UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: Andy Rossi
Date: 06/24/20

Item: Reservoir Water Status

__X__ DIRECTION
__X__ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

The Morrison Creek Metropolitan Water & Sanitation District will be submitting a Site Approval amendment application to the Colorado Department of Public Health and Environment for improvements to its existing wastewater treatment system. In summary, the proposed project will involve installing a new wastewater treatment facility with upgraded treatment technology and removing the existing facility once the new project is operational. The existing facility is reaching the end of its design life and will be replaced with a technology that is capable of treating wastewater to a higher quality.

The new treatment facility will be designed to treat the same amount of hydraulic and organic loading as the current facility: 350,000 gallons per day of flow and 800 pounds per day of biological oxygen demand. The discharge to Stagecoach Reservoir will remain in the same location.

The Upper Yampa Water Conservancy District is being provided with a copy of the Site Application document per CDPHE requirements. We request that you review the application.

II. Summary and Alternatives:

NA

UPPER YAMPA WATER
CONSERVANCY DISTRICT

III. Staff Recommendation:

Direct UYWCD General Manager to sign notification documentation as requested.

IV. Legal Issues:

NA

V. Consistency with Board Goals and Policies:

2020 UYWCD Strategic Plan 2.2

Attachments:

Project Needs Assessment/Preliminary Engineering Report and Amended Site Application: Wastewater Treatment System Improvement Project June 2020.

AquaWorks DBO, Inc.
3252 Williams Street
Denver, Colorado 80205

(303) 477-5915
www.aquaworksdbo.com
info@aquaworksdbo.com

Mr. Andy Rossi
Interim General Manager
Upper Yampa Water Conservancy District
2220 Curve Plaza Ste. 201
PO Box 775529
Steamboat Springs, CO

June 24, 2020

Re: Morrison Creek WWTP – Project Needs Assessment & Site Application

Dear Mr. Rossi,

The Morrison Creek Metropolitan Water & Sanitation District will be submitting a Site Approval amendment application to the Colorado Department of Public Health and Environment for improvements to its existing wastewater treatment system. In summary, the proposed project will involve installing a new wastewater treatment facility with upgraded treatment technology and removing the existing facility once the new project is operational. The existing facility is reaching the end of its design life and will be replaced with a technology that is capable of treating wastewater to a higher quality.

The new treatment facility will be designed to treat the same amount of hydraulic and organic loading as the current facility: 350,000 gallons per day of flow and 800 pounds per day of biological oxygen demand. The discharge to Stagecoach Reservoir will remain in the same location.

The Upper Yampa Water Conservancy District is being provided with a copy of the Site Application document per CDPHE requirements. We request that you review the application. Comments, if any, can be directed to me and Mr. Brit Abney at brit.abney@state.co.us.

Sincerely,
AQUAWORKS DBO, INC.

Adam Sommers, P.E., AICP

Project Needs Assessment/Preliminary Engineering Report
And Amended Site Application
Wastewater Treatment System Improvement Project

June 2020

AquaWorks DBO, Inc.
3252 Williams Street
Denver, CO 80205
(303) 477-5915

Morrison Creek Metropolitan Water & Sanitation District

24490 Uncompahgre Road
Oak Creek, CO 80467

Unincorporated Routt County, Colorado
CDPES Permit CO-0022969

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ABBREVIATIONS

(Not all may be included in this report)

AWDBO	AquaWorks DBO, Inc.
BNR	biological nutrient reduction
BOD	biological oxygen demand
CBOD	carbonaceous biochemical oxygen demand
CDPHE	Colorado Department of Public Health and Environment
DMR	discharge monitoring report
EQR	equivalent residential
Ft	feet
GPD	gallons per day
GPM	gallons per minute
HMI	human machine interface
Hp horsepower	
I&I	inflow and infiltration
ICIS	Integrated Compliance Information System
KW	kilowatt
LS	lump sum
MBR	membrane bioreactor
MCL	maximum contaminate level
MLSS	mixed liquor suspended solids
MG	million gallons
MGD	million gallons per day
Mg/L	milligrams per liter
O&M	operation and maintenance
PEL	Preliminary Effluent Limits
PLC	programmable logic controller
POTW	Publicly Owned Treatment Works
PPD	pounds per day
RAS	return activated sludge
SBR	sequencing batch reactor
SCADA	supervisory control and data acquisition
SRF	State Revolving Fund
SRT	solids retention time
TSS	total suspended solids
WWTP	wastewater treatment plant
WAS	waste activated sludge

2. EXECUTIVE SUMMARY

The Morrison Creek Metropolitan Water & Sanitation District owns and operates a wastewater treatment plant in unincorporated Routt County, Colorado, near the Town of Oak Creek. The facility serves 390 homes plus 90 sewage vaults for a total of 480 EQR. The historic flow treated at the facility averages 52,000 GPD and double that during spring months. The existing facility is rated to treat 350,000 GPD of flow and 800 PPD of BOD.

The existing facility consist of a nearly 50-year-old extended aeration treatment plant. The plant can meet current discharge permit limits, but the equipment is reaching the end of its design life and the District is planning a modern, efficient replacement facility. A new facility, rated for the same hydraulic and organic loading, will be built on the same site as the existing facility. The existing facility will remain operational while the new plant is being constructed. The discharge location to Stagecoach Reservoir will remain unchanged.

The alternatives evaluated in this report include taking no action, optimizing the existing facility, interconnecting with another facility, and upgrading the existing system with a new treatment technology. The new treatment processes evaluated include a membrane bioreactor and sequencing batch reactor.

Figure 1: WWTP Exterior

The sequencing batch reactor was selected as the preferred alternative because of its cost, ability to meet anticipated discharge permit limits, simplicity to operate and low energy requirements needed to qualify for the Green Project Reserve program. In addition, there are no consumable filters to replace.

The conceptual engineer's opinion of probable costs for this project is $8,000,000. Improvements can be completed by the end of 2021 if the District follows the implementation schedule and funding is obtained.

3. SYSTEM STRUCTURE AND OPERATIONS

3.1 LEGAL OWNERSHIP OF SYSTEM

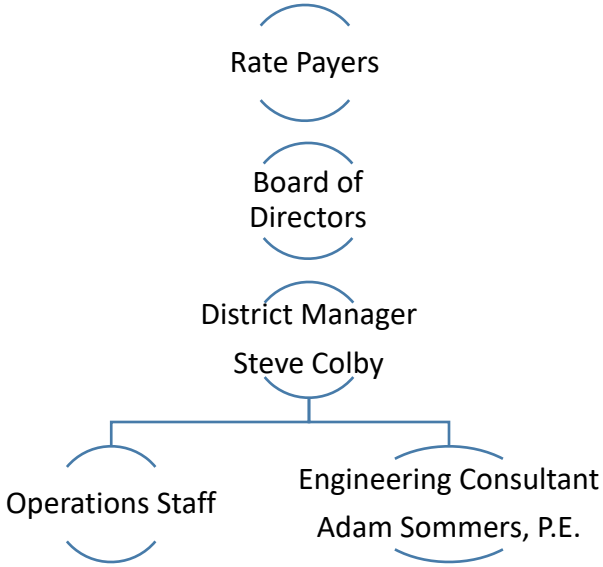
The system is a metropolitan District governed by a board of directors. The contact information is as follows:

Tony Borean, Board President
Morrison Creek Metropolitan Water and Sanitation District
24490 Uncompahgre Road
Oak Creek, CO 80467
(970) 736-8250

3.2 ORGANIZATIONAL CHART

The District's organizational chart is as follows:

Figure 2: Organizational Chart



3.3 CURRENT OPERATOR IN RESPONSIBLE CHARGE

The District's manager, Stephen Colby is the current operator in responsible charge. Mr. Colby is supported by two assistant operators.

3.4 OPERATOR CERTIFICATION

The facility has its own operator in responsible charge to manage, operate, and maintain the facility. Stephen Colby maintains wastewater treatment Class A Certificate #1364 (Expires 4/26/2022) and Class 2 Collections Certificate 1187 (Expires 11/0/1/2021). A Class A Certificate is the highest wastewater treatment certification available in Colorado and therefore adequate to operate any proposed treatment technology.

4. PROJECT PURPOSE AND NEED

4.1 COMPLIANCE

A search of the EPA's ICIS database was conducted for this document. No open violations exist related to the performance of the facility.

Violations were issued for non-reporting events between November 2000 and November 2019. The non-reporting issues have been resolved.

The facility has not received any compliance notifications from the Division and a need to return to compliance is not driving this project. Rather, the project is necessary to replace the system and equipment that are almost 50 years old which have reached the end of their design life. A modern system that is more efficient and reliable will help the District to operate safety into the future.

4.2 EXISTING FACILITY LIMITATIONS

The current facility does not have any existing limitations that adversely impact the day-to-day operations or compliance of the facility. The facility's operations are basic, with little process control needed from the operations staff. The project is being driven by the current facility's age and condition rather than its ability to maintain compliance.

4.3 OPERATIONS AND MAINTENANCE ISSUES

Besides the challenge of maintaining a facility with aged equipment, there are no operational or maintenance issues to note. The equipment is antiquated, and it can be a challenge to find replacement parts. Furthermore, wastewater equipment and treatment process has evolved since this facility was constructed. As such, the District has an opportunity to replace outdated equipment and take advantage of the latest technology. The benefits of an updated system include reducing the energy costs, increasing the flexibility of the system and increasing the removal rates of BOD, TSS, phosphorous, ammonia, and other constituents.

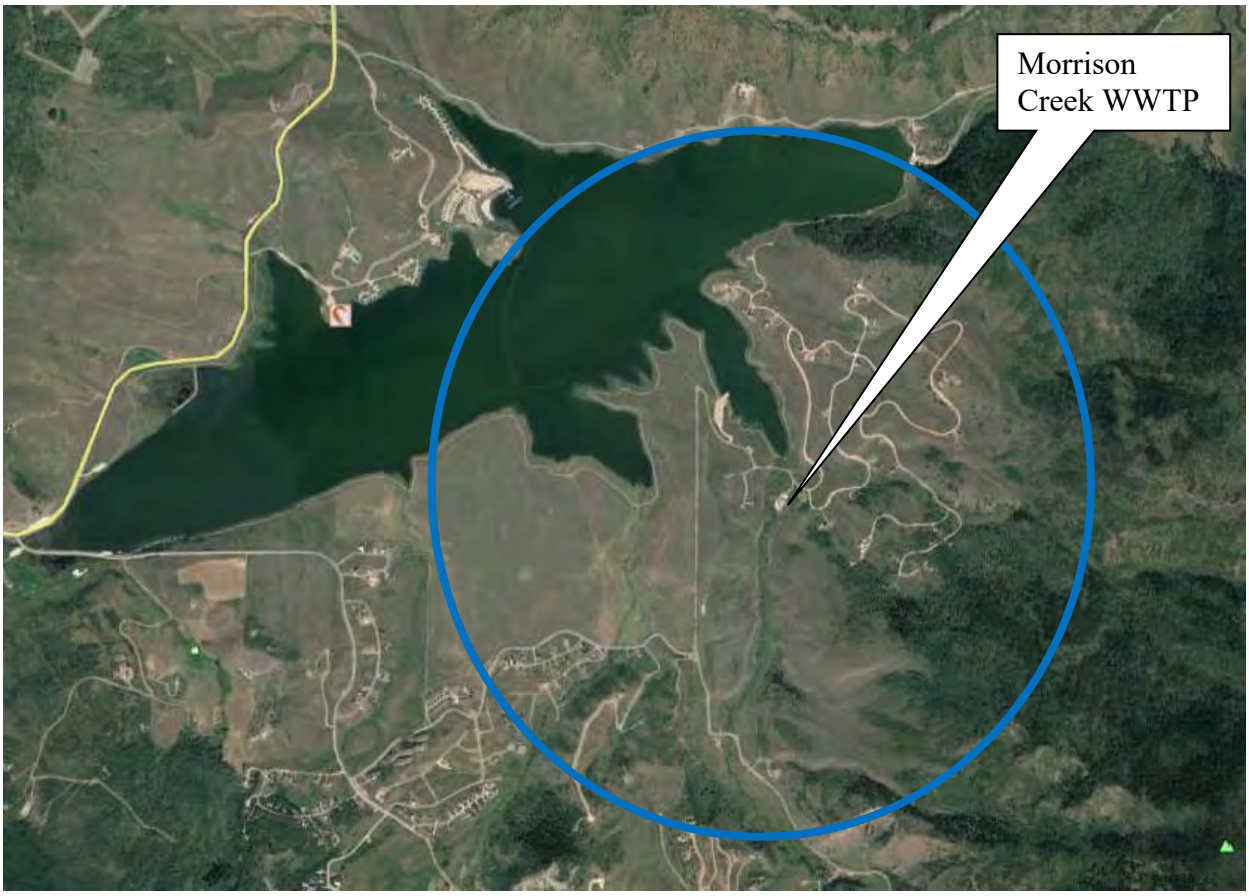
Figure 3: Photo Existing Facility

5. EXISTING FACILITIES ANALYSIS

5.1 AREA DISCHARGE PERMITS

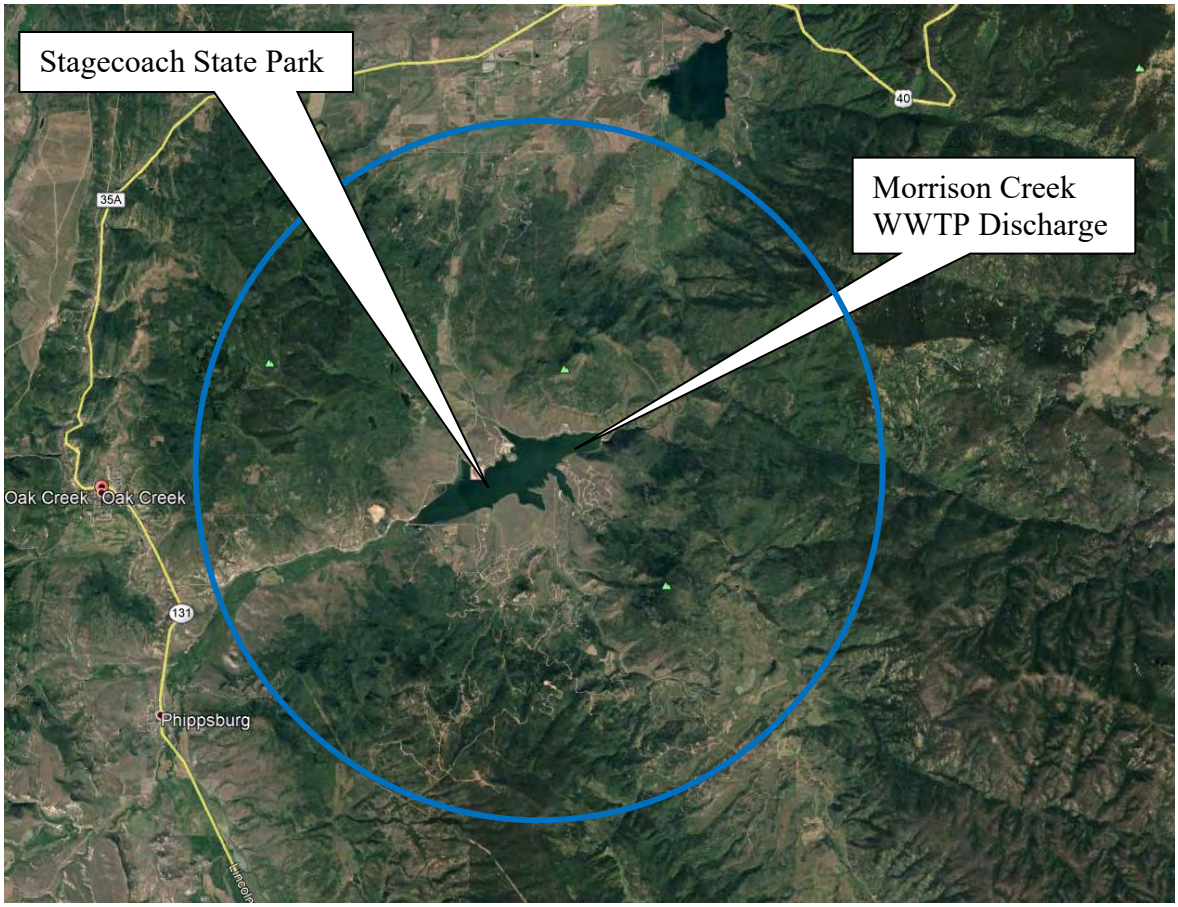
The 1-mile and 5-mile-radius map are included below showing WWTP discharge permits within a 5-mile radius of the project.

Figure 4: 1-Mile Radius Map



The only discharges found on the EPA's Envirofacts website within the 1-mile and 5-mile radiuses were Morrison Creek's WWTP and the Stagecoach State Park. The Stagecoach State Park discharge permit is expired and the District believes this site has been converted to a zero discarge facility.

Figure 5: 5-Mile Radius Map



5.2 SERVICE AREA

The Morrison Creek Water and Sanitation District covers approximately 11,500 acres in Oak Creek, Colorado. The District provides potable water and wastewater treatment services to approximately 390 single-family units and sewer services from 90 homes on individual wells and sewage vaults. There are no commercial or industrial connections. The District maintains 75,000 feet of sewer line, two sewage lift stations, and a wastewater treatment plant.

Please see the District's service area map in the Appendix for additional detail.

5.3 FACILITIES LAYOUT AND DESCRIPTION

The WWTP site is located at 24490 Uncompaghre Road, in unincorporated Routt County, Colorado. The nearest incorporated town, Oak Creek, is approximately 6 miles to the southwest. Access to the site is obtained from a dirt driveway off Uncompaghre Road. The existing WWTP is in the Southwest ¼ of the Southwest ¼ and Southeast ¼ of the Southwest ¼ of Section 32, Township 4 North, Range 84 West, of the 6th Principal Meridian (42.271111° N, 106.839489° W).

The proposed WWTP upgrades are to be located at the same site. Similarly, the discharge location will not change with this project.

Wastewater flows from the service area's collection system to the wastewater facility via a 24" gravity sewer line. Once treated, effluent is discharged by gravity in an 8" PVC effluent line which extends about 450 feet into Stagecoach Reservoir. The discharge location will remain the same with this project.

The elevation of the project (7,250 feet above mean sea level) will need to be factored into the design of the proposed project. The facility will need to include additional aeration capabilities to compensate for the lower ambient oxygen concentrations encountered at this elevation.

The existing wastewater treatment plant was constructed in 1973. It consists of the following treatment components:

- **Influent Line:** 24" gravity sewer line.
- **Manual Bar Screen:** Influent enters the WWTP building and passes through a manual bar screen.
- **Extended Air Basin:** Aeration occurs in a 75,000-gallon aeration chamber.
- **Clarifier:** Located in the center of the tankage, the clarifier provides 855 ft^2 of surface area/35,000 gallons of total volume.
- **Sludge Digester:** Reaeration occurs in a 157,000-gallon facultative digester basin.
- **Sludge Press:** Sludge cake is sent to a dumpster for removal offsite. Pressate is returned to the digester.
- **Aerobic Digester:** Aerobic digestion in 135,000-gallon basin.
- **Effluent Measurement:** The flow rate is measured with a 1" Parshall flume.
- **Chlorine Contact Tank:** Disinfection achieved in a 13,500-gallon tank.
- **Discharge Line:** Effluent flows by gravity in an 8" PVC into Stagecoach Reservoir.

An updated system is needed to take advantage of new, more efficient technologies for a few reasons. First, due to the age, the condition of most of the mechanical equipment is unsatisfactory. Second, the system can meet the current flow rates but would be unable to meet treatment requirements at full loading. Third, a newer system will be more flexible to handle the current flow rates and future growth. Fourth, the current system is not automated, and all adjustments are made manually. Therefore, the District recommends a conversion to a different treatment technology and replacement of the mechanical equipment. The proposed facility will feature a greater ability to nitrify, denitrify, and disinfect the wastewater.

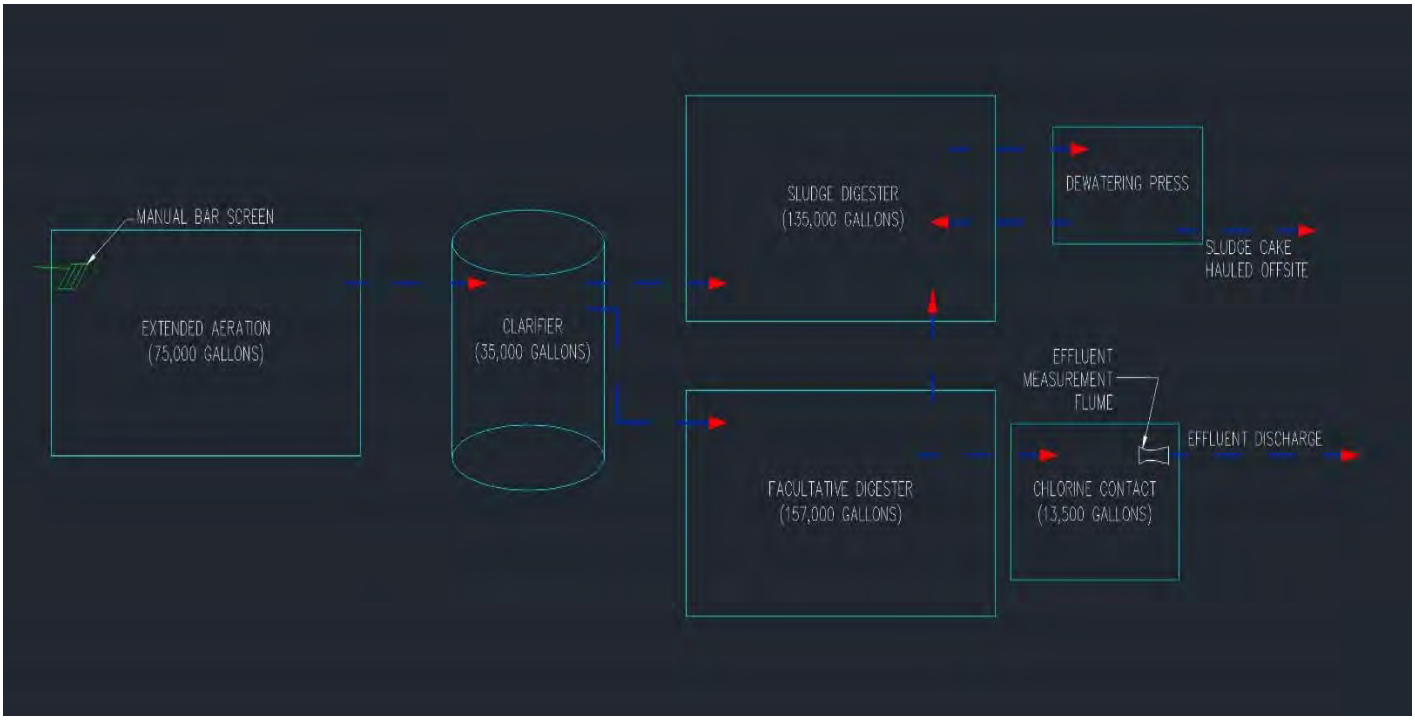
There are two existing buildings on the site. The large octagonal building was built with the original WWTP in 1973 and does not have any components worth salvaging. There is a smaller

pre-engineered metal building that was installed in 1993. The design loads used for the metal building do not meet current Routt County building department requirements. Therefore, the plan is to keep the metal building and continue using it for storage, but not to install any new treatment works inside of it.

5.4 EXISTING PROCESS FLOW DIAGRAM

The District's existing process flow diagram is as follows:

Figure 6: Existing Process Flow Diagram



5.5 WASTEWATER FLOWS

The facility monitors effluent flow at a 1" Parshall flume, downstream of the chlorine contact basin.

Effluent flow rates were evaluated for September 2000 through December 2019. The effluent 30-day average for this period was 52,000 GPD (0.052 MGD) and the peak day was 72,000 GPD (0.072 MGD). The following table shows the average and maximum flow rates for each month over the period of 2000-2009.

Table 1: Influent Monthly Flow Volume 2000-2019

Month	30-Day Average (MGD)	Max Day (MGD)

January	0.041	0.054
February	0.043	0.052
March	0.058	0.085
April	0.093	0.138
May	0.078	0.119
June	0.056	0.077
July	0.047	0.064
August	0.040	0.054
September	0.040	0.051
October	0.041	0.055
November	0.041	0.055
December	0.041	0.054
Average	**0.052**	**0.072**

As Figure 7 shows, the District receives high flows during March through June, which indicates high I&I during this period. The District believes the flow during those months approximately doubles due to I&I. The District has an ongoing program to decrease I&I. However, the length of the collection system is significant, and the District has not been able to reduce water entering the collection system to the level it desires because of the cost.

Figure 7: Effluent 30-Day Average Flow Rates 2000–2019

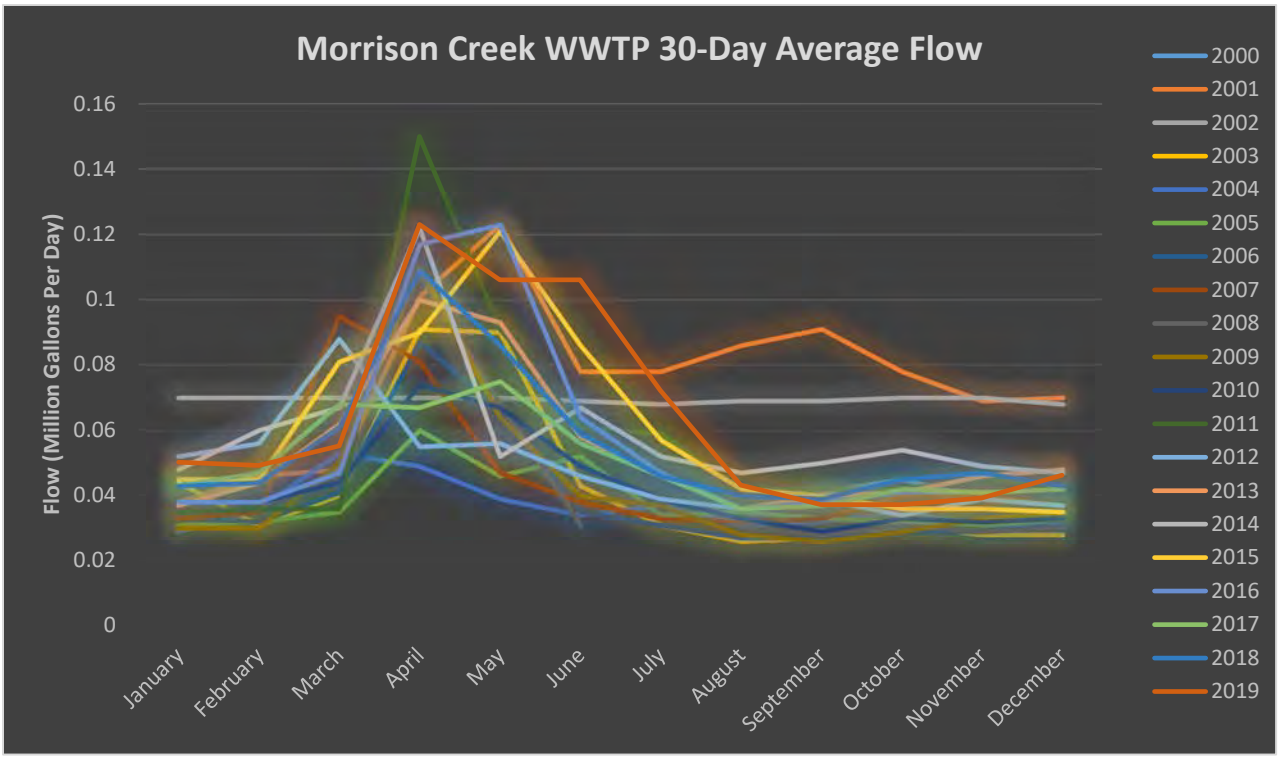
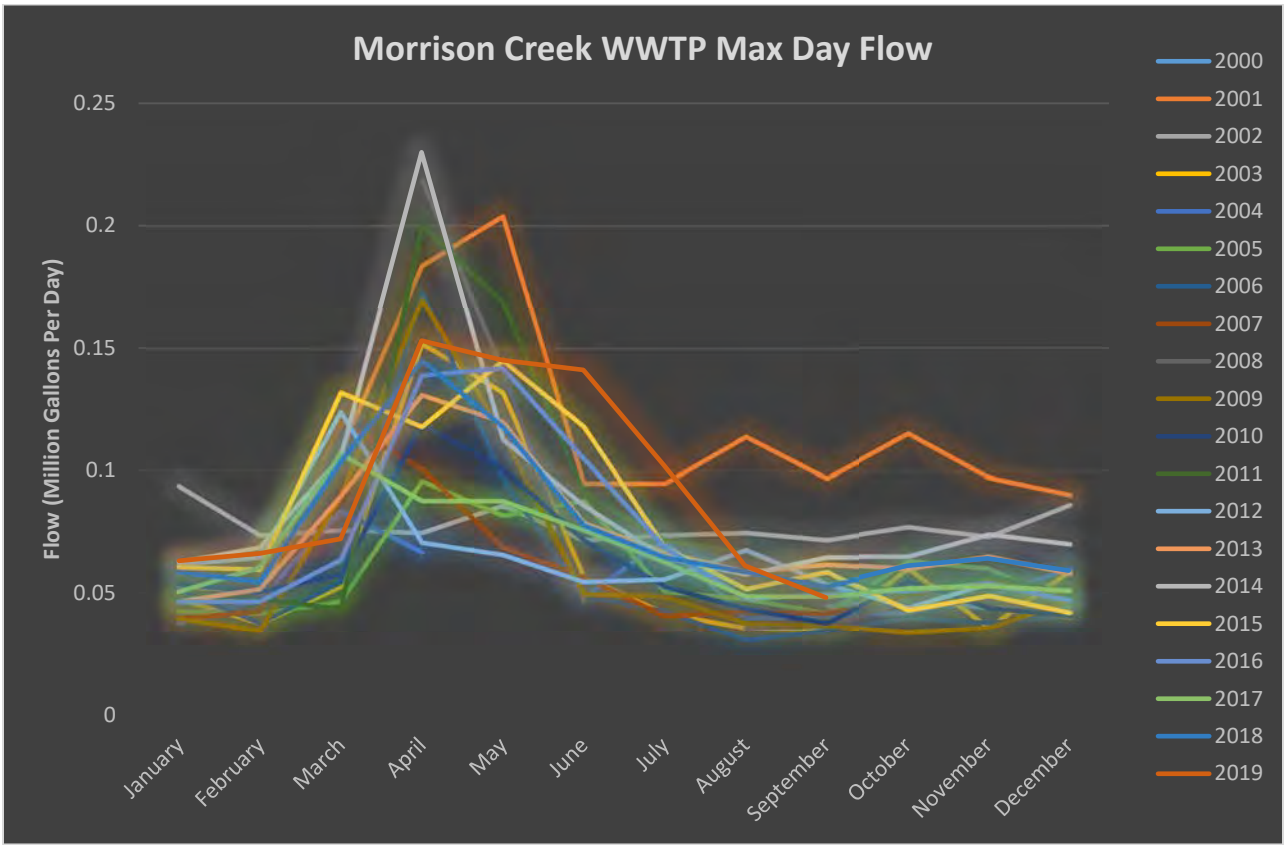


Figure 8: Effluent 30-Day Peak Flow Rates 2000–2019



The District's current discharge permit (CO0022969) is for 350,000 gallons per day. The District desires to maintain this rating for the new facility. The numbers for the 30-day average and the maximum day in Table 1 show how the instantaneous flow rates which were used to size the facility during final design.

Table 2: Current and Future Maximum Wastewater Flows

	Current		Rating/Design	
Total Flow (30-day average)	52,000	GPD	350,000	GPD
Total Flow (Peak Day (2x Factor)	104,000	GPD	700,000	GPD
30-day Average Flow in Minutes	36	GPM	243	GPM
Peak Hour (1.5 Factor) In Minutes	54	GPM	365	GPM
Peak Hour (2.5 Factor) In Minutes	90	GPM	608	GPM

Wasteload Forecast

The historic BOD concentration results from the DMR records for influent BOD were used to

evaluate the current and proposed organic loading of the facility. The average concentration of BOD between 2009 and 2019 was 121 mg/L. The historic BOD concentration is low compared to the expected concentrations for municipal wastewater. However, the concentration is feasible given the amount of I&I from the collection system likely dilutes the actual BOD.

The historic BOD concentration translates to an average BOD loading of 54 pounds per day, well below the approved capacity of 800 pounds per day. The District desires to maintain the 800 pounds per day rating for the new facility to accommodate future growth within the District. At full design flow of 350,000 GPD, the concentration of the wastewater needed to amass the 800 pounds per day of BOD is 274 mg/l. This concentration is more than double the historic concentration. It is expected that influent concentrations of BOD will increase as the District continues to decrease I&I and more homes are constructed with water saving plumbing fixtures. Therefore, factoring a higher theoretical BOD concentration (274 mg/L) than empirical data (121mg/L) is advisable for the basis of design for this project.

Figures 9 and 10 are graphs of influent BOD concentration and BOD loading in pounds:

Figure 9: Influent BOD Concentration 2009–2019

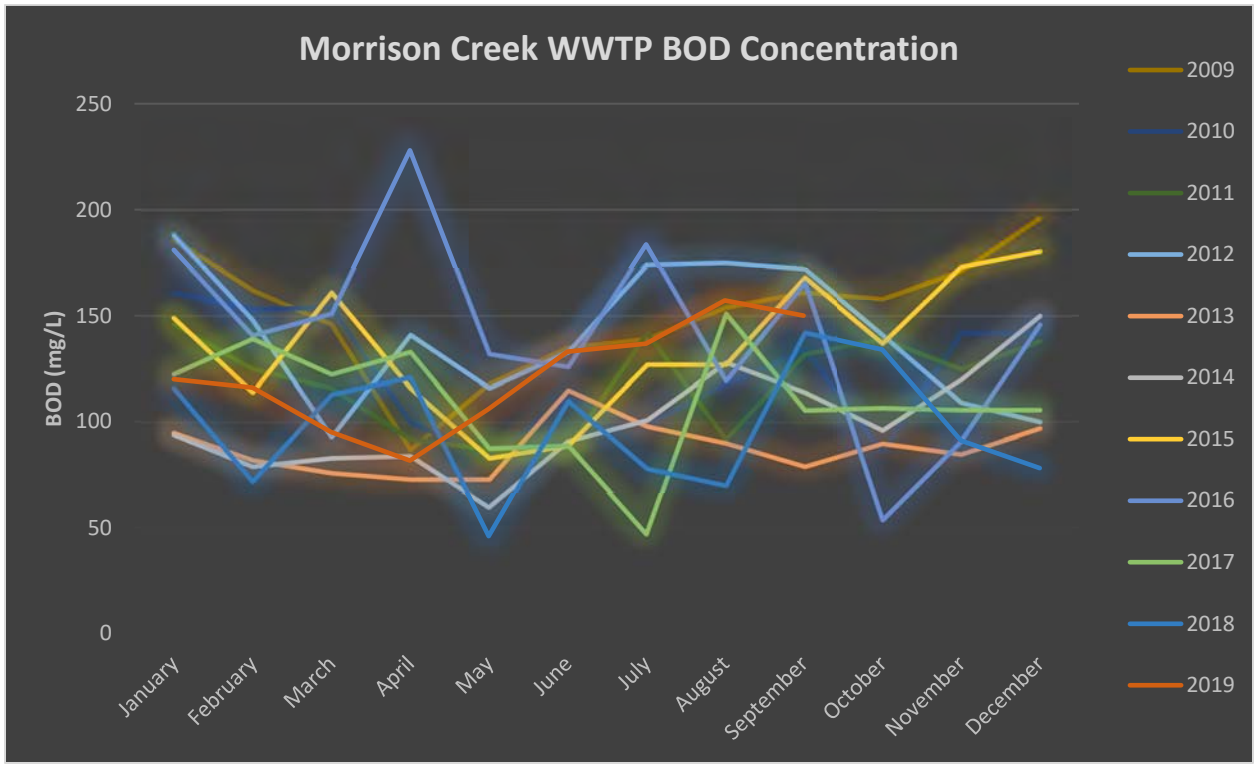
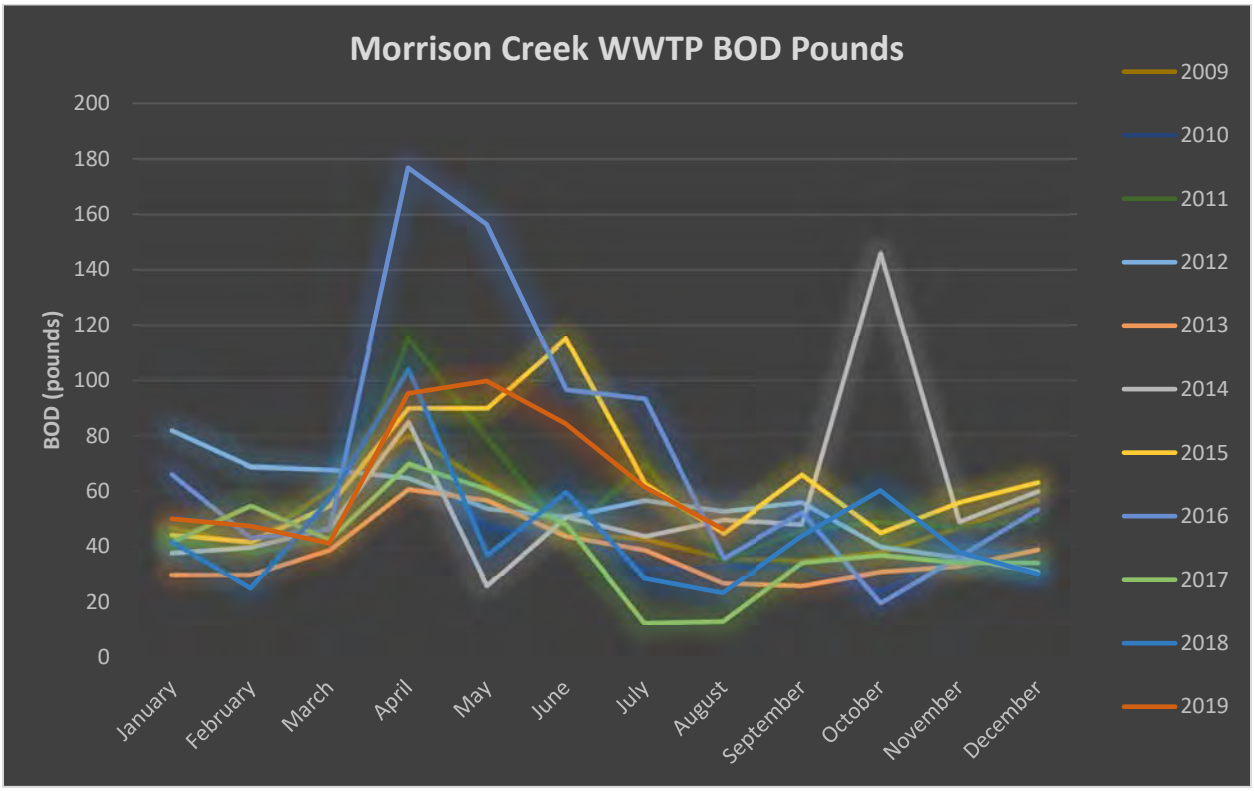


Figure 10: Influent BOD Pounds 2009-2019



5.6 APPROPRIATENESS OF TREATMENT TECHNOLOGIES

The existing extended aeration treatment technology is adequate for the District to meet the current amount of flow and loading. The facility can reduce BOD/TSS and nitrify the TKN among meeting other treatment objectives.

However, in the future it could be a challenge for the existing facility to meet the current permit at full design flows. For example, the clarifier appears to be undersized for 350,000 gallons per day (1,324 m^3). The surface area of the current clarifier is 855 ft^2 (79.4 m^2). Metcalf & Eddy recommends a surface overflow rate of 32-48 m^3/m^2. The current clarifier provides a much lower surface overflow rate of 16.7 m^3/m^2 at full capacity.

The ability of the existing facility to treat the 350,000 GPD at 800 PPD of BOD is not factored into the decision-making process for this project as the existing facility will be completely abandoned.

5.7 CAPACITY OF TREATMENT TECHNOLOGIES

A full analysis of the capacity of each individual treatment component was not conducted with this report because the components will not be reused with the new project.

5.8 OPERATIONAL CONTROLS

The operational control of the current system is extremely basic. The pumps and blowers function either as on or off and are controlled manually. PLCs do not automatically control any of the unit processes. Instrumentation monitors dissolved oxygen, water level and other system variables and reports the data to a SCADA system. The operator, however, has little control at manipulating the system variables.

The new system will have up-to-date automation controls with a PLC based master control panel monitoring and governing most of the treatment equipment. A new SCADA system will be included to record historical data and allow the operator to remotely access the PLC. An autodialer will be included so that alarm notifications are automatically reported to the operators' phones.

6. FACILITY PLANNING ANALYSIS

6.1 PROJECT AREA MAP

A project area map is included in the Appendix. The District's water and wastewater assets include:

- One 350,000 GPD WWTP
- Two wastewater lift stations
- 75,000 feet of collection lines
- 65,000 feet of distribution lines
- Four groundwater wells
- Two 500,000-gallon water storage tanks

6.2 208 PLAN COORDINATION

Coordination of 208 agencies will not be a be a factor for this project as the site is not within an established 208 Planning Area.

6.3 LOCAL AND REGIONAL ISSUES

The District will coordinate the Site Application Review with referral agencies including Routt County, Routt County Environmental Health, and Upper Yampa Water Conservancy District. The project's intent is to upgrade an antiquated plant with an updated efficient system and more reliable equipment. The new system will treat wastewater to a higher quality without the permitted flow rate of the facility. This upgrade project is not intended to promote any further development of the service boundary or excessive population growth within the area.

Historically, the projects that AquaWorks has worked on with these characteristics have been welcomed by local and regional stakeholders. These projects support existing population projections without encouraging unplanned growth. In addition, treatment costs are reduced, and water quality is improved.

6.4 POPULATION AND WATER DEMAND PROJECTIONS

The 20-year growth projections for the project were estimated based on the current treatment requirements, a review of the District's old master plan and a variety of growth rate scenarios. Due to the variety of connection taps and the seasonal tourism in the District, the growth projects vary widely and a realistic estimate for future treatment demand was based on the EQR method.

The District currently serves a total of 480 EQR which includes 390 EQR connected taps and sewage hauled from an additional 90 homes with sewage vaults. The historic average of

wastewater generated per home is 109 GPD which is reasonable given the number of second homes in the District that are not continuously occupied. Furthermore, the owners of homes on vault service use less water than homes connected to the collection system because of the high cost to haul wastewater.

Although a master plan was written by the District, the growth projections were much higher than the realistic growth projections to design the system. A master plan for the District written in 2009 states that the ultimate build out of the District can be as high as 4,770 EQR. The information this number was based on however was highly speculative information and no longer representative of the current conditions within the District. For example, the collection system does not serve all lots within the District. Routt County has capped the number of lots eligible for vault service at 542 total vaults, therefore limiting the number of developable lots within the District. Furthermore, the original ambitious plan to develop the service area into a master planned community never materialized after the developer went bankrupt decades ago.

