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RIO BLANCO WATER CONSERVANCY DISTRICT

RIO BLANCO COUNTY
CASE NO. 14CW3043

AUGUST 31, 2020

EXPERT REPORT
on behalf of
THE STATE ENGINEER
and
DIVISION ENGINEER IN WATER DIVISION SIX

Erin Light, P.E., Division Engineer
Tracy Kosloff, P.E., Deputy State Engineer

The Division of Water Resources ("DWR") conducted an investigation and analysis related to an application filed in Division Six Water Court. The purpose of the analysis was to evaluate the claims in the court application, and to bring legal and factual concerns to the attention of the Water Court so that a decree entered in this case adheres to the correct rules for the allotment and administration of water.[1]

The State Engineer and Division Engineer in Water Division Six ("Engineers") were first advised of the circumstances surrounding this case from a review of the published December 2014 Resume in District Court, Water Division Six. The Rio Blanco Water Conservancy District ("Applicant" or "District") is seeking a new conditional water storage right for Wolf Creek Reservoir at either an on-channel (mainstem) location or an off-channel location. The current amounts claimed per the proposed Findings of Fact, Conclusions of Law and Judgement and Decree dated April 3, 2020, and provided with the Applicant's expert disclosures, are 66,720 AF for the off-channel reservoir site and 72,720 AF for the mainstem reservoir site. The uses claimed are municipal (including but not limited to domestic, irrigation, commercial and industrial uses) for the Town of Rangely, irrigation, commercial, domestic, recreation, piscatorial, augmentation (for use in a future augmentation plan for water users within the District, including the replacement of depletions that are out of priority due to any Colorado River Compact Curtailment), wildlife habitat, maintenance and recovery of federally listed threatened and endangered species and hydroelectric power generation, all within the District Boundaries as they are now or may be expanded, or leases or exchanges with other political subdivisions of the state pursuant to C.R.S. 37-83-106.

On December 29, 2014, the District filed the application in this case, and on March 17, 2015 the Division Engineer filed a Report of the Division Engineer with the Court (Report of the Division Engineer). The Division Engineer continued to attend status conferences and participate in a consultation role, providing two supplemental reports of the Division Engineer on October 4, 2018 and

[1] Wadsworth v. Kuiper, 193 Colo. 95, 562 P.2d 1114 (1977).

August 1, 2019 in response to additional information provided by the Applicant. On November 18, 2019, the Engineers filed a Motion to Intervene and Statement of Opposition. The Court's order dated February 12, 2020 granted the Engineers standing to participate as parties to the case.

The following materials filed by the Applicant were reviewed in preparation of this Report:

- Application for Water Storage Right filed in Case No. 2014CW3043 on December 29, 2014
- Applicant's Response to the Report of the Division Engineer dated July 10, 2015
- Applicant's Response to Additional Comments of the Division Engineer dated May 16, 2019 ("Applicant's 2019 Response")
- Engineering report by W.W. Wheeler & Associates, Inc. dated May 4, 2020 including tables, figures, appendices, and all attachments ("Wheeler Report"); Report by Harvey Economics dated May 4, 2020 ("Harvey Report"); Report by Miller Ecological Consultants, Inc. dated May 1, 2020 ("Miller Report") (referred to in combination as Applicant's Expert Reports).
- A proposed decree dated April 3, 2020 attached as Exhibit D to the Applicant's Expert Disclosures("Proposed Decree")
- Applicant's Expert Supplemental Report, dated July 6, 2020 Prepared by W.W. Wheeler and Associates Inc. and Harvey Economics ("Supplemental Report")

Along with the items previously listed, we reviewed and relied upon the following documents attached to this report in forming our opinions:

- White River Storage Feasibility Study Final Report dated March 4, 2015, and accompanying Appendix D
- White River Storage Feasibility Study Phase 2A Report dated September 30, 2018
- Letter from Upper Colorado River Endangered Fish Recovery Program to Alden Vanden Brink, District Manager, dated May 17, 2019
- Possible White River Future Depletions Scenario and accompanying Appendices - draft dated March 10, 2020 ("Recovery Program 2020a")
- Town of Rangely letter dated April 23, 2020 ("Rangely 2020")

We reserve the right to supplement our report upon review of the materials that we have not yet been provided.

EVOLUTION OF APPLICANT'S CLAIMED WATER RIGHT AND NEED FOR WATER SINCE APPLICATION WAS FILED

The Applicant has continually changed its plan and need for the water storage right since the application was filed on December 29, 2014; some of which were in an effort to address the Engineers' concerns. The Applicant originally requested the Court award a conditional water storage right in the amount of 90,000 AF to be stored at either the Wolf Creek Reservoir Off-Channel Dam and Reservoir (Off-Channel Site) or Wolf Creek Mainstem Dam and Reservoir (Mainstem Site) site. The uses requested in the application are "municipal, industrial, irrigation, commercial, domestic, recreation, piscatorial, augmentation, wildlife habitat, maintenance and recovery of federally listed threatened and

endangered species, hydroelectric power generation and all other beneficial uses." In Applicant's 2019 Response, the Applicant agreed to drop the claims for industrial use related to oil and natural gas and oil shale, irrigation, and "all other beneficial uses."

The Applicant based its demand for industrial use on the results from the White River Storage Feasibility Study Final Report dated March 4, 2015 (see Table 3-1 of that report, copied below). These demands consisted of 3,500 AF for Oil and Natural Gas and 42,300 AF for Oil Shale, for a total of 45,800 AF for these uses. Knowing this, the Engineers presumed that by dropping the claims for these uses, the Applicant's total water storage right claim would be reduced to 44,200 AF. Of this 44,200 AF, 42,000 AF was assumed to be for maintenance and recovery of federally listed threatened and endangered species, again based on the White River Storage Feasibility Study. The Applicant however did not reduce its claim; rather, the claimed amount increased to 100,000 AF and included a specified amount for recreation and a sediment pool and an insurance pool (See Applicant's 2019 Response). As provided in the Division Engineer's Second Additional Written Report Outlining Outstanding Concerns dated August 1, 2019 , the Division Engineer questioned the claim for the sediment and insurance pools.

TABLE 3.1 – PROJECTED WATER STORAGE NEEDS IN RIO BLANCO COUNTY

Water Use Sectors	Near-Term (through 2030) (acre-feet)	Intermediate-Term (through 2045) (acre-feet)	Long-Term (through 2065) (acre-feet)
Municipal and Industrial (M&I)	1,050 - 2,100	1,250 – 2,500	1,600 – 3,150
Oil and Natural Gas	0	500	3,500
Oil Shale	0	3,500 – 17,600	8,500 – 42,300
Recreation	*Recreation Design Criteria (described in Section 3.1.4)*		
Environmental	3,000 – 42,000	3,000 – 42,000	3,000 – 42,000
Other [1]	?	?	?
TOTAL	**4,050 – 44,100**	**8,250 – 62,600**	**16,600 – 90,950**

The Proposed Decree reflects a reduction in the total claim to 66,720 AF for the Off-Channel Site and 72,720 AF for the Mainstem Site. The Proposed Decree also reflects modifications from the originally claimed uses. Augmentation use now includes replacement of depletions within the District that are out of priority due to Colorado River Compact curtailment and irrigation has been added back in as a use.

