,759

- (2) Existing conditions are based on DWR and USGS data from water years 2018 2022. Call years are higlighted in red text.
- (3) Proposed conditions are assuming the proposed Project 7 WTP was operating from water years 2018 2022.

0

0

- (4) "Others" refers to pools for the Bureau of Reclamation, Colorado Parks & Wildlife, TCW, and an unallocated pool.
- (5) "UVWUA" is the Uncompangre Valley Water Users Association. Their account includes irriation plus exchange water.
- (6) "Project 7" is the treated water supplier for TCW, the City of Montrose, the City of Delta, the Town of Olathe, the Chipeta Water District, and the Menoken Water District.
- (7) "Deadpool" refers to the volume of water below the outlet pipe of the reservoir that cannot be released by gravity.
- (8) The table shows how reservoir content changes between existing and proposed conditions at the reservoir.
- (9) Total Content is comprised of the four pools shown in the chart and table: Deadpool, Project 7, UVWUA, and Others (4).

0

0

Figure 2: Monthly Average Reservoir Outflow (cfs) by Pool Water Years 2018 - 2022



### Notes:

2021

2022

22

(1) Analysis utilized data from Division of Water Resources (DWR) and US Geological Survey (USGS). New demands from the proposed Project 7 South Water Treatment Plant (WTP) were scaled by existing WTP demand.

162

136

0

- (2) Existing conditions are based on DWR and USGS data from water years 2018 2022. Call years are higlighted in red text.
- (3) Proposed conditions are assuming the proposed Project 7 WTP was operating from water years 2018 2022.

-162

-136

- (4) "Others" refers to pools for the Bureau of Reclamation, Colorado Parks & Wildlife, Tri-County Water Conservancy District (TCW), and an unalloacted pool. Releases during a call on the Uncompangre are attributed to this account.
- (5) "UVWUA" is the Uncompangre Valley Water Users Association. Their portion of outflow is irrigation demands.
- (6) "Project 7" is the treated water supplier for TCW, the City of Montrose, the City of Delta, the Town of Olathe, the Chipeta Water District, and Menoken Water District.
- (7) "Bypass" refers to a portion of outflow that is unstored inflow that is not attributed to a storage pool and makes up a portion of Total Outflow. DWR describes it as released inflow and it is not the total Outflow (9).
- (8) The table shows how reservoir outflow changes between existing and proposed conditions.
- (9) Total Outflow from the reservoir is comprised of four pools shown in the chart and table: Bypass, Project 7, UVWUA, and Others (4).

22