If the District continues adding new contributors at the historic level of around 1,000 gallons per year of additional wastewater (52,000 GPD/50 years) the system will have ample capacity in the replacement facility to accommodate wastewater for the expected life of the project. There will also be capacity to accommodate contributions from long dormant development projects such as the Stagecoach Ski Resort which has been shuttered since 1974. If the incremental increase in wastewater continues at the same rate, the volume of influent at the end of the 20-year planning period will be 72,000 GPD.

From a rating perspective, the replacement facility will be capable of treating 6.7 times the current hydraulic flow and 14.8 times the organic loading. This amount of capacity will allow considerable amount of growth to occur within the District's existing boundaries without exceeding the rating.

Table 3 presents a tabulation of the wasteload generation rates. Wasteloads were calculated for both current flow rates and design capacity:

Table 3: Wasteload Forecasts

	Current		Rating/Design	
Flow (30-day Average)	52,000	GPD	350,000	GPD
BOD Concentration	121	mg/L	274	mg/L
BOD Loading	54	PPD	800	PPD

6.5 PRELIMINARY EFFLUENT LIMITS

The District's current discharge permit (CO0022969) expires on August 31, 2020. The District has submitted a renewal application and expects the permit will be administratively continued after it expires until a new permit is issued.

The District has conferred with the CDPHE Permits Section to determine the most advantageous path forward for future discharge permit limits and the PELs for this project. The District plans to switch from an individual permit to a general permit, either COG-589000 or COG-588000. Permit COG-588000 is more desirable as its limits are not as strict. However, the District must show a 100:1 dilution ratio is achieved in the reservoir.

The District is currently estimated as having 25:1 chronic and 3.5:1 acute dilution ratios. The acceptance of the ratios was based on comparison to a similar waterbody under similar loading conditions. A site-specific study was not conducted when determining the ratios.

The District has hired a consultant to conduct a site-specific study to determine the dilution ratio more accurately. This study is planned for the summer of 2020. The District and its consultants are optimistic that the results will show a dilution ratio greater than the current ratios. Ideally, the ratio will be greater than 1:100, allowing the District to be eligible for COG-588000.

The results of the site-specific dilution study and subsequent acceptance by the CDPHE will take time. The District does not want this process to delay the approval of the site application. Therefore, the District is proceeding by planning for the WWTP replacement project using the effluent limits in COG-589000 with a 1:3.5 dilution ratio as the new facility can meet these limits. However, in parallel with the design approval process, the District will be conducting the dilution study. If the ratio is greater than 1:3.5, it will apply for the less stringent effluent limits allowed in COG-589000 or COG-588000.

The discharge effluent limits for COG-589000 are shown in the table below. The following table shows the ammonia dilution ratios for cold water streams and the current ratio of 4:1 is highlighted in red.

Table 4: Surface Water Discharge Permit Effluent Limits (COG-589000)

Table 3b Mechanical Facilities with Design Flows Greater Than 0.25 MGD and Less Than 1.0 MGD							
ICIS Code	Parameter	Limitation				Sampling	
		30-day Avg.	7-day Avg.	Daily Max	2-year Avg.	Frequency	Type
50050	Flow, MGD	TBD [1]		Report		Continuous [6]	Recorder [6]
00310	BOD_5, mg/l [2]	30 [2]	45 [2]			Weekly	Composite
81010	BOD_5, percent removal [3]	85% (min)				Weekly	Calculated
00530	Total Suspended Solids, mg/l	30	45			Weekly	Composite
81011	TSS, percent removal [3]	85% (min)				Weekly	Calculated
50060	Total Residual Chlorine, mg/l	See Table 5b		See Table 5a	See Table 5c	Weekly	Grab
00610	Total Ammonia, mg/l as N	See Table 6a or 6d		See Table 6b or 6e	See Table 6c or 6f	Monthly	Grab
00400	pH, s.u.			6.0-9.0		Daily	Grab
84066	Oil and Grease, mg/l			Report		Daily	Visual
03582	Oil and Grease, mg/l			10		Contingent	Grab
51040	*E. coli*, no/100 ml	See Table's 4a – 4c	2 X 30-day Avg.		See Table's 4d – 4f	Weekly	Grab
70295	Total Dissolved Solids, mg/l [4]	Report [4]		Report [4]		Quarterly	Grab
00665	Total Phosphorous, mg/l	TBD [5]		TBD [5]		Monthly	Composite
00665	Total Phosphorous, lbs/month	Report [5]		Report [5]		Monthly	Calculated
00665	Total Phosphorous, cumulative lbs/previous 12 consecutive months	TBD [5]		NA		Monthly	Calculated
	Other Pollutants, units	TBD		TBD		TBD	TBD

TBD means to be determined for each certification.

Table 5: Monthly Total Ammonia for Cold Water Streams

Table 6c Monthly Total Ammonia ADBAC for Cold Water Classified Streams (mg/l)																
	Dilution Ratio (1E3:Design Flow)															
	0	1	2	4	7	10	15	20	25	30	40	50	60	70	80	90
JAN	0.6	0.8	1.1	1.3	1.6	1.9	2.3	2.8	3.2	3.7	4.5	5.3	6.1	6.9	7.7	8.5
FEB	0.5	0.7	0.9	1.1	1.5	1.8	2.2	2.6	3.1	3.5	4.3	5.1	6..3	6.6	7.4	8.2
MAR	0.4	0.6	0.8	1.1	1.6	2.0	2.6	3.1	3.6	4.1	5.0	5.9	6.8	7.6	8.4	9.3
APR	0.4	0.6	0.8	1.2	1.8	2.4	3.3	4.0	4.7	5.4	6.6	7.7	8.7	9.7	10	11
MAY	0.4	0.7	0.9	1.4	2.1	2.7	3.6	4.4	5.0	5.7	6.9	7.9	9.0	10	11	12
JUN	0.5	0.8	1.0	1.5	2.2	3.0	4.2	5.3	6.2	7.1	8.5	9.8	11	12	13	14
JUL	0.4	0.6	0.9	1.3	2.0	2.7	3.9	5.1	6.1	7.0	8.6	10	11	12	13	15
AUG	0.3	0.5	0.7	1.0	1.4	1.9	2.7	3.5	4.2	5.0	6.3	7.5	8.7	9.8	10	12
SEP	0.4	0.5	0.7	1.0	1.4	1.9	2.7	3.5	4.3	5.0	6.3	7.6	8.7	9.8	10	12
OCT	0.5	0.7	1.0	1.3	2.0	2.6	3.4	4.1	4.8	5.4	6.5	7.6	8.6	9.5	10	11
NOV	0.5	0.7	1.0	1.3	1.7	2.1	2.7	3.2	3.6	4.1	5.0	5.9	6.7	7.6	8.4	9.2
DEC	0.5	0.7	1.0	1.2	1.6	1.9	2.4	2.9	3.4	3.8	4.7	5.5	6.4	7.2	8.0	8.8

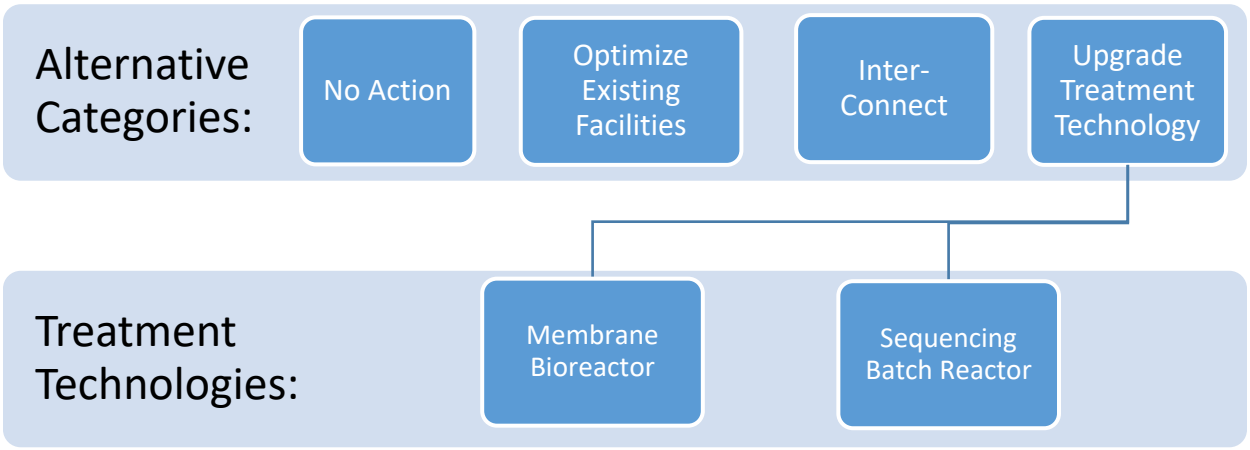
7. ASSESSMENT OF ALTERNATIVES

7.1 ALTERNATIVES

An analysis of potential reasonable alternatives was conducted for this project. The following alternatives were evaluated:

- No action.
- Optimizing the existing facilities.
- Interconnecting with the nearest facility.
- Upgrading the existing facility treatment technology with one of the following options:
    - Membrane Bioreactor (MBR)
    - Sequencing Batch Reactor (SBR)

Figure 11: Chart of Alternative Assessment Options



No Action: Since the equipment in the existing facility is reaching the end of its design life and meeting effluent limits at full design flow is not likely, "No Action" is not a long-term feasible approach. Deferring action on the existing facility for a matter of years while the new plant is designed, permitted, and constructed is possible. However, it is not recommended to indefinitely postpone action on the facility replacement.

Optimizing the Existing Facilities: Optimizing the existing facility would involve making significant improvements. Retrofitting contemporary treatment processes and equipment into the antiquated facility would likely cost more than replacing equipment due to the condition of the existing facility. For example, AquaWorks was informed that the large circular treatment tank could collapse if all the liquid was removed because the hydrostatic pressure to keeps the walls

upright. The District prefers to invest funds to upgrade the facility to current technology capable of meeting discharge permit limits instead of spending money to bring the existing treatment process back to its original condition.

Interconnecting with Existing Facilities: The CDPHE provides direction in Section 22.4(1)(b)(v), Consolidation Analysis of the Guidance Document for the Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works, for determining whether interconnecting with existing facilities is feasible. The guidance document states that meeting only one of five factors is required to preclude consolidation and make connecting to an existing facility infeasible. Only applications for new wastewater treatment facilities must discuss the feasibility of consolidation, so this project is exempt from this requirement.

Nonetheless, there are several additional reasons that make connecting to an existing facility infeasible, including expense, distance to the nearest facility at Oak Creek, merging service areas, stream-flow disturbance, and potential impacts to water rights. Furthermore, the Oak Creek facility does not have the capacity for additional flow and the facility would need to be upsized.

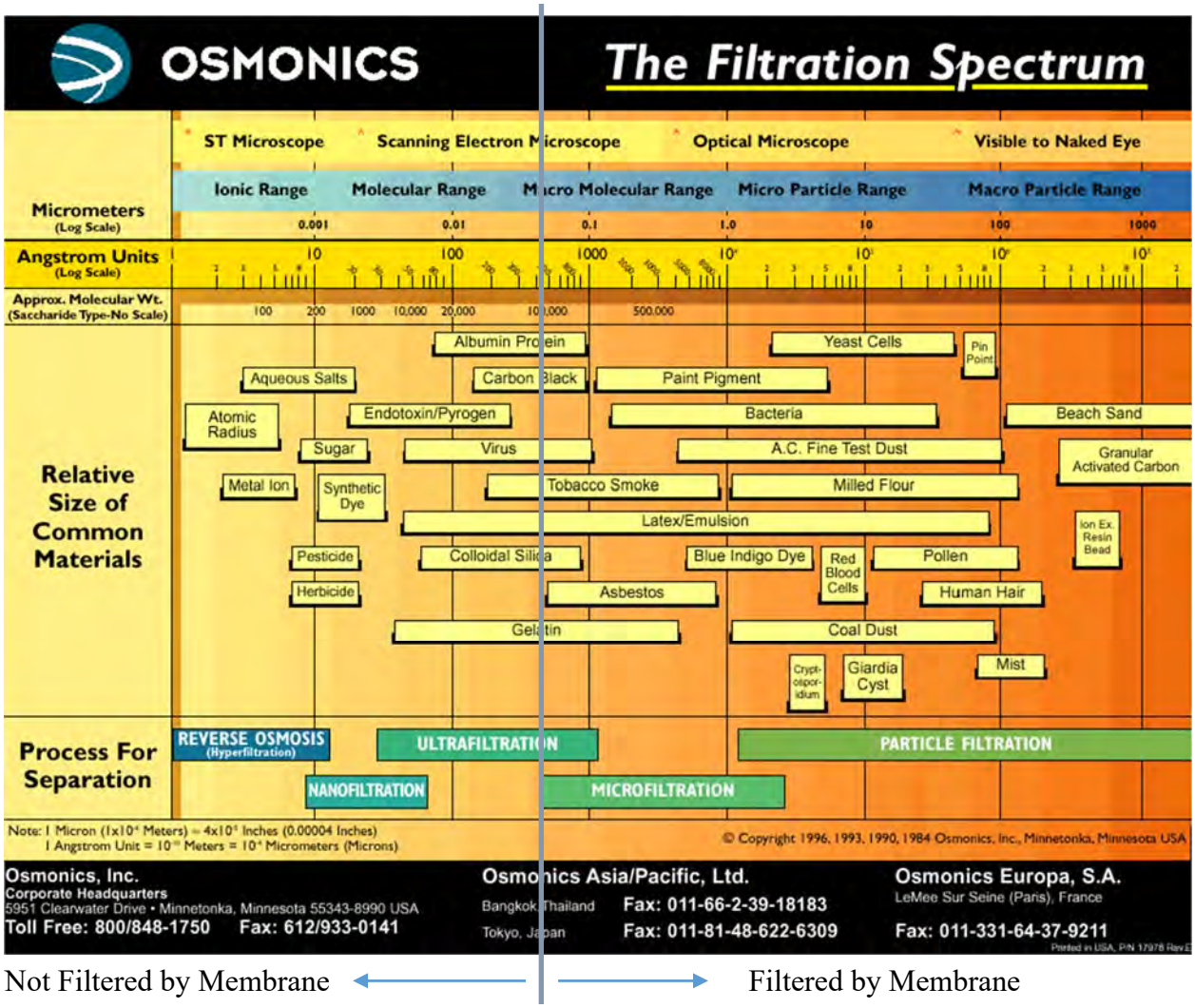
Upgrade Treatment Technology: The most desirable scenario is to replace the existing equipment with a different, more advanced treatment technology. The District can implement new technologies developed and improved since the original facility was installed. New treatment technologies can allow for a smaller footprint, greater energy efficiency, simpler operations, greater operational control, and produce overall better effluent quality. Several treatment technologies are available. The two options evaluated for this project are the MBR and SBR.

7.2 ALTERNATIVE #1 – MEMBRANE BIOREACTOR

The MBR was evaluated as alternative #1. MBR equipment packages would consist of an influent fine screening channel, equalization basin, aerobic sludge digestion, anoxic zone, bioreactor tanks, membrane filtration, chemical addition, and disinfection. The configuration is typical for most MBR equipment manufacturers.

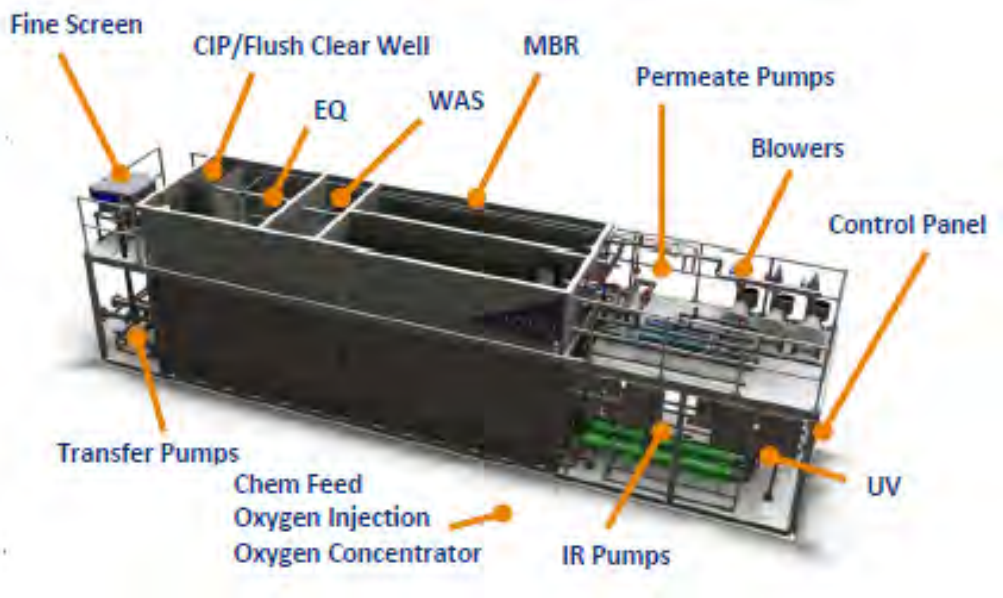
The use of the membrane provides advanced capabilities to produce high quality effluent. MBR systems consist of aerobic sludge manipulation that uses semi-permeable membranes. The nominal pore size for many membranes is 0.04 µm. This porosity limits pathogenic flow-through and improves the ability to produce consistent high-quality effluent. Figure 12 shows the additional particles and pathogens that are filtered out with the use of a membrane.

Figure 12: Filtration Spectrum



In this design, significant portions of the MBR equipment will come mounted on a skid. Any in-basin equipment will come shipped loose for installation in new concrete tankage. Skid mounting as much of the equipment as possible will allows for expedited installation times and reduced construction costs. Figure 13 depicts a completely skid-mounted system. Morrison Creek proposes to install much of the equipment shown below in new concrete tanks:

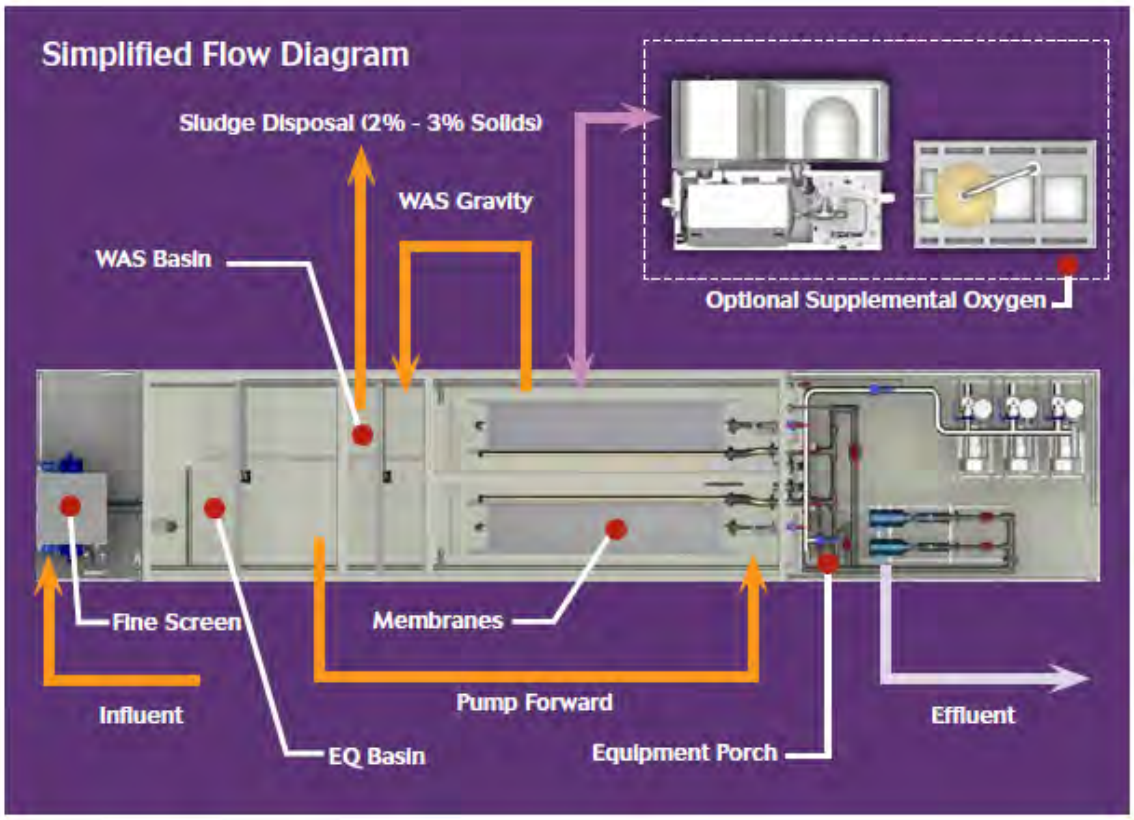
Figure 13: Overview of MBR Equipment



- Influent fine screening
- Influent flow measurement
- Equalization zone/aerated grit storage
- Aerobic sludge digestion
- Coagulant addition
- Two anoxic zones
- Two bioreactor tanks
- Two MBR basins
- Two permeate pumps
- UV disinfection reactors
- Sodium hypochlorite and citric acid addition for membrane cleaning
- Real-time DO sensor equipment
- Pre-wired, factory-tested equipment
- Remote monitoring controls and alarm exporting

The project's design requirements include two separate treatment trains. This approach will add flexibility to the design. The operator will have greater control to accommodate wide swings in seasonal flows by taking one train out of service during the low flow months. This design includes redundancy of operations, equalization, and tertiary filtration. The system's operational processes are discussed below.

Figure 14: Sample MBR Design Flow Diagram



Influent Flow Conditions and Fine Screening

The influent enters the treatment train through a pretreatment fine screen first. This step will be designed to meet peak flow rates and the screen's perforated opening will be 2 mm for removing solids. Two fine screens will be supplied but one will be used at a time. One automatic fine screen will be supplied along with another screen for standby. A redundant manual bar screen will be provided along with a shelf spare motor.

Screenings will be processed into a bin for ease of removal and disposal in a solid-waste facility.

Equalization Zone/Transfer Pumps

An integrated influent storage basin accommodates peak flow and I&I events to circumvent short circuiting of above-peak events. Redundancy in the design includes at least two transfer pumps (one duty and one standby). The transfer pumps help to control the membrane permeable flow-through rates and maintain the minimum submergence of the membranes. The basin will be designed for grit to settle to the bottom. Additional aeration pumps will be installed to keep the liquid from becoming septic.

Biological Nutrient Reduction

Nitrification and denitrification are necessary for total nitrogen removal. Biological nutrient reduction will occur in both the bioreactor (nitrification) and anoxic (denitrification) zones. Each zone will have different concentrations of dissolved oxygen to obtain the desired nitrification or denitrification. To achieve this, the system's controls monitor dissolved oxygen levels in the biomass to indicate the changing biological oxygen demand.

Submerged Membranes

The MBR system's core treatment is housed in the two MBR basins. In the basins, a MLSS of 9,000 mg/L (or 12,000 mg/L for ceramic membranes), is maintained under constant aerobic conditions. Membranes use filtration to separate treated water from the mixed liquor. Regenerative blowers are supplied to provide constant aeration of the mixed liquor. The continuous scouring acts as a primary means of anti-fouling of the membranes. Typical operation of membranes calls for a set permeate period, determined by the manufacturer, followed by a rest function and/or a reverse flow. This alternating operation helps prevent overloading and fouling of the membrane cartridges.

Figure 15: Hollow Fiber Membrane

The membranes are installed in a parallel arrangement that use a permeate vacuum pump to achieve an optimal flow-through rate. Adjustments are made by the operator to achieve constant pressure. This feature provides optimal flux among flow-through capabilities, membrane surface area, and prevention of membrane fouling.

Effluent Operation

Effluent discharge rate is regulated by the permeate pumps. The pumps are controlled and monitored by the system's internal controls governed by the PLC. The flow rate is measured by an integral effluent magnetic flow meter and controlled with the PLC.

Operation & Maintenance

Process control of the MBR is performed through an integral HMI interface panel. The panel manipulates and monitors the operation of blowers, pumps, flows, and chemical addition.

Scheduled maintenance will include cleaning of the basins and sludge removal. The manufacturer suggests that the basins be cleaned with a chemical cleaner for organic and inorganic fouling. The

frequency of cleaning will be dependent upon influent loading characteristics. The cleaning chemicals used will consist of sodium hypochlorite and citric acid.

As with any process, the use of a proactive procedure will provide optimal system performance for continuous quality treatment. Influent, effluent, and in-basin monitoring of wastewater conditions will allow the system to evaluate trends and predictive measures to be taken to forecast possible interruptions in effluent quality. A scheduled routine of sludge removal will be required at the intervals deemed necessary.

Chemical Addition

The MBR process will require the following five chemicals for operations and maintenance:

- Alum to promote the removal of phosphorus.
- Carbon addition if needed for additional denitrification.
- Caustic soda for pH adjustment.
- Sodium hypochlorite for back-pulsing of membranes.
- Citric acid for cleaning to prevent inorganic fouling of membranes

7.2.1 CAPITAL AND O&M COSTS – MEMBRANE BIOREACTOR

The following is a conceptual-level annual estimate of the O&M costs for the MBR alternatives:

Table 6: O&M Estimates

	MBR
Sludge Disposal	$15,000
Power (at $0.1 per kW/hr)	$63,000
Chemicals	$5,000
Membrane Replacement Budget	$10,000
Replacement Parts Budget	$40,000
Miscellaneous	$30,000
Total:	$163,000

7.2.2 ADVANTAGES & DISADVANTAGES – MEMBRANE BIOREACTOR

The following is a summary of the advantages and disadvantages for the MBR:

Table 7: MBR Advantages/Disadvantages

Advantages	Disadvantages
Controls, pumps, chemical feed system, and blowers come mounted on a skid	High equipment cost

Uninterrupted quality effluent due to the physical nature of the membrane	High power costs due to continuous blower and permeate pump operation
High-quality BOD, NH_3 removal	Possible membrane fouling
Lower probability of coarse diffusers becoming plugged	Lower oxygen transfer rate due to the coarse diffusers
Increased MLSS concentration >9,000 mg/L or 12,000 mg/L (smaller footprint required)	Membranes require replacing approximately every 10 years (20 years for ceramics)
Can meet strict future phosphorous limits without additional equipment	Membranes do not perform well at cold temperatures (< 10°C)

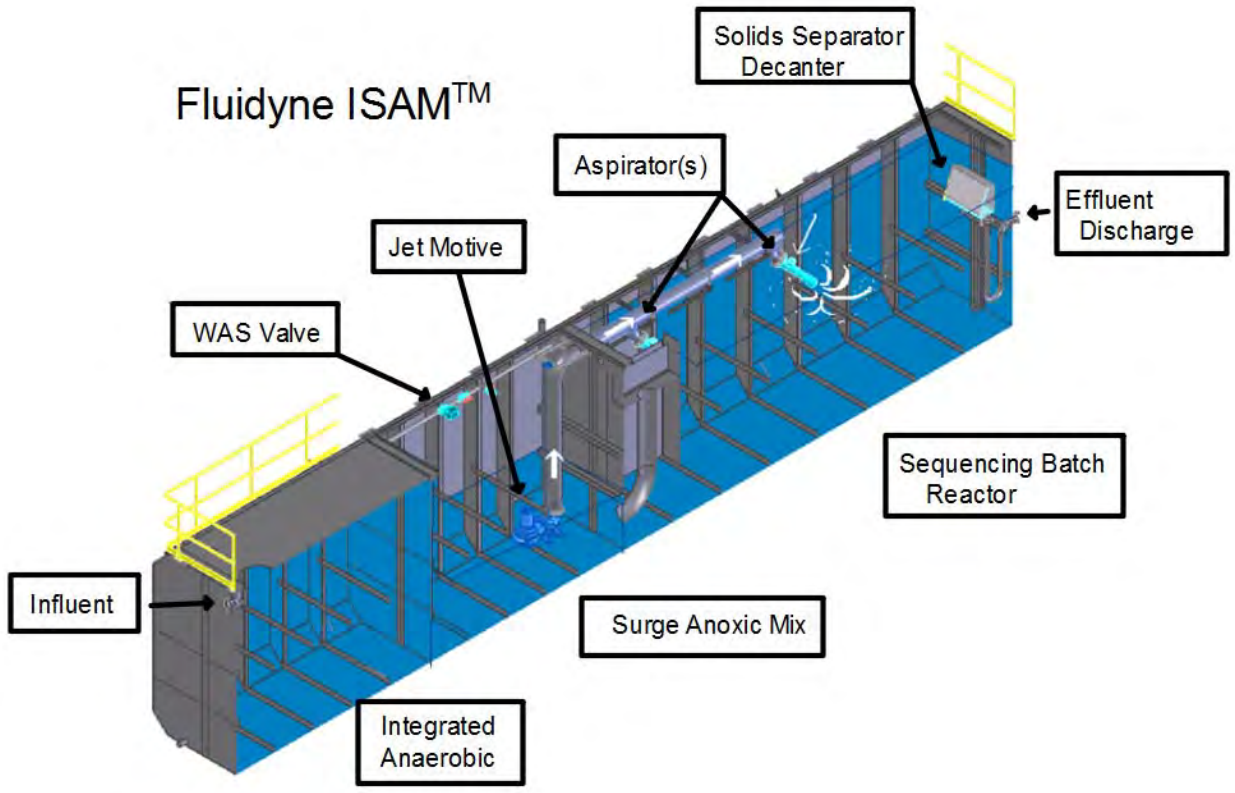
7.3 ALTERNATIVE #2 – SEQUENCING BATCH REACTOR

The SBR treatment facility consists of an activated sludge system with most of the required equipment and controls supplied by a common manufacturer. The equipment features the following major components:

- Influent conditioning/equalization
- Anaerobic sludge handling
- Jet motive/wastewater transfer pumps
- Jet aspirator aeration system
- SBR basins
- Automated floating solids excluding decanter
- UV disinfection
- PLC-based control system

The proposed system package consists of a two-train design. This configuration provides enhanced operator control and additional redundancy capabilities. The functions and basis of design for each of these project components are discussed below.

Figure 16: Overview of the SBR Process



The image above shows all the equipment in a metal tank. Equipment for the Morrison Creek will be installed in buried concrete tanks.

Influent Conditioning/Sludge Storage Tanks

After the influent flow measurement and screening, raw wastewater will flow by gravity into the first component of the biological process, the influent conditioning/equalization chamber. This chamber will be a variable-level chamber where heavy influent solids and grit will settle out, like a primary clarifier. Here, settleable solids will be converted to soluble BOD. Underflow baffles incorporated into the design to prevent direct short-circuiting which causes uneven treatment and conversion rates.

Waste Sludge Storage

The system includes a separate storage tank for aerobic waste sludge. The tank is designed to provide approximately 34 days of sludge storage, subject to influent conditions.

SBR manufacturers have documented significant volatile-solid reductions and typical sludge solid concentrations of 3–4%. This results in an extremely efficient sludge storage system and

minimizes the frequency of hauling. Based on observations of the stored sludge levels, sludge will be removed as needed with a vacuum truck and hauled offsite to a permitted facility.

Jet Motive – Wastewater Transfer Pumps

The multipurpose jet motive pumps serve three essential functions for the SBR. First, the pumps act on an intermittent cycle to forward-feed partially treated water into the SBR while simultaneously acting as Venturi aerators. Second, the pumps cycle water between the SBR and the anoxic basin to denitrify the wastewater. Third, the jet motive pumps feed WAS to the front of the plant by siphoning a side stream of the sludge. Enough jet motive pumps will be supplied to provide redundancy.

Aeration System – Aspirating Nozzles

The motive pump also activates an aspirating jet aerator to oxygenate the SBR. The aerator nozzles will be in the SBR's basin. The oxygen-delivery system is sized to exceed the calculated oxygen requirements to accomplish treatment (CBOD and ammonia conversion).

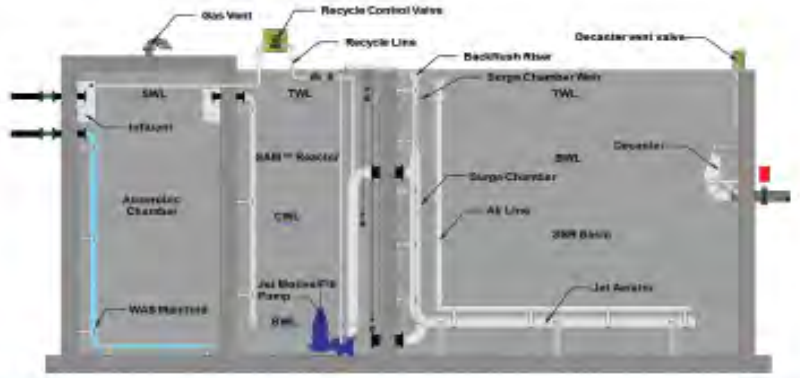
Sequencing Batch Reactor (SBR)

Each batch of wastewater is treated within a cycle in the SBR basin. Each cycle has five distinct phases:

1. Fill/react
2. Interact/react
3. Settle
4. Decant
5. Filled Decant

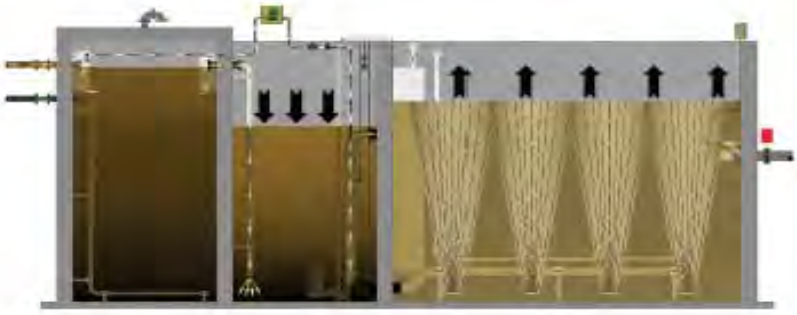
The following is a description and illustration of the five phases of the SBR process:

Figure 17: SBR Phases



System Components:

Influent continuously enters the anaerobic chamber where solids settle. Settleable BOD is converted to soluble BOD. BOD is reduced by 30% and solids are reduced by 60%. The influent then flows to the SAM™ reactor. Mixed liquor is maintained in the SAM™ reactor to suppress orders and initiate and accelerate carbon and nitrogen reduction.

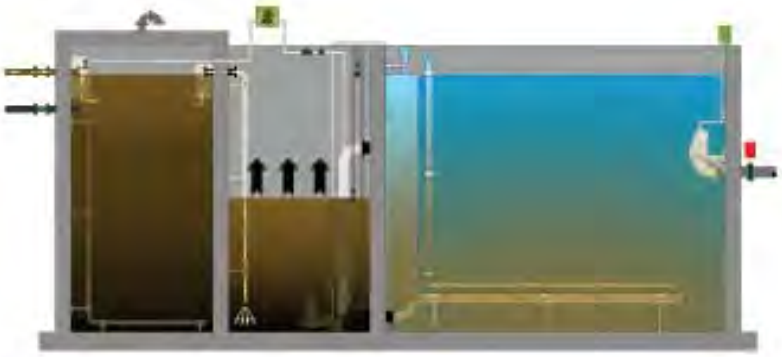


Fill Phase:

When the level in the SAM™ reactor reaches a predetermined "control level" the motive liquid pump is started. The SBR basin is filled and mixed. A percentage of the pumped flow is returned to the anaerobic chamber where biological solid settle. Settled solids in the anaerobic chamber are digested.

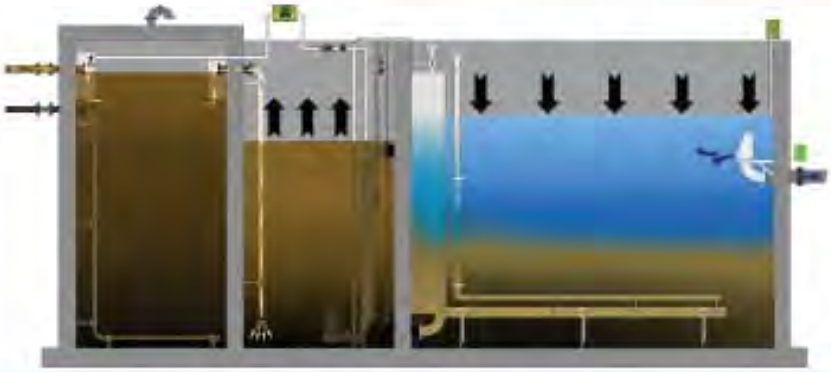
Interact Phase:

When the level in the SBR reaches TWL, nitrified mixed liquor overflows the surge chamber weir and is returned to the SAM™ chamber to mix and react with the raw influent. Aeration is cycled on and off to provide the required oxygen. Denitrification is reliable and complete. Scum is also removed from the SBR basin.



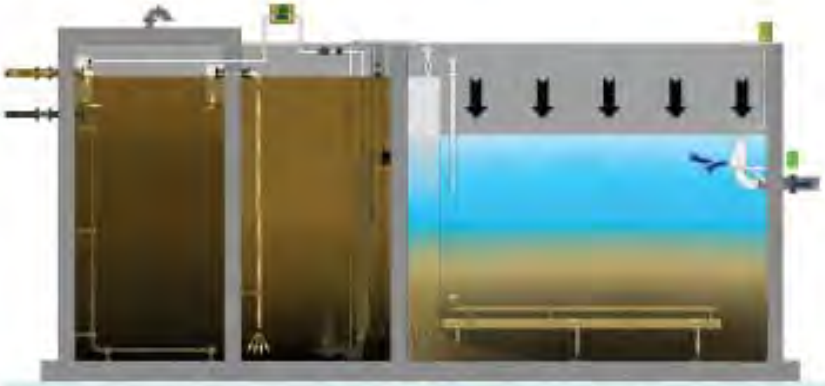
Settle Phase:

When the level in the SAM™ reactor again reaches "control level" aeration is discontinued and the SBR basin settles under perfect quiescent conditions.



Decant Phase:

When the settle timer expires, the decant valve is open and treated effluent is withdrawn from the upper portion of the SBR basin by means of a fixed solids excluding decanter.



Filled Decant Phase:

If, during peak flow events, the SAM™ reactor reaches TWL before the decant phase ends, influent flows in a reverse direction through the surge return line and overflows the surge chamber secondary weir and is diffused into the settled sludge at very low velocity as the decant phase continues.

THE SBR is designed to treat 16 batches per day. The operating parameters for the SBR include 3,429 mg/L of MLSS, at an SRT of 14 days.

Filtration

Filtration will not be included with this project. Space in the facility's building will be provided in the event future strict phosphorous limits are implemented and filtration needs to be added to the SBR treatment.

Disinfection System

Decanted supernatant will pass through a duplex (one duty/one standby) ultraviolet disinfection system. This equipment does not require any added chemicals.

Biological Nutrient Reduction

The SBR has features that allow for BNR through the modulation of the MLSS and react cycles. Uric nitrogen is removed first through anaerobic denitrification, which converts urea-based nitrogen into ammonia. The SBR then allows for nitrification via a semi-anaerobic or anoxic process whereby the ammonia is converted to nitrite/nitrate molecules.

OPERATION & MAINTENANCE

The new SBR system is highly automated but will require some daily operation and maintenance by operators for optimal process control. The SBR is operated by a PLC with HMI manipulation. The process is automated and is optimized when the operator makes adjustments to achieve a quality effluent. As with all wastewater facilities, the SBR runs best with daily supervision and provides consistent operation if a proactive regiment is implemented. A true understanding of influent/effluent and in-basin conditions will allow the operator to make educated adjustments and predictions for wastewater treatment.

Daily or weekly maintenance may include settleability, MLSS testing of the SBR, and a monthly sludge judge analysis of the sludge storage basin. Pump maintenance should be performed in accordance with the manufacturer's O&M requirements.

Sludge dewatering or hauling is typically done monthly but is subject to influent loading conditions. Design criteria will influence how frequently sludge must be removed.

Chemical Addition

The SBR process will require the addition of the following chemicals:

- Alum, to promote the removal of phosphorus.
- Soda ash, for alkalinity adjustment.

- Carbon addition if needed for additional denitrification.

7.3.1 CAPITAL AND O&M COSTS – SEQUENCING BATCH REACTOR

The following is a conceptual-level annual estimate of the O&M costs for the SBR:

Table 6: O&M Estimates

	SBR
Sludge Disposal	$12,000
Power (at $0.1 per kW/hr)	$62,000
Chemicals	$5,000
Replacement Parts Budget	$20,000
Miscellaneous	$30,000
Total:	$129,000

7.3.2 ADVANTAGES & DISADVANTAGES – SEQUENCING BATCH REACTOR

The following is a summary of the advantages and disadvantages for the SBR:

Table 7: SBR Advantages/Disadvantages

Advantages	Disadvantages
Lower equipment costs	Plant can gain too much MLSS and produce solids in effluent if not properly maintained
Reduced amount of sludge generated as well as the ability to store sludge	If the anaerobic tank is not maintained below a set sludge level, it can provide unsightly scum in the SBR, eventually causing poor settleability.
Lower electrical consumption	Larger buried concrete tanks would be required
No consumables (membranes) to replace	Does not have a membrane as a barrier to retain solids

8. SELECTED ALTERNATIVE

8.1 JUSTIFICATION OF SELECTED ALTERNATIVE

The versatility, innovation, and cost of the SBR make this alternative the most suitable for meeting the needs of the District. The advantages of using an SBR can be measured both in monetary and nonmonetary value. The most significant determining factor is cost, though. The direct cost comparison of SBRs with MBRs shows that SBRs have the lowest capital cost and O&M expenses. The greatest advantage of the membrane technology is the permanent barrier that prevents solids from being inadvertently discharged, but this benefit does not merit the incremental cost incurred since the District does not currently have a phosphorous limit.

Figure 18: Interior of Treatment Building

A measurable monetary value is electrical consumption savings. The design calculations provided by SBR designers show a more efficient oxygen transfer rate per pound of BOD treatment. The lower electrical costs come from multiple areas of saving: aeration operational strategies, sludge treatment, sludge storage, and volume of sludge. All four of these areas have advantageous properties that are more prevalent in an SBR design than in the other alternatives.

In addition, a measurable savings will take place in the operational hours needed to maintain the SBR. This is due to the high level of automation available through PLC operated controls, floats,

ORP, and/or oxygen in-line measuring devices. Further, the SBR does not require maintenance of membranes or diffusers.

Little operator intervention is required with the SBR process to make consistent, quality effluent. This consistent quality is due to the distinctive characteristics of the SBR design. There are designated anaerobic, anoxic, and aeration zones to promote maximum BOD and TSS removal. The SBR process results in biological nutrient reduction with minimal operator effort. The SBR design provides several tools for operational manipulation to develop optimal operational settings that are not part of the design of the alternative technologies.

The next determining factor is footprint and space availability. An SBR can use the space in a compact, efficient manner and can eliminate the need for added sludge storage. This in-line sludge handling adds an additional advantage for the SBR design because it does not require further tank volume or handling equipment. The SBR has a sludge-reducing capability in the form of anaerobic digestion, which requires less power and labor costs than a conventional WWTP. Furthermore, the membrane design helps the SBR meet the requirements of the Green Project Reserve Program.

Figure 19: All Process Tanks are Indoors Except the Chlorine Contact Tank

The District can expect to see measurable gains in WWTP treatment operations, initially and over the course of the new plant's life.