As to demands or need for water, the Applicant originally relied upon various White River Storage Feasibility Studies; however, the Applicant's Expert Reports and Supplemental Report represent demands much higher than those presented in these studies. In the White River Feasibility Study Final Report the municipal demands are estimated as 3,150 AF for the long-term projected water storage need in Rio Blanco County (See Table 3.1 above, copied from that report), while in Appendix D of the White River Storage Feasibility Study Final Report, the projected demand for two years for the Town of Rangely is 3,156 AF. However, the Applicant's Expert Reports provide that the annual demand for the Town of Rangely is 3,150 AF, and in planning for a three-year drought Rangely's demand is 9,450 AF (See Wheeler Report Table 15, included below). Based on the numbers presented in Appendix D, 9,450 AF would represent Rangely's demands over six years. The Applicant has also modified its need for maintenance and recovery of federally listed threatened and endangered species from 42,000 to 181,665 AF (See Wheeler Report Table 15 and Supplemental Report). The 181,665 AF is based on planning for a three year drought, while the original 42,000 AF claim was based on a single year. The Applicant has also added as a need augmentation for Colorado River Compact Curtailment anywhere within the White River Basin and augmentation anywhere within the Yellow Jacket Water Conservancy District resulting from a Taylor Draw Power call. And lastly, the District contends that the amount needed for recreational use is now 46,000 AF (See Supplemental Report). Questions about these demands are summarized below in various sections of this report.

Table 15 - Summary of Water Needs

Water Need	Estimated Annual Storage (acre-feet)	Estimated Storage for a 3-year Drought
Municipal and Domestic	3,150 (long-term)	9,450
Recreation Storage Pool	15,000 (off-channel) 24,000 (on-channel)	15,000 (off-channel) 24,000 (on-channel)
Endangered Fish Water Storage[1]	69,555	181,665
Irrigation	7,000	21,000
Augmentation Uses		
Colorado River Curtailment	11,887	35,661
Taylor Draw Power Call	4,200	12,600
Total	110,792 (off-channel) 119,792 (on-channel)	275,376 (off-channel) 284,376 (on-channel)

[1] Storage values based on meeting 100-percent fish flow targets, Harvey energy demands, and maximum flow to meet targets (Scenario 2) as described in Section 2.3.

Source: Wheeler Report, the Supplemental Report notes that 69,555 was revised to 60,555

OPINIONS AND BASIS OF OPINIONS

The Opinions and Basis of Opinions provided below summarize our investigation into this case as completed to-date and are based upon the facts as we know them to be true and in accordance with our expert declarations. In addition, we have relied upon our education and training, professional engineering experience, and knowledge of water court applications and cases.

The following opinions describe the particular claimed uses for which the District has not met the requirements of section 37-92-103(3)(a), C.R.S., including having a "specific plan and intent" for the specific beneficial uses, and in some cases has not shown that those uses are either for the District's purposes or that the District is acting as an agent for the persons to be benefitted by the appropriation. Certain aspects of the District's claim related to the anti-speculation doctrine are best addressed as a matter of law. This expert report focuses on aspects that have an engineering component related to the claimed storage volume or use.

Summary of Opinions and Page Numbers

1. Applicant has not shown a need for water above its current water supply. **5**

2. Applicant has failed to justify the need for three years of drought contingency storage for the range of uses claimed for Wolf Creek Reservoir. **7**

3. Applicant's claimed use of "augmentation" for a future blanket augmentation plan that would allow water users within the District to divert under Colorado River Compact administration has not been substantiated. **10**

4. Applicant has not provided a valid plan for augmentation use to replace depletions associated with water use outside the District's boundaries. **10**

5. Applicant has failed to show a need for augmentation use for replacement of depletions associated with water use inside the District's boundaries. **14**

6. The amount of water the District claims as a future need for water for municipal use for the Town of Rangely is overestimated. **14**

7. Applicant has not shown a need for a specific amount of water to meet future irrigation demands. **17**

8. It is not clear if the District is revising its plan and water right claim for recreational use from 15,000 acre-feet to 46,000 acre-feet, and if so, the need for this amount of water is not well substantiated. **18**

9. Applicant has failed to substantiate a need for the maintenance and recovery of federally listed threatened and endangered species. **20**

10. Applicant has not provided a plan for commercial and domestic uses of water from the proposed reservoir. **24**

11. Applicant's claimed use of hydroelectric power generation should be limited to the specific plan and intent described in the Wheeler Report. **24**

Detailed Expert Opinions:

1. Applicant has not shown a need for water above its current water supply.

Basis of Opinion

a) The Applicant's Expert Reports and Supplemental Report do not take into consideration the amount of water available under the Applicant's current water supply when evaluating its need for the new Wolf Creek Reservoir water right. The Applicant currently owns the water rights summarized in Table 1.

Table 1. Applicant's Existing Water Rights

Water Right Name	Amount in CFS	Amount in AF	Uses	Status
Taylor Draw Power Conduit (See Division 5 Civil Action 1269 and Case No. 82CW0384)	620 (direct flow use through the power unit)		Mun, irr, dom, mun, stock, pisc, power	Power - Abs All Other - Cond
Rangely Reservoir at Taylor Draw Power Conduit (See Division 5 Case No. 82CW0383)	775 125 (direct flow use through the power unit)		Power	Cond Abs
Taylor Draw Reservoir* (See Division 5 Case Nos. 81CW0144 and 95CW0059)		13,800	Manu, irr, dom, mun, stock, pisc, power	Power - Abs All Other - Cond
Taylor Draw Reservoir* - Second Fill (See Division 5 Case Nos. 82CW0022 and 95CW0059)		13,800 3,550	irr, stock, dom, mun, power	Cond - All Abs - Power
Strawberry Creek Pipeline (See Division 5 Case No. W2137-73)	400 (to fill Strawberry Creek Reservoir)		irr, ind, mun, dom, and rec	Conditional
Strawberry Creek Reservoir (See Division 5 Civil Action 1269 and Case No. W3854-78)		75,957	irr, ind, mun, dom, and rec	Conditional
Wray Gulch Pipeline (See Division 5 Case No. W2139-73)	450 (to fill Wray Gulch Reservoir)		irr, ind, mun, dom, and rec	Conditional
Wray Gulch Reservoir (See Division 5 Civil Action 1269 and Case No. W3854)		29,374	irr, ind, mun, dom, and rec	Conditional
TOTAL	2,370	132,931**	Mix	Mix

*Taylor Draw Reservoir is also known as Kenney Reservoir
** Includes Taylor Draw Reservoir Refill Right

The Applicant owns a total of 13,800 AF for the fill and 13,800 AF for the refill of Kenney Reservoir decreed for a range of uses as shown above. Kenney Reservoir is not used to supply water to any users but rather acts only as a hydropower facility and a flatwater amenity for the community of Rangely. (See Wheeler Report, Sections 1.2 and 2.3) Because of the siltation of Kenney Reservoir that has occurred, the flatwater surface area to recreate on has been reduced and thus was identified as a key reason for new storage in the District (See Wheeler Report, Section 1.2).

In addition, the Applicant has filed a diligence application (Case No. 19CW3006) where it describes hiring an engineer to study moving its existing conditional water rights from Strawberry Creek Reservoir and Wray Gulch Reservoir to the Wolf Creek location. These existing water rights, totaling over 100,000 AF, could meet the Applicant's identified municipal, commercial, domestic, recreation, and power needs and are much more senior than the water right claimed here. However, the Applicant has yet to provide any information that its existing water rights have been considered when looking at the Applicant's future demands.