It is anticipated that the District will realize several other immeasurable characteristics about the

proposed SBR design that will result in more efficient use of time, higher-quality effluent production, and overall improved sustainable practices.

The following compares the alternatives evaluated for the Project Needs Assessment:

Table 8: Summary of Alternatives

Section	Item	Membrane Bioreactor	Sequencing Batch Reactor
5.1	Description	Ovivo & Suez	Fluidyne
5.2	Design Criteria	Hydraulic loading = 350,000 GPD & 800 PPD BOD	
5.3	Environmental Impacts	Better solids removal	Significant ammonia removal
5.4	Land Requirements	Small because of high MLSS	Can fit on existing site
5.5	Construction Issues	Similar issues anticipated	
5.5	Operational Aspects	Membrane provides a barrier	Simple sludge digestion
5.7	Cost Estimate	More equipment comes packaged on a skid	Lower equipment cost
5.8	Advantages	Filtration for future limits	No membranes to replace
5.9	Disadvantages	Potential to generate more sludge	Larger concrete tanks required

8.2 TECHNICAL DESCRIPTION AND DESIGN PARAMETERS

The proposed WWTP design for Morrison Creek consists of a 350,000 GPD SBR. The plant design will use the natural gravity flow to carry the influent through screening to two below-ground anaerobic/influent equalization tanks. The flow will then proceed to a two-train SBR design, each with its own anoxic tank. Each SBR train will be identical to the other.

The SBR process will consist of a series of four tanks per train, the anaerobic, anoxic, SBR and chlorination basin. The first basin is an anaerobic selector tank that performs multiple functions. The anaerobic tank acts as a trash trap and sludge-settling tank. A settling tank is important because, approximately 30% of the BOD available in wastewater is in the form of suspended solids. The solids are removed gravimetrically in the anaerobic tank and settle to the bottom of the basin. The settled solids collect and compact on the basin floor because there is no functional mixing of this basin except that of the inflow and mild exit turbulence. The lack of turbulence allows for a high degree of compaction, thereby promoting anaerobic growth.

The anaerobic tank also reduces the concentration of organic solids through digestion. The anaerobic process reduces organics to either ethanol or methane gas. The exit flow carries the liquid with lower BOD and TSS into the next basin in the treatment train.

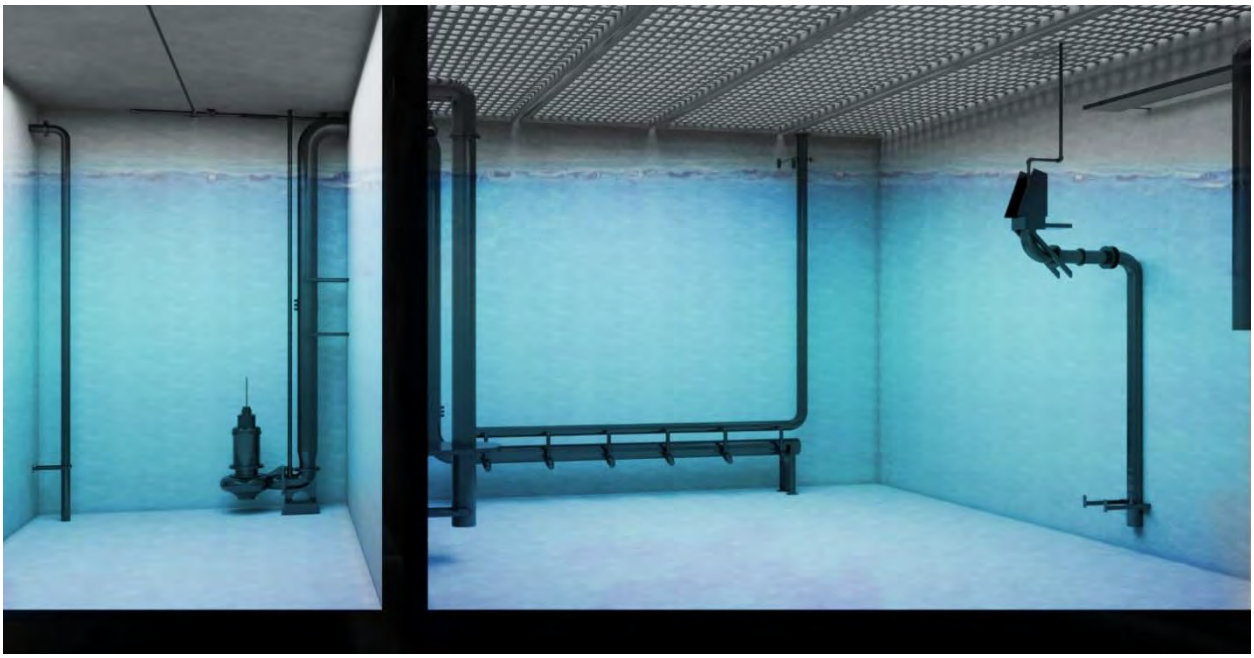
Contrary to common expectations, the anaerobic tank does not typically produce odors. Odors that are produced are quickly dissolved and carried into the aerobic portion of the SBR, where they are oxidized into less noxious forms. For example, hydrogen sulfide (H_2S), which is commonly described as the rotten egg smell, is associated with anaerobic conditions. Because of the hydraulic profile of the SBR, the dissolved gases are exposed to a high aerobic environment before being released to the atmosphere. The H_2S is converted to sulfate or sulfite (SO_4 or SO_3) or organically digested by microbes through metabolic processes.

Another function of this basin is to remove oil and grease. Grease in large quantities can disrupt the settleability of MLSS and cause upsets in effluent quality. The baffled section of the anaerobic tank functions as a trap for grease and adequately prevents it from reaching the SBR in large quantities. The internal baffles and the lack of mixing within the anaerobic basin allow for coagulation of fats and oils to accumulate at the top 6 to 12 inches of surface water, often forming a mat of high-energy grease. This mat is not detrimental to the process and actually, over time, can produce a sustainable source of BOD to sustain organisms during low events. Trapping grease in the anaerobic tank allows it to be either digested anaerobically or hauled off site.

The basin is always full and the amount of water exiting the tank equals the water entering the tank. Liquid is passed into the second basin through a baffled overflow.

The second basin, the anoxic tank, is an equalization basin that receives incoming flow from the anaerobic basin. The partially reduced, solid removed, wastewater has soluble characteristics that are ideal for initial aerobic treatment. In this basin, MLSS reacts with wastewater under ideal conditions. The MLSS and food source (incoming wastewater) create a high oxygen demand, lowering the dissolved oxygen, and reducing the ORP levels. This feature is not crucial for initial treatment, but it contributes to the BNR cycle.

Figure 20: Profile of SAM & SBR Tanks



The anoxic tank is connected to the third tank in two locations: (1) forward feed pumping and (2) return mixing. The anoxic tank acts as a surge tank and return mixing occurs because it receives surging water back from the SBR to mix the entire basin. The anoxic basin is also an equalization tank, allowing water to rise to a preset point, before initiating pumping action to convey wastewater to the third basin.

The third basin is the SBR reactor which receives fluids from the anoxic tank via a jet motive pump. Each anoxic basin houses at least one-jet motive pump that forward-feeds the anoxic slurry into the third basin, known as the SBR reactor. The anoxic and SBR reactor tanks are designed so that for every gallon of MLSS wastewater slurry moved forward, one gallon of return MLSS wastewater flows back through an overflow weir. This feature allows for continual cycling of MLSS into the anoxic zone.

Figure 21: SAM and SBR Tank Locations

The jet motive pumps perform multiple functions. The first function is pumping the wastewater from the anoxic tank to the SBR reactor and the resulting overflow that mixes the anoxic basin. The second function is to aerate the SBR. Aeration can be executed with aspirating nozzles or the use of pressured air in a jet header manifold. The third function is for WAS conveyance. A bleed-offline of the header in the SBR reactor is operated intermittently to remove a portion of MLSS from the SBR reactor. This feature transfers the aerobic sludge back to the anaerobic basin where it settles and is digested by anaerobic organisms. It is estimated that 50% of the volatile organics are removed, reducing the overall sludge hauling cost.

Once MLSS has entered the third and largest basin, the SBR, it progresses in an aerobic/anoxic/static cycle that facilitates microorganism growth, particulate uptake, and sewage treatment. This process either progresses in the SBR or can be diverted back into the anoxic basin for cycling back into the SBR reactor basin. The process of SBR reactor/anoxic tank interaction is called the interact mode. The isolated mixing process of the SBR is called the react mode.

The purpose of the aerobic/anoxic/static cycle is to achieve maximum BOD removal with minimal aeration cost. The aeration mode facilitates the oxidation of nitrogen ammonia into a less toxic nitrate/nitrite combination. Nitrate can still be hazardous and needs to be converted into nitrogen gas to meet the PELs and minimize effects on biological factors downstream. To achieve this objective, wastewater reaches an anoxic stage, wherein the nitrifying bacteria will use the oxygen

bound to nitrogen in nitrate (NO_3) and produce nitrogen gas (N_2) as a waste product. The final nitrogen gas is the same benign nitrogen gas that makes up 78% of the earth's atmosphere.

The static operation is considered an energy savings mode, whereby the available dissolved oxygen is consumed. The microscopic bacteria work together to achieve an ecosystem network of interconnecting organisms that use wastewater as their base food source. When the operator manipulates the ecosystem to optimal conditions, the desired effluent quality is achieved.

When the water level in the anoxic tank reaches approximately two-thirds volume, the PLC initiates the SBR to begin the settle mode. The settle mode creates a separation between the treated water and the organisms living in it. The heavier particles settle to the bottom of the SBR reactor, leaving clear, treated water on the surface of the SBR. The clear water (supernatant) is then decanted out of the SBR reactor. Surface scum is prevented from leaving the SBR reactor by the decanting method.

The discharged volume progresses through a siphon and into the fourth tank, an effluent equalization/chlorination basin. In this tank, a minimum of 30 minutes of chlorine contact time is achieved for complete disinfection of the treated water. The water leaving the chlorine contact tank is de-chlorinated with sodium bisulfite before the final discharge to Stagecoach Reservoir.

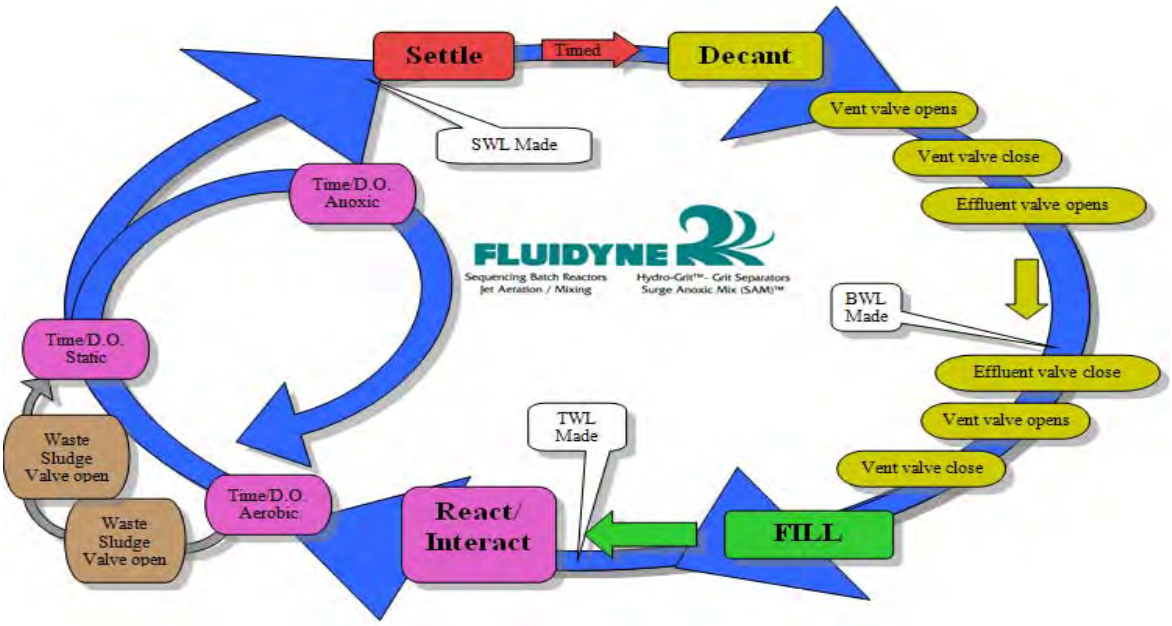
Figure 22: Chlorine Contact Tank Location

After decanting is complete and the SBR has reached the bottom water level, the PLC is signaled through float or ultra-sonic level transducers to begin the fill cycle. The waiting water in the anoxic basin is pumped into the SBR until the overflow weir spills water back into the anoxic basin, allowing for continual pumping and aerating.

The fundamental cycle of this SBR design is interact/settle/decant/fill/interact. This, in combination with the anaerobic basin, makes for a highly effective and efficient treatment process. Supernatant is decanted to the effluent equalization/chlorine contact tank where a minimum of 30 minutes of chlorine contact time is achieved. In lieu of chlorine contact UV disinfection may be implemented for this project. Finished effluent will either be pumped or flow by gravity to Stagecoach Reservoir.

This diagram below shows the anoxic/SBR reactor operational cycle.

Figure 23: SBR Operational Cycle



8.3 PROPOSED PROCESS FLOW DIAGRAM

The processes diagram for the proposed facility is included in the Appendix.

8.4 APPROPRIATENESS OF TREATMENT TECHNOLOGIES

SBRs are a proven and popular treatment technology, with dozens of successful installations in Colorado. The design for the Morrison Creek will have individual treatment processes like

successful applications of the existing Fluidyne. Included in the Appendix are process calculations from Fluidyne showing that their technology can meet the anticipated effluent limits.

8.5 ENVIRONMENTAL IMPACTS

The proposed project will result in net improvements to the environment. The SBR technology will remove more BOD, TSS, ammonia, total nitrogen, and phosphorus from the effluent, than the existing facility and the other alternative treatment options. The proposed system will result in reduced pounds per day discharged to the environment.

In addition, this energy efficient system will result in indirect environmental benefits from reduced energy production impacts.

It is anticipated that the implementation of the project will have unavoidable impacts, as with the construction of most public works projects. The applicant will do its part to minimize these impacts by implementing measures such as following best stormwater management practices, limiting construction activities to daytime hours, and not disturbing any historically or architecturally significant features.

The contractor will be required to obtain a CDPHE Construction Activities Stormwater Discharge Permit during the construction phase of the project. The contractor will need to follow the erosion control measures and best management practices specified by the design engineer to minimize the amount of sediment that leaves the site during earthwork activities.

There are designated wetlands and 100-year floodplain areas on the WWTP site. However, there is adequate room on the property to maintain the existing facility and construct the new one while avoiding these areas.

401/404 permits will not be required as the work will not be in Waters of the United States. Also, Department of Transportation or rail permits be needed as the project does not affect these agencies.

A completed Environmental Checklist is included in the Appendix.

8.6 LAND REQUIREMENTS

The existing WWTP site is on 5.2 acres owned by the District. A Routt County Property Record card showing the District as the owner is included in the Appendix. There is adequate amount of land area to construct the new facility on the property while maintaining treatment at the existing facility. The infrastructure can be designed to avoid locating new items in the existing floodplain or wetlands. The project will not require any additional land.

A site-specific survey will be conducted during the final design phase. Easements and right of ways, if present, will be shown on the survey. The necessary parties will be notified if any easement or right-of-way may be impacted.

Figure 24: WWTP Building with Driveway

8.7 CONSTRUCTION CHALLENGES

Significant construction issues are not anticipated on the site. Substantial amounts of subsurface rock, high water table, access issues and other conditions which could adversely affect the construction are not anticipated. Although, construction challenges would be like other projects of this magnitude. Such challenges may include scheduling construction crews, obtaining materials in a timely manner, obtaining the local and state approvals, and construction oversight.

One item that will require consideration during the final design is how to maintain operations at the existing facility while constructing the new one. There is adequate space to accomplish this, however, planning will be required. The design team will also need to consider how to sequence the transfer operations to the new facility and decommissioning of the existing facility.

8.8 OPERATIONAL ASPECTS

The District's operator maintains the wastewater operator's "A" certification, the highest available, which will meet or exceed CDPHE requirements. Table 100.5.2 states that an SBR with a rating

of less than 500,000 GPD only requires a "C" certification. However, there are individual treatment components such as anaerobic reactors that may require a minimum "B" certificate, which will be confirmed during final design.

The new facility will have far more process control capabilities than the existing facility. Operators will need to be trained to operate the new automated and manual equipment. The new facility will have a PLC to control most treatment equipment and processes. Instrumentation, such as dissolved oxygen and oxygen reduction potential sensors will be included to regulate how much air is supplied to the process, reducing wasted energy costs. Chemical feed systems will be configured to dose proportional to the size of the batches. Telemetry will be installed to allow operators to access the plant's control panel remotely. The telemetry system will also export alarms automatically in the event a condition is met. A generator with an automatic transfer switch will provide a backup source of power in the event primary electrical source fails.

8.9 COSTS

The following is an estimate of the probable costs for this project:

Table 9: Engineer's Conceptual Opinion of Probable Costs

Division:	Item:	Quantity:	Unit	Unit Price	Item Cost:
1	**Contractor General Requirements**	1	LS	$500,000	$500,000
2	**Existing Conditions**				
	Demo of Existing Building (Abandon Buried Tank in Place)	1	LS	$350,000	$350,000
3	**Concrete**				
	Process Tanks & Dividing Walls	909	YD	$900	$818,100
	Miscellaneous Concrete Items (Generator Pad, Sidewalks)	1	Each	$75,000	$75,000
4-10	**Building Related**				
	Metal Building Package	1	LS	$750,000	$750,000
	Building Insulation	1	LS	$100,000	$100,000
	Building Installation	1	LS	$150,000	$150,000
	Building Stairs, Windows, Doors, Partitions, Restrooms	1	LS	$150,000	$150,000
	Concrete Coatings	1	LS	$100,000	$100,000
	Hatches	1	LS	$25,000	$25,000
	Grating	1	LS	$40,000	$40,000
	FFE including Cabinets, Desk, Laboratory	1	LS	$100,000	$100,000
11	**Equipment**				

	SBR Process Treatment Equipment (Package by Manufacturer)	1	LS	$600,000	$600,000
	Headworks Screening	1	LS	$70,000	$70,000
	Influent Flume & Concrete Structure	1	LS	$30,000	$30,000
	Control Panel Integration to Internet	1	LS	$5,000	$5,000
	Miscellaneous Instrumentation & Equipment	1	LS	$30,000	$30,000
	Auto Samplers	2	LS	$3,000	$6,000
	Equipment & Process Piping Installation	1	LS	$1,000,000	$1,000,000
	Davit Crane & Bases	1	LS	$10,000	$10,000
22	**Plumbing**				
	General Plumbing	1	LS	$75,000	$75,000
23	**Heating Ventilation Air Conditioning**				
	HVAC Labor & Materials	1	LS	$100,000	$100,000
26	**Electrical**				
	Line Voltage Electrical Improvements	1	LS	$200,000	$200,000
	Instrumentation and Controls	1	LS	$25,000	$25,000
	Backup Generator	1	LS	$100,000	$100,000
31	**Utilities**				
	Import Material	1	LS	$40,000	$40,000
	Earthwork	1	LS	$200,000	$200,000
	Site Finishing	1	LS	$50,000	$50,000
	Erosion Control	1	LS	$23,002	$23,002
33	**Utilities**				
	Site Piping	1	LS	$75,000	$75,000
	Subtotal:				$5,797,102
	Contractor Overhead & Profit:	15.0%			$869,565
	Design Engineering (Process, Civil, Structural, Electrical, HVAC):	6.0%			$347,826
	Bidding & Construction Engineering Consulting:	5.0%			$289,855
	Contingency:	12.0%			$695,652
	Grand Total:				$8,000,000

8.10 GREEN PROJECT RESERVE

The District is seeking inclusion into the Green Project Reserve program for the energy efficiency improvements realized with this project. According to Section 3.3-2 of the Guidance for Determining Project Eligibility, "Projects that achieve a 20% reduction in energy consumption are

categorically eligible for GPR. Retrofit projects should compare energy used by the existing system or unit process to the proposed project. The energy used by the existing system should be based on name plate data when the system was first installed, recognizing that the old system is currently operating at a lower overall efficiency than at the time of installation. New POTW projects or capacity expansion projects should be designed to maximize energy efficiency and should select high efficiency premium motors and equipment where cost effective. Estimation of the energy efficiency is necessary for the project to be counted toward GPR. If a project achieves less than a 20% reduction in energy efficiency, then it may be justified using a business case."

SUMMARY

The District's existing wastewater treatment plant is nearly 50 years old. The existing treatment facility features antiquated equipment such as pumps, blowers, motor starters, and lighting which is based on old energy efficiency standards. These are expensive and wasteful to operate. The new facility will feature high efficiency pumps and blowers, variable frequency drives (VFDs) tied to instrumentation so the facility only aerates as much as is needed, and LED lighting. In addition, sludge handing will be converted from aerobic digestion, which is energy intensive, to anaerobic digestion which does not require any energy.

BACKGROUND

- Comparing the empirical energy use records to the forecasted energy use of the new facility shows that more than 20% energy savings will be achieved, making project categorically eligible for the Green Project Reserve program.
- While rated for 350,000 gallons per day, the existing treatment plant treats on average 52,000 gallons per day. The existing energy consumption must be multiped by 6.7 times to extrapolate the energy needed if the existing plant was operating at full capacity. This number is then used to compare the energy use of the new facility operating at design capacity.
- The existing facility uses three 30 Hp blowers for sludge digestion. The blowers run constantly. The proposed facility will feature anaerobic sludge digestion that does not require aeration equipment. The amount of energy the blowers currently use is 44,055 kWh per year at a cost of $4,565. This energy use will be reduced to zero with the new facility.

CALCULATED ENERGY EFFICIENCY IMPROVEMENTS

The table below lists the historic energy use of the existing facility along with upgrade calculations:

Table 10: Energy Efficiency Calculations

Existing Facility			New Equipment			
Gallons Per Day	12 Month Daily Energy Avg.	Base Building Heat Lights, Receptacles	Daily Energy Avg.	Energy Savings	Dollar Savings	Energy Savings %
52,000 (Current)	403.2 kWH/day	32.5 kWH/day	250.0 kWH/day	120.7 kWH/day	$375 Month	30%
350,000 (Rating)	2,701 kWH/day	32.5 kWH/day	1,675 kWH/day	993.9 kWH/day	$3,090 Month	
Replacement Process Equipment Savings @ 52,000GPD				44,056 kWH/Year	$4,565 Year	

CONCLUSIONS

- By replacing the existing extended air treatment facility with a sequencing batch reactor, the District will save 44,056 kWH per year.
- At 0.10 cents per kWh, energy reduction achieved with the new facility will save up to $4,565 per year.
- The new facility will be approximately 30% more energy efficient than the current facility, exceeding the GPR requirement to achieve a minimum savings of 20%.

8.11 ENVIRONMENTAL CHECKLIST

During the Project Needs Assessment pre-application conference call, CDPHE staff indicated that an Environmental Assessment will likely not be required for the project. As such, the District will be seeking a Categorical Exclusion. A completed Environmental Checklist is included in the Appendix so the CDPHE can determine if an Environmental Assessment is required.

8.12 PROJECT IMPLEMENTATION

Construction of the facility can occur as early as 2022. The following milestones highlight the anticipated schedule. However, the final schedule depends upon several factors, not all of which are under the control of the District, such as application review times, availability of funding, and weather.

Table 11: Implementation Schedule

Date	Item
Summer 2020	Submit PNA and Amended Site Application to CDPHE
Summer 2021	Submit PDR and Final Plans and Specifications to CDPHE

Fall 2021	Submit SRF Loan Application
Late 2021	Obtain Final Design Approval from CDPHE and Bid Project
Spring 2022	Commence Construction
Winter 2022	Complete Construction

8.13 PUBLIC MEETING

The public meeting will be scheduled closer to when the SRF Loan Application is submitted. The public meeting advertisement, agenda, sign in sheet, and meeting minutes will be provided to the Grants & Loans project manager once the meeting has been scheduled and completed.

REFERENCES

Colorado Department of Public Health & Environment (2010). *Guidance Document for the Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works.* Denver.

Colorado Department of Public Health & Environment (2009). *Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works DR-1.* Denver.

Colorado Department of Public Health & Environment (2012). *State of Colorado Design Criteria for Domestic Wastewater Treatment Works*. Denver.

Lindeburg, M. R. (2003). *Civil Engineering Reference Manual* (9th Edition). Belmont, CA: Professional Publications.

HRS Water Consultants, Inc. and McLaughlin Water Engineers, Ltd. *Water Supply Master Plan. Morrison Creek Metropolitan Water & Sanitation District* (December 2009). Lakewood, CO

Metcalf & Eddy (1991), *Wastewater Engineering Treatment Disposal Reuse*. Third edition.

United States Environmental Protection Agency (2020). *Envirofacts Warehouse.* Retrieved April 20, 2020 from http: https://enviro.epa.gov/enviro/ICIS_DETAIL_REPORTS_NPDESID.icis_tst?npdesid=CO0022969&npvalue=1&npvalue=13&npvalue=14&npvalue=3&npvalue=4&npvalue=5&npvalue=6&rvalue=13&npvalue=2&npvalue=7&npvalue=8&npvalue=11&npvalue=12

United States Environmental Protection Agency (2020). *Envirofacts.* Retrieved April 20, 2020 from https://enviro.epa.gov/enviro/envirofacts.quickstart?pSearch=Map%20Recentered&minx=-106.938167&miny=40.239197&maxx=-106.662135&maxy=40.298139&ve=13,40.268668,-106.800151

APPENDIX – SUPPLEMENTAL INFORMATION

- Regulation 22.8 Site Application Form
- Service Area Map
- Map of Adjacent Properties
- Site Application #1559 Decision (September 5, 1972)
- Site Application #1559 Amendment (March 30, 1990)
- Written Delegation of Operator Duties (Operation & Maintenance Manual)
- Emergency Response Plan
- Routt County Property Record Card
- 20-year Cash Flow Projection
- Environmental Checklist for the Selected Alternative
- Cost and Effectiveness Evaluation Certification
- FEMA Floodplain Map
- National Wetlands Inventory Map
- Suez Memcor Z-Mod Brochure
- Suez Memcor Z-Mod MBR Proposal
- Fluidyne ISAM Brochure
- Fluidyne Equipment Proposal
- Fluidyne Process Design Calculations
- Preliminary Engineering Drawings

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Application Form
Section 22.8 of Regulation 22: Amendment of an Existing Site Location Approval

A. Project and System Information			
System Name	Morrison Creek Metropolitan Water & Saniation District		
Project Title	Wastewater Treatment System Improvement Project		
County	Routt		
Date Fee Paid or payment attached	Paid by district in February 2020	Invoice Number and Check Number	
Design Company Name	AquaWorks DBO, Inc.		
Design Engineer	Adam Sommers, P.E.	CO License Number	38,169
Address	3252 Williams Street Denver, CO 80205		
Email	adam@aquaworksdbo.com		
Phone	(303) 477-5915	Fax	
Applicant / Entity	Morrison Creek Metropolitan Water & Saniation District		
Representative Name/Title	Tony Borean, President		
Address	24490 Uncompahgre Road Oak Creek, CO 80467		
Email	info@mcwater.org		
Phone	(970) 736-8250	Fax	

B. Type of Site Application	
Amendment of an Existing Site Location Approval – Disinfection Changes Only (Section 22.8(2)(b)(ii) of Regulation 22)	☐
Amendment of an Existing Site Location Approval – All other Amendment Requests (Section 22.8 Regulation 22)	☒

C. Project Information

Location (existing or proposed site)		***Proposed Project Capacity***	
Brief location description	24490 Uncompahgre Road Oak Creek, CO 80467	Maximum Month Average Hydraulic Capacity in million gallons per day (MGD)	0.350 MGD
Legal Description (e.g., Township, Range)	SW 1/4, Section 32, Township 3N, Range 85W	Peak Hour Hydraulic Capacity in million gallons per day (MGD)	0.0054 MGD
County	Routt		
Latitude	40.271111	Organic Capacity (lbs. BOD_5/day) – Treatment Facility Only	800 lbs. BOD_5/day
Longitude	-106.838916		

Funding Process	Will a State or Federal grant or loan be sought to finance any portion of the project (e.g., State Revolving Fund)?	No ☐	Yes ☒	If yes, please list project number	141041W-A

Project Schedule and Cost Estimate	
Estimated Bid Opening Date	Early 2022
Estimated Completion Date	Late 2022
Estimated Project Cost	$8,000,000

Project and System Information	
Project Title	Wastewater Treatment System Improvement Project
System Name	Morrison Creek Metropolitan Water & Saniation District
County	Routt
Original site location approval number (please attach a copy of the approval letter)	1559
Original site location approval date	9/8/1972
CDPS discharge permit number	CO-0022969
CDPS discharge permit expiration date	August 31, 2020
1. Type of Site Amendment	
Liquid stream treatment process addition (22.8(2)(a))	☐
Treatment process physical change (22.8(2)(b)(i-vii, except ii))	☒
Treatment process physical change (22.8(2)(b)(ii))	Please submit Regulation 22 Application, Section 22.8 (2)(b)(ii) of Regulation 22: Amendment of an Existing Site Location Approval – Disinfection Changes Only
Decrease in approved, rated design capacity (22.8(2)(c))	☐
Increase in approved, rated design capacity (22.8(2)(c))	☐
Reclaimed domestic wastewater addition or expansion (22.8(2)(d))	☐
Discharge type change (22.8(2)(e))	☐
2. Site Amendment Description	This site amendment application is for the installation of a new dual train sequencing batch reactor. The new facility will have the same rating as the existing facility, 350,000 GPD and 800 lbs of BOD. The existing nearly 50 year old facility will be decommissioned once the new plant is operational. The discharge location to Stagecoach Reservoir will remain the same.

3.Comparison of Existing and Proposed Treatment Facilities

a. Treatment Capacity	Existing Treatment Facility	After Proposed Treatment Process Modification(s)
i. Hydraulic capacity: Maximum Month Average (million gallons per day)	0.350 MGD	0.350 MGD
ii. Hydraulic capacity: Peak Hour (million gallons per day)	90 GPM	90 GPM
iii. Organic capacity: Maximum	800 lbs	800 lbs

Month Average (lbs BOD_5/day)		
b. Treatment Facility Process Description	Extended Air Facility. Principal components include manual barscreen, extend air basin, clarifier, facultative digester, sludge digester, chlorine contact tank, and gravity discharge line.	Sequencing Batch Reactor. Principal components include automatic bar screen, anaerobic zone with sludge digestion, anoxic zone, SBR tank, UV or chlorine disinfection, and sludge dewatering.
c. Effluent disposal method (check all that apply)		
Surface Discharge to watercourse	☒,	☒,
Location of discharge (stream segment and legal description)		
Groundwater Discharge	☐	☐
Land application	☐	☐
Treated Effluent Reuse (Regulation 84)	☐	☐
Evaporation	☐	☐
Other (enter description)	☐,	☐,

4. Additional Factors

Please identify any additional factors that might help the Water Quality Control Division make an informed decision on your site location application.

Response: *See Engineering Report*

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Applicant Certification and Review Agencies Notification List
Section 22.8 of Regulation 22: Amendment of an Existing Site Location Approval

A. Project and System Information	
System Name	Morrison Creek Metropolitan Water & Saniation District
Project Title	Wastewater Treatment System Improvement Project
County	Routt

1. Applicant Certification

I certify that I am familiar with the requirement of *Regulation 22 - Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works.*

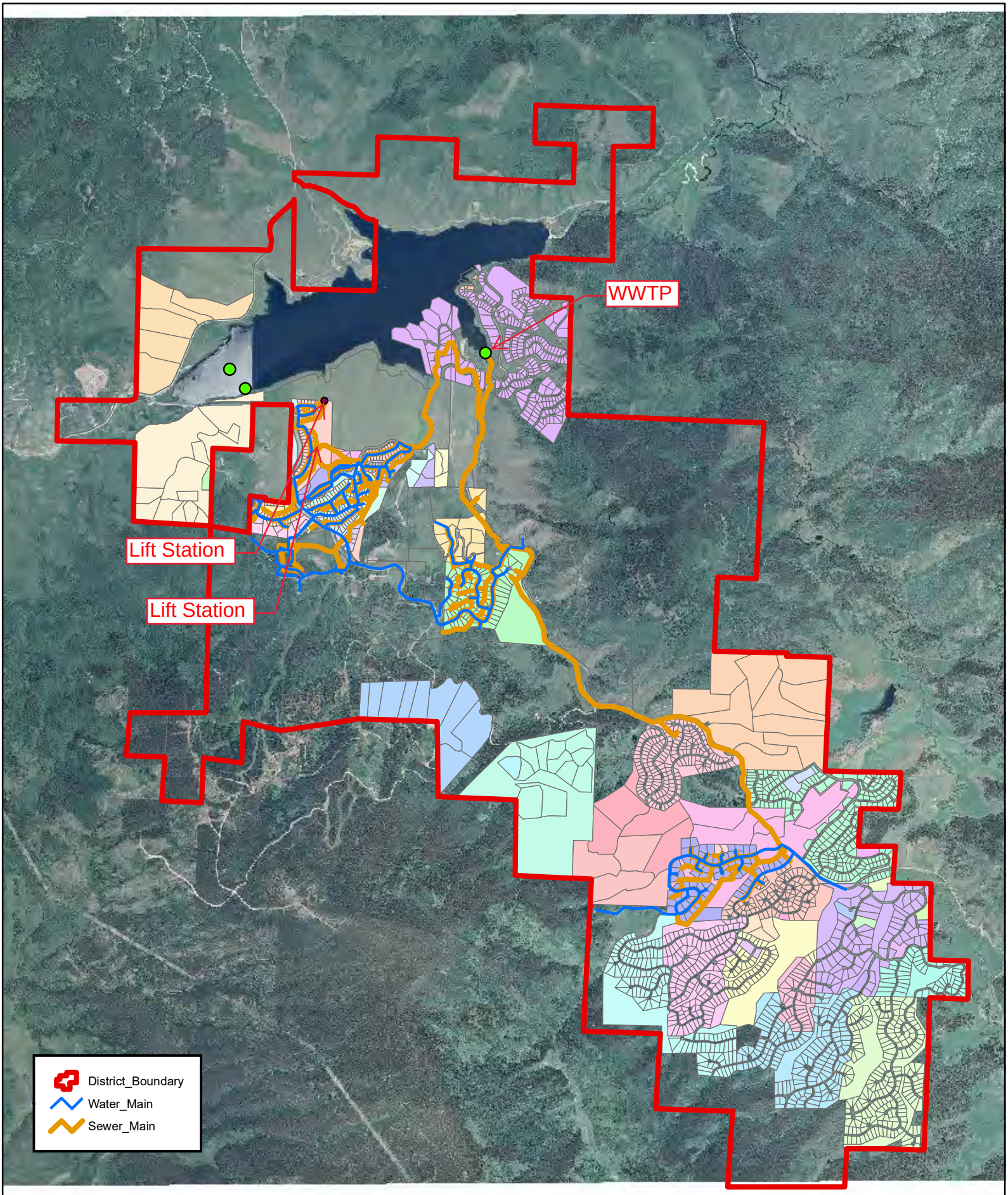
Applicant Legal Representative (e.g., Public Works Director)	Date	Typed Name	Signature
Board President	6/24/10	Tony Borean	

The system legal representative is the legally responsible agent and decision-making authority (e.g. public works director, mayor, president of a board, owner). The Consulting Engineer is not the legal representative and cannot sign this form.

2. Review Agencies Notification List

As required in Section 22.8(1), the amendment application and any amendment proposal supporting documentation must be submitted to all appropriate local governments, 208 planning agencies and State agencies, as defined in 22.4(2). The review agencies will have 15 working days from receipt of the application to review and comment directly to the Division unless a brief extension is requested in writing. Please list below the governmental review agencies to whom the amendment application and proposal has been submitted and attach a copy of the transmittal letter.

Management Agency, if different from other entities listed below	
Typed Name / Agency	Notification Date
Not Applicable	
County, if proposed facility is located in unincorporated areas of a county	
Typed Name / Agency	Notification Date
Mark Collins / Routt County	
City or Town, if site is located within three miles of the City/Town boundary	
Typed Name / Agency	Notification Date
Not Applicable	
Local Health Authority	
Typed Name / Agency	Notification Date
Scott Cowman / Routt County Environmental Health	
208 Planning Agency	
Typed Name / Agency	Notification Date
Not Applicable	
Other State or Federal Agencies, if facility is located on or adjacent to a site that is owned or managed by a federal or state agency	
Typed Name / Agency	Notification Date
Not Applicable	
Other Basin Water Quality Authority, Watershed Association, Watershed Authority, etc., if facility is located in a Water Quality Control Commission Watershed Protection Control Area.	
Typed Name / Agency	Notification Date
Andy Rossi / Upper Yampa Water Conservancy District	



Morrison Creek District Map

0 2,500 5,000 10,000 Feet

Morrison Creek W&S District

May 2, 2017

Parcels

Public Lands

STATE; STATE

Roads

State

Public - Primary

Public - Local

Public - 4WD

Private

Town

USFS

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

Routt County GIS User

USDA FSA, Microsoft | Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS |

175

---SITE APPLICATIONS---

Date Received	OWNER AND ADDRESS	LOCATION OF SITE	COUNTY	TYPE	GIVEN TO DISTRICT ENGINEER	DATE
8/25/72	C F. Hixson, Guthrie, Okla	South Fork	Rio Grande	Septic	Hinman	
8/25/72	L. B. Bailey, Borger, Texas	South Fork	Rio Grande	Septic	Hinman	
#1553 9/1/72	A. E. Belcher R.R. #1 Bayfield	North Vallecito Lot 184 Happy Scenes #7	IDENTIFIED AREA La Plata Eval	Septic tank Transpiration	Hinman	approved 9/8/72
#1554 9/5/72	Robert A. McLane 1065 West ~~54th~~ 154th Ave. Broomfield	Mustang Acres Block 1, Lots 20-24 Block 2, Lots 5-6-7-8	IDENTIFIED AREA Adams	Septic tank	Richards	approved 9/8/72
1555 9/5/72	Theodore Wendelin ~~2746~~ 2746 Xavier St. Denver	Lot 4, Block 2 Sunny Slope Estates Filing No. 2	IDENTIFIED AREA Adams	Septic tank	Richards	approved 9/8/72
1556 9/5/72	Max L. Derry 11927 Lafayette Northglenn	Lot 6 Block 4 Sunny Slope Estates Filing No. 1	IDENTIFIED AREA Adams	Septic tank ~~Evapotrans~~.	Richards	approved 9/8/72
1557 9/5/72	Silver Heights W. & S. District, Castle Rock		Douglas	Expansion of Existing fac.	Richards	approved 9/8/72
1558 9/5/72	Carl Elder, agent P. O. Box 112 Sedalia	Lot 221 Greenwood	IDENTIFIED AREA Arapahoe	Septic tank Evapo.	Richards	approved 9/8/72
1559 9/5/72	Morrison Creek W. & S. District (Stage Coach)	16 miles south of Steamboat Springs	Routt	STP, 1st phase 0.5 mgd ~~conc~~ contact stabilization	~~Mosbaci~~ Fusbach	approved 9/8/72
1560 9/7/72	N. Joan Pestinger 4869 West Exposition= Denver	Lot 245, Hyland Hills Sub.	IDENTIFIED AREA Clear Creek	Aeration system	Henshaw	approved 9/8/72

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue
Denver, Colorado 80220-3716
Phone (303) 320-8333

Telefax:
(303) 322-9076 (Main Building/Denver)
(303) 320-1529 (Ptarmigan Place/Denver)
(303) 248-7198 (Grand Junction Regional Office)

March 30, 1990

Roy Romer
Governor

Thomas M. Vernon, M.D.
Executive Director

Morrison Creek Metropolitan Water & Sanitation District
Stephen E. Colby, Manager
24490 Uncompahgre Rd.
Oak Creek, CO 80467

WQCD-Field Support Section
Steamboat Springs

APR 16 1990

RE: Site Application #1559
Routt County

Dear Mr. Colby:

The Water Quality Control Division has received and evaluated your request to amend the above referenced site application, approved September 8, 1972. The proposed changes include a reduction in design capacity from 0.5 mgd to 0.35 mgd and a change in the point of discharge from Little Morrison Creek to Stagecoach Reservoir (Segment 2 of the Yampa River).

The Division finds your proposal to be compatible with the existing Classifications and Numeric Standards Upper Colorado River Basin and has no objection to the proposed changes. Therefore, Site Application #1559 is hereby amended subject to the conditions listed below.

1. Based upon application information, the system design will be limited to:
   Average Daily Flow Capacity - 0.35 mgd
   Organic Loading Capacity - 800 lbs BOD_5/day
   Treatment Processes to be Used - Contact Stabilization activated sludge, chlorination and dechlorination with discharge to Stagecoach Reservoir.

2. Preliminary Effluent Parameter Values:
   BOD_5 - 30/45 mg/l
   Suspended Solids -30/45 mg/l
   Total Residual Chlorine - 0.05 mg/l
   Fecal Coliform - 200/400 organisms/100 ml

3. This amendment will expire one year from the date of this letter if construction of the new discharge structure has not commenced by that date.

4. The design (construction plans and specifications) for the dechlorination facilities must be approved by the division's District Engineer prior to commencement of construction of those facilities and all construction change orders initiating variances from the approved plans and specifications must be approved by the Division.

5. The applicant's registered engineer must furnish a statement prior to the commencement of operation stating that the facilities were constructed in conformance with plans, specifications, and change orders.

6. Prior to the initiation of a discharge to Stagecoach Reservoir, a discharge permit will be required. This permit will specify the final conditions and limitations of the operation of the facility.

This approval does not relieve the applicant from compliance with all county regulations prior to construction nor from responsibility for proper engineering, construction and operation of the facility.

Sincerely,

J. David Holm
Director
Water Quality Control Division

JDH:lc

xc: Upper Yampa Water Conservancy District - Attn: John Fetcher
Division of Parks & Outdoor Recreation - Attn: Dennis Scheiwe
Civil Design Consultants
Northeast Colorado Council of Governments - Attn: Lane Wyatt
Thomas Bennett, Sr. Planner, WQCD
Jim Chubrilo, D.E., WQCD
Karen Young, Permits & Enforcement, WQCD
Division of Wildlife - Attn: John woodling
Field Support File, WQCD
Sharon Ferdinandsen, Operator Certification, WQCD

0857m/0177m

MORRISON CREEK METROPOLITAN WATER & SANITATION DISTRICT

WASTEWATER TREATMENT PLANT &

Collection System

OPERATION MANUAL

3/15/18

CONTACTS

DISTRICT MANAGER: Steve Colby

Office: (970) 736-8250

Cell: (970) 819-1414

Home: (970) 736-8403

ASSISTANT DISTRICT MANAGER: Jeff Erickson

Office: (970) 736-8250

Home: (970) 736-1126

Cell: (970) 846-6459

OPERATOR: Bill Queen

Cell: (970) 367-3681

BOARD PRESIDENT: Tony Borean

Cell: 846-8750

Colorado Department of Health:

District Engineer: Andy Poirot

Office (970) 879-7479

24-hour Spill Hotline:

1-877-5608

DAILY TASKS:

I) Compliance Monitoring Testing

- **Take Effluent Grab Sample (outside shed)**
- **pH (Stick)**
- **Dissolved Oxygen (YSI Instrument-Air calibrate)**
- **Oil & Grease (Visual Unless Visible Sheen)**
- **Residual Chlorine (Hach DR 890 Colorimeter)**
- **Flow Reading (Flow Meter Located in Plant)**

II) Operational Tasks:

A) Check & Clean Bar Screen

B) Manually Operate & Adjust Air Lift Clarifier Skimmer

C) Check Operation and Tank Level of Hypochlorite & Bisulfite Metering Pumps (In Room Off of Main Plant) Refill as necessary

D) MLSS Test (Take A-Basin Sample and do SS Test) Waste as necessary to maintain proper level 2100 -2200 Winter, 1900-2100 Summer. Waste Control is located at the end of catwalk (Slide Valve)

E) Do Settleometer Test

F) Microscopic Examination of MLSS

1) Observe Microorganisms Present and Monitor Filamentous Bacteria. Act to control if filaments are increasing

G) Check & Clean DO probe in A-Basin that controls VFD for Aeration Control.

H) Check SCADA System for Lift Station, Blower and Sludge Return Operation and DO Level the past 24 hours.

WEEKLY TASKS

I) Compliance Monitoring:

A) BOD (Effluent & Influent) 8hr flow comp sample

B) TSS (Effluent & Influent) 8hr flow comp sample

C) Ammonia Nitrogen (Hach Sension- must be calibrated with ammonia standards) 8 hr flow comp sample-effluent only

D) E- Coli- Grab sample

E) Adjust Hypo & Bisulfite metering pumps to maintain CL2 residual and fecal coliform compliance as needed

II) Operational Tasks:

A) Clean Scrub Clarifier Weirs

B) Clean Clarifier Stilling Basin

C) Scrub Basin Walls

D) Take out bar screen tailings to dumpster.

E) Clean Material from diffusers (use great care to not pull off diffuser head)

F) Stir A-Basin and Facultative connect pipe, clean connect pipe with hose

G) Check sludge level in clarifier with sludge judge.

H) Refill Hypo & Bi-sulfite tanks (5 to 1 ratio currently)

I) Clean Vault Intake Screen

J) Net and Remove Rags, Grease Balls, Etc From All Treatment Tanks

MONTHLY TASKS:

I) Compliance Monitoring:

A) Water System TDS (Distribution System Sample)

II) Operational Tasks:

A) Check Sludge Level in Facultative Digester

B) Pump excess sludge from bottom of facultative digester as needed from bottom of facultative digester with trash pump to final digester. Maintain maximum 1 to 2'of sludge in facultative digester.

C) Grease Clarifier Mechanism

D) Calibrate Flow Monitoring Device (Hydroranger)

BI-MONTHLY:

I) Compliance Monitoring:

A) Regulation 85 Testing (Bring Samples to ACZ labs)

6 MONTHS:

A) Clean Chemical Metering Pumps & Replace Peristaltic Tube

B) Rotate Blowers and grease

YEARLY (or as needed)

A) Remove Sludge from Digester (Currently Contracted with Parker AG). Frequency dependent on level in Digester. Never draw down digester more than 7 feet! Walls will collapse!

B) Calibrate Lab Instruments.

C) Plant Maintenance as needed

LIFT STATIONS

Lift Station I

A) Check Operation Via SCADA Daily

B) Visit in Person At Least Weekly

C) Clean Filters for seal water yearly or as needed.

D) Clean grease from wet well twice/year.

E) Clean with vac-truck yearly to get all grit off of bottom

F) Send pump & motor in every 2000 hrs for check & rebuild.

G) Test both pump control systems bi-annually.

Lift Station II

A) Check Operation via SCADA Daily.

B) Clean with vac-truck periodically as needed

C) Test pump control system periodically

D) Visually inspect pump control floats weekly to assure they are hanging free

Emergency Response Planning Template for Public Drinking Water Systems

Produced for the Rural Community Assistance Partnership (RCAP) National Network

by Rural Community Assistance Corporation, Western RCAP

RCAP Safety and Security Education Program

Rural Community Assistance Corporation
www.rcac.org

Midwest Assistance Program

COMMUNITY RESOURCE GROUP INCORPORATED

RCAP Solutions

Southeast Rural Community Assistance Project, Inc.
Water Is Life

Emergency Response Planning Template for Public Drinking Water Systems

RCAP Regional Offices:

If you need technical assistance to complete your Emergency Response Plan, please contact one of our regional offices listed below.

Regional Offices	Contact Number	Web Address
RCAP National Office	888/321-7227	www.rcap.org
Western RCAP	916/447-2854	www.rcac.org
Southeast RCAP	866/928-3731	www.southeastrcap.org
Great Lakes RCAP	800/775-9767	www.glrcap.org
Southern RCAP	479/443-2700	www.crg.org
Northeast RCAP	800/488-1969	www.rcapsolutions.org
Midwest RCAP	952/758-4334	www.map-inc.org

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For additional copies of this publication, call 888/321-7227or visit RCAP's web site at *www.rcap.org.*

This publication is being distributed under the auspices of Rural Community Assistance Partnership.

Contents

Planning Template

Introduction

Preparing an emergency response plan is an essential part of managing a drinking water system. Rural Community Assistance Partnership, Inc has developed this template for public water systems serving 3,300 population or fewer to help them develop such plans.

How to use the template

Developing an emergency response plan can take a lot of time and effort. The purpose of this document is to make the job easier and help create a plan that works for your water system. The document is intended for use by any water system and may be modified to fit the specific needs of each system. This document can be used as a starting point based on what is relevant for the type, size, and complexity of the system.

The template is just a guide; you may modify it in any way that works for your system – add sections, take them out, or rearrange them if you wish. You may also use a completely different format for your plan if you find one that works better for your system.

Since this document may contain sensitive information, **do not** submit it to USDA/RD and make sure to keep it stored in a safe and secure location. It is recommended you have one copy stored on-site and one off-site to ensure the document is available in the event you are unable to access your offices or facilities. The document is available electronically on the web at: http://www.rcap.org

The requirement for an emergency response plan

The United States Department of Agriculture, Rural Development (USDA/RD) is requiring that all systems that receive USDA/RD funding must complete a Security Vulnerability Assessment (SVA) and Emergency Response Plan (ERP). In addition to the USDA/RD requirements, the preparation of a SVA and ERP will help improve the management of the water system and will increase the system's ability to respond to emergencies.

This guidance document can be used to help meet the requirement for developing an emergency response program for a water system serving 3,300 population or fewer. Other methods or formats can also be used to meet the emergency response program requirement.

Section 1.
System Information

Keep this basic information easily accessible to authorized staff for emergency responders, repair people, and the news media.

System information

System Identification Number	PWSID #: 154518 Wastewater Permit #: CO-0022969	
System Name and Address	Morrison Creek Metropolitan Water & Sanitation District 24490 Uncompahgre Road Oak Creek, CO 80467	
Directions to the System	From Steamboat Springs: East on US 40 aprox 3m. Rt on SH 131 7m. Left on CR 14 7m. Left on CR 16. 1.5m to intersection with CR 212. 1.5 m to intersection with CR 18A. 1m to Uncompahre Road. .5m to 24490 Uncompahgre Road (District Office). See District Website mcwater.org for additional directions and map.	
Basic Description and Location of System Facilities	The District has 4 wells, 2.5 MGD Tanks, 2 Booster Stations, 80,000' water main, 90,000' sewer main and a Wastewater Plant located in the Stagecoach Subdivsions in Routt County.	
Location/Town	The nearest town and post office is Oak Creek 10 miles away. Steamboat Springs is 25 miles away.	
Population Served and Service Connections from Division of Drinking Water Records	800 people	450 connections 80 vaults
System Owner	Morrison Creek Metropolitan Water & Sanitation Distrct	
Name, Title, and Phone Number of Person Responsible for Maintaining and Implementing the Emergency Plan	Stephen Colby District Manager	970 736-8250 Phone 970 819-7076 Cell **970 736-8403 Home**

Section 2.
Chain of Command – Lines of Authority

The first response step in any emergency is to inform the person at the top of this list, who is responsible for managing the emergency and making key decisions.

Chain of command – lines of authority

Name and Title	Responsibilities During an Emergency	Contact Numbers
Stephen Colby District Manager	Contact All Employees Contact CDPHE and any emergency agencies or services required	970 736-8250 970 736-8403 970 819-1414
Jeff Erikson Assistant District Manager	Respond as necessary in the District managers Absence	970 736-1126 970 736-8250 846-6459
Bill Queen	Respond as necessary	970 367-3681 970 736-8250

Section 3.
Events that Cause Emergencies

The events listed below may cause water system emergencies. They are arranged from highest to lowest probable risk.

Events that cause emergencies

Type of Event	Probability or Risk (High-Med-Low)	Comments
Chlorinator Failure	Med	Employees Monitor Daily
Water Main Break	Med	Employees Live in District to respond
Booster Station Failure	Med	Employees Respond
Water Tank Failure	Low	Employees respond
System Contamination	Low	

Section 4.
Emergency Notification

Notification call-up lists - Use these lists to notify first responders of an emergency.

Emergency Notification List				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Local Law Enforcement	Routt County Sheriff	879-1090 911		
Fire Department	Oak Creek Fire District –Chuck Wisecup Chief	970 736-8104	Chuck Cell : 970 846-8344	ocfpd@nctelecom.net
Emergency Medical Services	Yampa Valley Medical Center	879-1322		yvmc.org
Water Operator (if contractor)				
Primacy Agency Contact	MCMWSD	970 736-8250		
Hazmat Hotline				
Interconnected Water System				
Neighboring Water System (not connected)				
CDPHE	Hotline	1 877-5608		
District Engineer CDPHE	Andy Poirot	970 879-7479		

Priority Customers				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Hospitals or Clinic(s)	None			
Public or Private Schools	None			
Wastewater Treatment Plant	MCMWSD	970736-8250	970 736-8403	scolby@mcwater.org
Adult Care Facility				

State, Federal or Tribal Notification List				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
State or Tribal Police	State Patrol Craig	970 826-1301 970 824-6501		
Regulatory Agency State/Federal/Tribal	CDPHE Environmental Release/Incident Report Line	1-877-5608		
Authorized Testing Laboratory	CDPHE Lab	303 692-3090		

Service / Repair Notifications				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Electric Utility Co.	Yampa Valley Electric	879-1160	871-2237	
Electrician				
Gas/Propane Supplier				
Water Testing Lab.				
Sewer Utility Co.				
Telephone Co.				
Plumber				
Pump Supplier				
"Call Before You Dig"	UNCC	1-800-922-1987	719 471-0229	
Rental Equipment Supplier				
Chlorine Supplier	DPC Industries	303 536-4000		wstone@dxgroup.com
Well Drilling Co.				
Pipe Supplier				

Media Notification List				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Newspaper - Local	Steamboat Pilot	879-1502		
Newspaper – Regional/State/Tribal				
Radio	KBCR	879-2270		
Radio				
TV Station	KUSA Denver	303 871-9999		

Notification procedures

Notify water system customers of potential water shortage

Who is Responsible:	Steve Colby & Jeff Erikson
Procedures:	Door to Door, Post Notice in Conspicuous places

Alert local law enforcement, state, federal, or tribal drinking water officials, and local health agencies

Who is Responsible:	Steve Colby & Jeff Erikson
Procedures:	Call CDPHE, Routt Environmental Health etc.

Contact service and repair contractors

Who is Responsible:	Steve Colby & Jeff Erikson
Procedures:	Call for help as necessary

Contact neighboring water systems, if necessary

Who is Responsible:	
Procedures:	

Procedures for issuing a health advisory

Who is Responsible:	Steve Colby & Jeff Erikson
Procedures:	Door to Door & Posting in Conspicuous Places

Other procedures as necessary

Who is Responsible:	Steve Colby & Jeff Erikson
Procedures:	Develop Plan and Implement

Section 5.
Effective Communication

Communication with customers, the news media, and the general public is a critical part of emergency response.

Designated public spokesperson

Designate a spokesperson (and alternate) and contact your local primacy agency for delivering messages to the news media and the public.

Designate a spokesperson and alternates

Spokesperson	Alternate
Steve Colby, District Manager	Jeff Erikson, Asst District Manager

Health advisories

During events when water quality and human health are in question, it may be necessary to issue a health advisory that gives advice or recommendations to water system customers on how to protect their health when drinking water is considered unsafe. These advisories are issued when the health risks to the consumers are sufficient, in the estimation of the water system, state or tribal, or local health officials, to warrant such advice.

Health advisories usually take the form of a drinking water warning or boil water advisory. Communication during these times is critical. Health advisories should always be well thought out and provide very clear messages.

The U.S. Environmental Protection Agency has put together a number of tools, including fact sheets, brochures, forms, and templates to help prepare for a health advisory. These are on the web at: http://www.epa.gov/safewater/pn.html

Section 6.
Response Actions for Specific Events

In any event, there are a series of general steps to take:

1. Analyze the type and severity of the emergency;
2. Take immediate actions to save lives;
3. Take action to reduce injuries and system damage;
4. Make repairs based on priority demand, and
5. Return the system to normal operation.

The following tables identify the assessment, set forth immediate response actions, define what notifications need to be made, and describe important follow-up actions.

A. Power outage

Assessment	District Employees- Consult SCADA.
Immediate Actions	Call Yampa Valley Electric
Notifications	As Necessary
Follow-up Actions	Visit & Verify all District Sites SCADA

~~C.~~B. Distribution line break

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Assessment	District Employees-Consult SCADA. Tank Level –Booster I
Immediate Actions	Contact Other Employees for Aid Determine Location of Break and Attempt to Isolate
Notifications	Call State Environmental Release Incident Report Line 1-877-518-5606 DE: 970 879-7479
Follow-up Actions	

~~D.~~C. Chlorine treatment equipment failure

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Assessment	Equipment is malfunctioning or no residual on daily inspection.
Immediate Actions	Repair or Replace Equipment Within 24 hours Cease using and switch to alternate source
Notifications	Notify CDPHE 1-877-518-5608 if not repaired within 24 hrs and still in use.
Follow-up Actions	Verify Cl2 levels in distribution system

~~E.~~D. Treatment equipment

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Assessment	See Above
Immediate Actions	
Notifications	
Follow-up Actions	

~~F.~~E. Source pump failure

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Assessment	Well Not pumping
Immediate Actions	Switch to alternate source
Notifications	
Follow-up Actions	

~~G.~~F. Microbial (coliform, *E. coli*) contamination

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Assessment	Notified by Routt Environmental Health of Positive Test
Immediate Actions	Check Cl2 residual in Distribution System Flush System
Notifications	CDPHE 1-877-5608
Follow-up Actions	Test Wells, Distribution System for Microbial Contamination

~~H.~~G. Chemical contamination

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Assessment	Signs of Tampering or Spills Around Source Wells
Immediate Actions	Testing as Prescribed
Notifications	CDPHE 1-877-5608 DE: 970 879-7479
Follow-up Actions	

H. Vandalism or terrorist attack

Assessment	Daily Inspection of All Facilities SCADA Monitoring
Immediate Actions	Notify Sheriff & Local Authorities Notify CDPHE & DE
Notifications	Others As Advised
Follow-up Actions	As Necessary

~~J.~~I. Reduction or loss of water in the well

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Assessment	Observed Reduction in Production
Immediate Actions	Initiate Testing to Include m-scope readings
Notifications	Notify Consultant HRS Water Consultants
Follow-up Actions	

~~K.~~J. Drought

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Assessment	On Going
Immediate Actions	
Notifications	
Follow-up Actions	

~~L.~~K. Flood

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Assessment	NA
Immediate Actions	
Notifications	
Follow-up Actions	

~~M.~~L. Earthquake

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Assessment	Complete System Evaluation
Immediate Actions	
Notifications	
Follow-up Actions	

~~N.~~M. Hazardous materials spill in vicinity of sources or system lines

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Assessment	Same as Chemical Spill Above
Immediate Actions	See Above
Notifications	See Above
Follow-up Actions	See Above

~~O.~~N. Electronic equipment failure

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Assessment	As Prescribed
Immediate Actions	
Notifications	
Follow-up Actions	

~~P.~~O. Cyber attack

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Assessment	
Immediate Actions	
Notifications	
Follow-up Actions	

~~Q.~~P. Other

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Assessment	
Immediate Actions	
Notifications	
Follow-up Actions	

~~Q.~~

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Section 7.
Alternative Water Sources

Intertie to adjacent water supply system

Water Systems Within One-Quarter Mile of our System	Feasibility of Connecting
None	None

Alternate source(s) of water

Alternative Sources	Names	Phone	Availability	Is the Water Safe for Drinking?
Bottled water Suppliers for potable water use				
Tanker trucks in the area available to deliver bulk water for non potable use	Raindrop Water Steamboat	970 879-0655	Yes	Yes

Section 8.
Returning to Normal Operation

Returning to normal operations

Action	Description and Actions

Section 9.
Plan Approval

Plan approval

This plan is officially in effect when reviewed, approved, and signed by the following people:

Name/Title	Signature	Date

Public Water System ID Number: _____

System Name: _____

Address: _____

Print Name of Person Authorized to Sign this Certification on behalf of the System:

_____ **Title:** _____

Signature: _____

Phone: _____ **Fax:** _____ **Email:** _____

Received Technical Assistance from the following:

☐ Rural Community Assistance Partnership

(CRG, Great Lakes RCAP/WSOS, MAP, RCAC, RCAP Solutions, Southeast RCAP)

☐ Rural Water Association

Completing the following:

☐ Security Vulnerability Assessment

☐ Emergency Response Plan

Rural Community Assistance Partnership, Inc.
1522 K Street, N.W., Suite 400
Washington, D.C. 20005
888/321-7227

Property Record Card

Routt County Assessor

MORRISON CREEK METROPOLITAN WATER

AND SANITATION DISTRICT
24490 UNCOMPAGHRE RD
OAK CREEK, CO 80467-0000

Account: R8168054

TREATMENT PLANT
Tax Area: 55 - *RE3*
STAGECOACH AREA - Reservoir & the orig. P.U.D. Boundary

Acres: 5.230

Parcel: 158500901

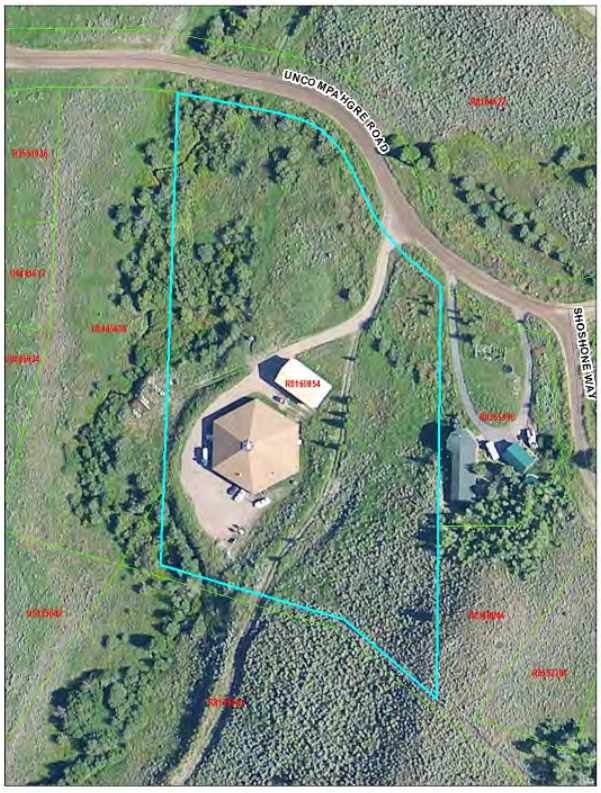
Situs Address:
24490 UNCOMPAHGRE RD
OAK CREEK, 80467

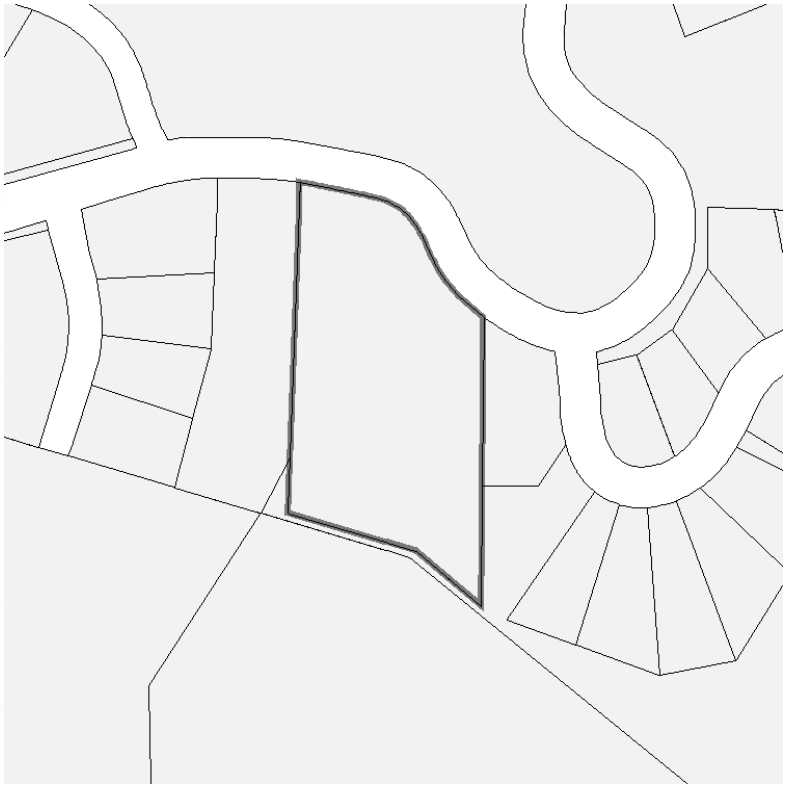
Value Summary

Value By:	Market	Override
Land (1)	$125,000	N/A
Total	**$125,000**	**$125,000**

Legal Description

SANITARY TREATMENT PLANT, SOUTH SHORE AT STAGECOACH F2, TOTAL 5.23A





Public Remarks

Entry Date	Model	Remark
		CREATED PER GIS REQUEST CB

Land Occurrence 1

Property Code	9144 - FIRE, WATER & SAN LAND	Economic Area	9 - STAGECOACH AREA
Super Neighborhood	150 - STAGECOACH - NORTH	Neighborhood	1215 - SOUTH SHORE AT STAGECOACH
Land Code	121560 - SOUTH SHORE LAKEFRONT	Land Use	1 - PRIME SITE
Site Access	2 - YEAR-ROUND	Road	2 - DIRT
Site View	3 - AVERAGE	Topography	3 - SLOPING
Slope	2 - SLIGHT	Wetness	1 - NOT AFFECTED
Water	0 - UNKNOWN	Utilities	3 - ELECTRIC
Sewer	0 - UNKNOWN	Slope	2 - SLIGHT
Wetness	1 - NOT AFFECTED		

Morrison Creek Metro Water & Sanitation District

20 Year Cash Flow Projections

Revenue	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Property Taxes *	$ 331,000	$ 346,000	$ 353,000	$ 360,000	$ 367,000	$ 375,000	$ 382,000	$ 393,000	$ 405,000	$ 417,000	$ 430,000	$ 443,000	$ 456,000	$ 470,000	$ 483,000	$ 498,000	$ 514,000	$ 529,000	$ 545,000	$ 561,000	$ 578,000	$ 595,000
Specific Ownership Tax	$ 19,000	$ 19,000	$ 20,000	$ 20,600	$ 21,218	$ 21,855	$ 22,510	$ 23,185	$ 23,888	$ 24,597	$ 25,335	$ 26,095	$ 26,878	$ 27,685	$ 28,515	$ 29,371	$ 30,252	$ 31,159	$ 32,094	$ 33,057	$ 34,049	$ 35,070
Water Service Fees	$ 208,000	$ 210,000	$ 220,000	$ 231,000	$ 243,000	$ 255,000	$ 268,000	$ 281,000	$ 295,000	$ 310,000	$ 326,000	$ 342,000	$ 359,000	$ 377,000	$ 396,000	$ 416,000	$ 436,000	$ 458,000	$ 481,000	$ 505,000	$ 531,000	$ 557,000
Sewer Service Fees	$ 286,786	$ 290,500	$ 306,600	$ 321,930	$ 338,026	$ 354,928	$ 372,674	$ 391,308	$ 410,873	$ 431,416	$ 452,988	$ 476,673	$ 499,419	$ 524,390	$ 550,609	$ 578,140	$ 607,047	$ 637,399	$ 669,269	$ 702,733	$ 737,869	$ 774,763
Dumping Fees	$ 32,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 42,000	$ 42,000	$ 43,000	$ 43,000	$ 43,000	$ 44,000	$ 44,000
Interest	$ 10,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000
Misc	$ 8,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 11,000	$ 11,000	$ 11,000	$ 12,000	$ 12,000	$ 12,000
Tap Fees	$ 48,000	$ 64,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 75,000	$ 75,000
TOTAL	$ 944,805	$1,013,520	$1,015,621	$ 1,049,552	$1,085,267	$ 1,122,807	$ 1,162,209	$ 1,213,519	$1,259,788	$ 1,308,041	$1,359,352	$1,412,798	$ 1,466,328	$ 1,524,107	$ 1,583,157	$ 1,647,545	$1,724,334	$ 1,793,594	$ 1,865,400	$ 1,940,828	$ 2,045,957	$ 2,126,873
Expenses																						
Payroll & Benefits	$ 397,000	$ 504,000	$ 500,000	$ 510,000	$ 520,000	$ 530,604	$ 541,000	$ 552,000	$ 563,000	$ 574,000	$ 586,000	$ 598,000	$ 609,000	$ 628,000	$ 647,000	$ 659,000	$ 672,000	$ 686,000	$ 700,000	$ 714,000	$ 728,000	$ 743,000
R&M	$ 22,834	$ 100,000	$ 50,000	$ 55,000	$ 60,000	$ 65,000	$ 70,000	$ 75,000	$ 80,000	$ 85,000	$ 90,000	$ 95,000	$ 100,000	$ 105,000	$ 110,000	$ 115,000	$ 120,000	$ 125,000	$ 130,000	$ 135,000	$ 140,000	$ 145,000
Professional Services	$ 15,017	$ 30,000	$ 31,000	$ 32,000	$ 33,000	$ 34,000	$ 35,000	$ 36,000	$ 37,000	$ 38,000	$ 39,000	$ 40,000	$ 41,000	$ 42,000	$ 43,000	$ 44,000	$ 45,000	$ 46,000	$ 47,000	$ 48,000	$ 49,000	$ 50,000
Engineering	$ 14,387	$ 30,000	$ 31,000	$ 32,000	$ 33,000	$ 34,000	$ 35,000	$ 36,000	$ 37,000	$ 38,000	$ 39,000	$ 40,000	$ 41,000	$ 42,000	$ 43,000	$ 44,000	$ 45,000	$ 46,000	$ 47,000	$ 48,000	$ 49,000	$ 50,000
Electric	$ 33,165	$ 40,000	$ 35,000	$ 36,000	$ 37,000	$ 38,000	$ 39,000	$ 40,000	$ 41,000	$ 42,000	$ 43,000	$ 44,000	$ 45,000	$ 46,000	$ 47,000	$ 48,000	$ 49,000	$ 50,000	$ 51,000	$ 52,000	$ 53,000	$ 54,000
Supply	$ 43,306	$ 40,000	$ 41,000	$ 42,000	$ 43,000	$ 44,000	$ 45,000	$ 46,000	$ 47,000	$ 48,000	$ 49,000	$ 50,000	$ 51,000	$ 52,000	$ 53,000	$ 54,000	$ 55,000	$ 56,000	$ 57,000	$ 58,000	$ 59,000	$ 60,000
Outside	$ 26,501	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Insurance	$ 22,785	$ 40,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 4,000
H2O Storage	$ 22,553	$ 23,000	$ 23,000	$ 23,100	$ 23,200	$ 23,300	$ 23,400	$ 23,500	$ 23,600	$ 23,700	$ 23,800	$ 23,900	$ 24,000	$ 24,100	$ 24,200	$ 24,300	$ 24,400	$ 24,500	$ 24,600	$ 24,700	$ 24,800	$ 24,900
Office	$ 15,074	$ 20,000	$ 20,000	$ 20,100	$ 20,200	$ 20,300	$ 20,400	$ 20,500	$ 20,600	$ 20,700	$ 20,800	$ 20,900	$ 21,000	$ 21,100	$ 21,200	$ 21,300	$ 21,400	$ 21,500	$ 21,600	$ 21,700	$ 21,800	$ 21,900
Directors	$ 5,500	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000
Other	$ 3,078	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
TOTAL	$ 621,200	$ 864,000	$ 803,000	$ 822,200	$ 841,400	$ 861,204	$ 880,800	$ 901,000	$ 921,200	$ 941,400	$ 962,600	$ 983,800	$ 1,004,000	$ 1,037,200	$ 1,065,400	$ 1,086,600	$1,108,800	$ 1,132,000	$ 1,155,200	$ 1,178,400	$ 1,201,600	$ 1,189,800

Property Record Card

Routt County Assessor

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override
9144	FIRE, WATER & SAN LAND	$125,000	$36,250	NA	NA
Total		**$125,000**	**$36,250**	**NA**	**NA**

ENVIRONMENTAL CHECKLIST

Use the Discussion and References space at the end of each section to document your responses. For example, explain how you determined the level of impact and document the reasoning if checking PA (possible adverse) for any resource. Attach additional pages if necessary.

1. Brief project description, including identification of selected alternative:

   The Morrison Creek Metropolitan Water & Sanitation District provides wastewater treatment service to 480 EQR service taps. The district's existing treatment facility is almost 50 years old and has reached the end of its design life. The district proposes replacing the existing facility with a sequencing batch reactor rated for the same hydraulic and organic loading as the existing facility. The SBR will be capable of removing more BOD, TSS, ammonia, total nitrogen, and phosphorous that the existing facility. The discharge location will remain the same.

2. Describe if the project will improve or maintain water quality, and if the project addresses a TMDL, and/or Watershed Management Plan.

   The project will improve water quality by implementing state of the art treatment technology which is better at removing BOD, TSS, TKN, TIN, and phosphorus that the current 50-year old system. The site is not part of a Watershed Management Plan.

3. Provide latitude and longitude of the proposed project (if a transmission / distribution / collection line identify the center point not the whole line):

   42.271111° N
   106.839489° W

4. Provide discharge (WW) or source (DW) information: N/A □

   The existing wastewater discharge line extends about 450' into Stagecoach Reservoir. The discharge location will remain the same with this project.

5. Provide NPDES/PWSID number:

   CO-0022969

6. Provide primary waterbody name and waterbody ID, secondary name (if available), and State designated surface water use:

   Stagecoach Reservoir, COUCYA22, Aquatic Life Cold Large Lake, Recreation Class E, Agriculture, Water Supply, Direct Use Water Supply

7. Did your analysis consider how this project impacts community planning efforts in other areas (i.e. transportation, housing, etc.)?

No. Proposed project does not affect other areas with respect to community planning as the capacity of the plant is remaining the same. The project will not drive growth or additional development within the existing service area.

Y = Yes N = No PA = Possible Adverse

1. Physical Aspects - Topography, Geology and Soils

Y ☐ N ☑ PA ☐ a. Are there physical conditions (e.g., steep slopes, shrink-swells soils, etc.) that might be adversely affected by or might affect construction of the facilities?

Y ☐ N ☑ PA ☐ b. Are there similar limiting physical conditions in the planning area that might make development unsuitable?

Y ☐ N ☑ PA ☐ c. Are there any unusual or unique geological features that might be affected?

Y ☐ N ☑ PA ☐ d. Are there any hazardous areas (slides, faults, etc.) that might affect construction or development?

Discussion and References:

The site is relatively flat and there is adequate space to install the project and not constrained by physical aspects.

2. Climate

Y ☐ N ☑ PA ☐ a. Are there any unusual or special meteorological constraints in the planning area that might result in an air quality problem?

Y ☐ N ☑ PA ☐ b. Are there any unusual or special meteorological constraints in the planning area that might affect the feasibility of the proposed alternative?

Discussion and References:

Not applicable for the replacement and removal of a wastewater treatment plant.

3. Population

Y ☐ N ☑ PA ☐ a. Are the proposed growth rates excessive (exceeding State projections, greater than 6% per annum for the 20 year planning period)?

Y ☐ N ☑ PA ☐ b. Will additional growth be induced or growth in new areas encouraged as a result of facilities construction?

Y ☐ N ☑ PA ☐ c. Will the facilities serve areas which are largely undeveloped areas at present?

Discussion and References:

No, the project is sized the same as the existing facility and the district will be not adding any additional capacity to accommodate growth.

4. Housing, Industrial and Commercial Development and Utilities

Y ☐ N ☑ PA ☐ a. Will existing homes or business be displaced as a result of construction of this property?

Y ☐ N ☑ PA ☐ b. Will new housing serviced by this facility affect existing facilities, transportation patterns, environmentally sensitive areas, or be in special hazard or danger zones?

Y ☐ N ☑ PA ☐ c. Will new housing create strains on other utilities and services - policies, power, water supply, schools, hospital care, etc.?

Discussion and References:

There will be no impact to these land uses.

5. Economics and Social Profile

Y ☐ N ☑ PA ☐ a. Will certain landowners benefit substantially from the development of land due to location and size of the facilities?

Y ☐ N ☑ PA ☐ b. Will the facilities adversely affect land values?

Y ☐ N ☑ PA ☐ c. Are any poor or disadvantaged groups especially affected by this project?

Discussion and References:

No adverse economic or social activities will be made.

6. Land Use

Y ☐ N ☑ PA ☐ a. Will projected growth defeat the purpose of local land use controls (if any)?

Y ☐ N ☑ PA ☐ b. Is the location of the facilities incompatible with local land use plans?

Y ☐ N ☑ PA ☐ c. Will inhabited areas be adversely impacted by the project site?

Y ☐ N ☑ PA ☐ d. Will new development have adverse effects on older existing land uses (agriculture, forest land, etc.)?

Y ☐ N ☑ PA ☐ e. Will this project contribute to changes in land use in association with recreation (skiing, parks, etc.), mining or other large industrial or energy developments?

Discussion and References:

The project is not intended to drive growth. The capacity of the existing facility will be maintained.

7. Floodplain Development

Y ☑ N ☐ PA ☐ a. Does the planning area contain 100 year floodplains?

If yes -

Y ☐ N ☑ PA ☐ b. Will the project be constructed in a 100 year floodplain?

Y ☐ N ☐ PA ☐ c. Will the project serve direct or indirect development in a 100 year floodplain anywhere in the planning area?

Discussion and References:

There is an area of the site within the 100-year floodplain. However, the site is large enough that the district can build the replacement WWTP outside of the floodplain.

8. Wetlands

Y ☐ N ☐ PA ☑ a. Does the planning area contain wetlands as defined by the U.S. Fish and Wildlife Service?

If yes -

Y ☐ N ☑ PA ☐ b. Will any structure of the facility be located in wetlands?

Y ☐ N ☑ PA ☐ c. Will the project serve growth and development which will directly or indirectly affect wetlands?

Discussion and References:

The National Wetlands Inventory shows scattered areas of wetlands in the district's boundaries and the site. The wetlands on the WWTP site are in the 100-year floodplain so the new project will be avoiding these areas.

9. Wild and Scenic Rivers

Y☐ N☑ PA☐ a. Does the planning area contain a designated or proposed wild and scenic river?

If yes -

Y☐ N☐ PA☐ b. Will the project be constructed near the river?

Y☐ N☐ PA☐ c. Will projected growth and development take place contiguous to or upstream from the river segment?

Y☐ N☐ PA☐ d. Will the river segment be used for disposal of effluent?

Discussion and References:

10. Cultural Resources (Archeological/Historical)

Y☐ N☑ PA☐ a. Are there any properties (historic, architectural, and archeological) in the planning area which are listed on or eligible for listing on the National Register of Historic Places?

If yes -

Y☐ N☐ PA☐ b. Will the project have direct or indirect adverse impacts on any listed or eligible property?

Discussion and References:

11. Flora and Fauna (including endangered species)

Y☐ N☑ PA☐ a. Are there any designated threatened or endangered species or their habitat in the planning area?

Y☐ N☑ PA☐ b. Will the project have direct or indirect adverse impacts on any such designated species?

Y☐ N☑ PA☐ c. Will the project have direct or indirect adverse impacts on fish, wildlife or their habitat including migratory routes, wintering or calving areas?

Y☐ N☑ PA☐ d. Does the planning area include a sensitive habitat area designed by a local, State or Federal wildlife agency?

Discussion and References:

12. Recreation and Open Space

Y☐ N☑ PA☐ a. Will the project eliminate or modify recreational open space, parks or areas of recognized scenic or recreational value?

Y☐ N☑ PA☐ b. Is it feasible to combine the project with parks, bicycle paths, hiking trails, waterway access and other recreational uses?

Discussion and References:

This project will have no impact on recreational activities and open space.

13. Agricultural Lands

Y☐ N☑ PA☐ a. Does the planning area contain any environmentally significant agricultural lands (prime, unique, statewide importance, local importance, etc.) as defined in the EPA Policy to Protect Environmentally Significant Agricultural Lands dated September 8, 1978?

Y ☐ N ☑ PA ☐ b. Will the project directly or indirectly encourage the irreversible conversion of Environmentally Significant Agricultural Lands to uses which result in the loss of these lands as an environmental or essential food production resource?

Discussion and References:

Agriculture lands will not be impacted.

14. Air Quality

Y ☐ N ☑ PA ☐ a. Are there any direct air emissions from the project (e.g., odor controls, sludge incinerator) which do not meet Federal and State emission standards contained in the State Air Quality Implementation Plan (SIP)?

Y ☐ N ☑ PA ☐ b. Is the project service area located in an area without an approved or conditionally approved SIP?

Y ☐ N ☑ PA ☐ c. Is the increased capacity of the project greater than 1 mgd?

Y ☐ N ☑ PA ☐ d. Do the population projections used in the facilities plan exceed the Sate or area wide projections in the SIP by more than 5%?

Y ☐ N ☑ PA ☐ e. Does the project conform to the requirements of the SIP? (See EPA regulations under Section 316 of the Clean Air Act.)

Y ☐ N ☑ PA ☐ f. Is the project inconsistent with the SIP of an adjoining State that may be impacted by the Project?

Y ☐ N ☑ PA ☐ g. Does the project violate national ambient Air Quality Standards in an attainment or unclassified area?

Y ☐ N ☑ PA ☐ h. Will the facilities create an odor nuisance problem?

Discussion and References:

This project will not adversely impact air quality.

15. Water Quality and Quantity (Surface/Groundwater)

Y ☐ N ☑ PA ☐ a. Are present stream classifications in the receiving stream being challenged as too low to protect present or recent uses?

Y ☐ N ☑ PA ☐ b. Is there a substantial risk that the proposed discharge will not meet existing stream standards or will not be of sufficient quality to protect present or recent stream uses?

Y ☐ N ☑ PA ☐ c. Will construction of the project and development to be served by the project result in non-point water quality problems (sedimentation, urban stormwater, etc.)?

Y ☐ N ☑ PA ☐ d. Will water rights be adversely affected by the project?

Y ☐ N ☑ PA ☐ e. Will the project cause a significant amount of water to be transferred from one sub-basin to another (relative to the 7-day, 10 year flow of the diverted basin)?

Y ☐ N ☑ PA ☐ f. Will stream habitat be affected as a result of the change in flow or stream bank modification?

Y ☐ N ☑ PA ☐ g. Are stream conditions needed for deciding upon the required limitations inadequately specified in the 208 Plan? If so, have the wasteload allocations calculations been performed and approved by the State and EPA?

Y ☐ N ☑ PA ☐ h. Is an Antidegradation Review required?

Y ☐ N ☑ PA ☐ i. Will the project adversely affect the quantity or quality of a groundwater resource?

Y ☐ N ☑ PA ☐ j. Does the project adversely affect an aquifer used as a potable drinking water supply?

Y ☐ N ☑ PA ☐ k. Are there additional cost effective water conservation measures that could be adopted by community to reduce sewage generation?

Discussion and References:

16. Public Health

Y ☐ N ☑ PA ☐ a. Will there be adverse direct or indirect noise impacts from the project?

Y ☐ N ☑ PA ☐ b. Will there be a vector problem (e.g., mosquito) from the project?

Y ☐ N ☑ PA ☐ c. Will there be any unique public health problems as a result of the project (e.g., increased disease risks)?

Discussion and References:

No. Public health will be improved with this project through improved wastewater treatment capabilities.

17. Solid Waste (Sludge Management)

Y ☐ N ☑ PA ☐ a. Will sludge disposal occur in an area with inadequate sanitary landfills or on land unsuitable for land application?

Y ☐ N ☑ PA ☐ b. Are there special problems with the sludge that makes disposal difficult (hazardous, difficult to treat)?

Y ☐ N ☑ PA ☐ c. Is the technology selected for sludge disposal controversial?

Discussion and References:

The current sludge management plan will be maintained.

18. Energy

Y ☑ N ☐ PA ☐ a. Are there additional cost effective measures to reduce energy consumption or increase energy recovery which could be included in this project?

Discussion and References:

Yes. The project will be implementing the green project reserve program to decrease energy usage.

19. Land Application

Y ☐ N ☑ PA ☐ a. Has a new or unproven technique been selected?

Y ☐ N ☑ PA ☐ b. Is there considerable public controversy about the project?

Y ☐ N ☑ PA ☐ c. Will the project require additional water rights or impact existing water Rights?

Y ☐ N ☑ PA ☐ d. Is the project multi-purpose?

Discussion and References:

No. The proposed project does not impact these items.

20. Regionalization

Y ☐ N ☑ PA ☐ a. Are there jurisdictional disputes or controversy over the project?
Y ☐ N ☑ PA ☐ b. Is conformance with the 208 plan in question?
Y ☐ N ☑ PA ☐ c. Is the proliferation of small treatment plants and septic systems creating a significant health problem?
Y ☐ N ☑ PA ☐ d. Have inter-jurisdictional agreements been signed?

Discussion and References:

These issues are not envisioned for this project.

21. Public Participation

Y ☐ N ☑ PA ☐ a. Is there a substantial level of public controversy?
Y ☑ N ☐ PA ☐ b. Is there adequate evidence of public participation in the project?

Discussion and References:

A public meeting for the SRF process will be held in the future. The district has not observed any public resistance to the project.

22. Environmental Laws

Y ☐ N ☑ PA ☐ a. Does the project threaten to violate any State, Federal or local law or requirement imposed to protect the environment?

Discussion and References:

Prepared By: Adam Sommers, P.E. Consulting Engineer with AquaWorks DBO, Inc.
Name, Title, and Affiliation

Date: 5/5/2020

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

Cost and Effectiveness Certification

Project Name: Wastewater Treatment System Improvement Project

Borrower: Morrison Creek Metropolitan Water & Sanitation District

As a condition for receiving assistance through the Colorado Water Pollution Control Revolving Fund (WPCRF), I certify that the cost and effectiveness evaluation has been performed per Section 602(b)(13) of the Water Resources Reform and Development Act of 2014 (WRRDA).

This cost and effectiveness evaluation included the following.