Mahogany Energy Resources, LLC has also filed a change of water right in Case No. 17CW3045 to move its South Fork Reservoir water right decreed for 85,342.4 AF for recreation, among other uses, to one of the Wolf Creek Reservoir sites. Storing this water right in Wolf Creek Reservoir would create a larger flatwater surface area for recreation, which the Applicant has expressed as an important component of the reservoir. (See Supplemental Report, Section 2.3.1) The Applicant has failed to take this into consideration along with its already existing water rights that could also be moved and stored in the reservoir creating a flatwater surface area for recreation.

2. Applicant has failed to justify the need for three years of drought contingency storage for the range of uses claimed for Wolf Creek Reservoir.

Basis of Opinion

For each of the claimed uses, except recreation, the Applicant has estimated an annual need and then tripled the annual need as the basis of the storage volume claimed (see Table 15, Wheeler Report).

a) The need for three years of drought storage within the White River Basin has not been substantiated. The White River Basin is unique compared to much of Colorado due to the lack of water administration. Chart 1 shows the mean flow at the White River below Boise Creek, near Rangely gage (located downstream of the proposed reservoir, shown as WHIBOICO on Map 1). The flow at this location shows the typical peak runoff pattern in late spring and early summer, where more than 2,000 cfs is available for diversion from the White River. Considering the typical flow in the White River and existing water rights, administration is unlikely during the runoff period. This indicates that a reservoir at the location of Wolf Creek Reservoir could fill each year, even in dry years, without the need to carry over water from year to year for drought protection.

There has never been any administration on the White River below the Town of Meeker in even the driest of years, i.e., 1977, 2002, 2012, or 2018. Furthermore, during the consecutive drought years referenced in the Supplemental Report (2012-2015), the annual flow at the White River below Boise Creek, near Rangely gage (located downstream of the proposed reservoir, shown as WHIBOICO on Map 1), ranged from 325,400 AF to 524,000 AF. Chart 2 shows the daily flow for these consecutive years, showing that although flows were below normal in 2012, the subsequent years still exhibited the high flow pattern in early summer. During each of these four years the Wolf Creek Reservoir would have been able to fill even if it started the season empty. Given the lack of administration, especially outside of the irrigation season, the likelihood of Wolf Creek Reservoir being able to fill during the runoff season, every year, is extremely high.

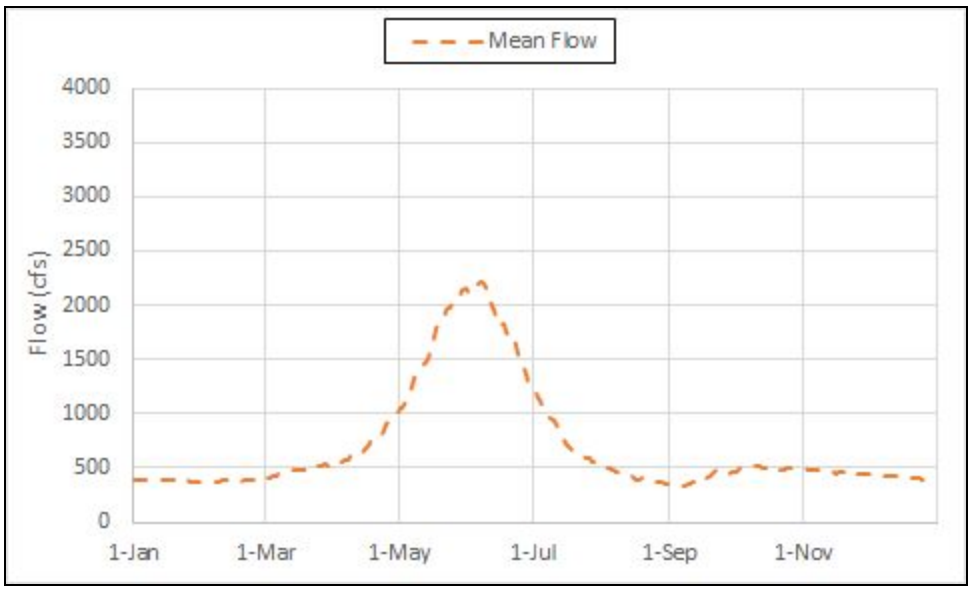

Chart 1. White River below Boise Creek Mean Flow (1982-2020)
Source: USGS (2020)

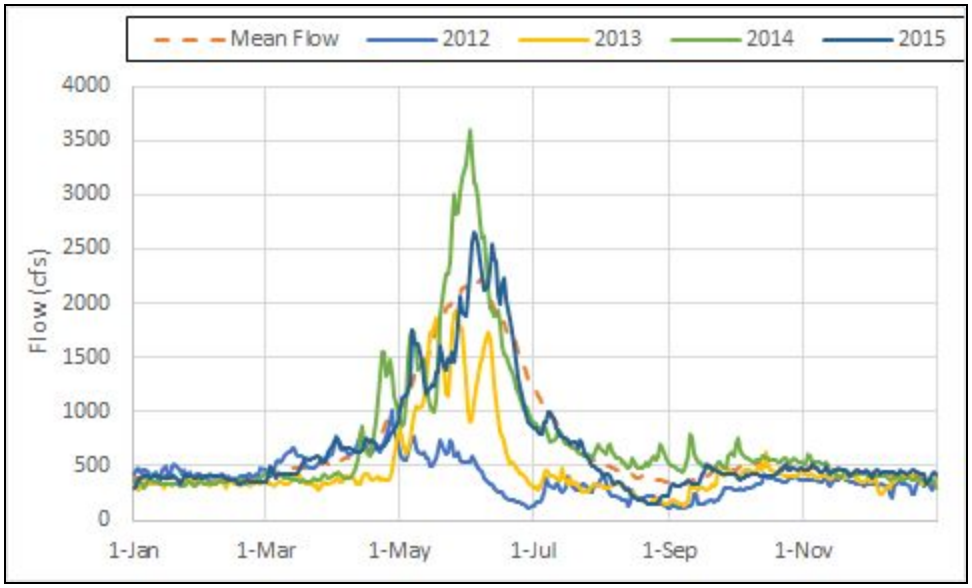

Chart 2. White River below Boise Creek Mean Flow and 2012-2015 Daily Flow
Source: USGS (2020)

b) The Applicant's experts claim that planning for drought and having carryover storage is a prudent practice and that its approach of tripling the amount of storage needed is similar to other water suppliers. Per the Supplemental Report, Denver Water has a firm annual yield of 345,000 AF, which is about 55,000 AF more than its annual water demand. The Supplemental Report also references the City of Aurora's water supply of 63,500 AF, which is roughly 13,000 AF more than the City's current demand. In neither case do these Cities have in reserve three times their annual demand.

Municipal water suppliers determine storage needs to achieve a necessary "firm yield" using modeling over a representative period. Denver Water (2014) provides a good description of firm yield: "Firm yield is a measure of a system's ability to reliably supply water to meet demand during drought periods, and is dependent on many factors, including the amount and timing of supplies and demands, reservoir operations, and physical and legal constraints. Although firm yield is controlled by drought periods, it is expressed as the average annual supply available to meet demand during a representative hydrologic study period (which includes average, wet, and dry years). Therefore, the firm yield equals the maximum average annual demand that can be met by Denver Water's system without shortages through the study period." The Applicant has not provided any such modeling analysis to determine the reservoir size needed to provide a particular firm yield for its claimed uses. Rather, the Applicants simply state that a 3-year drought supply is necessary.

c) The District is not a municipality responsible for providing potable water to its constituents comparable to Aurora or Denver Water. Rather, as a conservancy district, Rio Blanco has the ability to enter into contracts with a municipality for such use. The municipality that the District may serve is the Town of Rangely. The need for supply for the Town of Rangely is discussed in Opinion No. 6.

d) Applicant's Expert Reports and Supplemental Report do not distinguish between storage needs for a 3-year drought and those claimed for augmentation in the event of Colorado River Compact administration. It is not clear if the Applicant is suggesting that a multi-year drought and compact administration will occur at the same time and if the water needs should be added together, or how the occurrence of these two potentially separate situations are considered in their planning. The Harvey Report suggests that the frequency of compact curtailment is 5 times over a 25-year period, but does not suggest that any of the years of compact administration will be consecutive.