A. The borrower has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under this title; and

B. The borrower has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation; and energy conservation, taking into account:

   a. the cost of constructing the project or activity;
   b. the cost of operating and maintaining the project or activity over the life of the project or activity; and
   c. the cost of replacing the project or activity.

Adam Sommers
Licensed Professional Engineer (Printed)

5/5/2020
Date

Signature and Stamp of Licensed Professional Engineer

National Flood Hazard Layer FIRMette

FEMA

40°16'32.23"N

106°50'36.95"W

106°49'56.50"W

40°16'4.78"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/5/2020 at 2:37:25 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Morrison Creek WWTP Wetlands

May 5, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Water Technologies & Solutions
fact sheet

Z-MOD* M packaged plants

pre-engineered packaged plants are cost effective, compact solutions for wastewater treatment

benefits

- ZeeWeed* 500 reinforced ultrafiltration membranes produce superior effluent quality while operating in a high solid, wastewater environment
- Complete systems incorporate screening, biological equipment, filtration equipment, and disinfection
- Pre-engineered options allow for flexible process designs
- Short delivery timeline from submittal to a fully operating system
- Prefabricated equipment minimizes site work and reduces on site installation costs
- Compact footprint allows installation inside existing buildings 15' (4.5m) x7'(2m) x9' (2.7m)
- Ideal for multistage flow increases
- In-situ membrane cleaning capability
- Two train systems provide process redundancy
- Systems range up to 0.22MGD (830m^3/day)

base system

- Stainless steel or epoxy coated carbon steel membrane tank and equipment skid
- Skid mounted permeate pumps, back pulse pumps, membrane aeration blowers, back pulse tank, valves, GE Fanuc PLC, and HMI Interface
- Plant start-up and operator training

application dependent options

- Biological equipment includes screening, process blowers, diffusers, transfer pumps, grinder pumps, mixers, and enhanced nitrogen removal systems
- Chemical systems for enhanced coagulation, pH control, and membrane cleaning
- Effluent systems including turbidity measurement and UV disinfection
- Maintenance packages including shelf spares, spare parts, service contracts and process tracking software
- Voltage 400/480/575 v Voltage 400/480/575 V, 3 phases, 50/60Hz

Find a contact near you by visiting www.suezwatertechnologies.com and clicking on "Contact Us".

Water Technologies & Solutions

budget proposal for the

Morrison Creek MBR

Z-MOD*-L MBR

submitted to:
Aquaworks
1790 Platte Street
Denver, CO 80202

attention: Adam Sommers

April, 29 2020

proposal number: 408360

submitted by:
Grant MacInnis, Regional Sales Manager
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local representation by:
Coombs Hopkins Company
Jason Morgan
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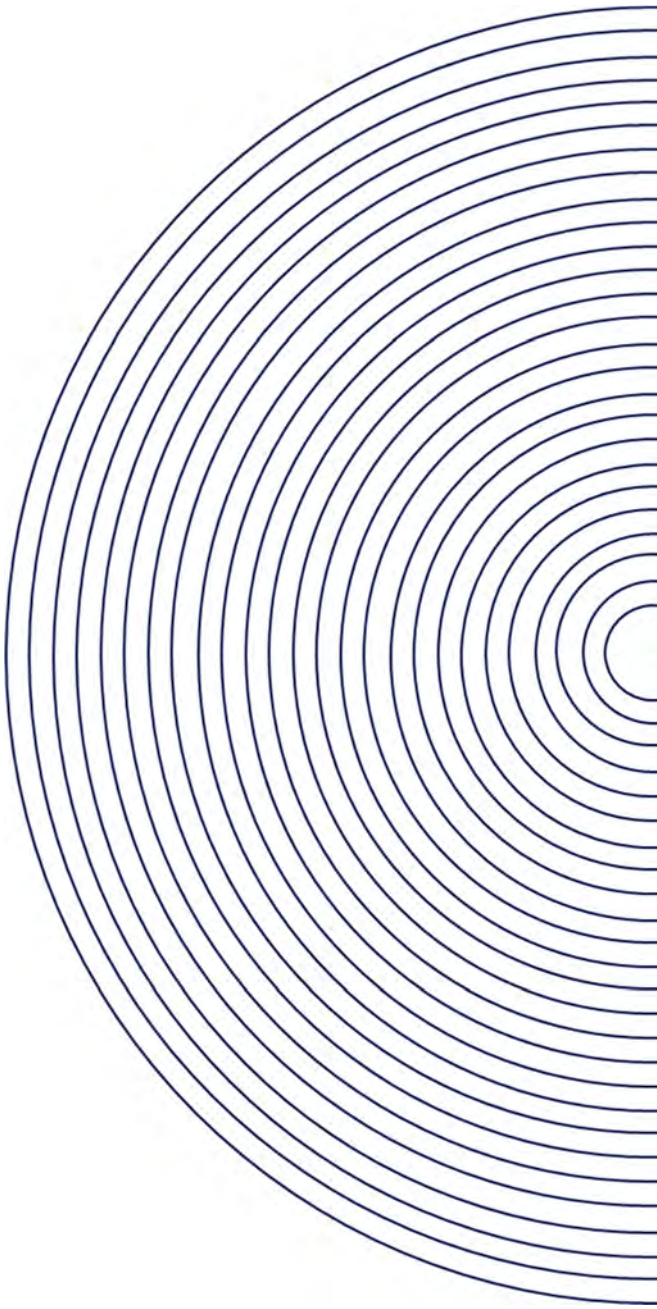


table of contents

SUEZ Water Technologies & Solutions confidential and proprietary information

1 benefits of SUEZ system design

At SUEZ, our goal is to create long term partnerships with our customers, which is why we design our systems with you in mind. Our approach to the proposed Z-MOD L630 membrane filtration system has been optimized around the following three key system attributes;

- robust design – proven design parameters with scope and configuration options for a wide variety of conditions
- simple operations – simple & automated operations coupled with SUEZ support for the operating team
- lowest cost of ownership for the Owner

We are continuously striving to improve our system designs to provide optimal solutions for our customers. Highlighted below are several systems that we have optimized to meet your needs.

1.1 pre-engineered Z-MOD L process pump skid

The Z-MOD L process pump skid is a pre-engineered equipment skid that helps simplify ZeeWeed membrane filtration system design and installation. The Z-MOD L skid is a "plug and go" skid that incorporates most of dedicated membrane train equipment onto a single pre-fabricated equipment skid for simple onsite installation.

The Z-MOD L skid is designed to handle all membrane train flow conditions and includes a bi-directional process pump that performs both permeation and backpulse duty. A train-dedicated remote I/O panel is installed on the Z-MOD L skid, with all skidded equipment and instrumentation pre-wired and tested within the panel.

1.2 membrane aeration system design

Aeration is one of the most important operating parameters for successful long term MBR operations and is a significant component of operating cost.

SUEZ MBR system utilizes a very simple aeration strategy which minimizes the amount of instrumentation and controls required to achieve energy efficient membrane aeration.

No complex control loops or complicated airflow measurement devices are required for LEAPmbr aeration technology to achieve energy efficiency.

1.3 membrane cleaning systems

SUEZ has developed membrane design principles based on best engineering practices that ensure the permeability of the membrane is maintained over the life of the membranes.

A fully automated suite of membrane maintenance procedures will ensure long-term, successful operation, including:

- in-situ chemical membrane cleaning performed directly in the membrane process tanks so your operators don't waste time moving cassettes;
- the ability to increase or decrease the frequency of chemical cleans to fit the operating conditions;
- the ability to backpulse, when needed, to greatly improve your operator's ability to recover from non-design conditions.

The above cleaning systems can be automated, resulting in operators having available a full suite of comprehensive cleaning systems which are simple to use and initiate.

2 basis of design

The following proposed Z-MOD L630 membrane filtration system for the Morrison Creek MBR has been designed based on the design parameters summarized in the follow sections as per the RFP.

2.1 influent flow data

The influent design flows are summarized in the table below.

average day flow (ADF)	350,000	gpd
maximum month flow (MMF)	440,000	gpd
maximum day flow (MDF)	530,000	gpd
maximum flow with one train offline for maintenance or cleaning (less than 24 hours)	350,000	gpd

note 1: any flow conditions that exceed the above-noted flow limits must be equalized prior to treatment in the Z-MOD L630 membrane filtration system.

- ADF – the average flow rate occurring over a 24-hour period based on annual flow rate data.
- MMF – the average flow rate occurring over a 24-hour period during the 30-day period with the highest flow based on annual flow rate data.
- MDF – the maximum flow rate averaged over a 24-hour period occurring within annual flow rate data.

2.2 influent quality

The design solution proposed is based on the wastewater characteristics entering into the MBR bioreactor tanks. The below concentrations are specific to the flow used for the biological design as listed in section 2.5 below.

design influent temperature	5	ºC
BOD_5	275	mg/L
TSS [1]	200	mg/L
inert solids fraction of TSS [1]	20	%
TKN	55	mg/L
TP	8	mg/L
soluble alkalinity as $CaCO_3$ [2]	250	mg/L

note 1: parameter value assumed.

note 2: SUEZ is assuming that influent alkalinity is insufficient to ensure proper performance of the biological system. SUEZ has included a NaOH dosing system for pH control in the scope of supply.

2.3 effluent quality

The following performance parameters are expected upon equipment startup and once the biological system has stabilized based on the data listed in sections 2.1 and 2.2.

BOD_5	≤ 5	mg/L
TSS	≤ 5	mg/L
NH_3-N	≤ 1	mg/L
TN [1]	≤ 10	mg/L
TP [2]	≤ 0.5	mg/L
turbidity	≤ 1	NTU

note 1: TN ≤ 10 mg/L corresponds to a minimum design temperature of 5ºC and <1.5 mg/L recalcitrant dissolved organic nitrogen in the influent.

note 2: with coagulant addition.

2.4 influent variability

Influent wastewater flows or loads in excess of the design criteria defined above must be equalized prior to entering the membrane tanks. In the event that the influent exceeds the specifications used in engineering this proposal, or the source of influent changes, the ability of the treatment system to produce the designed treated water quality and/or quantity may be impaired. Buyer may choose to continue to operate the system, but assumes the risk of damage to the system and/or additional costs due to increased membrane cleanings, potential for biological upset and/or increased consumable usage.

2.5 biological system design

The biological system for this project consists of pre-anoxic, aerobic and post-anoxic zones. The corresponding volumes for each zone are listed in the table below.

design parameters	**design value**	**units**
flow basis for biological design	440,000	US gpd
total pre-anoxic tank working volume	75,000	US gallons
total aerobic working volume (excluding membranes)	400,000	US gallons
total post-anoxic working volume	200,000	US gallons
total bioreactor working volume (excluding membranes)	675,000	US gallons
total design HRT[3]	37	hours
aerobic design SRT[3]	25	days
waste sludge volume (based on MMF and 10 g/L)	12,00	US gpd
design MLSS concentration in bioreactor	≤ 8,000	mg/L
AOR	1,500	lb O_2/day
design liquid depth in bioreactor	19	ft

note 1: tank volumes are preliminary only and may change once final detail design commences.
note 2: the biological system is designed for installation within concrete tanks supplied by buyer
note 3: excluding membrane tank volume

2.6 ZeeWeed ultrafiltration system design

The ZeeWeed ultrafiltration system design is summarized in the table below. Membrane modules are assembled into cassettes and cassettes are installed in stainless steel tanks supplied by SUEZ.

type of membrane	ZeeWeed 500D
number of trains	2
number of Z-MOD L process pump skids	2
type of cassette	52M
number of cassette spaces per train	2
number of cassettes installed per train	2
number of full cassettes	1
number of flex cassettes	1
modules per flex cassette	36
total number of modules installed per train	88
total number of modules installed per plant	176
total number of cassettes installed per plant	4
spare space (%)	15
membrane tank internal dimensions (L x W x H) (ft)	15 x 8 x 10.5

note 1: dimensions are preliminary only and may change during detailed engineering design.

3 equipment description

The following is a description of the equipment included in SUEZ's scope of supply. Pre-assembled components include the process pump skids, membrane cassette assemblies, and membrane cleaning chemical pump panels. Critical items that will be shipped loose for installation by buyer include the master control panel, motor control enclosure, backpulse tank, blowers, RAS pumps and other associated equipment. Please refer to section 3.1 below for a complete list of SUEZ supplied equipment.

master PLC panel

An Allen-Bradley Compact Logix Programmable Logic Controller (PLC) and Panel View Plus 6 1250 Human Machine Interface (HMI), installed in the UL Type 12 main control panel, monitors and manages all critical process operations.

The master PLC panel communicates using Ethernet TCP/IP, and includes I/O for common equipment items such as membrane blowers, air compressors, RAS pumps and other items (if included in SUEZ Scope).

Level transmitters monitor the level of mixed liquor in the membrane tanks and transmit this information to the SUEZ PLC. The PLC will automatically adjust the process pumps based on the influent flowmeter signal and liquid level in the membrane tanks. RAS pumps are controlled proportionally to the process pump speed.

Z-MOD L process pump skid

One reversible process pump per train is used to draw water through the membranes. The process pump, associated valves, and pump suction and discharge spools are mounted on a factory assembled, epoxy-coated carbon steel skid.

Each Z-MOD L process pump skid is designed with a remote I/O panel UL type 4, which distributes control wiring to the pump, skid mounted VFD UL type 4 and instrumentation including a magnetic flowmeter required to operate the pump system, all located on the process pump skid.

A turbidity meter is included on the Z-MOD L process pump skid for train-dedicated permeate turbidity monitoring. Effluent turbidity analyzers monitor effluent water quality and alert operators if effluent turbidity rises beyond acceptable set point.

air ejector system

One air ejector system per train is used to prime the dedicated process pump. The air ejector system is installed at the highest point between the membranes installed and process pump, to ensure that all air is removed in the process pump suction line.

membrane scour aeration system

One duty membrane blower per train will be supplied with one common standby blower to be shared by all trains.

Blowers come complete with required isolation valves, check valves, pressure relief valve, pressure indicators and flow indicators.

process aeration system

The process aeration blowers provide air for the biological tank and ensure that sufficient oxygen is available to maintain the biological processes in the tank.

For best efficiency and reduction of the aeration energy, SUEZ has used 2 duty blowers with a 1 same-size standby blower.

fine bubble diffusers

A fine bubble diffused aeration system delivers air from the process aeration blowers to the aerobic zone of the process tank.

process mixers

Process mixers are used to mix the pre-anoxic and post-anoxic chambers to prevent solids from settling.

mixed liquor recirculation equipment

Recirculation (RAS) pumps are used to transfer mixed liquor from the the membrane tanks to the bioreactor at a rate of 4 × ADF.

Recirculation pumps will be supplied with check valves, isolation valves magmeter and pressure indicator.

supplementary recirculation equipment

Supplementary recirculation is necessary in cases where low effluent total nitrogen concentrations is required. The mixed liquor recirculation system transfers mixed liquor from the aerobic chamber to the pre-anoxic chamber of the MBR biological tank.

sodium hypochlorite dosing system

The sodium hypochlorite dosing system is used for membrane cleaning to remove organic foulants from the membrane surface.

citric acid dosing system

The citric acid dosing system is used for membrane cleaning to remove inorganic foulants from the membrane surface.

pH adjustment system

The pH control system doses an alkaline solution (typically sodium hydroxide) into the process tank in order to maintain a desired pH for optimal biological performance.

coagulant addition system

The coagulant dosing system is used to feed a metal salt to assist in precipitating (converting to a particulate form) influent phosphorus. This precipitate is then filtered by the ultrafiltration membranes and removed with waste activated sludge, preventing phosphorus from entering the effluent stream.

effluent flow measurement

Each train will include a flow meter to provide discharged permeate flow measurements.

InSight Pro – process consulting service

Water and process applications generate vast amounts of operating data. InSight, SUEZ's easy-to-use, cloud-based knowledge management platform, captures and transforms your plant data into meaningful and actionable information, ultimately providing the knowledge you need to maximize performance, avoid operational interruptions, optimize your processes, and reduce the total cost of operation.

InSight Pro – process consulting service has been provided with your MBR system for the first year of operation. InSight Pro pairs you with a SUEZ process expert and provides you a level of personal attention that is currently not available in the market. Your process expert is specifically assigned to your plant and will monitor key parameters on a regular rhythm using InSight. The process expert will be in frequent contact with key members of your operations team to discuss and resolve performance, process and operational issues. While supporting your team with day-to-day operations, the process expert will use InSight to focus on long term trends and provide you with recommendations that will help maximize membrane and equipment life and reduce costs. As part of the service, your process expert will provide process and performance review reports that contain insights to help you improve performance, optimize your process parameters and avoid operational downtime. If the need for troubleshooting does arise, you will have a SUEZ process expert on your team, deeply familiar with your system and empowered with information to assist.

3.1 scope of supply by SUEZ

quantity	description
The MBR system will include the following equipment:	
ZeeWeed membranes & tankage	
2 lots	stainless steel membrane tanks and membrane tank cassette mounting assemblies
4	ZeeWeed 500D membrane cassettes
176	membrane modules
2 sets	permeate collection & air distribution header piping
2 sets	membrane tank level transmitter, level switch, and drain valves
ejector & associated equipment	
2	air ejector assemblies with air supply assemblies
master control panel	
1	master control panel w/ Allen Bradley Compact Logix PLC, Panelview plus 6 1250 HMI, and Flexlogic I/O
MCE and wall mount VFD's and starters	
1	motor control enclosure and wall mount VFD's and starters for 3-phase motors
Z-MOD L process pump skid	
2	process pump equipment skid - epoxy coated carbon steel
2	positive displacement, bi-directional rotary lobe process pump
2 sets	required pump isolation valves and check valves
2	remote I/O panel - includes Allen Bradley Flexlogic I/O
2	process pump VFD
2	motor disconnect
2 lots	pressure gauge and flow meter
2 lots	chemical injection ports and valves
2	Turbidimeter- one per membrane train; includes isolation valves, throttle valve and backplate
backpulse system	
incl	process pumps will also provide backpulse duty
1	non-flow through backpulse water storage tank, with tank level control and associated valves
membrane air scour blowers	
2+1	membrane air scour blowers (2 duty + 1 standby) - includes isolation valves, flow switches, pressure gauges and acoustical enclosures
mixed liquor recirculation equipment	
2	membrane train dedicated recirculation (RAS) pumps, used to transfer mixed liquor from the membrane tanks to the bioreactor – includes isolation valves, check valves, pressure gauge, and flow meter
1	Sludge wasting valve and flow meter

quantity	description
biological equipment (for two biological trains)	
2	fine bubble diffused air system for process aeration - loose shipped (without tank downcomer piping)
2+1	process blowers (2 duty + 1 standby) - includes flow switches, isolation valves and acoustical enclosures
4	process mixers
2	supplementary recirculation pumps, used to transfer mixed liquor from the aerobic zone to the pre-anoxic zone – includes isolation valves, check valves, and flow meters
2	aerobic dissolved oxygen sensor
2	pH sensor
process chemical dosing systems	
1	coagulant dosing system - includes dosing pump and associated equipment
1	pH adjustment system - includes dosing pump and associated equipment
membrane cleaning systems	
1	sodium hypochlorite chemical feed system - includes dosing pump and associated equipment.
1	citric acid chemical feed system - includes dosing pump and associated equipment.
miscellaneous	
1+1	air compressor (1 duty + 1 standby) for pneumatic valve operation and refrigerated air drier
1	RS4000 ethernet router for InSight/Remote Connectivity
general	
included	P&IDs and layout drawings for SUEZ supplied equipment
included	operating & maintenance manuals
included	field service and start-up assistance - 43 days support over 4 site visits from SUEZ field-service personnel for commissioning, plant start-up and operator training
included	InSight Pro – Process consulting service– 1 year
included	24/7 emergency phone support – 1 year
included	equipment mechanical warranty - 1 year or 18 months from shipment
included	membrane warranty –10 year (2 year full replacement and 8 year prorated)

note 1: additional man-hours will be billed separately from the proposed system capital cost at a rate of $1,300 per day plus living and traveling expenses. Detailed SUEZ service rates are available upon request.

note 2: all SUEZ supplied equipment is designed for installation in an unclassified area.

note 3: to receive complete 24/7 Emergency Telephone Technical Support Service and to allow for InSight Monitor Service, a suitable secure remote internet connection, by buyer, is required.

4 buyer scope of supply

The following items are for supply by buyer and will include, but are not limited to:

- overall plant design responsibility
- installation on site of all SUEZ-supplied skids and loose-shipped equipment
- review and approval of design and design parameters related to the biological process and membrane separation system
- review and approval of SUEZ supplied equipment drawings and specifications
- detail drawings of all termination points where SUEZ equipment or materials tie into equipment or materials supplied by others
- equipment foundations, civil work, full floor coverage equipment contact pads, buildings, etc.
- receiving, unloading and safe storage of SUEZ-supplied equipment at site until ready for installation
- HVAC equipment design, specifications and installation (where applicable)
- UPS, Power Conditioner, Emergency power supply and specification (where applicable)
- lifting devices including crane able to lift 5,000 kg (10,000 lbs) or membrane removal, lifting davits and guide rails for submersible mixers and pumps, hoists, etc…
- 2 mm pretreatment fine screens
- equalization tank and associated equipment – as required
- bioreactor tank – complete with pre-anoxic, aerobic and post-anoxic zones
- all chemical storage tanks, day tanks, and secondary containments
- treated water storage tank – as required
- process and utilities piping, pipe supports, hangers, valves, etc. including but not limited to:
  - piping, pipe supports and valves between SUEZ-supplied equipment and other plant process equipment
  - piping between any loose-supplied SUEZ equipment
  - process tank aeration system air piping, equalization tank system piping, etc.
  - interconnecting piping between SUEZ-supplied skids, loose shipped equipment and tanks (as applicable)
- electrical wiring, conduit and other appurtenances required to provide power connections as required from the electrical power source to the SUEZ control panel and from the control panel to any electrical equipment, pump motors and instruments external to the SUEZ-supplied enclosure

- suitable, secure remote internet connection for 24/7 emergency telephone technical support service and InSight remote monitoring & diagnostics service
- all bolts, brackets and fasteners to install SUEZ-supplied equipment.
- seismic structural analysis and anchor bolt sizing (as applicable)
- alignment of rotating equipment
- raw materials, chemicals, and utilities during equipment start-up and operation
- supply of seed sludge for biological process start-up purposes
- disposal of initial start-up wastewater and associated chemicals
- weather protection as required for all SUEZ supplied equipment. Skids and electrical panels are designed for indoor operation and will need shelter from the elements.
- laboratory services, operating and maintenance personnel during equipment checkout, start-up and operation
- touch up primer and finish paint surfaces on equipment as required at the completion of the project
- all permits

5 commercial

5.1 pricing

Pricing for the proposed equipment and services, as outlined in section 3, is summarized in the table below. All pricing is based on the design operating conditions and influent characteristics that are detailed in section 2 of the proposal. The pricing herein is for budgetary purposes only and does not constitute an offer of sale. No sales, consumer use or other similar taxes or duties are included in the pricing below.

price: all equipment & service	
Proposed system price as per scope of supply proposed in section 3.1	$ 1,236,000 USD

5.2 freight

The following freight terms used are as defined by INCOTERMS 2010.

All pricing is CIP from Guelph, ON, Canada to Morrison Creek MBR project site.

5.3 equipment shipment and delivery

Equipment shipment is estimated at 26 to 38 weeks after order acceptance. The buyer and seller will arrange a kick-off meeting after contract acceptance to develop a firm shipment schedule.

typical drawing submission and equipment shipment schedule

		6-8 weeks	2 weeks	16-26 weeks		2 weeks
acceptance of PO						
submission of drawings						
drawings approval						
equipment manufacturing						
equipment shipment						
plant operations manuals						

SWTS would like to note that under the current exceptional circumstances under the COVID 19 Pandemic situation, SWTS may not be in a position to guarantee and comply with the planned schedule for project delivery or performance and that should there be any new measures taken by any governmental authority which may impede or delay the said schedule or performance, SWTS reserves the right to modify the schedule / contract accordingly. SWTS will promptly inform you of any changes which may impact the contract or the project.

The delivery schedule is presented based on current workload backlogs and production capacity. This estimated delivery schedule assumes no more than 2 weeks for buyer

review of submittal drawings. Any delays in buyer approvals or requested changes may result in additional charges and/or a delay to the schedule.

5.4 conditional offering

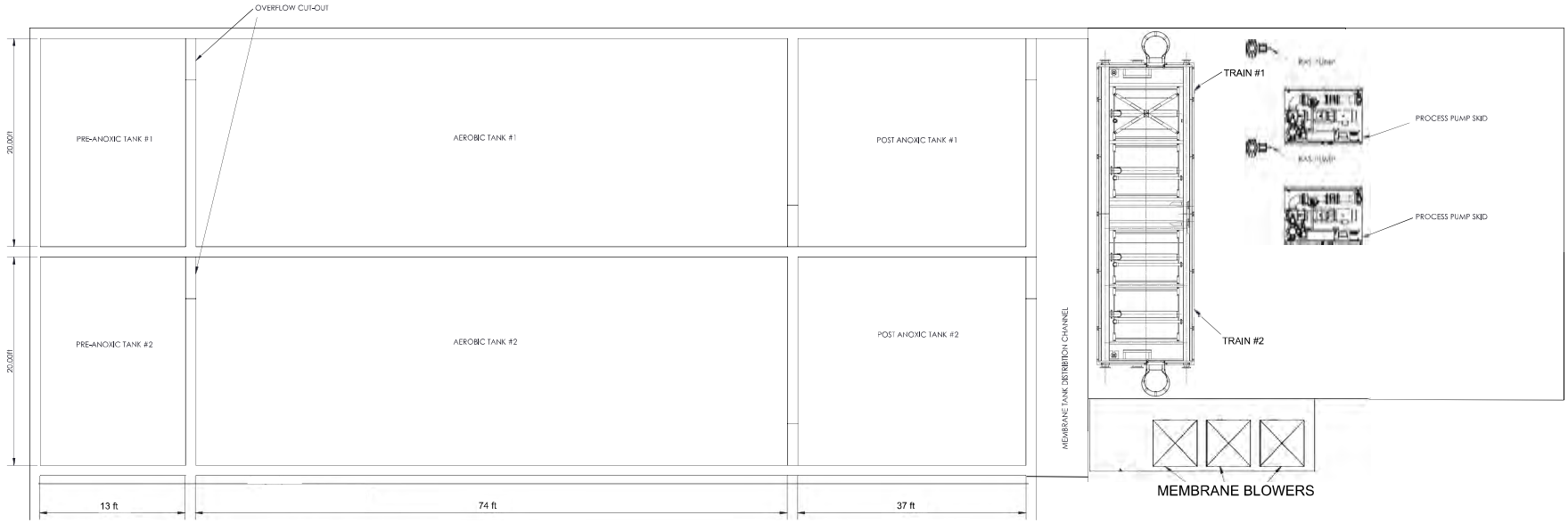
Buyer understands that this proposal has been issued based upon the information provided by buyer, and currently available to seller, at the time of proposal issuance. Any changes or discrepancies in site conditions (including but not limited to system influent characteristics, changes in environmental health and safety ("EH&S") conditions, and/or newly discovered EH&S concerns, buyer's financial standing, Buyer's requirements, or any other relevant change, or discrepancy in, the factual basis upon which this proposal was created, may lead to changes in the offering, including but not limited to changes in pricing, warranties, quoted specifications, or terms and conditions. Seller's offering in this proposal is conditioned upon a full seller EH&S, and buyer financial review.

Recently enacted national, state/provincial and local directives and regulations in response to the COVID-19 pandemic as defined by the World Health Organization [WHO] has caused, and will continue to cause market volatility, fluctuations, price adjustments, delays, and other unforeseen impacts on industries. SUEZ is currently monitoring the situation as it develops and we are constantly adjusting our current pricing and bidding to be reflective of market conditions as of the day of price or bid submission. However, to the degree changing and newly enacted regulations and directives cause material impact, further market disruption, delay, or price escalation, SUEZ reserves the right to adjust our pricing and bid submissions accordingly.

Please rest assured that SUEZ will continue to make every effort to be as accurate as possible in our pricing and lead-time estimates and we will continue to keep all of our customers, clients, and partners apprised of any changes as they occur.

5.5 terms and conditions of sale

This proposal has been prepared and is submitted based on seller's standard terms and conditions of sale.



Note:
1. Sample drawing; layout of equipment and bioreactor tankage can be reconfigured to better suit the available land envelope.

REV	DESCRIPTION	ECO	DWN	APPR	APPR	DATE
	INITIAL DESIGN					

TOLERANCES UNLESS NOTED
DECIMALS: .X +/-0.5" | .XX +/-0.50 | .XXX +/-.125"
ANGLES: +/-0.5°
FRAC: +/-1/2"

CUSTOMER INFORMATION:

PLOT PLAN
2 TRAINS PUMP FROM

DRAWING NUMBER	REVISION
243157A-AG-01	A2

REF.: | DOC. OWNER:

PROJECT NO.	PART/MATERIAL NO.	SCALE	SIZE	SHEET
243157	243157A-AG-01	1:64	D	1 OF 2

LAST SAVED: Tuesday, February 12, 2019 5:13:51 PM

FILE LOCATION: O:\Global\Intl\MAM\243157A-HQ-CTR\01 ENG\3 Mechanical\Drawings

ISAM™

INTEGRATED SURGE ANOXIC MIX

Proven Technology

FLUIDYNE'S ISAM™ IS A TOTAL TREATMENT SYSTEM

incorporating BOD, TSS and nitrogen removal along with sludge reduction in an integrated system. Raw (crude) sewage enters a covered anaerobic reactor for pretreatment, sludge thickening and sludge destruction. Complex organic solids undergo hydrolysis to simpler soluble organics which pass to the surge anoxic mix (SAM™) tank.

FLUIDYNE

The Experienced Leader in Wastewater Treatment Technology

fluidynecorp.com

319.266.9967

A TOTALLY NEW CONCEPT IN SBR DESIGN

FLUIDYNE ISAM™

In operation, all influent flow enters the anaerobic basin where influent solids are allowed to settle much like a primary clarifier. Elimination of primary solids in the anaerobic basin allows for much smaller SBR basins at equivalent SRT than conventional SBRs. The anaerobic selector also creates soluble carbon as a food source for biological nutrient removal through anaerobic conversion of settleable BOD to soluble BOD. The influent then flows to the SAM™ surge basin, or influent equalization basin. The surge basin provides flow and nutrient equalization to optimize treatment at the full range of flows and loadings.

100% ON-LINE STANDBY EQUIPMENT

Fluidyne's prepackaged ISAM SBRs are furnished with spare mixing/fill pump and aerator assembly installed for 100% redundancy.

REDUCES WASTE SLUDGE BY 75%

The Fluidyne ISAM™ Sequencing Batch Reactor incorporates an anaerobic selector chamber with the SAM™ SBR. The anaerobic selector not only provides consistent phosphorous removal by subjecting the recirculated biomass to anaerobic conditions, forcing the release of phosphorous, but also creates soluble carbon as a food source for phosphorous removal through anaerobic conversion of settleable BOD to soluble BOD. Additionally, anaerobic sludge digestion occurs in the anaerobic selector chamber, reducing waste solids production by up to 75% for the entire secondary process.

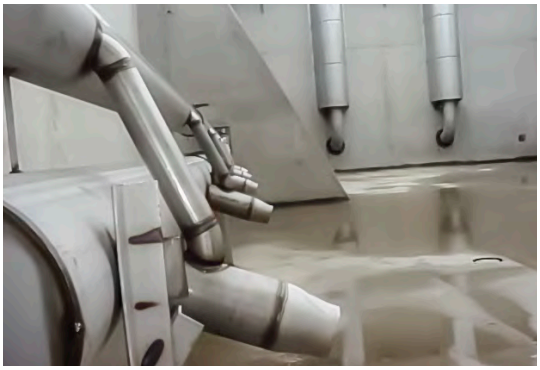
SEVERAL UNIQUE FEATURES

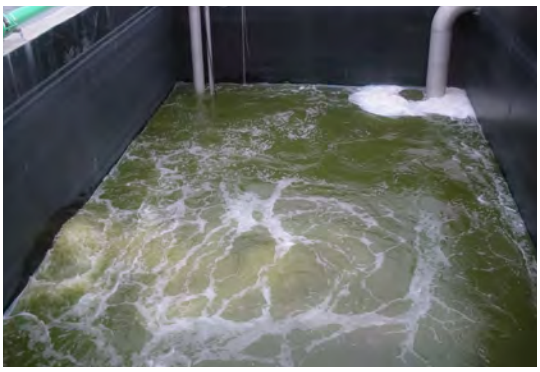
Several unique feature of the Fluidyne ISAM™ SBR include odor control and scum skimming. Mixed liquor is maintained in the SAM™ tank to immediately react with incoming flow from the anaerobic chamber to suppress odors and initiate and accelerate carbon and nitrogen reactions. Mixed liquor is recycled from the top of the SBR tank effectively removing scum by use of proprietary flow and scum control system. In addition, nitrates are recycled to the SAM™ tank for effective and rapid denitrification. Denitrification reactions are accelerated in the presence of the unreacted carbon from the raw sewage entering the SAM™ tank. Aeration and energy requirements are reduced as nitrates are fully reduced to nitrogen gas in the SAM™ tank.

EXPERIENCED LEADER IN
SEQUENCING BATCH REACTOR TECHNOLOGY

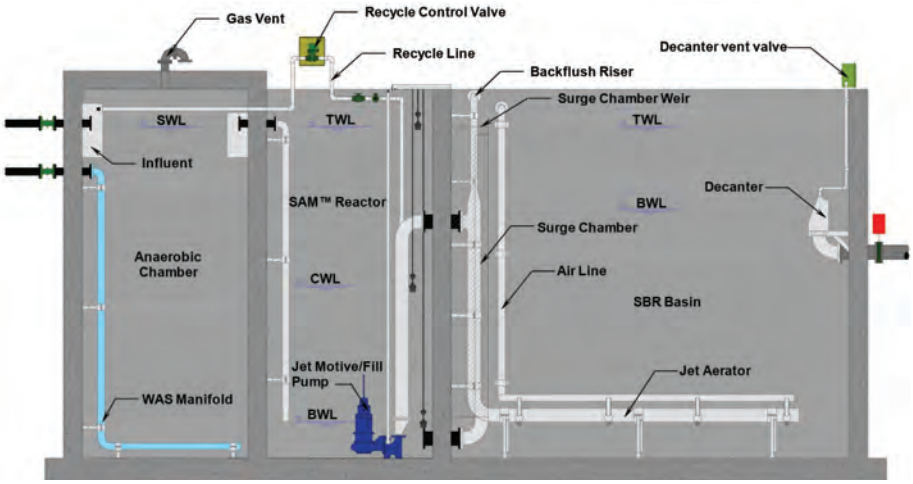
BENEFITS:

- Easy to operate and maintain
- Reduced operation and maintenance cost
- SBR basin has no moving parts that require maintenance.
- Power usage is controlled through the Fluidyne control panel
- Covered anaerobic selector chamber for odor control
- More flexible than continuous flow plants
- ISAM performs consistently regardless of influent flow changes
- Ability to handle highly variable flows and loading. Built in flow equalization is provided in the SAM™ reactor to handle peak hourly flows
- Built in sludge reduction system
- Aeration and mixing can automatically be adjusted to optimize power and prohibit filamentous growth
- Process utilizes quiescent settle and decant periods
- Small footprint with no digesters, secondary clarifiers,RAS piping and pumping
- Produces the highest quality effluent (Typical Fluidyne ISAM™ facilities are achieving less than 10 mg/L BOD5 and TSS, less than 1 mg/L NH3-N, less than 7 mg/L total N, and less than 2 mg/L phosphorus)
- Automatic scum skimming prior to effluent discharge provides highest quality effluent
- Easily expandable by adding additional flow trains



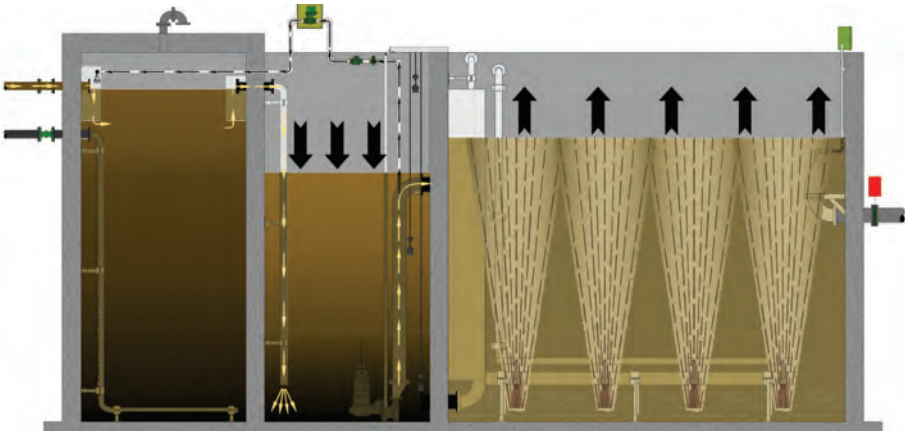


System Components:



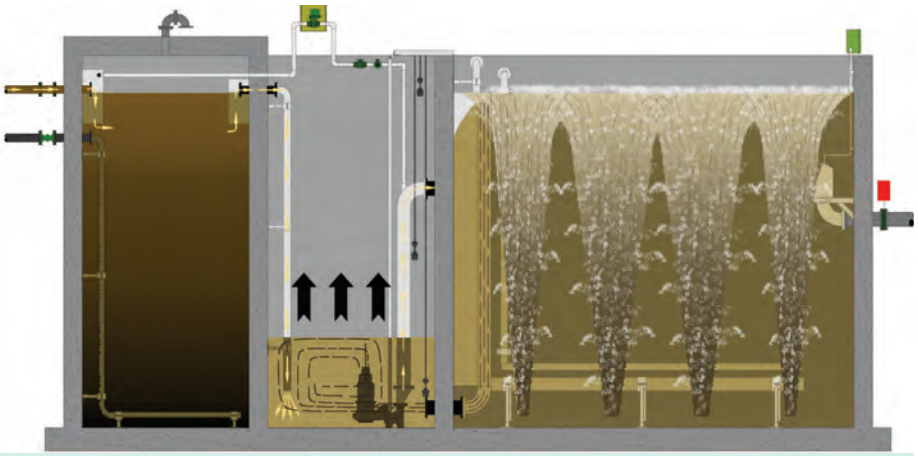
Influent continuously enters the anaerobic chamber where solids settle. Settleable BOD is converted to soluble BOD. BOD is reduced by 30% and solids are reduced by 60%. The influent then flows to the SAM™ reactor. Mixed liquor is maintained in the SAM™ reactor to suppress orders and initiate and accelerate carbon and nitrogen reduction.

Fill Phase:

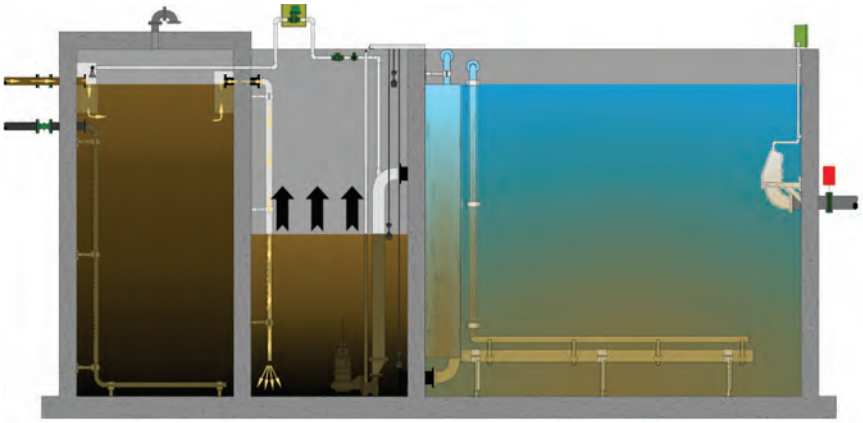


When the level in the SAM™ reactor reaches a predetermined “control level” the motive liquid pump is started. The SBR basin is filled and mixed. A percentage of the pumped flow is returned to the anaerobic chamber where biological solid settle. Settled solids in the anaerobic chamber are digested.

Interact Phase:

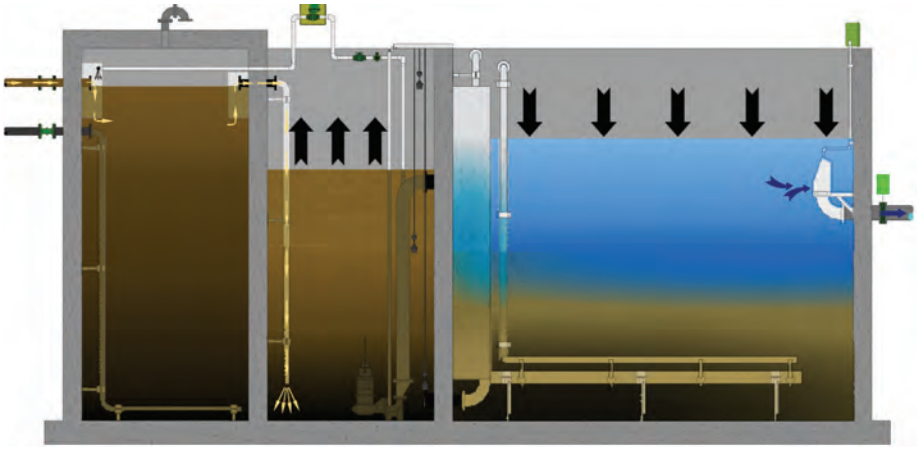


When the level in the SBR reaches TWL, nitrified mixed liquor overflows the surge chamber weir and is returned to the SAM™ chamber to mix and react with the raw influent. Aeration is cycled on and off to provide the required oxygen. Denitrification is reliable and complete. Scum is also removed from the SBR basin.



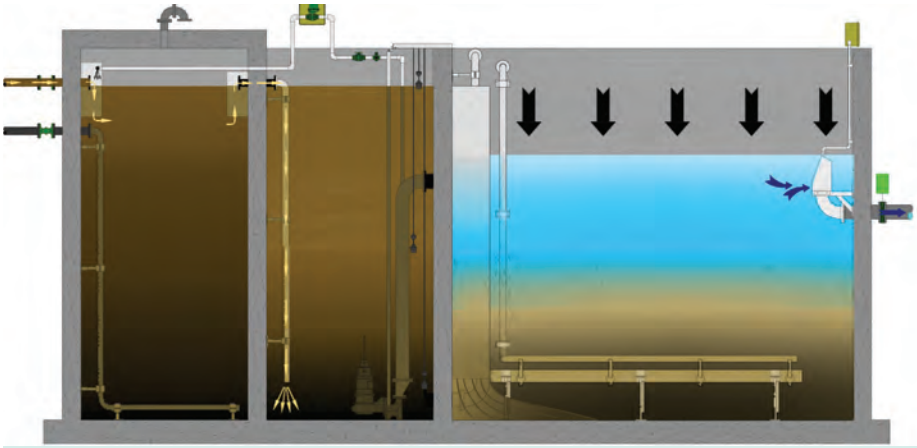
Settle Phase:

When the level in the SAM™ reactor again reaches “control level” aeration is discontinued and the SBR basin settles under perfect quiescent conditions.



Decant Phase:

When the settle timer expires, the decant valve is open and treated effluent is withdrawn from the upper portion of the SBR basin by means of a fixed solids excluding decanter.



Filled Decant Phase:

If, during peak flow events, the SAM™ reactor reaches TWL before the decant phase ends, influent flows in a reverse direction through the surge return line and overflows the surge chamber secondary weir and is diffused into the settled sludge at very low velocity as the decant phase continues.

FLUIDYNE

THE EXPERIENCED LEADER IN WASTEWATER TREATMENT TECHNOLOGY

THE EXPERIENCED LEADER IN WASTEWATER TREATMENT TECHOLOGY

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FLUIDYNECORP.COM

FLUIDYNE
CORPORATION
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PROPOSAL

FLUIDYNE CORPORATION (HEREINAFTER CALLED THE COMPANY) AGREES TO SELL TO THE PURCHASER AND THE PURCHASER AGREES TO BUY AND ACCEPT FROM THE COMPANY, THE ITEM (S) DESCRIBED HEREIN.

PROJECT: **Morrison Creek Metropolitan Water & Sanitation District Wastewater Treatment Plant ISAM™ - Sequencing Batch Reactor**

PROPOSAL NO.: FLC 051120B

DATE WRITTEN: May 27, 2020

WRITTEN BY: Erick Mandt

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PROPOSAL NO.: FLC 051120b
PROJECT: Morrison Creek, CO
DATE: May 27, 2020

Fluidyne Corporation proposes to supply Sequencing Batch Reactor (SBR) equipment and technology for the Morrison Creek Metropolitan Water and Sanitation District WWTP. Our proposed design is based on Sequencing Batch Reactor technology. We have sized the equipment based on the following:

INFLUENT:

Design Flow:	0.350 MGD
Current Flow:	0.060 MGD
Current Peak Flow:	0.120 MGD
Influent BOD5:	274 mg/l (800 lbs/day at 0.35 MGD)
Influent TSS:	274 mg/l (800 lbs/day at 0.35 MGD)
Influent TKN:	40 mg/l
Influent TP:	7 mg/l
Temperature:	5 to 20 degrees C
pH:	Neutral
Alkalinity:	Sufficient

EFFLUENT –Monthly Averages .

Effluent BOD5:	10 mg/l or less
Effluent TSS:	10 mg/l or less
NH3-N	2 mg/l or less
TIN:	10 mg/l or less
TP:	2 mg/l or less

Fluidyne has assumed the wastewater is non-toxic and readily biodegradable with a neutral pH and the plant will be properly operated and maintained. Chemical additional will be required to aid phosphorous removal. Filtration also should be provided post SBR to ensure consistent TP levels.

Internal Concrete Tank Dimensions are as follows:

ISAM: Each of two tanks at 14' X 28’ X 18' TWL X 20’ wall height (covered and vented)
SAM: Each of two tanks at 12' X 28’ X 18' TWL X 20’ wall height
SBR: Each of two tanks at 24' X 28’ X 18' TWL X 20’ wall height

Alternate tank geometry is acceptable.

Fluidyne proposes to supply the following equipment for the two tank ISAM™:

ISAM:

Two 2) ISAM™ Influent Baffles fabricated out of 304 stainless steel.

Four (4) ISAM™ Overflow Baffles fabricated out of 304 stainless steel.

SAM:

Four (4) SAM™ Influent Diffusers with supports fabricated out or 340 stainless steel.

Two (2) 15 HP Submersible SBR Feed/Jet Motive Pumps with discharge fitting, guide rail brackets, guide rails and lifting chain.

Two (2) Fluidyne model# FJM-3 Jet Mixers including jet mixing nozzle assembly, 3 HP jet mixing pump, guide rail assembly, guide rail supports, power cord and lifting cable.

Two (2) Waste Sludge Control Valves in Weatherproof Enclosure.

Two (2) Sets of 304 Stainless Steel SBR Feed Piping and accessories.

Two (2) Submersible Level Transducers with cable a 4-20 mA signal.

Two (2) Three Float Level Sensors with support bracket for back-up control.

SBR:

Two (2) Fluidyne model# BDM2JA7 Jet Aeration Headers including all in-basin liquid piping, submerged air piping, stainless steel supports, and back-flush piping. Air piping to terminate with a flange connection just above top water level to mate to the air distribution piping. Liquid piping to terminate with a flange connection to mate to the through the wall flange discharge connection.

Two (2) Fluidyne model # FOW-10 SBR Overflow weir/anoxic mix assembly

Two (2) Fluidyne model #SED-8 Decanters with all in-basin piping and supports. The decanter is to terminate with a 10” flange connection to mate to the tank wall spool flange.

Two (2) 10” Diameter Electric Operated Effluent Control Butterfly Valves. Valves to have 120/1/60 AUMA electric actuator.

Two (2) Dissolved Oxygen Sensors with 30’ of cable

Two (2) ORP Sensors with 30’ of cable

One (1) Multi-Channel Controller to receive and send signals from the two (2) DO probes and two (2) ORP Probes.

Two (2) Submersible Level Transducers with cable a 4-20 mA signal.

Two (2) Two Float Level Sensors with support bracket for back-up control.

BLOWERS:

Three (3) 25 HP Positive Displacement Blower Packages with inlet filter/silencer, flex connector, v-belt drive, drive guard, discharge silencer, check valve, pressure relief valve, pressure gauge and full sound enclosure. One blower package to be a 100% standby spare.

ADDITIONAL INSTRUMENTATION:

One (1) Open Channel Flow meter including flow converter with shuttle and sensor bracket for mounting above the flume (Flume by Others). Unit to be powered from a lighting panel.

One (1) 4" Effluent Magmeter with flanged connection (120/1/60 electrical service). Unit is to be powered from a lighting panel. Magmeter includes 50' of cable.

CONTROL PANEL:

One (1) SBR Control Panel housed in NEMA 12 enclosure with Allen-Bradley PLC, digital input cards, digital output cards, analog card, indicating lights, switches, relays, modem, UPS and PanelView 1000+ operator interface to automatically control the SBR system control functions. The control panel will include Ethernet to allow sending information to SCADA. (SCADA is not included in our scope). The control panel will include additional I/O to accept non-Fluidyne supplied equipment for up to 10 devices (20 additional digital I/O). We have also included start/stop control of five (5) chemical feed pumps (pumps and powering the pumps are not included).

We have included the following motor starters as part of the control panel:

Two (2) 3 HP Jet Mixers

We have included the following VFDs as part of the control panel:

Three (3) 25 HP Positive Displacement Blowers.
Two (2) 15 HP SBR Feed/Jet Motive Pumps

The budgeted price for the above equipment is $_____ FOB-factory with freight allowed to the jobsite.

SERVICE: Service has been provided in the amount of eight (8) man days to be provided in two (2) trips for either of the above options. Additional service can be provided at a rate of $1200.00 / day plus travel and living expenses

EXCLUSIONS: Not furnished by Fluidyne are the following; tanks or tank covers; any pipe, supports, fittings or valves except those specifically included above; out of basin or interconnecting piping, valves or supports other than those referenced above; tank wall spools and interconnecting hardware and gaskets; parshall flume; grit removal equipment and accessories; screening equipment and accessories; standby generator; disinfection equipment; sludge disposal or handling equipment; effluent filtration equipment and accessories; sampler; auto dialer; access hatches; hoists; handrail; grating; explosion proof equipment; remote panels or controls, disconnects, junction boxes, conduit or wiring between mechanical equipment and the control panel; motor starters or VFDs other than detailed above; auto transfer switch; transformer; pump or blower shop performance tests; electrical and mechanical installation labor; off-loading of equipment; jobsite testing; lab testing; jobsite storage; taxes; duties; insurance and other items not specifically mentioned in the body of this proposal.

SHIPMENT: The price quoted is based on a target shipment date of 12 to 16 weeks after receipt of approved drawings.

TAXES: Any applicable duties, sales, use, excise or similar taxes are not included in the quoted price.

TERMS OF PAYMENT: Warranties shall apply only when payments are made in full and according to the following schedule:

10% with order, 15% with approved shop drawings,
65% N30 days from shipment 10% N30 days after start-up, not to exceed 120 days from shipment.

Unless other terms are specified, all payments shall be in United States Dollars and pro rata payments shall become due as deliveries are made. If date of delivery is delayed by purchaser, date of readiness for delivery shall be deemed date of delivery for payment purposes. If purchaser delays manufacture, a payment shall be made based on the purchase price and percentage of completion; balance payable in accordance with the terms stated.

If, at any time in Company's judgment, purchaser may be or maybe become unable or unwilling to meet the terms specified, Company may require satisfactory assurances or full or partial payment as a condition of commencing or continuing manufacture; or in advance of shipment, if it shipment has been made, recover the product(s) from the carrier.

DURATION: This proposal shall remain in effect for 30 days after proposal date, unless changed in the interim upon written notice.

FLUIDYNE CORPORATION - TERMS OF SALE

The conditions stated below shall constitute a part of the agreement resulting from the acceptance of an order for the whole or any part of the equipment covered by this quotation.

1. ACCEPTANCE:
All orders shall be made out to Fluidyne Corp., 5436 Nordic Drive, Suite D, Cedar Falls, Iowa 50613, and shall be subject to acceptance by Fluidyne. Orders may not be canceled without Fluidyne's written consent, and then only on terms indemnifying Fluidyne against loss. Fluidyne reserves the right to correct any typographical or clerical errors in the proposal, pricing, or specification. Acceptance of any contract by Fluidyne shall be contingent upon credit approval. Performance shall be subject to strikes, fires, accidents, or curtailments in manufacturing or due to delays unavoidable or beyond the control of Fluidyne. No direct or liquidated damages or penalties shall be accepted. Receipt of the original copy of this proposal, signed by the purchaser, shall constitute a purchase order. The drawings and bulletin illustrations submitted with this proposal shall be general type, arrangement and approximate dimensions of the equipment to be furnished. Fluidyne reserves the right to alter such details in design or arrangement of its equipment, which in its judgment would constitute an improvement in construction, application or operation. Fluidyne shall promptly forward all necessary engineering information for installation of its equipment to the purchaser upon receipt of this accepted proposal. Any changes in equipment, arrangement of equipment, or application of equipment requested by purchaser after acceptance of proposal will be made at purchaser's expense.

2. TAXES
The prices quoted are subject to any addition, which may be necessary to cover any tax charge now existing or hereafter imposed by Federal, State, or Municipal authorities upon equipment or services herein described or the production, sale,

3. BINDING RESPONSIBILITIES:
Sales representatives are not authorized to bind us. Typographical errors are not binding.

4. CANCELLATION:
After acceptance, an order shall not be subject to cancellation unless cancellation charges are borne by the Purchaser for work done by the Seller up to the time of receipt of cancellation notice; nor shall such orders be subject to change unless price increases are born by the Purchaser.

5. SHIPMENT AND DELIVERY:

All deliveries quoted are estimates based on Fluidyne's best judgment at the time of this proposal, but shipment on these dates is not guaranteed. Deliveries are figured from date of receipt in Cedar Falls, Iowa of approved order and technical data. Fluidyne will not accept any claims caused by delay in shipment or delivery. It is further understood that storage charges of 1 percent per month will apply commencing 30 days from date of equipment completion if purchaser asks the delivery be delayed after production is started. Billing will be made at time of completion of equipment and paid per standard terms.

6. TERMS OF PAYMENT:
Terms of payment are 100% Net 30 days from shipping unless stipulated otherwise in the body of this proposal. Accounts not paid on net cash due date bear interest at the rate of 1.5 percent per month not to exceed the maximum permissible by law. Title shall not pass to purchaser or end user until all payments including final payment and any retention for all goods and services have been received in full by Fluidyne.

7. INSTALLATION AND INITIAL OPERATION:
All equipment shall be installed by and at the expense of the Purchaser unless otherwise stipulated. The Seller will furnish at its option, engineers to supervise the installation and starting up of the equipment. Field service will be provided by a factory-trained representative at a per diem rate of $950_ plus travel and expenses on any additional period not stated in this contract.

8. WARRANTY:
Fluidyne warrants the equipment proposed and described herein against defects in material and workmanship under normal service for a period of one year after date of start-up, not to eighteen months from date of shipment. Parts of products manufactured by others and provided by Fluidyne are warranted only to the extent of the original manufacturers' warranty. This warranty is valid provided that the installation operation and maintenance of the equipment is made in accordance with Fluidyne's instructions. The purchaser must promptly give written notice of any equipment defects to Fluidyne. Under warranty, Fluidyne will provide, without cost to the purchaser, such replacement parts as may be required to repair or replace the defective equipment. All labor as may be required to make such replacements must be made by purchaser unless stated otherwise in this proposal. Qualified Fluidyne personnel or its agents must perform all startup service, or this warranty is void. Fluidyne will not warrant nor replace any material involved when repairs are made without prior written authorization from Fluidyne.

THIS IS FLUIDYNE'S SOLE WARRANTY. FLUIDYNE MAKES NO OTHER WARRANTY OF ANY KIND, IMPLIED OR EXPRESSED: ALL IMPLIED OR EXPRESSED WARRANTY MADE BY ANY PERSON, AGENT OR REPRESENTATIVE WHICH EXCEEDS FLUIDYNE'S AFOREMENTIONED OBLIGATION ARE HEREBY DISCLAIMED BY FLUIDYNE AND EXCLUDED FROM THIS WARRANTY.

9. PATENTS:
The equipment provided by Fluidyne may be covered by patents pending or issued. Fluidyne grants the right to use this equipment with further charges. Fluidyne does not grant rights to use, royalties, or protection against patent litigation arising from use of this equipment in patented processes controlled by others unless otherwise listed above.

10. CHANGE ORDERS:
Any change orders shall be mutually agreeable between buyer and seller.

11. LIABILITY:
In no event shall either party be liable to the other party for anticipated profits or for incidental, special, indirect, punitive or consequential damages under any circumstances. A party's liability on any claim of any kind for any loss or damage arising out of, connected with, or resulting from this Agreement or from the performance or breach thereof shall, in no case, exceed the price allocable to the Equipment or the Services or any unit thereof which gives rise to the claim. Neither Buyer nor Seller shall be liable for penalties of any description.

12. PRICING
Fluidyne pricing is based on these terms of sale. No monies have been included for acceptance of different, additional or modified terms of sale.

SUBMITED BY: FLUIDYNE CORPORATION
DATE: May 27, 2020
PROJECT: Morrison Creek Metropolitan Water and Sanitation District

ACCEPTED BY: _____
(Sign and Title)

(Company Name)
DATED: _____

ISAM™ CALCULATIONS
PROJECT: Morrison Creek WWTF ISAM™
ENGINEER: AquaWorks DBO, Inc.
PROJECT #: ISAM™
DATE & TIME:
5/27/2020 14:49

	ISAM™ Design	ISAM™ Currrent Ave
INFLUENT CONDITIONS		
Elevation (ft)	7200	7200
Flow (m3/d)	1325	227
Flow (mgd)	0.350	0.060
Flow(gpm)	243	42
BOD5 (mg/l)	274	274
(lb/d)	800	137
BOD5 after ISAM (30% Reduction) lb/d	560	96
TSS (mg/l)	274	274
(lb/d)	800	137
TKN (mg/l)	40	40
(lb/d) applied	117	20
EFFLUENT REQUIREMENTS (Monthly Ave.)		
BOD5 (mg/l)	10	10
TSS (mg/l)	10	10
TIN (mg/l)	10	10
OXYGEN REQUIREMENTS		
Pounds TKN required for synthesis	28	5
Pounds of NO3-N produced	89	15
Pounds O2 recovered/pound NO3-N reduced	2.6	2.6
Pound of Oxygen/ pound of BOD	1.4	1.4
Pound of Oxygen/pound of N03-N produced	4.6	4.6
Actual Oxygen Demand (lb 02/d) Total	1192	204
Alpha	0.85	0.85
Beta	0.95	0.95
Theta	1.024	1.024
Operating Dissolved oxygen (mg/l)	2	2
Clean Water oxygen sat. at op. temp (mg/l)	11.33	11.33
Clean Water oxygen sat. at std. temp (mg/l)	9.09	9.09
Clean water 02 sat, std temp,mid depth(mg/l)	11.50	11.50
Std. condition ambient pressure (psia)	14.7	14.7
Oper. condition ambient pressure (psia)	11.23	11.23
Wastewater temperature (c)	10	10
SOR/AOR ratio	2.04	2.04
Standard Oxygen Demand (lb 02/d) total	2433	417
Standard Oxygen Demand (lb 02/hr)	162	81
Standard Oxygen Demand (lb 02/hr/tank)	81	81
Specific oxygenation rate (mg/l-hr)	108	108
Pounds of oxygen/pound of air	0.23	0.23
Clean water efficiency (%)	24	24
Pounds of air/cubic foot of air	0.075	0.075
Aeration hours per day	15.00	5.15
Air flow rate (scfm/tank)	327	326
Air pressure losses (lines and nozzle)	0.7	0.7
Maximum air pressure (psig)	7.63	7.63
Average air pressure (psig)	6.68	6.76
NITRIFICATION/DENITRIFICATION		
Required alkalinity for nitrification (mg/l)	217	217
Alkalinity recovered, denitrification (mg/l)	91	91
Net alkalinity required (mg/l)	217	126
Mixed liquor temperature, C	10	10
ML dissolved oxygen (mg/l)	1	1
Max. nitrifier growth rate, day-1	0.125	0.125
Minimum SRT required for nitrification, days	7.99	7.99
Actual SBR SRT, days	9.35	20.72
Total SRT, days	14.02	31.08

PROJECT: Morrison Creek WWTF ISAM™

Kn, half velocity constant (mg/l)	0.22	0.22
Design growth rate for heterotrophs/nitrifiers	0.1070	0.0483
Projected effluent soluble NH3-N, mg/l	1.32	0.14
Specific utilization rate, lbs BOD5/lb mlvss	0.29	0.18
lbs. mlvss required for BOD & NH3 removal	2802	767
mlvss (mg/l)	2400	1800
Tank volume req. for BOD & NH3 removal (MG	0.14	0.05
Denitrification rate (g/g/day)	0.034	0.034
lbs mlvss required for denitrification	2646	454
Tank volume required for NO3 removal (MG)	0.13	0.03
Total tank volume required (MG)	0.27	0.08
SBR/SAM™ TANK CONFIGURATION		
No. of SBR tanks	2	1
Length SBR (ft)	24	24
Length SAM™ (ft)	12	12
Width (ft)	28	28
Bottom water level (ft)	14	14
Top water level (ft)	18	18
No. Decanters/tank	2	2
SBR Tankage Volume @ TWL(MG)	0.1810	0.0905
HRT (hrs)	12.41	36.19
SAM™ Tankage Volume	0.090	0.045
HRT (hrs)	6.20	18.10
Total Tankage Volume @ TWL(MG)	0.27143	0.14
Total HRT (hrs)	18.61	54.29
CYCLE TIMES/CAPACITY CALCULATIONS		
Total decant volume (cubic feet)	5,846	2,675
Total decant volume (gallons)	43,731	20,006
Decant volume per tank (gallons)	21,866	20,006
Number of cycles per day/tank	8.00	3.00
Total time per cycle (minutes)	180	480
Fill rate (gpm)	1368	1368
Fill time (minutes) SBR	16	15
Feed rate (gpm)	243	42
Interact Period (minutes)	92	396
Settle period (minutes)	45	45
Decant fill (minutes)	0	0
Average decant rate (gpm/ft decanter)	100	100
Decanter length (feet)	8	8
Decanting time (minutes)	27	25
Decanting rate (gpm)	800	800

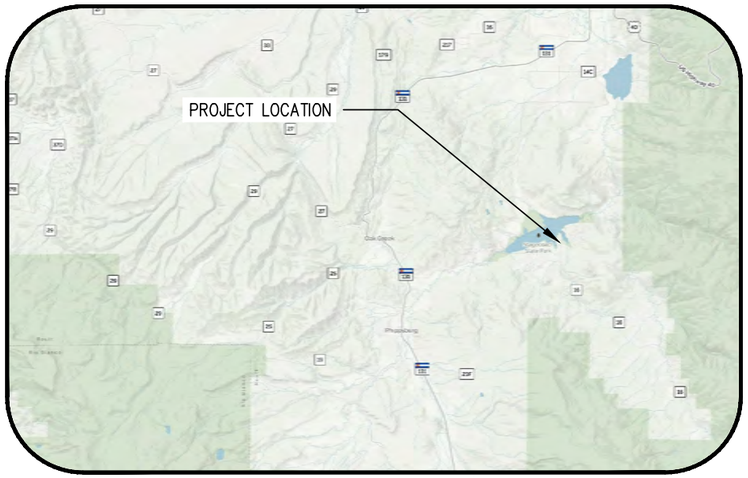
EQUIPMENT SELECTION		
Air flow per nozzle (scfm)	47	47
Number of nozzles required (per tank)	6.95	6.94
Number of nozzles provided (per tank)	7	7
Actual airflow per nozzle (scfm)	46.65	46.58
Blower capacity required (scfm)	327	326
Blower capacity provided (scfm)	330	330

PROJECT: Morrison Creek WWTF ISAM™

POWER CONSUMPTION CALCULATIONS		
Pump efficiency	0.72	0.72
Blower efficiency	0.6	0.6
Pump horsepower, BHP/tank	11.0	11.0
Mixing BHP/MG	121	121
Blower horsepower, BHP/tank	21.1	21.1
Total horsepower, BHP/tank	32.1	32.1
Aeration BHP/MG	355	355
Total design equivalent horsepower, BHP	40.1	6.9
SLUDGE PRODUCTION		
Sludge Yield Factor	0.7	0.7
Net Sludge Yield (lbs/d)	554	94
Sludge Concentration (%) from SBR	0.34	0.26
Sludge Wasting Rate (gpd)	19362	4367
Waste Sludge /cycle (gal)	1210	1456
WAS Pumping Rate (gpm)	75	75
Waste Sludge Cycle Time (min)	16.1	19.4
Thickened Sludge Concentration (%)	3	3
Thickened Sludge (gpd)	2213	374
MLSS (mg/l) @ TWL	3429	2571
Sludge inventory total (lbs)	7761	2911
Sludge inventory in SBR (lbs)	5174	1940
SRT (1/days)	14.02	31.08
SRT in SBR (1/days)	9.35	20.72
F/M	0.10	0.05
SVI (ml/g)	150	200
Sludge blanket level (ft)	9.27	9.27
Organic loading (lbs BOD/1000 ft3)	22.04	7.56
ISAM™		
Surface Area Required	700	120
Number of tanks	2	2
Length required (ft) total both tanks	25.00	4.29
Length (ft) provided each tank	14.0	14.0
Width (ft)	28	28
TWL (ft)	18	18
Total volume (gal) available	105,558	105,558
Days sludge storage available undigested	47.70	282.02
Total sludge age including SBR (days)	57.05	302.74
Pounds sludge destroyed	211	59
% sludge reduction	38	63
Thickened, digested sludge (gpd)	1370	139
Inerts accumulation (gal/d)	320	55
Days sludge storage available after digestion	34	299

PRELIMINARY
NOT FOR CONSTRUCTION

MORRISON CREEK METROPOLITAN WATER & SANITATION DISTRICT
WASTEWATER TREATMENT IMPROVEMENT PROJECT CONCEPTUAL DRAWINGS
JUNE 2020



VICINITY MAP
NOT TO SCALE

LOCATION MAP
NOT TO SCALE

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
GENERAL SHEETS	
G1	COVER & SHEET LIST
G2	ABBREVIATIONS & SYMBOLS
G3	GENERAL NOTES REQUIREMENTS EQUIPMENT SUMMARY
G4	EQUIPMENT SUMMARY
G5	PROCESS FLOW DIAGRAM
G6	HYDRAULIC PROFLE
CIVIL SHEETS	
C1	SITE PLAN
PROCESS SHEETS	
P1	EXISTING TREATMENT WORKS
P2	PROCESS PLAN
P3	PROCESS SECTION

AquaWorks DBO INC
DESIGN BUILD OPERATE
3252 WILLIAMS STREET | DENVER
COLORADO | 80205 | (303) 477-5915

MORRISON CREEK METROPOLITAN
WATER & SANITATION DISTRICT
24490 UNCOMPAHGRE ROAD
OAK CREEK, CO 80467
(970) 736-8250

AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
AC	AIR CONDITIONING
ACOUS	ACOUSTICAL
ACP	ASPHALTIC CONCRETE
ACTR	ACTUATOR
AD	AREA DRAIN OR ACCESS DOOR
ADDM	ADDENDUM
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AMT	AMOUNT
APPROX	APPROXIMATE
ARV	AIR RELIEF VALVE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASPH	ASPHALT
ASSY	ASSEMBLY
ATS	AUTOMATIC TRANSFER SWITCH
AVG	AVERAGE
AVS	AUTOMATIC VALVE STATION
B	BLOWER
B&F	BELL & FLANGE
BB	BOND BEAM
BAF	BAFFLE
BC	BACK OF CURB
BE	BELL END
BF	BOTTOM FACE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BMPS	BEST MANAGEMENT PRACTICES
BOD	BIOCHEMICAL OXYGEN DEMAND
BOT	BOTTOM OR BOTTOM OF TANK
BP	BOOSTER PUMP
BS	BACKSIGHT
BSMT	BASEMENT
BU	BELL UP
BV	BALL VALVE
BCV	BUTTERFLY CHECK VALVE
BWL	BOTTOM WATER LEVEL
C/C	CENTER TO CENTER
CB	CATCH BASIN
CCW	COUNTER CLOCKWISE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CEB	CONCRETE EQUIPMENT BASE
CIP	CAST IRON PIPE
CIMJ	CAST IRON MECHANICAL JOINT
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL	CENTER LINE OR CHAIN LINK
CLG	CEILING
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
COR	CORNER
CP	CENTRIFUGAL PUMP
CPLG	COUPLING
CR	CONCRETE REDUCER
CTJ	CONTROL JOINT
CTR	CENTER
CS	CAUSTIC SODA
CW	COLD WATER
CWL	CONTROL WATER LEVEL
CY	CUBIC YARDS
DEMO	DEMOLITION
DI	DEIONIZATION
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DIS	DISCHARGE
DISP	DISPENSER
DL	DEAD LOAD
DMJ	DUCTILE MECHANICAL JOINT
DN	DOWN
DR	DRAIN
DWG	DRAWING
DWL	DOWEL
DWN	DRAWN
DWV	DRAIN WASTE AND VENT
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE OR ELECTRICAL FAN
EFF	EFFLUENT
EJ	EXPANSION JOINT
EL	ELEVATION
EXIST OR (E)	EXISTING
EXIST GR	EXISTING GRADE
EXT	EXTERIOR
EXTN	EXTENSION

F/F	FACE TO FACE
FCA	FLANGE COUPLING ADAPTER
FD	FLOOR DRAIN
FDN	FOUNDATION
FED	FEDERAL
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FIN	FINISH
FL	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FN	FENCE
FOC	FACE OF CONCRETE
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPW	FIRE PROTECTION WATER SUPPLY
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FSTNR	FASTENER
FT	FEET
FTG	FOOTING OR FITTING
FUR	FURNACE
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GIP	GALVANIZED IRON PIPE
GRND	GROUND
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR BM	GRADE BEAM
GRC	GALVANIZED RIGID CONDUIT
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GWB	GYPSUM WALL BOARD
H	HIGH
HB	HOSE BIB
HDWL	HEAD WALL
HNDRL	HAND RAIL
HNDWL	HANDWHEEL
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPT	HYDROPNEUMATIC PRESSURE TANK
HR	HOUR
HS	HIGH STRENGTH
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HYD	HYDRANT
INCL	INCLUDED
INCR	INCREASER
ID	INSIDE DIAMETER
IF	INSIDE FACE
INL	INLET
INSTL	INSTALLATION
INSTR	INSTRUMENT
INSUL	INSULATION
INTR	INTERIOR
INV	INVERT
INV EL	INVERT ELEVATION
ISA	INSTRUMENT SOCIETY OF AMERICA
ISO	ISOMETRIC
JST	JOIST
JTS	JOINTS
KO	KNOCKOUT
KPL	KICK PLATE
KWY	KEYWAY
L	LEFT OR LITER
LAB	LABORATORY
LATL	LATERAL
LAV	LAVATORY
LB(S)	POUND(S)
LCMU	LIGHTWEIGHT CONCRETE MASONRY UNIT
LF	LINEAR FOOT
LKR	LOCKER
LL	LIVE LOAD OR LOW LEVEL
LNG	LENGTH
LOC	LOCATION
LP	LOW PRESSURE OR LIGHT POLE
LRG	LARGE
LT	LIGHT
LT WT	LIGHT WEIGHT
LWC	LIGHT WEIGHT CONCRETE
LWL	LOW WATER LEVEL
MAINT	MAINTENANCE
MAN	MANUAL
MATL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIUM
MFM	MAGNETIC FLOW METER
MFR	MANUFACTURER

MG	MILLION GALLONS OR MILLIGRAMS
MGD	MILLION GALLONS PER DAY
MGMT	MANAGEMENT
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINTS
MO	MASONRY OPENING
MRGYB	MOISTURE RESISTANT GYPSUM WALL BOARD
MTG	MOUNTING
N	NITROGEN
NA	NOT APPLICABLE
NAOCL	SODIUM HYPOCHLORITE
NF	NEAR FACE
NIC	NOT IN CONTRACT
NP	NO PAINT
NPL	NAME PLATE
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NRS	NON-RISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVER FLOW
OPNG	OPENING
OPP	OPPOSITE
OPT	OPTIONAL
P	PUMP
PA	PIPE ANCHOR
PAR	PARALLEL
PC	PORTLAND CEMENT
PCO	PRESSURE CLEAN OUT
PCP	PROGRESSING CAVITY PUMP
PD	PUMP DISCHARGE LINE
PE	PLAIN END
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAGE
PL	PLATE OR PROPERTY LINE
PLBG	PLUMBING
PLYWD	PLYWOOD
PNT	PAINT
POLY	POLYETHYLENE
PORT	PORTABLE
POS	POSITIVE
PPM	PARTS PER MILLION
PRCST	PRECAST
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PREP	PREPARATION
PROJ	PROJECT
PROP	PROPERTY
PRS	PRESSURE REDUCING STATION
PRTV	PRESSURE / TEMPERATURE RELIEF VALVE
PRV	PRESSURE REDUCING VALVE
PS	PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PV	PLUG VALVE
PVMT	PAVEMENT
PW	POTABLE WATER
QAVG	AVERAGE DAILY FLOW
QMAX	MAXIMUM DAILY FLOW
QPEAK	PEAK HOUR FLOW
QCV	QUICK COUPLER VALVE
QTR	QUARTER
QTY	QUANTITY
R	RISER
RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RED	REDUCER
REC	RECESSED
RECT	RECTANGULAR
REF	REFERENCE
REHAB	REHABILITATION
REINF	REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RFCA	RESTRAINED FLANGED COUPLING ADAPTER
RFG	ROOFING
RH	RIGHT HAND
RM	ROOM
RND	ROUNDED
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RPS	REVOLUTIONS PER SECOND
RR	RAILROAD
RTN	RETURN

SA	SUPPLY AIR
SALV	SALVAGE
SAN	SANITARY
SB	SPLASH BLOCK
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SCRN	SCREEN
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SECT	SECTION
SHLDR	SHOULDER
SHT	SHEETING
SHTHG	SHEATHING
SIM	SIMILAR
SLV	SLEEVE
SM	SMOOTH
SP	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
SST BT	STAINLESS STEEL BOLT
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STL JST	STEEL JOIST
STL PL	STEEL PLATE
SUPP	SUPPLY
SUSP CLG	SUSPENDED CEILING
SV	SOLENOID VALVE
SVC	SERVICE
SW	SIDEWALK
SWMP	STORM WATER MANAGEMENT PLAN
SYMM	SYMMETRICAL
SYS	SYSTEM
T	TEE
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T&P	TEMPERATURE AND PRESSURE
TB	TOP OF BEAM
TBM	TEMPORARY BENCH MARK
TE	TOP ELEVATION
TEMP	TEMPORARY
TF	TOP OF FOOTING
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TFF	TOP OF FINISH FLOOR
THD	THREAD(ED)
THK	THICK
TJ	TOP OF JOIST
TOB	TOP OF BANK
TOC	TOP OF CONCRETE
TOE	THREADED ONE END
TOF	TOP OF FOOTING
TOT	TOTAL
TP	TOP OF PAVEMENT
TR	TOP OF RIM
TSL	TOP OF SLAB
TST	TOP OF STEEL
TW	TOP OF WALL
TWL	TOP WATER LEVEL
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UE	UNDERGROUND ELECTRIC
UG	UNDERGROUND
ULT	ULTIMATE
UN	UNION
UNG	UNDERGROUND NATURAL GAS
UNFIN	UNFINISHED
UNIF	UNIFORM
UV	ULTRAVIOLET
VAC	VACUUM
VB	VALVE BOX
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W	WIDE OR WIDTH
W/	WITH
W/O	WITHOUT
W/W	WALL TO WALL
WC	WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE
WH	WALL HYDRANT
WHSE	WAREHOUSE
WI	WROUGHT IRON
WL	WATER LINE OR WIND LOAD
WP	WASTE PIPE
WPR	WORKING PRESSURE
WS	WETTED SURFACE
WT	WEIGHT

WTR	WATER
WTRPRF	WATERPROOF(ING)
X-SECT	CROSS SECTION
YCO	YARD CLEANOUT
YD	YARD DRAIN
YH	YARD HYDRANT

PRELIMINARY
NOT FOR CONSTRUCTION

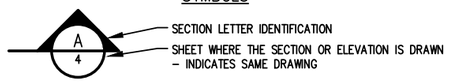
SYMBOL LEGEND

- DEMOLITION
- EARTH
- ROCK
- GROUT
- GRAVEL
- STEEL
- CONCRETE
- SAND
- CONCRETE MASONRY UNIT
- RIGID INSULATION
- BATT INSULATION
- GLASS
- STEEL PLATE
- SCREEN
- GRATING IN PLAN
- GRATING IN SECTION
- WOOD IN SECTION
- EXISTING STRUCTURE
- NEW STRUCTURE
- DRAINAGE FLOW LINE
- FENCE
- BUSHES, TREES
- BID ALTERNATE

- THRUST BLOCK
- HARNESSED MECHANICAL COUPLING
- NEW VALVE W/ TIE RODS
- EXISTING VALVE
- PRESSURE RELIEF VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- HARNESS
- STOP & WASTE VALVE
- BALL VALVE
- PLUG VALVE
- GATE VALVE
- MECHANICAL JOINT
- FLANGED JOINT
- NEW PIPE IN SECTION
- EXISTING PIPE IN SECTION
- WALL SLEEVE
- PIPE 4" DIA OR GREATER
- PIPE LESS THAN 4" DIA
- LINE TURNING UP
- LINE TURNING DOWN

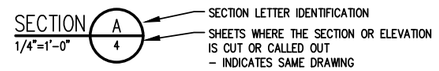
- EXISTING GAS LINE
- EXISTING WATER LINE
- TELEPHONE LINE
- PROPOSED STORM DRAIN
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRIC W/ POWER POLE
- ELECTRICAL LIGHT POLE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPERTY LINE
- SURVEY CONTROL POINT
- LIMITS OF GRAVEL SURFACING
- ASPHALT PAVING
- CONCRETE PAVING
- PROPOSED CONTOUR
- EXISTING CONTOUR
- SAMPLE POINT
- LEVEL INDICATOR
- FLOW METER
- PUMP
- ELECTRICAL ANALOG SIGNAL
- ELECTRICAL DIGITAL SIGNAL
- AIR RELIEF VALVE
- TREE

SYMBOLS



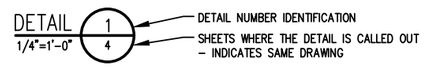
SECTION LETTER IDENTIFICATION
SHEET WHERE THE SECTION OR ELEVATION IS DRAWN – INDICATES SAME DRAWING

SECTION OR ELEVATION MARKER
ARROW INDICATES VIEWING ORIENTATION



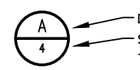
SECTION LETTER IDENTIFICATION
SHEETS WHERE THE SECTION OR ELEVATION IS CUT OR CALLED OUT – INDICATES SAME DRAWING

SECTION OR ELEVATION TITLE



DETAIL NUMBER IDENTIFICATION
SHEETS WHERE THE DETAIL IS CALLED OUT – INDICATES SAME DRAWING

DETAIL TITLE



DETAIL NUMBER IDENTIFICATION
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DETAIL MARKER

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AquaWorks DBO INC
DESIGN BUILD OPERATE

PROJECT: MORRISON CREEK WATER & SANITATION DISTRICT
WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE:
ABBREVIATIONS & SYMBOLS

PROJECT NUMBER:	SCALE:	SHEET:
#2479	NOT TO SCALE	G2

NOTES:

GENERAL:

1. PROJECT ADDRESS: 24490 UNCOMPAHGRE ROAD, OAK CREEK, CO 80467

2. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL GIVE THE OWNER SEVENTY–TWO (72) HOURS ADVANCE NOTICE.

3. NO BELOW GRADE UTILITIES WERE LOCATED FOR THIS PLAN SET. CONTRACTOR IS RESPONSIBLE TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANY. CONTRACTOR IS RESPONSIBLE TO PROTECT UTILITIES DURING CONSTRUCTION. IF A CONFLICT EXISTS AND/OR A DESIGN MODIFICATION IS REQUIRED, OWNER AND CONTRACTOR SHALL COORDINATE WITH ENGINEER TO MODIFY THE DESIGN. DESIGN MODIFICATION(S) MUST BE APPROVED BY THE OWNER PRIOR TO BEGINNING CONSTRUCTION AFFECTED. FOR UTILITY LOCATE INFORMATION, CONTACT UNCC: 811.

4. ACTUAL LOCATIONS, DISTANCES, AND ELEVATIONS WILL BE GOVERNED BY ACTUAL FIELD CONDITIONS. CONTRACTOR TO FIELD VERIFY CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5 CONTRACTOR SHALL BE REQUIRED TO RESTORE THE ROUTE OF WORK AND ANY DAMAGED EXISTING LANDSCAPE, STRUCTURES, OR IMPROVEMENTS AS THE RESULT OF WORK TO ORIGINAL CONDITION OR BETTER PRIOR TO ACCEPTANCE OF WORK. CONTRACTOR RESPONSIBLE FOR RESTORING SITE TO PRE–CONSTRUCTION CONDITION.

6. NO UTILITY SERVICE MAY BE DISCONNECTED WITHOUT PRIOR APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE.

7. CONTRACTOR TO PROVIDE AND MAINTAIN TEMPORARY PORTABLE RESTROOM FACILITIES FOR THE DURATION OF THE PROJECT.

8. CONTRACTOR SHALL EXHIBIT NECESSARY SAFETY PRECAUTIONS DURING CONSTRUCTION, WHICH INCLUDES, BUT IS NOT LIMITED TO, SIGNAGE, SECURITY, AND EXCAVATION AS SET FORTH BY OSHA, PUBLICATION 2226, "EXCAVATION AND TRENCHING OPERATIONS."

9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF ALL PERMITS NECESSARY FOR THE CONSTRUCTION OF THE IMPROVEMENTS SHOWN.

10. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF EXISTING MANHOLES, SEWER PIPES, STRUCTURES, AND OUTFALLS PRIOR TO CONSTRUCTION.

11. THE CONTRACTOR SHALL MAINTAIN ON SITE A FULL SET OF CONSTRUCTION DRAWINGS, RECORDING ALL INFORMATION PERTAINING TO THE CONSTRUCTION OF THE PROJECT. THESE RECORD DRAWINGS SHALL BE PROVIDED TO THE OWNER UPON COMPLETION OF THE PROJECT.

12. HORIZONTAL AND VERTICAL DEFLECTION OF THE PIPES SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS FOR THE PIPE MATERIAL AND TEST PRESSURE SPECIFIED.

13. CONTRACTOR SHALL NOT SCALE FROM DRAWINGS FOR CONSTRUCTION PURPOSES. ANY MISSING DIMENSIONS OR DISCREPANCIES IN PLANS, FIELD STAKING, FIELD CONDITIONS OR PHYSICAL FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. IF CONTRACTOR PROCEEDS WITH THE WORK WITHOUT NOTIFYING ENGINEER HE DOES SO AT HIS OWN RISK.

14. IF CONFLICTS, QUESTIONS OR INTERPRETATION ARE REQUIRED CONTACT THE ENGINEER IN WRITING WITH A REQUEST FOR INFORMATION (RFI).

BUILDING REQUIREMENTS:

1. CONTRACTOR TO CONFORM TO CURRENT EDITION IBC AND ROUTT COUNTY BUILDING CODES.

REQUIREMENTS:

ALL MATERIALS FOR POTABLE WATER SERVICE SHALL BE NSF 61 CERTIFIED DISINFECTION SYSTEMS

B300–04 AWWA STANDARD FOR HYPOCHLORITES

ELECTRICAL:

1. CONTRACTOR TO COORDINATE MODIFICATIONS TO EXISTING ELECTRICAL SERVICE WITH UTILITY AND OWNER.

2. REFER TO ELECTRICAL DRAWINGS.

PROCESS PIPING:

1. CONTRACTOR TO PROVIDE ALL SUPPORTS AS REQUIRED.

2. ALL PVC PROCESS PIPING SHALL BE SCH 80 UNLESS OTHERWISE NOTED.

3. ALL AIR PIPING SHALL BE 304 STAINLESS STEEL SCH 10 UNLESS OTHERWISE NOTED.

METAL COATING REQUIREMENTS:

1. ALL METAL FABRICATIONS TO BE PRIMED AND/OR COATED WITH TNEMEC PRODUCTS. STAINLESS STEEL AND ALUMINUM NOT REQUIRED TO BE COATED.

2. CONTRACTOR TO FOLLOW MANUFACTURER'S TEMPERATURE AND SUGGESTED THICKNESS REQUIREMENTS.

3. CONTRACTOR TO FOLLOW MANUFACTURER'S SURFACE PREPARATION REQUIREMENTS BASED ON COATING SERVICE.

4. FOR ALL INTERIOR EXPOSED METAL FABRICATIONS, EXCEPT ALUMINUM AND STAINLESS STEEL, PROVIDE TWO COATS SERIES 66 HI–BUILD EPOXOLINE COATING.

5. FOR ALL EXTERIOR EXPOSED METAL FABRICATIONS, EXCEPT ALUMINUM AND STAINLESS STEEL, PROVIDE ONE COAT SERIES 66 HI–BUILD EPOXOLINE COATING AS PRIMER, FOLLOWED BY TOP COAT OF SERIES 73 ENDURA–SHIELD.