3. Applicant's claimed use of "augmentation" for a future blanket augmentation plan that would allow water users within the District to divert under Colorado River Compact administration has not been substantiated.

Basis of Opinion

a) Compact compliance is a State requirement, not a requirement for an individual water user. There is no existing recognized beneficial use where a water user can adjudicate an augmentation water right to provide water to users outside of Colorado for the purpose of allowing ongoing diversions of water rights within Colorado.

b) Neither the Colorado River Compact nor the Upper Colorado River Compact give direction about how Colorado River Compact administration would impact existing water rights in the event that administration becomes necessary, nor has Colorado promulgated rules for compact administration. Since the existing law of the Colorado River and rules within Colorado do not provide for the augmentation use claimed by the District, it is not possible for the District to have a plan in place for this claimed augmentation water right.

Suggested modification to decree terms
Any references to providing augmentation water in an augmentation plan in the event of Colorado River Compact curtailment should not be included in the Final Decree, and any claimed volume related to this use should be deducted from the total conditional water right claim.

4. Applicant has not provided a valid plan for augmentation use to replace depletions associated with water use outside the District's boundaries.

The Engineers believe the Proposed Decree is not clear as to whether the District is claiming augmentation use outside of the District's boundaries (see suggested modification to decree terms below). The Wheeler Report describes the need to provide augmentation water for the Yellow Jacket Water Conservancy District and Town of Meeker.

Basis of Opinion

a) Lack of contract:
If the District is to provide water for use outside of its boundaries, the governmental agency exception to the anti-speculation doctrine does not apply and the District is acting as a water broker. As such, the District is required to have a binding contract with the water user(s) outside the District's boundaries, including Rio Blanco County and/or Yellow Jacket Water Conservancy District ("Yellow Jacket"), for a specific amount of water in place at the time the application for water rights was filed.

b) Lack of exchange potential on Piceance Creek and the White River upstream of Piceance Creek: The Engineers question the ability to exchange up the White River and some of its tributaries to the place of use where augmentation is required. Specifically, Piceance Creek, which is located east of the District's boundaries, is very water short and subject to administration annually within the irrigation season. This water-short condition is indicated by the days of call on Piceance Creek summarized in Table 2. There is also a minimum instream flow water right on the mainstem of the White River from the confluence of the South and North Forks of the White River to the confluence of the White River and Piceance Creek (see Map 1) in the amount of 200 cfs. During dry times of the year, this instream flow is not met in certain locations within this reach, and as such, augmentation water could not be provided or exchanged up to water users within this reach from Wolf Creek Reservoir during these times.

Table 2. Days of Call on Piceance Creek

Year	Days of Call
2012	182
2013	124
2014	81
2015	37
2016	46
2017	111
2018	175
2019	8
2020	75*

* Call still on as of August 31, 2020
Data source: CDSS (2020), Administrative Calls - Historical, Water Source = Piceance Creek August 2020

c) No history of a call at Kenney Reservoir:
Section 6 of the Wheeler Report provides that augmentation would be required if the Taylor Draw Power Call (a call at Kenney Reservoir) is implemented.[2] Although the District could place a call for hydropower use, it has never placed a call despite the fact that the full water right is frequently unmet. The Taylor Draw Power Conduit 1966 water right, which is decreed for 620 cfs, is not met to some degree every single year. As shown on Exhibit A-1, the mean daily mean value for the White River below Boise Creek near Rangely is below 620 cfs from January 1 through April 12 and from July 23 through December 31. And as further shown in Exhibit A-2, the minimum daily mean has dropped to as low as 53 cfs. Not once since Taylor Draw Dam was constructed has the District requested administration by the Division of Water Resources for this 1966 right, let alone its 1982 water right. To now claim that there is a demand for augmentation as a result of administration of these water rights has no foundation. The District has provided no information to suggest it would ever request administration, and if it did, under what circumstances.

d) The estimated amount of water needed for augmentation by Yellow Jacket is erroneous:
The Applicant's support for the amount of water needed to augment wells within Yellow Jacket appears flawed. The Wheeler Report relies on the Yellow Jacket Water Conservancy District Water Storage Feasibility Study (Applegate 2016), which found that 4,200 AF per year of consumptive use water would be required to augment wells if a water rights call from the Taylor Draw Power Conduit was implemented. This amount is based on estimated depletions from 83 permitted wells and 574 decreed wells that could be impacted from a call from the Taylor Draw Power Conduit. There are several problems with the assumptions of this study.

First, the Applegate 2016 report states that, "If a call is made by this water right, all well users with a priority junior to the power plant would need to either shut down their pumps or provide a legal augmentation source to continue diversion." This statement is incorrect due to the lack of rules in the Yampa-White basin regulating the use of existing decreed or permitted wells. The potential need to augment non-exempt wells could occur in the future, but not until such time as the White River Basin is designated over-appropriated and there are rules governing the administration of groundwater within the basin (this is directed by the decision in *Fellhauer v. People* (1968)).

[2] The Wheeler Report also discusses the needs for augmentation within Yellow Jacket in the event of a compact call. This scenario is discussed in Opinion 3.

Second, the Applegate (2016) report states that there are 574 decreed wells within the Yellow Jacket boundaries that could potentially be impacted by a call from the Taylor Draw Power Conduit. Through running a query of the Division of Water Resources database, the Engineers found that there are not 574 decreed wells in all of Rio Blanco County, let alone only within Yellow Jacket. Further, the Appelgate (2016) report gave no consideration to how many of these wells are exempt from administration. According to DWR records, there are actually only 327 decreed wells, with either or both conditional and absolute water rights, within the entire White River Basin. Of the water rights decreed to these wells, 87 are senior to the Taylor Draw Power Conduit 1966 water right, many of these are presumed to be residential wells exempt from administration, and it is possible that some of the wells with only conditional water rights will never be constructed. Based on Yellow Jacket's Response to the Division Engineer's Additional Written Report - Exhibit B in Case No. 19CW3017, the 574 figure provided by Applegate includes springs; however, DWR records show there are 2,074 water rights decreed to springs within the entire White River Basin, of which 595 are senior to the Taylor Draw Power Conduit 1966 water right. This might lead one to believe that there is even a greater demand for augmentation water; however the majority of these springs are so small (approximately 1,780 of them are decreed for less than or equal to 0.033 cfs), and administration of these water rights would likely be considered futile during a call due to their location in relation to a live stream and whether the small quantity of water could make it to the stream (see 37-92-502(2)(a), C.R.S.). In Yellow Jacket's response to the Division Engineer's Additional Written Report in Case No. 19CW3017, its engineer concurs that the 4,200 AF of augmentation need is an overestimate and now suggests 2,850 AF due to these facts, which were pointed out to Yellow Jacket by the Division Engineer. Though Yellow Jacket's demand number has been reduced, the Engineers have not seen evidence to support the new estimate. Furthermore, according to the Applegate (2016) report, there are 83 permitted wells within Yellow Jacket. The basis for this number was not provided and it is unclear whether this number represents non-exempt wells, exempt wells or the total of the two.