PIPING IDENTIFICATION REQUIREMENTS:

1. INCLUDE FLOW DIRECTION ARROW TAPE ON ALL PIPING.

2. ALL PIPING SHALL EITHER BE PAINTED OR LABELED USING THE FOLLOWING COLOR SCHEDULE (NOT ALL MAY BE INCLUDED WITH THIS PROJECT):

PROCESS LINES	
SEWAGE	DARK GRAY
SLUDGE	BROWN WITH BLACK BANDS
POTABLE WATER	DARK BLUE
NON–POTABLE WATER	DARK BLUE WITH BLACK BANDS
RECLAIMED WATER	PURPLE

CHEMICAL LINES	
ALUM OR PRIMARY COAGULANT	ORANGE
AMMONIA	WHITE
CARBON SLURRY	BLACK
CAUSTIC	YELLOW WITH GREEN BAND
CHLORINE	YELLOW
OZONE	YELLOW WITH ORANGE BAND
POLYMERS OR COAGULANTS	ORANGE WITH GREEN BAND
POTASSIUM PERMANGANATE	PURPLE WITH GREEN BAND
SODA ASH	LIGHT GREEN WITH ORANGE BAND

OTHER	
COMPRESSED AIR	DARK GREEN
GAS	RED

PROJECT TEAM:

SYSTEM OPERATOR:
MORRISON CREEK METROPOLITAN WATER & SANITATION DISTRICT
MR. STEVE COLBY
24490 UNCOMPAHGRE ROAD
OAK CREEK, COLORADO 80467
(970) 736–8250

PROJECT MANAGER/CIVIL PROCESS ENGINEER:
AQUAWORKS DBO, INC.
MR. ADAM SOMMERS, P.E.
3252 WILLIAMS STREET
DENVER, CO 80205
(303) 477–5915

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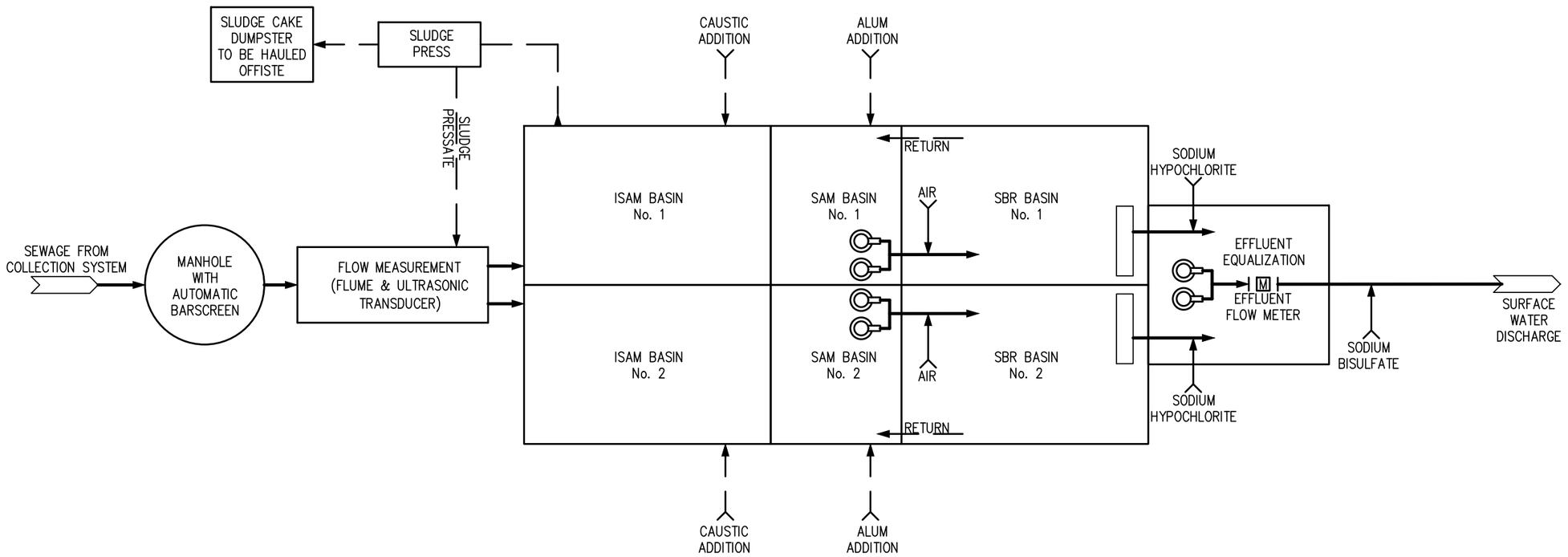
WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477–5915

SHEET TITLE: GENERAL NOTES REQUIREMENTS EQUIPMENT SUMMARY

PROJECT NUMBER:	SCALE:	SHEET:
#2479	NOT TO SCALE	G3



PROCESS FLOW DIAGRAM
NOT TO SCALE

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UNINCORPORATED ROUTT COUNTY, COLORADO

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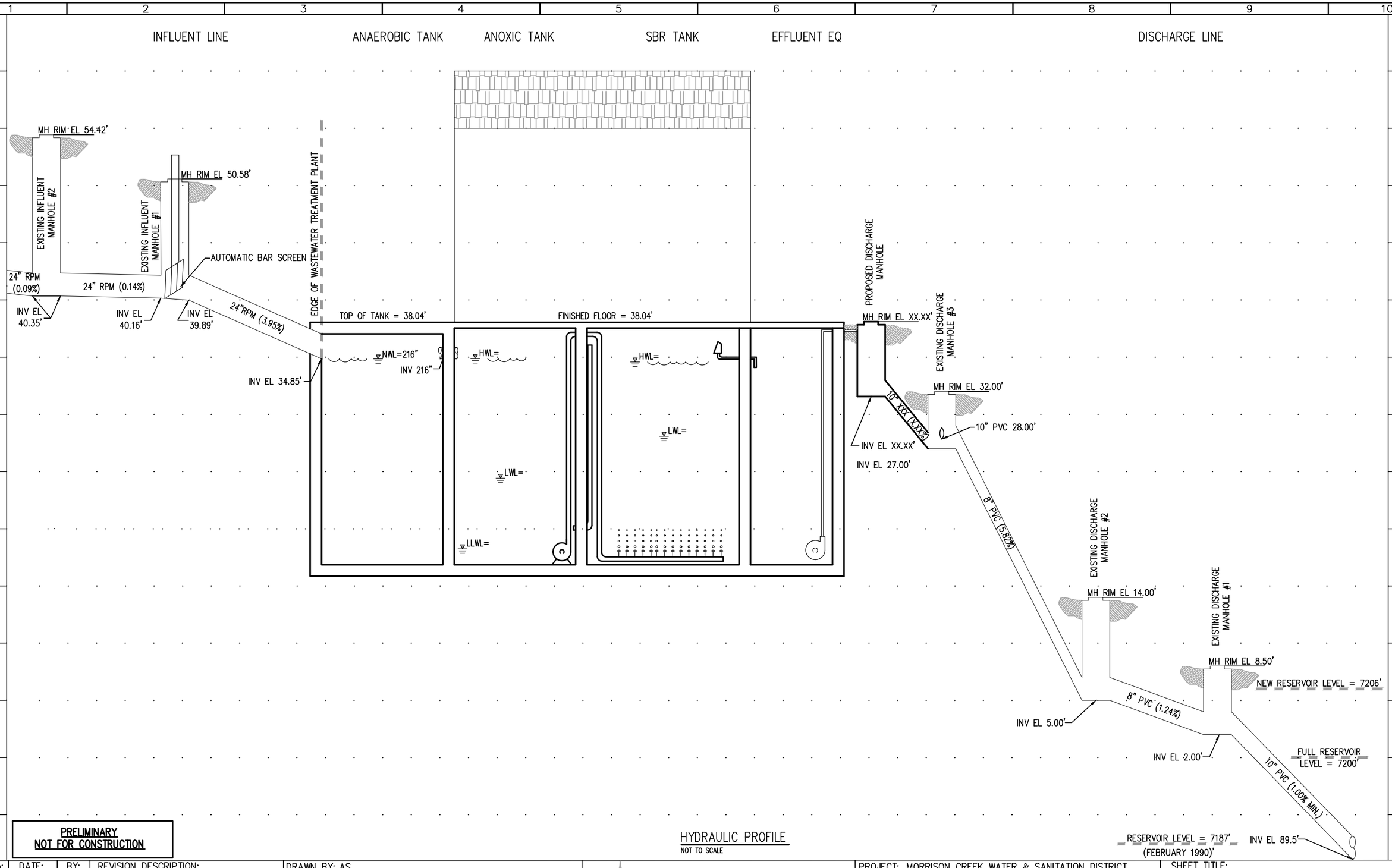
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: PROCESS FLOW DIAGRAM

PROJECT NUMBER:	SCALE:	SHEET:
#2479	NOT TO SCALE	G5



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HYDRAULIC PROFILE
NOT TO SCALE

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WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
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DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: HYDRAULIC PROFLE

PROJECT NUMBER:	SCALE:	SHEET:
#2479	NOT TO SCALE	G6

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SITE PLAN
1' = 100'

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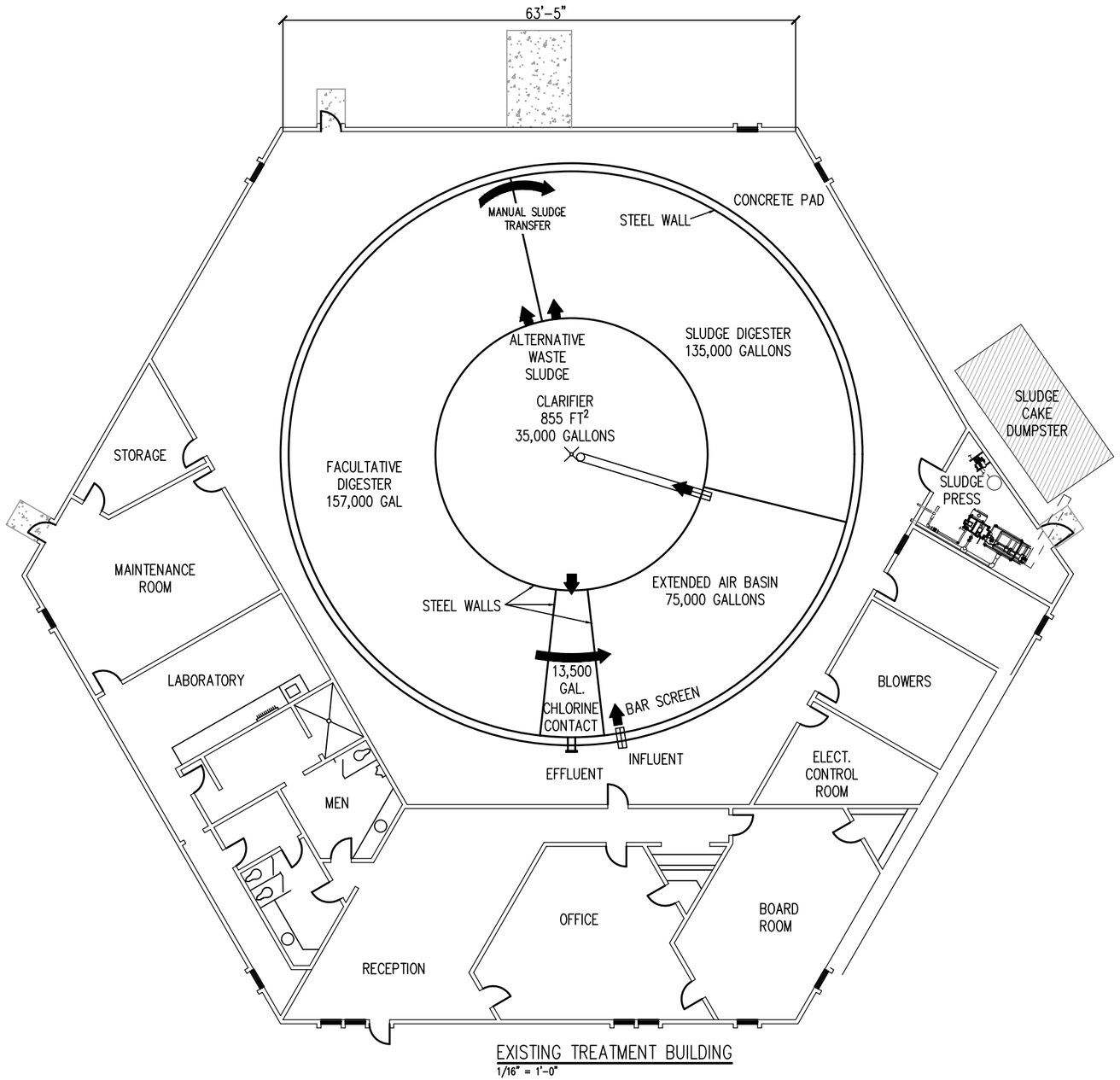
WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: SITE PLAN

PROJECT NUMBER:	SCALE:	SHEET:
#2479	1" = 100'	C1



EXISTING TREATMENT BUILDING
1/16" = 1'-0"

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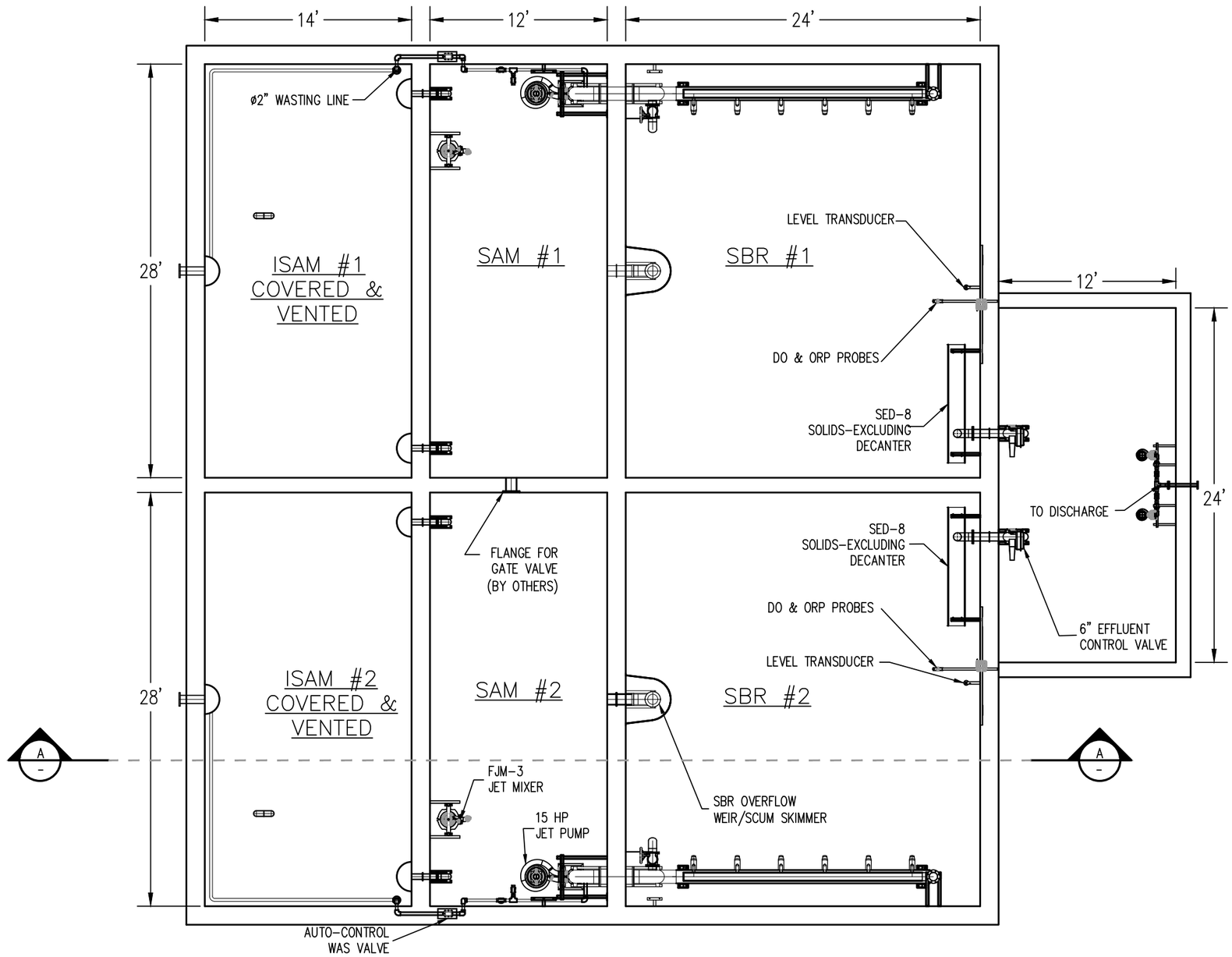
WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: EXISTING TREATMENT WORKS

PROJECT NUMBER:	SCALE:	SHEET:
#2479	1/16" = 1'-0"	P1



PROCESS PLAN
1/8" = 1'-0"

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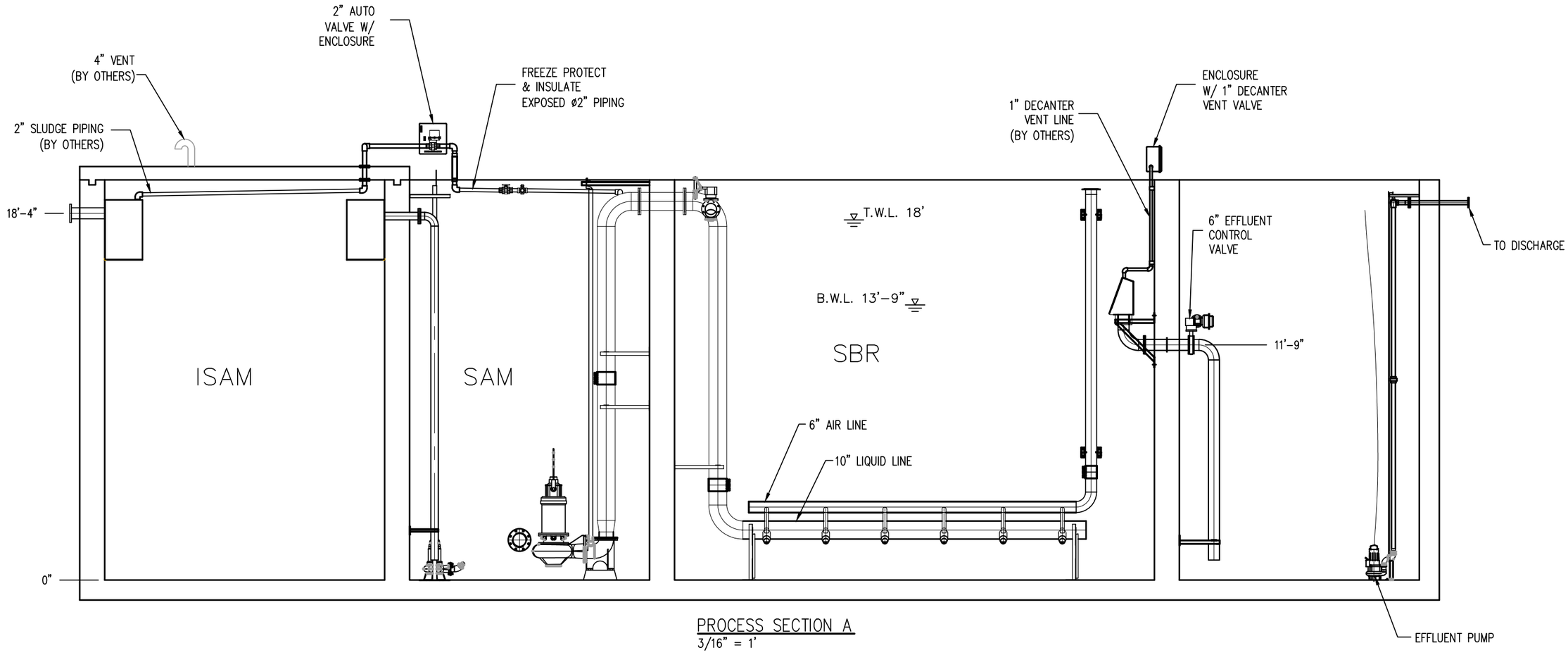
WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: PROCESS PLAN

PROJECT NUMBER:	SCALE:	SHEET:
#2479	1/8" = 1'-0"	P2



PROCESS SECTION A
3/16" = 1'

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AquaWorks DBO INC
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WASTEWATER TREATMENT IMPROVEMENT PROJECT
UNINCORPORATED ROUTT COUNTY, COLORADO

ENGINEER: AQUAWORKS DBO, INC.
3252 WILLIAMS STREET
DENVER, COLORADO 80205
(303) 477-5915

SHEET TITLE: PROCESS SECTION

PROJECT NUMBER:	SCALE:	SHEET:
#2479	3/16" = 1'-0"	P3

UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: Andy Rossi
Date: 07/08/20

Item: Colorado Water Trust Stagecoach Reservoir ERC 2020

_____ DIRECTION
_____ INFORMATION
__X__ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

The Colorado Water Trust (CWT) would like to contract for water out of Stagecoach Reservoir in 2020.

II. Summary and Alternatives:

NA

III. Staff Recommendation:

Authorize the proposed Stagecoach Reservoir water allotment contract with the CWT.

PROPOSED MOTION: Authorize the Acting General manager to finalize and Board President to sign 2020 water contract with CWT for up to 4,000 AF of Stagecoach water at a price of $40.23 plus the 2018 to 2020 CPI adjustment per acre foot for delivery prior to November 1, 2020.

IV. Legal Issues:

Water allotment contracts for Stagecoach Reservoir require Upper Yampa Water Conservancy District Board of Directors authorization.

V. Consistency with Board Goals and Policies:

2020 UYWCD Strategic Plan 4.6

Attachments:
Proposed UYWCD-CWT Stagecoach Reservoir Water Allotment Contract

2018 WATER USE AGREEMENT ADDENDUM

This 2018 Water Use Agreement Addendum ("Addendum") is entered into by and between the COLORADO WATER TRUST ("Water Trust"), a Colorado nonprofit corporation and UPPER YAMPA WATER CONSERVANCY DISTRICT, a Colorado water conservancy district ("Upper Yampa"), collectively, the Parties.

RECITALS

A. Water Trust and Upper Yampa are parties to the 2018 Water Use Agreement dated July 12, 2018 ("Agreement").

B. The Parties desire to increase the amount of water contracted for under the Agreement through this Addendum.

NOW THEREFORE, in consideration of the mutual agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Water Trust and Upper Yampa agree as follows:

ADDENDUM

1. Additional Purchase. For and in consideration of the payment of forty and 23/100 dollars ($40.23)("Purchase Price") per acre-foot paid to Upper Yampa by Water Trust, Upper Yampa shall release to Water Trust up to 1,200 acre-feet of additional Stored Water as defined in the Agreement to be used by Water Trust in accordance with the provisions of the Agreement. The additional amount paid under this Addendum will be $48,276. The total price of the Agreement is now $72,414 for 1,800 acre-feet of Stored Water.

2. Agreement Terms Apply. In all other respects the Agreement remains unchanged and its terms apply to this Addendum.

[Remainder of Page Left Blank Intentionally]

IN WITNESS HEREOF, Water Trust and Upper Yampa have executed this Addendum.

UPPER YAMPA WATER
CONSERVANCY DISTRICT

By: _____

Date: 8/2/2018

COLORADO WATER TRUST

By: _____
Andy Schultheiss
Executive Director

Date: 8/2/2018

DRAFT

2020 WATER USE AGREEMENT

This 2020 Water Use Agreement ("Agreement") is entered into by and between the COLORADO WATER TRUST ("Water Trust"), a Colorado nonprofit corporation and UPPER YAMPA WATER CONSERVANCY DISTRICT, a Colorado water conservancy district ("Upper Yampa"), referred to herein individually as "Party", or together as ~~collectively, the~~ "Parties."

RECITALS

A. Water Trust is a Colorado nonprofit dedicated to restoring and protecting streamflows into ~~to~~ Colorado~~'s rivers in need~~ through voluntary, market-based efforts. ~~Water Trust and Upper Yampa have worked together in five six of the last eightsix years to provide additional water to the Yampa River to support environmental and consumptive uses of the Yampa River.~~

B. Upper Yampa is a political subdivision of the State of Colorado formed to provide water to its constituents in Routt and Moffat County. Upper Yampa owns and operates water infrastructure including the Stagecoach Reservoir.

~~A.~~C. Water Trust and Upper Yampa have worked together in six of the last eight years to provide additional water to the Yampa River to support environmental and consumptive uses of water in the Yampa River. Water Trust and other Yampa River partners wish to again purchase water in 2020 out of Upper Yampa's Stagecoach Reservoir to help meet in-river needs.

D. Upper Yampa has stored water in Stagecoach Reservoir on the Yampa River under the absolute storage water rights described in Appendix A ("Water Rights"). The Water Rights are decreed for several uses, including municipal use. Upper Yampa wishes to contract with Water Trust to release up to XXXX acre-feet of water stored in Stagecoach Reservoir pursuant to the Water Rights ("Stored Water") to Water Trust.

~~B.~~E. Water Trust intends to subcontract releases of the Stored Water to water users for the Water Rights' decreed uses downstream of Lake Catamount, including but not limited to the City of Steamboat Springs ("City") for decreed municipal uses at either or both the City's Recreational In-Channel Diversion decreed in Case No. 03CW86 and/or the City's wastewater treatment outfall downstream of the City ("Subcontracted Uses").

~~C.~~F. Upper Yampa has designated certain pools of water within Stagecoach Reservoir for the purpose of administration of the storage and release of water from the Stagecoach Reservoir, as follows:

(i) 7,000 acre-feet of water allocated to Tri-State or its successors or assignees, or the municipal or industrial allottees of water from Stagecoach Reservoir who contract for all or part of the 7,000 acre-feet allotted to Tri-State if Upper Yampa's current contract with Tri-State for 7,000 acre-feet from Stagecoach is terminated, ~~or~~ released, or amended in whole or in part ("Tri-State Pool"); if Tri-state does not contract for water in Stagecoach Reservoir prior to July 15th, the Tri-State Pool will be re-allocated to other storage pools per Upper Yampa's Storage and Release Policies.

Commented [M1]: placeholder for UYWCD to update

Commented [AR2R1]: UYWCD will accept this language or provide alternative at legal counsel and/or UYWCD BOD direction.

(ii) 2,000 acre-feet allocated for municipal use pursuant to existing contracts between Upper Yampa and such contracting entities or the municipal or industrial allottees of water from Stagecoach Reservoir who contract for all or part of the 2,000 acre-feet allotted to such contracting municipal users if Upper Yampa's current contract with any such municipal user(s) for water from Stagecoach is terminated, ~~or~~ released, or amended in whole or in part ("Municipal Pool");

(iii) 2,000 acre-feet of water allocated for augmentation use pursuant to the decree entered in Case No. 06CW49, Water Division 6 ("Master Augmentation Pool");

(iv) 4,000 acre-feet of water formerly under contract to Tri-State and deliverable out of Yamcolo Reservoir pursuant to an exchange agreement which expired and was not renewed ("Exchange Pool");

(v) 3,164 acre-feet of water not currently under contract ~~which~~ that represents the increase in capacity of Stagecoach ~~the~~ Reservoir resulting from the raise in the level of the spillway completed in 2011 ("Raise Pool");

(vi) 3,125 acre-feet of water not currently under contract ~~which~~ that represents the remaining capacity of ~~the~~ Stagecoach Reservoir not allocated to the pools described in paragraphs 1(b)(i) through (v) above or 1(b) (vii) below ("Preferred Remainder Pool");

(vii) 15,000 acre-feet of water not currently under contract which represents the remaining capacity of the Reservoir not allocated to the pools described in paragraph~~s~~ ~~1(b)~~D(i) through (vi) above ("Emergency Remainder Pool");

(viii) Upper Yampa has agreed to make a one-time allotment of water to Water Trust of XXXX acre-feet of Stored Water in 2020, all of such water to be delivered from the Former Exchange Pool, as hereinafter set forth.

~~D.~~G. Subject to the terms of this Agreement, Water Trust will pay Upper Yampa for the use of Stored Water.

NOW THEREFORE, in consideration of the mutual agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, ~~Water Trust and Upper Yampa~~the Parties agree as follows:

USE OF WATER RIGHTS

1. Term. The term of this Agreement shall ~~be from the~~begin on the effective date ~~of this Agreement,~~ defined below and end ~~until~~ on November 1, 2020 ("Term").

~~2.~~ Purchase Price and Payment Procedure.

~~3.~~

~~4.~~ For and in consideration of the payment of forty-two and 12/100 dollars ($42.12) ~~("Purchase Price")~~ per acre-foot of water ("Purchase Price") ~~paid~~ to Upper Yampa by Water Trust, Upper Yampa shall release to Water Trust up to XXXX acre-feet of Stored Water to be used by Water Trust in accordance with the provisions ~~hereof~~of this Agreement. ~~The~~ Accordingly, the total ~~total amount~~Purchase Price paid under this Agreement will be $XXXXX.

~~5.~~

~~6.~~2. Water Trust shall pay Upper Yampa the ~~entire~~ total P~~p~~urchase P~~p~~rice no later than October 15, 2020.

~~7.~~3. 2020 Price Guarantee. If available, as determined ~~by~~ in the sole discretion of Upper Yampa and pursuant to a separate agreement subsequent to this Agreement, the Water Trust may purchase up to an additional 4,000 acre-feet of Stored Water ~~in~~ before December 31, 2020 for the price of~~at~~ forty-two and 12/100 dollars ($42.12) per acre-foot of water to be delivered from the Raise Pool and/or the Former Exchange Pool as determined in the sole discretion of ~~by~~ Upper Yampa.

~~8.~~4. First Use of Water Released. The first use of the Stored Water may be for hydropower generation by Upper Yampa, a decreed use of the Stored Water.

5. Subsequent Uses of Water Released. Subsequent to the hydropower use by Upper Yampa or direct release without hydropower use, Water Trust ~~, for the Stored Water's decreed uses,~~ may subcontract with third-parties for the use

Commented [AR3]: Final Price will be confirmed by UYWCD staff as per UYWCD BOD direction on defined ERC pricing.

Commented [AR4]: Final Price will be confirmed by UYWCD staff as per UYWCD BOD direction on defined ERC pricing.

of the Stored Water ~~for Subcontracted Uses~~so long as such Subcontracted Uses are consistent with the uses defined in the Stored Water's decrees. Upper Yampa shall release the Stored Water in rates and at times as the Water Trust requests~~;~~ ~~except that~~ however, Upper Yampa shall not be required to release water in excess of the amount of water that can be released through Upper Yampa's hydroelectric generating facilities of not more than 100 cfs. and all ramping rates must be prior-approved by Upper Yampa.

6. Evaporation and Transit Losses. ~~It is further understood that the Stored Water will be released at the outlet of Stagecoach Reservoir, that all losses by~~All evaporative losses from the Stored Water ~~evaporation~~ accrued ~~prior~~ between the effective date of this agreement and release(s) of the Stored Water will be borne by Water Trust. Likewise, all transit losses assessed by the Division Engineer between the point of release from Stagecoach Reservoir to the point of diversion from natural stream ~~to release and during transit after release~~ will be borne by Water Trust.

~~, that ramping rates must be approved by Upper Yampa, and that any part of the Stored Water not released before November 1, 2018~~2020~~, will revert to the ownership of Upper Yampa, and Water Trust will not have the right to call for the release of such Stored Water after October 31, 2018~~2020~~, for any purpose.~~

7. Additional Downstream Use. Water Trust agrees in good~~-~~faith to seek to find additional downstream uses of the Stored Water below the lowest structure in the City's Recreational In-Channel Diversion and within Upper Yampa's boundaries, provided that the arrangements for such uses and the control and delivery for such uses, and any compensation for ~~such~~ delivery for such uses, shall belong solely to Water Trust in conjunction with administration of such delivery by the Division Engineer. ~~r, and~~ Upper Yampa has no responsibility for such arrangements or implementing such arrangements beyond the release of the Stored Water at the Stagecoach Reservoir dam in accordance with this Agreement.

~~9.~~8. Reversion of Ownership of Unreleased Water. Any part of the Stored Water not released before November 1, 2020, will revert to the accounts of Upper Yampa, and Water Trust will not have the right to call for the release of such Stored Water after October 31, 2020, for any purpose.

~~10.~~9. Insufficient Water. If insufficient water is stored in Stagecoach Reservoir to supply the full allocations for municipal, agricultural, industrial, ~~and~~ or other users holding contracts within Upper Yampa for allotments of water, as measured at time of peak annual storage, then the water in Stagecoach Reservoir shall be allocated to the pools described in ~~Paragraph E~~Recital F above in the descending order listed in such paragraphs so that each pool is

completely filled before any water is allocated to the next pool. It is agreed that the one-time allotment of water to Water Trust under this Agreement consists of XXXX acre-feet to be delivered from the Former Exchange Pool. It is further agreed that water to be delivered under this Agreement from the Raise Pool shall entirely abate before any abatement of the 15,000 acre-feet allocated to the Tri-State Pool, the Municipal Pool, the Master Augmentation Pool, or the Exchange Pool. If there is less than 3,164 acre-feet of water in the Raise Pool at the time of peak annual storage, then the water allocated to all parties holding contracts in such pool shall abate proportionally so that such parties shall receive a prorated reduced portion of their allotment. Provided, however, that Upper Yampa, at its sole discretion, may deliver some or all the water allocated to Water Trust under this Agreement from the Tri-State Pool, the Municipal Pool, the Master Augmentation Pool, or the Exchange Pool. If any part of the water allocated to Water Trust by this Agreement is to be reduced by abatement as provided herein, Upper Yampa shall notify Water Trust in writing of such fact and the amount of reduction of such water by July 16, 2020 DATE and in the absence of such notice the full amount of water for Water Trust shall be deemed to have been in storage on or by July 16, 2020. If such notice of abatement occurs, the purchase price shall be adjusted accordingly.

Commented [M5]: Does UYWCD have updated language for abatement? This language does not seem applicable to this one-year agreement which identifies water already in storage at the time of execution.

Commented [AR6R5]: UYWCD will include abatement criteria as standard contract language.

~~11.~~10. Inspections. Upper Yampa grants Water Trust staff and any of their representatives or agents access to the Stagecoach Reservoir ~~subject to the Agreement~~ at reasonable times to ensure compliance with the terms of the Agreement.

~~12.~~11. Miscellaneous Provisions.

a. Water Trust may take such action as, in its sole discretion, is necessary or desirable to protect the use of the Stored Water for Subcontracted Uses. The Parties shall work together to provide information concerning implementation and monitoring of this Agreement.

b. This Agreement shall not be assignable by any P~~p~~arty without the prior written consent of the other Party~~s~~.

c. This Agreement obligates Upper Yampa to release the Stored Water presently in storage in Stagecoach Reservoir during the period commencing on the ~~date of this Agreement~~effective date of this agreement, defined below, and terminating on November 1, 2020. The term of this Agreement ends unconditionally and absolutely on November 1, 2020. Upper Yampa has no obligation to renew this

Agreement for subsequent years and may decline to do so in its absolute and sole discretion.

d. This Agreement does not and is not intended to confer any rights or remedies upon any ~~person other than the Partie~~third-party~~s~~.

e. The Parties agree to coordinate, if needed, on any required or desired water use accounting.

f. It is expressly acknowledged that Upper Yampa shall be solely responsible for operating, repairing, and maintaining Stagecoach Reservoir and that Upper Yampa shall be the sole owner of the Water Rights and the dam and all facilities used in connection with the construction, operation, repair, and maintenance of Stagecoach Reservoir.

g. Any notices required or permitted hereunder shall be sent to the addresses or email addresses set forth below, as may be changed from time to time by proper notice.

If to Water Trust:

Colorado Water Trust
1420 Ogden St., Suite A2
Denver, CO 80218
Attn: Mickey O'Hara, mohara@coloradowatertrust.org
Attn: Alyson Gould, agould@coloradowatertrust.org

If to Upper Yampa:

Upper Yampa Water Conservancy District
P.O. Box 775529
Steamboat Springs, CO 80477
Attn: Andy Rossi

With copy to:

Weiss and Van Scoyk, LLP
600 S. Lincoln Avenue, Suite 202
Steamboat Springs, CO 80487
Attn: Robert G. Weiss, bweiss@wvsc.com

~~13.~~12. Limited Representations b~~B~~y Upper Yampa.

a. Upper Yampa represents and warrants that it has full power and authority to execute this Agreement, allocate and deliver the Stored Water consistent with its Water Rights decrees, and perform its obligations under this Agreements ~~hereunder~~.

b. Upper Yampa represents and warrants that the Stored Water exists in Stagecoach Reservoir as of the execution of this Agreement, and has been so stored in compliance with decreed terms of existing Water Rights decrees for Stagecoach Reservoir prior to the date of execution of this Agreement.

~~14.~~13. Enforcement of this Agreement.

a. Pursuant to section 37-92-102(3), C.R.S., the terms of this Agreement shall be enforceable by each ~~party~~ Party as a water matter in the Division 6 Water Court; p~~a court of competent jurisdiction; p~~rovided, however, that before commencing any legal action ~~for enforcement of this~~related to this Agreement, the ~~party~~ Party alleging ~~violation~~ the issue shall notify the other P~~p~~art~~yies~~ in writing of the alleged ~~violation~~ issue and the ~~parties~~ Parties shall make a good~~-~~faith effort to resolve their differences through informal consultation.

b. Specific performance of this Agreement shall be the exclusive remedy for the failure of either party to comply with any provision of this Agreement.

~~15.~~ Effective Date. The effective date of this Agreement shall be the date ~~it is executed by all parties.~~

14. last executed below.

IN WITNESS HEREOF, Water Trust and Upper Yampa hereby~~ave~~ executed this Agreement.

UPPER YAMPA WATER
CONSERVANCY DISTRICT

By: _____

Date: _____

COLORADO WATER TRUST

By: _____
Andy Schultheiss
Executive Director

Date: _____

UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: UYWCD Staff
Date: 07/08/20

Item: 2020 Upper Yampa Water Conservancy District Strategic Plan and Work Efforts Update

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_____ DIRECTION
__X__ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

2020 Upper Yampa Water Conservancy District (UYWCD) Strategic Plan and Work Efforts review and proposed schedule for the 2021 update for the UYWCD Strategic Plan is presented for consideration by the UYWCD Board of Directors (BOD).

II. Summary and Alternatives:

The UYWCD Strategic Plan will be regularly reviewed and updated as appropriate by the UYWCD BOD and staff. The first review of the 2020 UYWCD Strategic Plan is presented. This review includes updates on the UYWCD work efforts in the first half of 2020 to accomplish the goals identified in the 2020 Strategic plan.

III. Staff Recommendation:

The UYWCD Strategic plan is intended to be a living document. Therefore, the UYWCD staff recommend that the information contained in this first review of the work efforts associated with the UYWCD Strategic Plan be considered as the basis for the development of the 2021 UYWCD Strategic Plan. Along with identified 2020 work efforts, the status of the Potential New Tasks identified for inclusion in 2020 UYWCD work efforts is indicated in the review. The status of these efforts is presented in four categories:

- Identified: Priority identified by UYWCD
- Planning: UYWCD is planning for implementation of identified items/strategies
- Implementing: UYWCD is actively working on this item/strategy
- Complete/Active: Task has been completed and/or incorporated into UYWCD ongoing work efforts.

Potential new tasks indicated as Planning, Implementing, and/or Complete will be included as History, Current Work and Current Plans in the 2021 UYWCD Strategic Plan. Potential new tasks indicated as still Identified will be evaluated for possible inclusion in work efforts for the remainder of 2020 or retained for consideration and budgeting for 2021.

The 2020 Strategic plan will be referenced as the foundational document for the development of the 2021 UYWCD Budget and 2021 UYWCD Strategic Plan updates. Both the 2021 UYWCD Budget and Strategic Plan updates will be prominent topics for discussion during the October 15, 2020 UYWCD BOD Retreat. Therefore, the UYWCD staff recommends the following schedule for the update of the UYWCD Strategic Plan for 2021:

- September 17, 2020 regular BOD Meeting: Request formation of UYWCD BOD Strategic Plan Update Committee. Committee to meet (video/call in) week of September 28, 2020 to draft document to solicit input on updates to Strategic Plan for inclusion in 2021 UYWCD Strategic Plan update. The 2020 UYWCD Strategic Plan will serve as the first DRAFT of the 2021 UYWCD Strategic Plan.
- October 15, 2020 UYWCD BOD Retreat: UYWCD Strategic Plan update discussion with full UYWCD BOD, including input received to date. Direction provided by UYWCD BOD will be incorporated into new DRAFT of 2021 UYWCD Strategic Plan.
- November 19, 2020 Regular UYWCD BOD Meeting: Present final DRAFT of 2021 UYWCD Strategic Plan for adoption by UYWCD BOD.