e) The seniority of the Town of Meeker's portfolio of water rights was not fully described:
The Applicant claims that the Town of Meeker wells could be augmented from Wolf Creek Reservoir because the town's water rights are junior to the 1922 Colorado River Compact. The Town of Meeker's most senior water right has an appropriation date of May 10, 1904 and is decreed for 3.42 cfs. The Town of Meeker has a portfolio of water rights including one water right that is "pre-compact" as just mentioned, two water rights that are senior to the Taylor Draw Reservoir Power Conduit totalling 7.0 cfs, and several other more junior rights.

f) Other augmentation sources within the basin and specifically within Yellow Jacket have been misrepresented:
The Applicant claims that there is no current source of water storage to offset a water rights call within the upper part of the White River Basin, or within Yellow Jacket. Though this is true that there currently is no source, Yellow Jacket filed a water right application in Case No. 19CW3017 to move one of its water rights (Sawmill Mountain Reservoir) to Lake Avery as well as add the use of augmentation to the decreed uses. Yellow Jacket also just recently filed a change of water right application with the Court in Case No. 20CW3031, requesting to move its Ripple Creek Reservoir water right to a new site (Kellogg Gulch Reservoir) and to add the use of augmentation. Yellow Jacket is taking steps independent of the Applicant to assure its constituents can be adequately protected in the event of administration.

Suggested modification to decree terms

The Engineers find the Proposed Decree unclear whether the Applicant requests the Court to award augmentation use to replace depletions associated with water use outside the District's boundaries. Specifically, the Proposed Decree awards "augmentation (for use in a future augmentation plan for water users *within the District*, including the replacement of depletions that are out of priority due to any Colorado River Compact Curtailment)" (emphasis added). Based on the language in the Proposed Decree, the Engineer's interpret the intended augmentation use to occur only within the District's boundaries. However, the Proposed Decree also provides that the uses claimed are "all within the District Boundaries as they are now or may be expanded, or leases or exchanges with other political subdivisions of the state pursuant to C.R.S. 37-83-106." For administrative clarity, the Engineers request that Paragraph 12 of the Proposed Decree be modified to be clear that the clause related to leases or exchanges does not apply to augmentation use.

Any claimed volume related to augmentation use outside the District's boundaries should be deducted from the total conditional water right claim.

5. Applicant has failed to show a need for augmentation use for replacement of depletions associated with water use inside the District's boundaries.

Basis of Opinion

a) Other than the particular situation of water administration related to the Colorado River Compact, the District has not provided any specific plan and intent to provide augmentation water to users within the District's boundaries. The Wheeler Report (Section 2.6) describes a scenario related to a Taylor Draw Power call, rather than Colorado River Compact administration, but this section only describes the needs of water users within the Yellow Jacket Water Conservancy District, which is described in Opinion 4 above. Therefore, the use of augmentation is speculative as evidence has not been provided to support the need for this purpose.

Suggested modification to decree terms

The use of augmentation within the District's boundaries should not be included in the Final Decree, and any claimed volume related to this use should be deducted from the total conditional water right claim.

6. The amount of water the District claims as a future need for water for municipal use for the Town of Rangely is overestimated.

Basis of Opinion

a) Misrepresentation of the Town of Rangely's future water demand estimate:
The Wheeler Report references Appendix D of the White River Storage Feasibility Study Final Report (Wheeler 2015) as the basis for the Wolf Creek Reservoir municipal water demand estimate. In Appendix D, Harvey Economics estimated the projected total water demands for the Town of Rangely in the year 2065 to be 1,578 AF annually, and 3,156 AF for two years of demand (See Appendix D Exhibit 3.1-1, copied below). The Wheeler Report, Table 15, incorrectly shows the two-year demand of 3,150 AF as the Town of Rangely's annual demand. The Wheeler Report then triples the two-year demand to show that 9,450 AF is the necessary municipal need for three-year drought storage, when that figure actually represents 6 years of Rangely's future water demands.

Exhibit 3.1-1 provides information on Rangely's current and future water demands and the estimated need for additional water storage space. Estimated storage needs are based on one to two years of M&I demand held in storage.

Exhibit 3.1-1.
Current and Projected Water Demands and Water Storage Needs for the Town of Rangely

	2010	Near Term (through 2030)	Intermediate Term (through 2045)	Long Term (through 2065)
Average Daily Water Demand, gallons	700,000	943,183	1,104,597	1,408,582
Average Daily Water Demand, AF	2.15	2.9	3.4	4.3
Average Annual Demand, AF	784	1,057	1,237	1,578
Two Years of Demand, AF	1,568	2,113	2,475	3,156
Estimated Storage Need, AF		1,050 - 2,100	1,250 - 2,500	1,600 - 3,200

Source: Wheeler (2015), Appendix D

b) Lack of consideration of Rangely's existing supplies:
The Applicant's Engineering Report does not consider supplies provided by Rangely's existing water rights. As shown in White River Storage Feasibility Study Final Report (Wheeler 2015), Rangely's annual needs in 2065 are projected to be 1,578 AF per year. The Town currently provides 1,134 AF per year in dry years from its current supplies (Rangely 2020). Although the projected demand is an increase of 444 acre-feet (AF) per year from what is currently being supplied, the Applicant has not shown that Rangely's existing water rights cannot supply this need.

Rangely's current water rights are likely to be both physically and administratively available for diversion in the foreseeable future. The Town's water rights have a 1958 priority date. The Town's diversion is located downstream of the Taylor Draw Power call and therefore would not be curtailed if a call were placed by that structure. A call has never been placed on the White River downstream of Rangely. As shown in Exhibit A-2, there has always been a physical amount of flow in excess of 6 cfs in the White River to supply the capacity of Rangely's water treatment plant.

c) Likely confusion in the Town of Rangely's letter to the District:
The Town of Rangely provided a letter to the District dated April 23, 2020 (Rangely 2020) expressing an interest in water from Wolf Creek Reservoir. The letter provides that in dry years, the town's water usage is 1,134 AF (1,031 AF in normal years plus an additional 10% during dry years). Rangely's future demand is then described as the difference between the future annual demand of 3,150 AF and its existing dry year usage (1,134 AF), or 2,016 AF. However, as previously explained in this report, the 3,150 AF figure is actually based on a two-year demand. It thus appears that Rangely confused the two-year demand in the same way as in the Wheeler Report.

d) Rangely's need estimates are at least partially based on uncertain Colorado River administration:
The Rangely (2020) letter focuses on a demand for water from Wolf Creek Reservoir in the event of Colorado River Compact curtailment, in which case the town's water rights may be subject to administration since they are junior to the compact. As described in opinion 3 of this report, the impact of Colorado River administration is uncertain. Rangely's letter states that it would need to supply all of its water directly from Wolf Creek Reservoir in the amount of 3,150 AF (two years of demand). Rangely does not appear to consider that the Town's draft on the Colorado River is the net amount of water consumed (diversions minus return flows). Rangely's net effect on the Colorado River is likely around 50 percent of its demand[3], or approximately 583 AF per year. If there is a mechanism to "augment" diversions under Colorado River Compact administration in the future, Rangely's augmentation need is likely about half of Rangely's total demand.

e) It is unclear whether Rangely's water needs are related to the town's method of diversion:
It is unclear if the Applicant has a specific plan to meet the needs of the Town of Rangely. Appendix D of the White River Storage Feasibility Study Final Report (Wheeler 2015) describes that, "Although the town's legal water rights might be sufficient to meet demands, there are times when there is not physically enough water in the river to support flows to the town's intake."

The Rangely (2020) letter expresses concern about being able to receive a fair quality water source when flows in the White River drop below 100 cfs. The Town's water treatment plant has the capacity for 4 million gallons per day, or about 6 cfs. Though the flows in the White River have dropped below 100 cfs during certain periods from July through early September, there have always been well over 6 cfs in the White River (as shown in Exhibit A-2).

Given this, it is unclear whether the contracted water from Wolf Creek Reservoir will be used directly by Rangely at the amount needed to supply the water treatment plant (perhaps through a pipeline), or if the plan is to ensure White River flows at about 100 cfs. If the Town of Rangely intends to use its contracted water for releases into the White River to maintain flows at above 100 cfs but then only divert 6 cfs or less for municipal use, the Division Engineer may not be able to protect such releases from diversion by others without a clear beneficial use for the full 100 cfs.

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[3] The Colorado Water Plan (CWCB 2016) states that "Municipal use is split among indoor use, outdoor use, and water loss in distribution systems. Statewide, Colorado municipalities on average use 53 percent of their diversions indoors and 39 percent outdoors. The remaining 8 percent is not metered, and goes to fire protection and maintenance or is lost due to leaks in distribution systems". The Town of Rangely's Water Treatment Plant Evaluation (SGM 2010) found that 11% of Rangely's treated water is lost, that 39% of the treated water is accounted for at the wastewater treatment plant (the percentage used indoors), leaving 50% for outdoor use.
The Draft Water Plan (CWCB 2015) included additional statistics, "Additional focus on outdoor conservation is needed because indoor water use consumes approximately 5 percent of the water used while outdoor water use consumes 70 to 85 percent." Using this information, Rangely's water consumption could be estimated as follows:
Consumed outdoor: 50% * 1134 * 77% = 437 AF
Consumed indoor: 39% * 1134 * 5% = 22.1 AF
System losses, assume 100% consumed: 11% * 1134 * 100% = 125 AF
Total consumption = 583 AF

f) Rangely's request for water is less than that claimed by the Applicant:
Although the Wheeler Report states there is a municipal need of up to 9,450 AF, the Rangely letter states that the town is "committed to contract for at least 2,000 AF of storage water from Wolf Creek Reservoir for municipal use, based upon a reasonable contract fee, after the reservoir is built" and further provides that if modeling reveals that an additional amount of water is needed for carryover, the commitment could be more.

Suggested modification to decree terms
The volume of water claimed for municipal uses should be based on the amount Rangely has both shown a need for and committed to purchase from the District. The total conditional water right storage volume should be reduced to reflect this lesser volume.

7. Applicant has not shown a need for a specific amount of water to meet future irrigation demands.

Basis of Opinion

a) In the Report of the Division Engineer in Case No. 14CW3043 dated March 17, 2015, the Division Engineer questioned the Applicant's claim for irrigation use. As provided in Appendix D of the White River Storage Feasibility Study Final Report (Wheeler 2015), the irrigated acres in the White River Basin are projected to decrease. Further, in Harvey Economics' discussion with Dan Eddy with the Rio Blanco Water Conservancy District and Alden Vanden Brink with the Town of Rangely, neither person anticipated any increase in agricultural water needs and both suggested that agricultural users would be unlikely users of water from the storage project. (See Appendix D, Wheeler 2015).

b) In her Additional Written Report filed in this case on October 4, 2018, the Division Engineer again expressed concerns about the need for irrigation and maintained that irrigation should not be awarded as a use for the claimed water right. In the Applicant's response to this report, the Applicant agreed to remove the irrigation use as a claimed use (see Response to Additional Comments of the Division Engineer dated May 16, 2019).

c) Per the Proposed Decree, the Applicant once again is requesting the Court award irrigation use. The Engineers continue to contend that there is no evidence to suggest that there is a future need for water for this purpose. In the Colorado Water Plan 2019 Technical Update, the White River irrigated acreage is projected to decrease in every scenario (See Table 4.10.5 below). Further, the Water Plan Technical Update provides that the majority of irrigated acreage in the White River Basin, approximately 60% of the 28,100 acres, is concentrated along the mainstem of the river near Meeker with the remaining irrigated lands along tributaries (such as Piceance Creek) and the lower mainstem. This supports the fact that a storage project situated very low in the basin cannot serve the majority of the irrigated lands.

Table 4.10.5 Summary of Agricultural Diversion Demand Results in the Yampa and White Basins

		Current	Business as Usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
Yampa	Irrigated Acreage (acres)	78,900	78,400	78,400	82,400	92,300	92,300
	Average IWR (AFY)	150,600	150,000	150,000	188,000	209,000	232,000
	Diversion Demand						
	Average Year (AFY)	402,000	403,000	403,000	518,000	456,000	679,000
	Wet Yr. Change	-4%	-3%	-3%	0%	1%	2%
	Dry Yr Change	0%	0%	0%	-1%	-2%	-3%
White	Irrigated Acreage (acres)	28,100	27,700	28,000	27,700	27,700	27,700
	Average IWR (AFY)	46,400	45,800	46,400	55,700	55,900	62,100
	Diversion Demand						
	Average Year (AFY)	243,000	239,000	243,000	293,000	180,000	324,000
	Wet Yr. Change	3%	3%	3%	4%	3%	6%
	Dry Yr Change	0%	0%	0%	-5%	-4%	-6%

Average agricultural diversion demand was calculated using the average hydrologic years (i.e., years classified as neither wet or dry) from 1950-2013

Source: CWCB (2019), emphasis added

d) The Endangered Fish Recovery Program has not included any volume of water for new depletions related to irrigation in Colorado under its streamlined Section 7 consultation planning. Although the Wheeler Report contends that the Possible White River Future Depletions Scenario includes an allowance for a net new use for irrigation of 2,800 acres, the Recovery Program does not include any estimated new water consumption volume to be covered (Recovery Program 2020a). The draft Possible White River Future Depletion Scenario describes that there will most likely not be an increase in irrigated lands but rather a reduction: "While a substantial net expansion of agricultural lands in the White River Basin appears unlikely in the foreseeable future, some allowance for possible net increases in irrigated agricultural use may be prudent for this exercise." (Recovery Program 2020a)

e) The Applicant has not described any specific plan to provide irrigation water to future irrigated lands, nor identified where those lands would be located.

Suggested modification to decree terms
The use of irrigation should not be included in the Final Decree, and any claimed volume related to this use should be deducted from the total conditional water right claim.

8. It is not clear if the District is revising its plan and water right claim for recreational use from 15,000 acre-feet to 46,000 acre-feet, and if so, the need for this amount of water is not well substantiated.

Basis of Opinion

a) Potential change in the claimed amount of water needed for recreation:
The Applicant's Expert Reports reference interviews conducted by Harvey Economics as part of the White River Storage Feasibility Study Phase 2A Report (Wheeler 2018) to determine the minimum volume of water necessary to "attract a substantial number of visitors and support a number of recreational opportunities" (quoted from Harvey Report). The minimum surface area suggested as necessary to accomplish that purpose was stated as between 700 and 1,500 acres and the suggested reservoir depth was stated as 50 feet in some areas of the lake. As provided in Table 3-4 of the Phase 2A report, a storage volume of 15,000 AF for the off-channel site would result in a surface area of 700 acres, and a storage volume of 24,000 AF for the mainstem site would result in a surface area of 946 acres (based on a depth of 50 feet). These volumes were repeated in Table 15 - Summary of Water Needs, included in the Wheeler Report.

The Harvey Report opines that a Wolf Creek Reservoir with a minimum recreational pool of 15,000 AF would fill a recreational need for northwestern Colorado, attracting visitors from that region and beyond. The report furthermore compares Wolf Creek Reservoir to Elkhead Creek Reservoir and states that Wolf Creek Reservoir would capture more users than Elkhead Creek Reservoir because Wolf Creek Reservoir would be closer to areas of larger population, though the report does not provide which nearby communities have a larger population. The report concludes that a 20,000 AF pool size would result in 210,000 visitor days within ten years of completion of Wolf Creek Reservoir.

The Supplemental Report appears to change the amounts claimed for recreational use. It states, "We conclude that recreational benefits will increase from the minimum size of 700 surface acres up to 1,500 surface acres, the latter corresponding to an operational recreational pool of 46,000 AF." Although the Supplemental Report describes visitation and reservoir surface area for different locations, the Applicant has not clearly shown that additional visitation equates to need for a larger pool of water solely for recreation purposes.

b) Inconsistent linkage between surface area and visitation:
The Supplemental Report links visitation directly to reservoir surface area, but the data provided does not consistently show this link, and the analysis does not take into consideration other factors that may play a role in the number of visitations. For example, Harvey Economics did not evaluate the location of the reservoir in relation to nearby communities, the population of these communities, or other attractions and amenities that may exist nearby.

Harvey Economics claims that within 10 years of the completion of Wolf Creek Reservoir, the reservoir could see visitation numbers of between 350,000 and 400,000. These numbers compare to that of Steamboat Lake State Park, which is located near the tourism center of Steamboat Springs and provides a different mountain lake experience.

As provided in the Supplemental Report, the highest visitation for the reservoirs compared occurs at Ridgeway State Park which has a surface area of 940 acres. Steamboat Lake on the other hand, with a larger surface area, has less visitation. Additionally, Stagecoach State Park with a surface area of 765 acres sees more visitation than Elkhead Creek Reservoir with a larger surface area. Table 3 below shows the data provided in the Supplemental Report comparing the surface area of certain reservoirs to the annual visitation sorted by annual visitation, and Table 4 below shows data from other reservoirs within the State that represents another good example that surface area alone does not dictate annual visitation.

Table 3. Reservoir Visitation Per Supplemental Report

Location	Surface Area (acres)	Annual Visitation
Elkhead Reservoir State Park	900	152,931
Stagecoach State Park	765	179,403
Vega State Park	900	209,176
Steamboat Lake State Park	1053	408,588
Ridgeway State Park	940	412,058

Table 4. Reservoir Visitations (calendar year 2019) at Other Reservoirs Around the State

Location	Surface Area (acres)	Annual Visitation
John Martin Reservoir State Park	11,658*	141,128
Cherry Creek State Park	880	1,554,631
Chatfield State Park	1,500	1,722,901
Lake Pueblo State Park	4,600	2,467,245

*acreage when the recreation and conservation pool are full
Data source: Colorado Parks and Wildlife (2020)

Suggested modification to decree terms

With the uncertainty of the water needed for recreation (15,000 AF or 46,000 AF), in order to avoid the use of water stored for in-reservoir recreational use to supply future contracts that the District may obtain for other types of beneficial use that require releases of water that at this time appear speculative, the decree should include operational terms and conditions that prohibit the release of water from the recreation pool. After the initial fill of the recreation pool, diversions for recreation use should be limited to replacing in-reservoir recreation water that has been lost to evaporation. Such diversions would occur after the start of a new fill season or as a refill under free river conditions with the permission of the Division Engineer.

9. Applicant has failed to substantiate a need for the maintenance and recovery of federally listed threatened and endangered species.

Basis of Opinion

a) The described beneficial use is to supply the needs of the Recovery Program, which has not committed to purchase any water from the reservoir:
The Applicant's Expert Reports discuss The Upper Colorado River Endangered Fish Recovery Program ("Recovery Program") as a basis of support for the claim for beneficial use for maintenance and recovery of federally listed threatened and endangered species. The White River from below Kenney Reservoir to the Colorado/Utah border provides habitat for two federally listed endangered fish species: the Colorado Pikeminnow and the Razorback Sucker. The Recovery Program is currently working to develop a Programmatic Biological Opinion (PBO) and Management Plan for the endangered fish in the White River Basin. The Applicant's Expert Reports claim that releases from Wolf Creek Reservoir could be used to support the goals of the Recovery Program and flow targets that will be finalized in the PBO.

However, water to support the needs of the Recovery Program is not for the needs of the Applicant. Rather, the Applicant describes acting as a water broker to support eventual water needs of the Recovery Program to achieve flow targets on the White River in Utah. The Applicant has not obtained a contract with the Recovery Program nor has the Applicant shown that it is an agent for the Recovery Program. Rather, a letter provided from the Recovery Program in May 2019 states, "Therefore, at this time the Recovery Program does not know whether, or how much, allocated storage in [Wolf Creek Reservoir] or other White River basin projects may be needed in order to offset depletion effects to the endangered species and to assist in the recovery of endangered fish."

b) The Applicant has not described any plan to supply water for its own threatened and endangered species needs:
The Supplemental Report describes how the Wolf Creek Reservoir and Dam will result in a federal nexus under the National Environmental Policy Act (NEPA), likely necessitating an Environmental Impact Statement (EIS). Since filling the reservoir would deplete the White River, which is habitat for two endangered fish species, a consultation with the US Fish and Wildlife Service (Section 7 Consultation) would be triggered under NEPA. Although the proposed reservoir would have its independent and individual impact on the White River, which can be distinguished from the impacts of other projects in the White River Basin, the Applicant's Expert Reports and Supplemental Report only detail claims for this beneficial use based on what water may be needed to support a White River Management Plan, a plan developed by the Recovery Program to benefit a range of future projects. The Applicant does not propose any volume or potential plan to support the Applicant's own needs for water for endangered species based on impacts from the Wolf Creek Reservoir on the White River.

c) The Applicant's comparison to other reservoirs that store water for releases for endangered fish is flawed:
The Supplemental Report's comparison to other Colorado reservoirs that release water for threatened and endangered species appears flawed. The analysis shows the amount of water released from storage for endangered fish as a percentage of depletions covered by existing Programmatic Biological Opinions. Exhibit 4-1 of the Supplemental Report notes that on the Colorado River (15-mile reach), 66,000 AF is released from storage for 120,000 AF of new covered depletions, an amount equal to 55% of the covered depletions. It is not clear how the Applicant is determining this amount of water released from storage because the Engineers are unaware of such a dedicated amount of water in storage for this use. It seems likely that the Applicant is confusing the Historic User Pool ("HUP") in Green Mountain Reservoir with water dedicated to endangered species. The HUP is 66,000 AF that may be released from the power pool to allow continued diversions of pre-1977 irrigation and domestic uses that would otherwise be curtailed due to a senior call (Reclamation 1983). Some of the HUP may be released for endangered fish in abundant supply years. Releases from the HUP to the 15-mile reach may occur when the entirety of the 66,000 AF is not needed to protect the pre-1977 diversions.

Exhibit 4-1.
Endangered Fish Storage in Other Upper Colorado River Basin PBOs

River Basin	New Depletions Covered by PBO (acre-feet)	Endangered Fish Water Released from Storage (acre-feet/year)	Percentage of Annual Storage to New Depletions
Colorado River (15-mile Reach)	120,000	66,000	55%
Gunnison	37,900	17,200	45%
Yampa	53,500	7,000	13%

Source: Supplemental Report

Therefore, the suggestion that 55% of the future depletions may be an appropriate estimate for the amount of water dedicated to threatened and endangered species in Wolf Creek Reservoir is unfounded.

If the District's analysis summarized in Exhibit 4-1 is meant to indicate that storage in the range of 13 to 55% of the net depletions eligible for streamlined Section 7 consultation by the PBO is appropriate, this would indicate a storage volume ranging from 3,354 to 14,190 acre-feet is needed, based on the Recovery Program's Possible White River Future Depletions Scenario of 25,800 AF (Recovery Program 2020a). This is well below the District's claimed annual amount of 60,555 AF.

d) The Applicant's estimated need considering the Recovery Program's depletions is not supported:
The Wheeler Report summarizes an evaluation of the total water needed to meet interim endangered fish target flow recommendations at the White River near Watson gage (Watson gage) in Utah. This need for water is based on future water development projections in the White River Basin in both Colorado and Utah. The Applicant's "Scenario 1" analysis uses the Recovery Program's current draft future depletions eligible for streamlined Section 7 consultation of 25,800 AF (Recovery Program 2020a), representing net new uses projected in both Colorado and Utah. The net new use depletions of 25,800 AF are subtracted from historical flows at the Watson gage. The analysis then assumes that the entirety of the volume necessary to meet future flow targets at the Watson gage is obtained through releases from Wolf Creek Reservoir. The flow targets are those described in the Miller Report, which in some conditions exceed the Recovery Program's interim flow recommendations.[4] This amount of water to meet flow targets for one year is 23,381 AF (Table 3 of Wheeler Report), 92%[5] of the depletions currently estimated to be included in a streamlined Section 7 consultation by the Recovery Program.

Several aspects of this analysis are unrealistic. The Recovery Program aims to improve conditions for endangered species using a range of approaches, of which flow is one. The six other elements described by the Recovery Program are: habitat restoration, nonnative fish control, information and education, propagation and stocking, research and monitoring, and program management (Recovery Program 2020b). The Recovery Program is unlikely to contract for the entire 23,381 AF of water needed to achieve flow targets 100 percent of the time in the future. Also, there is no certainty that the Recovery Program would rely only on water stored in Wolf Creek Reservoir to improve flow conditions.

[4] The Miller Report agrees with some of the Recovery Program's seasonal interim flow recommendations, but states that "maintaining summer base flows at a minimum of 150 cfs is more likely to assist in recovery of the endangered species than the lowest flows specified [by the Recovery Program] in dry years." As shown in the Miller Report's Table 5, the Recovery Program recommends a minimum flow of 30 cfs, a minimum flow of 70 cfs to be met or exceeded 90% of days, and a minimum flow of 150 cfs to be met or exceeded 50% of days in dry hydrologic years, as well as some allowance for less than 150 cfs flows in moderately dry and average years.

[5] This percentage: 23,381 / 25,800 = 92%, is well in excess of the percentages summarized in Exhibit 4-1 of the Supplemental Report, which range from 13 to 55% for other Upper Colorado River PBOs.

e) The Applicant's estimated need considering Harvey Economics' high energy depletions is not supported:
The Wheeler Report includes a second flow target modeling scenario ("Scenario 2"), which followed a similar analysis, but included a greater amount of future depletions that would reduce flows at the Watson gage. The Wheeler Report relies on high energy demand estimates of 45,800 AF for the year 2065 and total future depletions within the White River Basin totaling 64,100 AF[6]. Table 4 of the Wheeler Report shows 60,555 AF as the total annual volume needed to meet flow targets based on the Scenario 2 analysis, 94 percent of the depletions[7]. Table 15 of the Wheeler Report also shows a need for storage of 181,655 AF by tripling the 60,555 AF figure "for a 3-year drought." The Harvey Economics energy sector water need projections relied on in the Wheeler Report are also higher than those considered in the 2019 Technical Update to the Colorado Water Plan, where the most aggressive "hot growth" forecast projects 37,900 AF of water for the energy sector in the White River Basin.

As stated above, the District lacks a contract with the Recovery Program or from water users in the energy sector to store water. It is unclear under what contract or mechanism the District would be releasing 60,555 AF of water to replace future depletions to protect threatened and endangered species potentially impacted by a future oil shale boom.

Suggested modification to decree terms
Paragraph 12 of the Proposed Decree should be modified to remove the use of maintenance and recovery of federally listed threatened and endangered species, and any claimed volume related to this use should be deducted from the total conditional water right claim.

10. Applicant has not provided a plan for commercial and domestic uses of water from the proposed reservoir.

Basis of Opinion
Commercial and domestic uses as part of municipal use for the Town of Rangely is described in paragraph 12 of the Proposed Decree. Commercial and domestic uses are also listed in paragraph 12 as individual uses, independent of municipal use. No plan for commercial or domestic use as independent uses has been provided by the Applicant. Without a specific plan and intent in place at the time of appropriation, these uses are speculative and should not be included in a final decree.

Suggested modification to decree terms
Paragraph 12 of the Proposed Decree should be modified to remove the uses commercial and domestic, and any claimed volume related to this use should be deducted from the total conditional water right claim.

11. Applicant's claimed use of hydroelectric power generation should be limited to the specific plan and intent described in the Wheeler Report.

Basis of Opinion

[6] The Wheeler Report lists the future energy depletions for Scenario 2, but not the total depletions modeled. We estimated the total depletions by starting with the Scenario 1 total of 25,800 AF, subtracting the Scenario 1 energy depletions of 7,500 AF, and then adding Harvey's 45,800 AF.
[7] 60,655 / 64,100 = 94%

Section 2.7 of the Wheeler Report describes that hydropower would be a use in conjunction with other releases. We understand this as an intent to generate power when water is released from the reservoir for other decreed uses, but that water will not be stored and released for the sole purpose of power generation. A final decree in this case should describe that the beneficial use of hydropower is to be exercised only in conjunction with releases for other decreed beneficial uses.

Suggested modification to decree terms
Paragraph 12 of the Proposed Decree should be modified to state the following: "hydroelectric power generation (exercised only in conjunction with releases for other decreed beneficial uses)."

In addition to the above opinions, the following are comments regarding errors, corrections, or administration of the Proposed Decree:

a) In order to ensure proper administration of the decree, the piscatorial and wildlife habitat uses listed in paragraph 12 of the Proposed Decree should be clarified to list "in-reservoir piscatorial and wildlife habitat uses." Such uses would not be expected to require additional storage or release of water beyond what is needed to support the other decreed beneficial uses.

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Court Documents (other than Case No. 14CW3043)

- Application filed with Water Court in Case No. 19CW30006
- Application filed with Water Court in Case No. 17CW3045
- Application filed with Water Court in Case No. 20CW3031
- Additional Written Report Based on Response to Report of the Division Engineer filed with the Water Court in Case No. 19CW3017