IV. Legal Issues:

NA

V. Consistency with Board Goals and Policies:

2020 UYWCD Strategic Plan 10.2

UPPER YAMPA WATER
CONSERVANCY DISTRICT

Attachments:

2020 UYWCD Strategic Plan and Work Efforts Update

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
1. Upper Yampa Basin water resources and local water uses are protected from transbasin diversions and Compact administration that would adversely impact those water resources and uses.						
1.1	**Develop District understanding and policies to address Big River issues**	● Monitor Statewide Demand Management feasibility study ● Engage in CRD "Risk Study" e.g. options for administering a "Compact Call" ● Engage in Basin Roundtable Big River Subcommittee ● Monitor IBCC negotiations ● Monitor CWCB and State Water Plan activities (e.g. compact compliance study) ● Monitor Legislative Activities ● Hold Board work sessions for Board education, communication with stakeholders, and to develop Board positions. ● Training/orientation for Holly on Big River Issues		●External affairs ●Legal ●Board	● Communications Director is attending multiple state-wide and regional water planning group meetings as a representative of the UYWCD. Completed the WECO Water Fluency Program in 2020. ● Risk Study Analysis of Yampa Doctrine and Equitable Apportionment Complete, UYWCD Staff to recommend next steps with UYWCD BOD input. ●UYWCD represented on Basin Roundtable Big River Subcommittee by K. Brenner, H. Kirkpatrick. Regular reports provided to UYWCD BOD as necessary. ● IBCC negotiations will be monitored proactively. The UYWCD needs to formalize oragnization approach to ensure that Yampa Basin interests and science to assist with the 2020-2026 Colorado River Interim Guidelines Renegotiations ●UYWCD is actively monitoring CWCB and State Water Plan activities through attendance and representation at regional planning groups. ● Legislative Activities are being monitored through Colorado Water Congress State Affairs Committee, and UYWCD Board Member Reports. Updates provided to UYWCD BOD at regular UYWCD BOD meetings. ● General Manager will propose a plan and schedule for the continued development of UYWCD positions on state-wide, Big River issues following presentation of Risk Analysis study at UYWCD July BOD meeting.	NA
1.2	**Prevent out-of-District transfers of water that could have adverse impacts for the District and its constituents**	●Legal Staff monitor resumes ●Legal staff reviews District water contracts ●Staff Monitors and engages in activities in 1.1	●Lobby legislature	●External affairs ●Legal ●Board	●Legal Staff is monitoring resumes and reports are provided to UYWCD BOD at regular UYWCD BOD meetings ●Legal staff reviews all UYWCD water contracts. Most 2020 activity has been focused on Yamcolo agricultural contracts. Proposed CWT Stagecoach contract will be reviewed before presented to UYWCD BOD for authorization. ●Legal staff is engaged in activities in 1.1 as needed and at the request of UYWCD General Manager.	**Identified**
2. District's infrastructure is safe and maintained, or improved as needed, to serve the needs of the District.						
2.1	**Ensure sufficient funds to maintain and/or improve our infrastructure**	●Budget for O&M activities ●Budget for capital activities (includes periodic capital activities) ●Approve facilities reserves in Budget ●Budget and implement maintenance and improvement plan		●Facilities ●Finance ●Board	●2020 Budget for O&M activities is adequate to date. ●2020 Budget for capital activities is adequate for Stagecoach and Yamcolo Reservoirs. 2020 budget for capital improvements for the Stillwater Ditch has been expanded as part of approved budget amendment. ●Facilities reserves included in 2020 approved budget ●Facilities maintenance and improvement plan implementation is ongoing with progress reports provided by District Engineer at UYWCD BOD regular meetings. Reports are included in public materials distributed for UYWCD BOD meetings.	NA

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
2.2	**Initiate or support efforts to address algae and other water quality issues in Stagecoach Reservoir**	●Participate with Watershed Group (e.g. as fiscal agent for water quality grant) ●Baseline long term water quality monitoring effort through Routt County Department of Health ●Water quality monitoring as part of 401 water quality certification ●CPW monitoring efforts at Stagecoach State Park ●Initial USGS Limnology study ●Temperature String Deployment and DO monitoring	●Define UYWCD role in water quality efforts going forward	●Planning? ●Facilities ●Board ●Finance	●UYWCD staff and board members continue to be active participants in the Watershed Group. The UYWCD is the fiscal agent for water quality study grant. UYWCD Director Halliday is the project manager for the Nutrient and Water Quality Study. ●UYWCD continues to participate in the baseline long term water quality monitoring effort through Routt County Department of Health as a fiscal partner. UYWCD staff maintain a working relationship with USGS regional staff. ●UYWCD continues water quality monitoring as part of 401 water quality certification. Next round of data collection for 401 requirements scheduled as required. ●CPW monitoring efforts at Stagecoach State Park are ongoing in 2020. UYWCD District Engineer is in direct communication with Stagecoach Stated Park Manager and CPW water quality staff. ●Temperature string deployment and DO monitoring continues uninterrupted at Stagecoach Dam in 2020. Monthly data reports filed with FERC by District Engineer.	**Implementing**
2.3	**Ensure integrity and safety of dams**	●Continue all FERC-required emergency action plan updates, reporting, and exercises. (includes, e.g., emergency preparedness operations with local entities) ●Continue annual inspections by FERC and State Dam Safety ●Continue Part 12 reviews of Potential Failure Modes and other requirements of FERC ●Continue CDWR Dam Safety Inspections ●Continue with all regulatory agency dam safety requirements.		●Facilities	●FERC-required emergency action plan updates, reporting, and exercises are on schedule for 2020. ●Stagecoach Dam 2020 annual inspections by FERC pending FERC Covid protocol requirements. Stagecoach Dam CDWR Dam Safety Inspection Scheduled for August 2020. Yamcolo Dam CDWR Dam Safety Inspection complete. UYWCD District Engineer and CDWR Dam Safety Division are coordinating on an update to the Yamcolo Dam seepage monitoring program. ●Stagecoach Dam Part 12 inspection completed in 2019. Follow up item(s) responses filed with FERC June 2020. ●UYWCD has contracted with AECOM for compliance with new FERC requirement for outside review of Owner's Dam Safety Plan. Review, report and recommendations to be filed with FERC in December 2020. UYWCD was an active participant in the Routt County Hazard Mitigation Plan development.	NA
2.4	**Ensure safe work environment for dam operators, employees and visitors**	●Full OSHA review of UYWCD facilities completed in 2014 by CSU Health and Safety Consultation Program ●Implementation of recommendation from 2014 safety review (safety procedures, equipment, documentation) ●10 – year recurring OSHA review of UYWCD facilities (next to be completed in 2024)		●Facilities ●Legal	●Implementation of recommendation from 2014 safety review (safety procedures, equipment, documentation) is ongoing at all UYWCD facilities. Safety protocols have been modified in response to Covid development. UYWCD facilities staff designated as Critical Infrastructure Employees. Coordination with FERC staff has been modified to comply with additional request and reporting as determined by FERC Covid protocols. FERC Covid protocol updates ongoing in response to changing conditions.	NA
2.5	**Maintain Stagecoach as a public recreation facility**	●Participate with CPW in updating Stagecoach master plan ●Ask CPW for update of annual activities	●Initiate discussions for potential renegotiation of Stagecoach lease with CPW	●Facilities	●CPW Stagecoach master plan infrastructure improvements continue in 2020 with substantial electrical power infrastructure upgrades at Stagecoach State Park. UYWCD staff coordinated with CPW on permitting and project development for planned upgrades. Construction scheduled for summer of 2020. ●CPW provides regular updates of annual activities through communications with the District Engineer.	**Identified**
3. District is financially sustainable and able to meet its stated goals.						

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
3.1	**Develop short- and long-term financial planning to support District goals**	● Develop annual budget by department ●Provide accurate accounting and financial reporting ●Contract negotiations ●Annual Audit ●Assess possible improvements to accounting procedures ●Formalize and document financial policies ●Assess future decrease in tax revenues based on changes in energy industry	●Develop Long-term financial planning methodology (e.g. 5, 10 , 20yr, determine assumptions)	●Finance ●Board ●All Departments	● Annual budget by department approved for 2020. New projects approved by the Board in 2020 recognized and incorporated through a budget amendment. 2021 budget development cycle to begin in August 2020. Year-to-date budget statutory deadlines met and year-to-come planned on-schedule. ●Accurate accounting and financial reporting is a continuous process performed by the UYWCD staff. Budget comparisons and financial information reported to UYWCD BOD by the Chief Accountant at regular meetings. Additional financial reports are provided to BOD and staff as appropriate. ●Contract negotiations for Yamcolo and Stagecoach Reservoir water storage agreements are one of the highest priorities of the UYWCD. UYWCD staff, BOD, and legal counsel have dedicated significant hours and resources to these efforts in 2020. ●Completion of a state-wide search of a new auditor. New auditor specialized in local government auditing. Service costs under budget. ● The Chief Accountant led the District's first audit executed entirely online. The audit was extensive and very detailed, as expected with a new auditor, first year audit. ● Annual audit of 2019 financials completed successfully, with very minor adjustments. Audit of 2020 financials scheduled, adhering to BOD's decision in September 2020 to either rehire Mayberry & Co or search for another auditor. ●Improvements to accounting procedures are currently being implemented through a full review and restructure project with the assistance of an outside consultant. UYWCD deployed beta version of account system in July 2020. New system to be fully operational and adopted as standard procedure by August 2020. ●In response to Covid development, implemented fully online banking procedures and internal processes with double authentication verification in adherance of separation of financial roles as required by audited best practices and by District bylaws. ●Migration of daily banking to MVB complete, all WF checking accounts closed. ●Upon change in Management, signatory priviledges of all District bank accounts udpated. ●UYWCD documentation of formal financial policies is part of revised accounting procedures and legal requirements of UYWCD. ●Potential future decrease in tax revenues based on changes in energy industry have been identified and reported by the Chief Accountant multiple times. Assessment of future impacts to the UYWCD will be re-examined as new information is available.	**Identified, Planning**
3.2	**Clarify District's business model, including the propriety, tenure, and extent of use of tax revenue with respect to contract pricing**	●Restructure budget to identify facilities' direct and indirect operating costs. ●Migrated accounting system to match new budget structure ●Developed cost-based water pricing model	●Clarify 'Enterprise Fund'-related expectations of the Board	●Finance ●Board	●2020 approved budget was structured to identify facilities' direct and indirect operating costs. ●Migration of Accounting systems to match new budget structure, complete. ●Financial analysis of District's cost centers with 2019 audited financials, complete. ●Cost-based water price analysis with 2019 audited actuals, complete. ●District-wide pricing model to be finalized after permanent replacement of UYWCD General Manager complete.	**Identified, Planning**
4.All in-basin beneficial vested water uses in the District are protected, consistent with policy statements above.						

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
4.1	**Formalize and consider expanding District's grant program**	●Diversion Infrastructure Improvement Project Proposal ●Develop and implement UYWCD grant program procedures		●Public	●UYWCD was granted $100,000 in Water Supply Reserve Funds from the Basin Roundtable in January 2020. Marketing efforts include collaboration with outside agencies, local publications, and advertisements through local media including print and radio. The Diversion Infrastructure Improvement Project has received an influx of interested applicants who plan to complete projects in the coming months. ●A streamlined application process for the Diversion Infrastructure Improvement Project is currently in place. Reimbursement procedures for matching WSRF monies will be established with the first payment request submitted in July 2020. ●UYWCD staff is collaborating with local working groups and outside agencies to identify potential projects that could benefit from UYWCD grant funds.	**Implemented**
4.2	**Promote District's existing augmentation plans on Yampa and Elk Rivers**	●Market augmentation plans ●Website redesign		●Public	●The first augmentation plan of 2020 was contracted in July. Communications Director is working with interested applicants on the Elk River. ●Website redesign is underway. Hive180 Marketing is in the development phase of the new website.	NA
4.3	**Explore potential expansion or creation of augmentation plans that aid in protecting the beneficial uses of junior priority water rights not currently within boundaries of the existing augmentation plans**		●Hold internal discussions to clarify potential future needs; engage DWR in discussions as needed	●Planning	●Internal discussions to clarify potential future needs are indentified as an important topic for inclusion in the 2020 UYWCD BOD retreat in October.	**Identified**
4.4	**Protect productive agricultural water uses in the District**	●Diversion Infrastructure Improvement Project ●Collaboration with existing agencies and interest groups ●See Objective 1.1		●Public ●Legal ●External Affairs	●The Diversion Infrastructure Improvement Project offers funding for measuring devices that will help protect existing agricultural water rights in the District through record-keeping. ●Involvement from K.Brenner and H. Kirkpatrick in the Basin Roundtable and subsquent subcommittees including the Big River Subcommittee and Public Education, Participation, and Outreach (PEPO) Subcommittee and the Integrated Water Management Plan (IWMP) and its' Stakeholder Engagement Subcommittee ensures a role for the District in updating the Basin Implementation Plan (BIP) and educating the public on key water issues in the basin.	**Planning, Implementing**
4.5	**Effectively communicate with local municipalities regarding long-term water supplies**	●Basin modeling in coordination with Basin Roundtable (see 6.1)		●Public ●Planning	●UYWCD staff is engaged with local municipalities as a supportive technical advisor on possible instrumentation upgrades and data collection.	NA
4.6	**Enter into appropriate and financially prudent water allotment contracts for District water from Stagecoach Reservoir and/or Yamcolo Reservoir for environmental and recreational beneficial uses**	●Colorado Water Trust engagement ●Water Fund engagement ●Other Stakeholder engagement ●ERC BOD discussions (e.g. Grosscup memo, Sharp memo)		●Legal ●Board	● Colorado Water Trust (CWT) engaged in discussion of HBs 1037, 1157. CWT engaged for Stagecoach water storage contarct in 2020. ●Water Fund engaged as important funding partner fro CWT storage contract froStagecoach Reservoir in 2020. ●Other Stakeholder engagement ●ERC BOD discussions conducted at May 2020 BOD meeting.	NA
4.7	**Increase flexibility of District's water rights portfolio in order to provide water for environmental and recreational purposes**	●Explore potential legal mechanisms for env/rec water releases	●Clarify District policy for support of instream flows (see 4.8 below)	●Legal	● Colorado Water Trust (CWT) engaged with UYWCD in discussion of HBs 1037, 1157.	**Planning, Implementing**
4.8	**Clarify District policy and role regarding the use of District water to support non-consumptive water uses**	●See 4.6 and 4.7		●Legal	● Colorado Water Trust (CWT) engaged in discussion of HBs 1037, 1157. CWT engaged for Stagecoach water storage contarct in 2020. ●Potentials for change cases will be explored by UYWCD staff in 2021. ●ERC BOD discussions conducted at May 2020 BOD meeting.	NA
	5. Upper Yampa Basin water interests are represented at the local, regional and statewide levels on relevant policy, legislative, administrative, regulatory and judicial matters.					

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
5.1	**Ensure representation of District interests in local and state matters, including on the IBCC, Basin Roundtable, CWCB and Colorado River District**	•Develop relationships with relevant elected state and county officials ●See 1.1		•External Affairs	●Attendance of Colorado Water Congress Winter Summit in January 2020 by Directors and staff including K.McBride and H.Kirkpatrick, ●Collaboration with Colorado River District on Risk Study modeling and a virtual production of the Yampa State of the River. ●Involvement from K.Brenner and H. Kirkpatrick in the Basin Roundtable and subsquent subcommittees including the Big River Subcommittee and Public Education, Participation, and Outreach (PEPO) Subcommittee and the Integrated Water Management Plan (IWMP) and its' Stakeholder Engagement Subcommittee ensures a role for the District in updating the Basin Implementation Plan (BIP) and educating the public on key water issues in the basin.	NA
5.2	**Increase District collaboration with Roundtable partners to advocate for Upper Yampa Basin interests**	●Continuous involvement in BRT since inception ●Collaboration with existing agencies and interest groups ●See 1.1		•External Affairs	●Involvement from K.Brenner and H. Kirkpatrick in the Basin Roundtable and subsquent subcommittees including the Big River Subcommittee and Public Education, Participation, and Outreach (PEPO) Subcommittee and the Integrated Water Management Plan (IWMP) and its' Stakeholder Engagement Subcommittee ensures a role for the District in updating the Basin Implementation Plan (BIP) and educating the public on key water issues in the basin. ●H.Kirkpatrick serves on the technical advisory committee for the Yampa River Fund.	NA
	6. Adequate water supplies within the District in light of changing climate conditions, population shifts, and other changes.					
6.1	**Maintain and improve District's CDSS hydrology/water rights administration model**	•Maintain CDSS model (Update CDSS model with new Water Plan Technical Update)		•Planning	●CDSS model updates scheduled for 2nd of 2020 in response to Risk Analysis Study results.	NA
6.2	**Increase District's understanding of relevant potential effects of climate change, population growth, and demographics for District planning**	•Compare paleo study with climate change hydrology		•Planning	•CDSS model updates to include paleo study comparison with climate change hydrology. District Engineer maintains regular contact with Paleo Hydrology working group.	
6.3	**Increase engagement with constituents and Upper Yampa Basin water interests in planning for long-term Yampa Basin water supply and use**	●Annual event ●Collaboration with existing agencies and interest groups		•Public	●Annual event TBD pending Covid protocols. ●Collaboration with existing agencies and interest groups ids ongoing by UYWCD staff and BOD.	NA
6.4	**Expand Board's understanding of relevant issues and trends for District decision-making**		•Clarification from Board	•Board	●Regular discussions of pending legislation and interpretation of new legislation is ongoing by UYWCD staff and BOD. ●Collaboration with Colorado River District on Risk Study modeling.	**Identified**
	7. Healthy reservoirs, streams and watersheds within the District in support of the policy statements above.					
7.1	**Support water quality efforts in the District, and, where relevant, respond to concerns that arise, consistent with District's mission**	•See 2.2		●Planning? ●Facilities ●Board	•See 2.2	NA

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
7.2	**Anticipate potential future role and responsibilities for the District to support water quality in the District**	●Collaboration with existing agencies and interest groups	•Clarification from Board	●Planning? ●External Affairs ●Board	●Collaboration with existing agencies and interest groups is ongoing. UYWCD staff actively engaged with CDPHE, CPW, and Routt County on water quality concerns.	**Identified**
7.3	**Support efforts in the District to improve watershed management and forest health**	●Collaboration with existing agencies and interest groups	•Clarification from Board	●Planning? ●External Affairs ●Board	●UYWCD staff is engaged in the Fish Creek Drainage forest health management plans as a supportive technical advisor on possible instrumentation upgrades.	**Identified, Planning**
7.4	**Explore mechanisms to support use of District water rights for environmental purposes, e.g., in-stream flows**	●See 4.6 and 4.7		•Board	●UYWCD staff presented an in-depth discussion on in-stream flow and ERC possibilities at the May 2020 UYWCD BOD meeting. CWT-UYWCD partnership for ERC at Stagecoach Reservoir has been renewed by the District Engineer for 2020, with concrete plans to continue the exploration of legal mechanism available to the UYWCD and Yampa River Basin for future ERC and in-stream support. UYWCD staff will remain engaged in CWCB rule making processes and continued legal developments for HBs 1037 and 1157.	NA
	8. District constituencies understand water issues in the Upper Yampa Basin and the role of the District in addressing them.					
8.1	**Increase public understanding of the District's role and activities**	●Website redesign ●Annual event ●Develop social media presence ●Promote and support education programs concerning water resources in the District ●Increase email communication to interested parties		•Public	●Hive180 Marketing is in the development phase for a new website. ●UYWCD awarded $15,000 in grant funds to Yampatika for the development of a K-12 water education curriculum. UYWCD staff is reviewing the curriculum development on an ongoing basis. ●UYWCD sponsored a storage episode in the "Your Water Table" video series in collaboration with the Basin Roundtable. The series is currently in production. ●UYWCD filmed an educational video on the Yampa River Project with Colorado Water Trust. ●UYWCD is partnering with the Integrated Water Management Plan to produce an educational video on diversion assessments and improvements, which will include the DiversionInfrastructure Improvement Project. The video will be filmed in Fall 2020.	NA
8.2	**Improve Board collaboration, participation and representation with other organizations doing water-related work in the Upper Yampa Basin**	●Annual event ●Collaboration with existing agencies and interest groups		•Public	●UYWCD staff and directors are directly involved in the Basin Roundtable and subsequent subcommittees, the Integrated Water Management Plan (IWMP), the Yampa River Fund Technical Advisory Committee, the Upper Yampa Watershed Group, Colorado Water Trust, and are currently working to identify other collaboration opportunitinites for water-related work in the basin.	NA
8.3	**Improve two-way exchange among constituents, stakeholders, Board and staff regarding District priorities and activities**	●Annual event ●Develop social media presence ●Market and engage public input during District events		•Public	●UYWCD strategic plan was released for public comment for a one month period ending December 2019. Public comments were compiled by UYWCD staff and the Board Governance Committee incorporated changes to the strategic plan as necessary. ● Outreach to outside organizations and interested constituents through email, periodic publications, and local media outlets is ongoing.	NA
8.4	**Increase local awareness of local water issues and resources**	●See 8.1		•Public	●See 8.1	NA
	9. Robust District water rights portfolio.					

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
9.1	**Maintain and, where appropriate, perfect District's water rights**	●Legal department to anticipate and prepare tasks for upcoming due diligence, based on court decrees and Master Plan ●Keep Board apprised of legal issues and relevant budget needs		●Legal	●Legal department is tracking upcoming due diligence, based on court decrees and Master Plan details. ●UYWCD Board is apprised of legal issues and relevant budget needs at all regular UYWCD BOD meetings.	NA
9.2	**Enhance District involvement/advocacy on water administration matters**	●Water accounting for Yamcolo and Stagecoach ●Coordination with Division Engineer's Office on dam releases ●Meeting between UYWCD GM & DE		●Facilities	●Updated water accounting system for Stagecoach Reservoir is 95% complete. Project completion by District Engineer pending finalization of Stagecoach reservoir Fill and Release Policies to be presented to UYWCD BOD for adoption at September UYWCD BOD meeting. ●The UYWCD continuously coordinates with Division Engineer's Office, partner Dam Owners, and contractees on dam releases. ●District Engineer has held multiple meetings (virtual) with the Division Engineer in 2020.	NA
9.3	**Evaluate potential and conditional water rights**	●Water Rights Master Plan ●Diligence cases		●Legal	●Coal Creek Diversion project to be actively pursued in 2020.	NA
9.4	**Explore small tributary storage projects within Upper Yampa Basin**	●Diligence cases ●Dam feasibility studies		●Planning	●Coal Creek Diversion project to be actively pursued in 2020. ●Dam feasibility studies may be in need of updates in 2021.	NA
9.5	**Pursue water projects that utilize/perfect District water rights and that provide water supply for consumptive and non-consumptive purposes**	●Diligence cases ●Dam feasibility studies		●Planning	●Coal Creek Diversion project to be actively pursued in 2020. ●Dam feasibility studies may be in need of updates in 2021.	NA
9.6	**Support in-stream flow rights to help firm the District's portfolio.**	●See 4.6 and 4.7		●Board	●See 4.6 and 4.7	NA
9.7	**Explore increasing flexibility of use for District's stored water rights**	●See 4.6 and 4.7		●Board	●See 4.6 and 4.7	NA
	10. Robust staff, legal and administrative resources to ensure District's viability and ability to effectively serve its constituents.					
10.1	**Begin succession planning where appropriate**		●Budget for O&M activities necessary to maintain and/or improve water infrastructure, including developing/annually updating 5-year capital improvement plan	●Board	● UYWCD currently engaged in search for new General Manager.	**Complete/Active for 2020, Planning for 2021**
10.2	**Regularly review and update Board goals and objectives**			●Board	**The UYWCD staff sincerely hopes that you are enjoying this inaugural review and update of the UYWCD BOD goals and objectives as detailed in the 2020 Strategic Plan.**	NA
10.3	**Clarify District governance structure that promotes interaction, transparency, trust, and *esprit de corp* among Board, GM and staff**		●Review, refine, adopt and implement Governance recommendations from 360 Committee, and assess any needed staffing or budgeting changes	●Board ●Administration ●Finance	●Final governance recommendations from 360 Committee adopted by UYWCD BOD. Staffing and budgeting changes due to search for, and eventual replacement of UYWCD General Manager have implemented by UYWCD staff, consultant, and Hiring Committee.	**Complete/Active**

UYWCD Strategic Plan - Supplemental Chart for 2020 Internal Work Planning

	Objective	History, Current Work & Current Plans	Potential New Tasks	Department	2020 Work Efforts	Status of Potential New Tasks
10.4	**Improve District organizational structure to maximize effectiveness, collaboration and teamwork**		●Assess and implement any needed changes to existing positions, including exploring opportunities for redundancy among staff responsibilities and updating job descriptions as needed ●Assess need for updated written policies and procedures	●Administration	●Recent new hires for Communications and Marketing Manager, Business Manager, and Ditch Rider have addressed staffing needs for UYWCD. Permanent replacement for General Manager pending UYWCD BOD action. All UYWCD staff job descriptions have been updated in 2020. ●Written policies and procedures are updated as needed by UYWCD staff. ●UYWCD staff is working with ER Council on compensation survey, conducting a review and seeking quotes for health insurance plan and reviewing personnel guidelines for compliance and consistency.	**Planning, Implementing**
10.5	**Encourage opportunities for professional development**				●Staff training and professional development is a high priority for the UYWCD. Multiple UYWCD staff members have completed new training programs in 2020. The UYWCD General Manager will continue to work with staff to identify training opportunities for all staff in the remainder of 2020.	NA
10.6	**Ensure District continues to be represented by competent legal staff**			●Legal	●Bob Weiss and Scott Grosscup are doing and excellent job of representing the UYWCD for the organization's legal needs.	NA
10.7	**Demonstrate commitment to and capacity for public service and engagement with constituents**		●Implement 'low-hanging fruit' from 360 Assessment in 2019 ●Convene informal conversations or focus groups to review other Assessment themes and brainstorm strategies to address issues ●Refine job description and work plan, e.g., for new Marketing/Outreach position		● UYWCD staff has conducted outreach efforts including emails, phone calls, and in-person meetings with individuals involved in contract negotiations to increase transparency and address questions or concerns as they arise. ●UYWCD staff has identified and met with key constituents involved in water-related work around the basin to identify collaboration opportunities. ●UYWCD staff represents UYWCD at water-related events including the Yampa State of the River, Yampa Rendevous, Yampa River Fest, and Community Agriculture Alliance Ag Week.	**Identified, Complete/Active**
10.8	**Create an Upper Yampa Basin records and archive repository**		●Coordinate with CSU to explore possibilities of cataloguing and preserving historic water resources records.		● Records archive to be included in 2021 work plan with associated inclusion in 2021 budget. ●Staff responded to Open Records Requests of archived documentation, ranging from 1966 to present date.	**Identified**

UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: UYWCD Staff
Date: 07/08/20

Item: Proposed Revised Schedule for 2020 Upper Yampa Water Conservancy District Board of Directors Meetings

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_____ DIRECTION
_____ INFORMATION
__X__ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

The Upper Yampa Water Conservancy District (UYWCD) has held numerous meetings of the full UYWCD Board of Directors (BOD), BOD Executive Committee, Hiring Committee, Negotiating Committee, and BOD Governance Committee in 2020. The UYWCD staff is hereby requesting the scheduled August and December 2020 full UYWCD BOD meetings be canceled. The UYWCD Acting General Manager will lead a verbal discussion on the appropriate need for the meeting cancellations.

II. Summary and Alternatives:

1. Cancel August and December 2020 full UYWCD BOD meetings as requested.

2. Retain approved 2020 UYWCD BOD meeting schedule, including August, September, October, November, and December full UYWCD BOD meetings.

III. Staff Recommendation:

The UYWCD staff recommend the cancelation of the August and December 2020 full UYWCD BOD meetings as requested.

IV. Legal Issues:

The UYWCD BOD approval is required for any modification of the 2020 full UYWCD BOD meeting schedule.

UPPER YAMPA WATER
CONSERVANCY DISTRICT

V. Consistency with Board Goals and Policies:

2020 UYWCD Strategic Plan 10.2

Attachments:

Proposed Revised 2020 UYWCD BOD Meeting Schedule

2020 Calendar

Board of Director Meeting | Fed Holiday | CRWCD mtg | CWC mtg | MCWSD mtg

January

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

March

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Federal Holidays 2020

Jan 1	New Year's Day	May 25	Memorial Day	Sep 7	Labor Day	Nov 26	Thanksgiving Day
Jan 20	Martin Luther King Day	Jul 3	Independence Day (obs.)	Oct 12	Columbus Day	Dec 25	Christmas Day
Feb 17	Presidents' Day	Jul 4	Independence Day	Nov 11	Veterans Day		

BOARD COMMUNICATION FORM

July 16, 2020 Board Meeting

From: Bob Weiss, Legal Counsel

Date: July 8, 2020

Item: Bylaw Amendments

____ DIRECTION
____ INFORMATION
____X MOTION
_____ RESOLUTION

I. Request/Issue and Background Information: Based on Board direction I have prepared Bylaw amendments for the July meeting.

II. Summary and Alternatives: These are the proposed Bylaw amendments:

(a) Order of Business at Board meetings. The existing Bylaws contain Section 8 of Article III which lists in specific terms the "order of business" at Board meetings. This has proven to be problematic since all meetings are unique and there are often good reasons to change the order of agenda items. The Board manual addresses this in general terms and allows flexibility. There is nothing requiring that this be in the Bylaws and it has been proposed that it be eliminated. The question of the agenda topic "New Business" was discussed when the Board manual was approved and limited to emergency items that come up during the meeting after the agenda is approved.

(b) Minutes. Article III, Section 7 currently requires that written minutes be kept of executive sessions. This is not a legal requirement. Executive sessions are recorded except for executive sessions on legal matters. This proposed change complies with the State law.

(c) Term of Board President. At the June meeting it was proposed that the maximum period of consecutive service of the Board president be two consecutive years unless the incumbent President was the only candidate. The current limit is 6 years. After a 2 year break, the two year period could start again.

(d) Auditor. The Board expressed the desire to approve the firm hired for the District's annual audit.

(e) Investments. At each regular meeting, the General Manager is required to deliver in writing to the Directors a Treasurer's Report including a list of investments held by the District and the yield being earned on such investments and a list of significant

contracts not yet approved by the Board of Directors and executed by the District since the General Manager's last report. This is not current practice. I have proposed changes to reflect current practice.

III. Staff Recommendation: Staff recommends that the Board consider the proposed Bylaw amendments and adopt them as the Board deems appropriate.

IV. Legal Issues: Legal issues are identified in Section II above.

V. Consistency with Board Goals and Policies: The Board should consider whether the proposed Bylaw amendments are consistent with Board Goals and Policies.

VI. Fiscal Impact: None of the proposed Bylaw amendments appear to have a significant direct financial impact.

BYLAWS OF THE
UPPER YAMPA WATER CONSERVANCY DISTRICT
(Effective July 16, 2020)

PREAMBLE

For the purpose of providing for the orderly conduct and carrying on of the business, objects and affairs of the UPPER YAMPA WATER CONSERVANCY DISTRICT, the Board of Directors of said District hereby makes, publishes and declares these Bylaws.

ARTICLE I - DEFINITIONS

When used herein, the following words, terms and phrases shall have the following meaning, to-wit:

1. The term "Water Conservancy Act" or "Act" shall mean the act as set forth in C.R.S. §37-45-101 et seq., as amended.

2. The term "District" shall mean the UPPER YAMPA WATER CONSERVANCY DISTRICT, a Colorado water conservancy district.

3. The term "Open Meetings Law" shall mean C.R.S. § 24-6-401 et seq., as it may be amended from time to time.

4. The term "Open Records Act" shall mean C.R.S. § 24-72-201 et seq., as it may be amended from time to time.

5. The term "Decree" shall be the decree entered in Civil Action No. 3825 creating the District dated March 8, 1966, as the same may be amended from time to time.

ARTICLE II - BOARD OF DIRECTORS

SECTION 1 - Number, Qualifications, Power, Duties.

The number of Directors shall be nine (9). They shall be appointed and have the qualifications as provided in the Act. There shall be 3 separate divisions within the District, as described in the Decree, and 3 directors shall be appointed from each such division for 4-year terms. Such appointments shall be staggered, with one director from each district being appointed each year except every fourth year when no director terms expire. The powers and duties of the Directors are specifically provided for in the Water Conservancy Act, and the provisions of the Act concerning such matters are hereby made a part of these Bylaws. The following provisions are supplementary to said provisions.

SECTION 2 - Vacancies on the Board of Directors.

Vacancies in the Board of Directors shall be filled as provided in the Act.

SECTION 3 - Powers, Approval of Certain Matters by Board of Directors.

The Board of Directors shall have all of the powers granted it by the Water Conservancy Act and other provisions of Colorado and federal law applicable to the District; and said Board shall have such ancillary and incidental powers as may be proper, necessary or convenient for the full effectuation of the purposes, powers and objectives of the District. Except as set forth in Article VI, Section 3, all plats, deeds, other instruments encumbering the real property of the District, any contract or instrument authorizing or evidencing debt of the District, intergovernmental agreements, any document accepting the terms of any grant, loan, license, permit or other governmental authorization, any settlement of litigation to which the District is a party, applications for water rights and statements of opposition to water rights filings, any sale, lease, or other disposition of the use of water by term contracts or contracts for the perpetual use of such water and any instrument required by these Bylaws or law to be approved by the Board of Directors, shall be approved or ratified by the Board of Directors.

SECTION 4 - Compensation.

The compensation to be paid to the District's Directors shall be $100.00 per meeting attended, in addition to their actual traveling and transportation expenses when away from their respective places of residence on District business. "Attending a meeting" to qualify for such $100 compensation means preparation for, travel for, attendance at, or participation in: (1) in-person or video/teleconference or other electronic meetings of the Board and Board Committees, regardless of whether the Director is a member of the Committee; and (2) the following if the Director is representing the District on a matter related to the District's business: meetings of or discussions with state, county, local, and federal officials and District constituents; educational and policy presentations and seminars; meetings or negotiations with District staff or third parties; and judicial or administrative hearings or proceedings. Notwithstanding the foregoing, the maximum annual compensation (excluding travel and transportation expenses) which may be paid to any Director shall be $2,400.00 pursuant to the Act.

SECTION 5 - Performance of Duties.

A Director of the District shall perform all duties of a Director, including duties as a member of any committee of the Board upon which the Director may serve, in good faith, in a manner which the Director reasonably believes to be in the best interests of District, and with such care as an ordinarily prudent person in a like position would use under similar circumstances. In performing the Director's duties, the Director shall be entitled to rely on information, opinions, reports, or statements, including financial statements and other financial data, in each case prepared or presented by persons and groups listed in subparagraphs (a), (b) or (c) of this Section 5. The Director shall not be considered to be acting in good faith if he has knowledge concerning the matter in question that would cause such reliance to be unwarranted. A person who so performs the Director's duties shall not have any liability by reason of being or

having been a Director of the District. Those programs and groups upon whose information, opinions, reports, and statements a Director is entitled to rely are:

(a) One or more officers or employees of the District whom the Director reasonably believes to be reliable and competent in the matters presented;

(b) Counsel, public accountants, or other persons as to matters which the Director reasonably believes to be within such persons' professional knowledge or expertise; and

(c) A committee of the Board upon which the Director does not serve, duly designated in accordance with the provisions of the Bylaws, as to matters within its designated authority, which committee the Director reasonably believes to merit confidence.

ARTICLE III - MEETINGS OF THE BOARD OF DIRECTORS

SECTION 1 - Regular Meetings.

Meetings of the Board of Directors shall be held no less often than required by the Act. The scheduled time, date, and place of such regular meetings shall be established by the Board of Directors at the last meeting of each year for the following year and shall not be varied except with the majority vote of the Directors.

SECTION 2 - Special Meetings.

A special meeting of the Board of Directors shall be held upon call of the President, Vice President or General Manager or three (3) or more Directors.

SECTION 3 - Place of Meetings and Remote Access to Meetings.

(a) 2220 Curve Plaza, Suite 201, Steamboat Springs, Routt County, Colorado, is hereby designated as the place where the principal office of the District shall be maintained. All regular meetings of the Board of Directors shall be held at the Mountain Valley Bank community room adjacent to the principal office of the District, unless a different location is determined by the President of the Board or the General Manager, and except as otherwise herein provided. Special meetings may be held at any location proper and appropriate pursuant to the Act.

(b) If the General Manager in consultation with the Board President or Vice President determines in his discretion that emergency circumstances exist where it is not in the best interest of the Board, District Employees or the public to be physically present at the designated meeting location, a regular meeting of the Board of Directors may be held entirely by video/teleconference or other electronic means. Special meetings of Board and meetings of any Committee may be held entirely by video/teleconference or other electronic means without a finding of emergency circumstances.

(c) In all meetings held entirely by video/teleconference or other electronic means (a) the meeting location shall be deemed to be the District's physical office, (b) all voting shall be by roll call and (c) the General Manager shall make and give reasonable notice of arrangements for the public to monitor the entirety of the meeting (except for executive session items) and comment on agenda items in the normal fashion.

SECTION 4 - Notice of Meetings.

(a) Not less than three (3) and not more than fifteen (15) days prior to the date of any regular meeting, and no less than twenty-four (24) hours prior to a special meeting, the General Manager shall notify all Directors of the time, date, and place of such meeting, and (if a special meeting), the purpose for which it is called. Such notice may be by writing delivered in person, by FAX machine, by telephone, or by the US mails, or may be by email communication. In addition, the District shall post written notice of the meeting on the District's public website with specific agenda information if available and in the designated posting place of the District no less than 24 hours prior to holding of the meeting, except that posting in the designated posting place shall not be required if the General Manager of the District determines in his or her discretion that emergency circumstances exist where it is not in the best interest of the District employees or the public that the meeting notice be physically posted. All meeting notices shall be directed to Directors at the address, FAX number, and/or email address which he or she has provided to the General Manager. It is the Directors' responsibility to provide and revise their address, FAX number, and email address to the General Manager of the District as and when changed.

(b) Where possible, notices of all meetings shall include or be accompanied by an agenda stating the specific items of business expected to be considered. If a consent agenda is to be utilized at the meeting, a copy of the consent agenda shall be included with the notice.

(c) Notice of all regular and special meetings also shall comply with the Open Meetings Law.

SECTION 5 - Quorum.

A quorum of the Board of Directors shall consist of a majority of the members thereof. Less than a quorum shall have power and authority to adjourn any regular or special meeting at which less than a quorum shall be present or to continue their meeting and to fix the time and place of the holding of the continued meeting. Once a quorum is established, a quorum shall be deemed to be present for the remainder of the meeting and any adjournment of that meeting notwithstanding the absence or recusal of any Board member initially counted to establish a quorum. Whether or not a meeting is noticed and held as a video/teleconference or other electronic means meeting, a Director participating in a regular or special meeting by video/teleconference or other electronic means shall be counted in determining the existence of a quorum, provided that such participation is through equipment in which all other Directors may hear the Director participating by video/teleconference or other electronic means at the same time.

SECTION 6 - Voting.

Directors must be physically present or must participate by video/teleconference or other electronic means in order to vote at any regular or special board meeting. Voting by proxy shall not be allowed.

SECTION 7 - Actions at Meetings.

The Board shall not act at any regular meeting on any matter which has not been described by general reference in the notice (agenda) for that meeting except for new items brought up by the Manager or any Director under New Business on the agenda, or unless the President determines that such matter should be acted upon because of necessity for prompt or immediate action thereon, or unless the Board first votes to modify the agenda. A consent agenda, consisting of a list of routine action items to be considered collectively by the Board, may be utilized at any regular or special meeting. Items shall be removed from the consent agenda and addressed separately at the request of any Director.

SECTION 8 - Order of Business.

The business of all regular and special meetings of the Board shall be transacted in the order set forth in the agenda for such meeting approved by the Board. Meeting agendas shall also include a section for New Business, which shall be limited to items not on the agenda that require emergency action that have come up during the meeting but after approval of the agenda by the Board.

SECTION 9 - Meeting Procedures.

Regular and special Board meetings shall be conducted generally in conformance with Robert's Rules of Order, Newly Revised, 10th Edition. Meeting procedures may be modified by the President as necessary to ensure the fair and efficient conduct of Board meetings.

Each and every action of the Board necessary for the governance and management of the affairs of District, for the execution of the powers vested in District, and for carrying into effect the provisions of the Water Conservancy Act, shall be taken by the passage of motions or resolutions.

Within a reasonable time after passage, all resolutions, motions and minutes of Board meetings shall be recorded in a book kept for that purpose and shall be attested by the Secretary/Treasurer. Minutes of regular sessions shall be available for public review as soon as practicable following acceptance of the minutes by adoption of a motion therefor by the Board. Minutes of executive sessions shall be kept separate from minutes of regular sessions as described in Article III, Section 9 of these Bylaws and shall not be open to the public except as required by law. Proposed minutes shall be sent to all Directors at least 3 days prior to the next meeting of the Board of Directors.

One or more members of the Board or of any committee designated by the Board may participate in a meeting of the Board or committee by video/teleconference or other electronic means by which all persons participating in the meeting, including the public, can hear each other at the same time. Such participation shall constitute presence in person at the meeting.

If the directors of the Board become deadlocked with respect to resolution of any matter which by Colorado law or these Bylaws may be decided by a simple majority vote of directors, so that an equal number of director votes are cast in favor of and in opposition to a proposition, then no decision shall be deemed to have been made and such matter shall automatically be tabled to the next regular or special meeting of the Board.

At each Board meeting the tentative agenda for the next Board meeting shall be reviewed and approved by the Board. The General Manager shall finalize the tentative agenda and prepare for each meeting in consultation with the Board President and shall include any item on the final agenda distributed in advance of the meeting specifically requested by the Board President or by at least two (2) Directors.

SECTION 10 - No Informal Action by Directors/Executive Sessions.

All official business of the Board shall be conducted at regular or special meetings. Executive sessions may be called at regular or special meetings, and conducted according to the following guidelines:

(a) Calling the Executive Session. The topic for discussion in the executive session shall be announced in a motion, and the specific statute that authorizes the executive session shall be cited. The matter to be discussed shall be described in as much detail as possible without compromising the purpose of being in executive session. An affirmative vote of two-thirds of the quorum present shall be required to go into executive session.

(b) Conducting the Executive Session. No adoption of any proposed policy, position, resolution, rule, regulation, or formal action shall take place in an executive session. The discussion in executive session shall be limited to the reasons for which the executive session was called. A recording of the executive session shall be made, except no record is necessary to be kept for any portions of the discussion which the District's attorney reasonably believes constitute attorney-client privileged communications. The District's attorney shall state on the record when any portion of the executive session is not recorded as an attorney-client privileged communication or shall sign a statement appearing in the minutes of the meeting to the same effect.

(c) After Executive Session. The record of any executive session shall be retained by the District for ninety (90) days and then destroyed or erased. Minutes or recordings of the executive session shall not be released to the general public for review under any circumstances, except as required by law.

SECTION 11 - Adjournment and Continuance of Meetings.

When a regular or special meeting is for any reason continued to another time and place, notice need not be given of the continued meeting if the time, date and place of such meeting are announced at the meeting at which the continuance is taken, except as required by law. At the continued meeting, any business may be transacted which could have been transacted at the original meeting.

SECTION 12 - Emergency Meetings.

Emergency meetings of the Board of Directors may be called by the President or Vice President or General Manager in the event of an emergency that requires the immediate action of the Board in order to protect the public health, safety and welfare of the persons or property of the users, customers, or electors of the District, without notice if notice is not practicable. If possible, notice of such emergency meeting may be given to the Board by e-mail, telephone or whatever other means are reasonable to meet the circumstances of the emergency. At such emergency meeting, any action within the power of the Board that is necessary for the immediate protection of the public health, safety and welfare may be taken; provided, however, that any action taken at an emergency meeting shall be effective only until the first to occur of (a) the next regular meeting, or (b) the next special meeting of the Board at which the emergency issue is on the public notice of the meeting. At such subsequent meeting, the Board may ratify any emergency action taken. If any emergency action taken is not ratified, then it shall be deemed rescinded as of the date of such subsequent meeting.

ARTICLE IV - OFFICERS

SECTION 1 - Designation.

The officers of the District shall be a President, Vice-President, and Secretary/Treasurer, and such other officers as may be authorized from time to time by Board resolution. The officers shall serve in their capacities for the District in the conduct of all of its affairs.

SECTION 2 - Qualification and Election of Officers.

The President and Vice-President shall be members of the Board of Directors. The Board of Directors shall elect a President and Vice-President at the first regular Board meeting of each year. The General Manager shall be appointed by the Board of Directors from time to time, to serve at the pleasure of the Board. The General Manager shall also be the ex officio Secretary/Treasurer of the District, but shall not be a member of the Board of Directors.

SECTION 3 - Term of Office of Officers.

The President and Vice-President shall serve for a term of one (1) year, and shall hold their offices until their successors shall have been elected. On or after the 2020 calendar year, the term of consecutive service by the President of the Board in such President position shall not exceed two (2) consecutive years, unless in any year the incumbent President is the only candidate for such position. A Director may again be elected to serve as President after a break

in service of at least 2 years. The Vice-President and Secretary/Treasurer are not subject to any term limitations.

ARTICLE V - DUTIES OF OFFICERS

SECTION 1 - President.

The President shall be the Chairman of the Board of Directors and shall preside at all meetings of the Board. Except as otherwise provided herein or by Board action, the General Counsel for the District shall approve as to form and the President shall sign all documents required to be approved by the Board of Directors under Article II, Section 3 hereof.

SECTION 2 - Vice-President.

The Vice-President shall act, in all things, and shall possess all of the powers and be subject to all of the duties of the President in the event of the latter's absence from any meeting of the Board of Directors, or his/her inability to act.

SECTION 3 - Secretary/Treasurer.

(a) The Secretary/Treasurer shall be the secretary of the Board of Directors and all special and standing committees of the Board of Directors. The Secretary/Treasurer, or a designee working under his/her direction and control, shall keep a record of all meetings of the Board of Directors and all special and standing committees of the Board of Directors, except that the meeting minutes may initially be prepared by a recording secretary so designated by the Board of Directors from time to time.

(b) The Secretary/Treasurer shall have custody of the Seal of the District and shall attest the signatures of the President or Vice-President upon all instruments and other documents signed by such officer.

SECTION 4 - Assistant Secretary/Treasurer.

The Board may designate an Assistant Secretary/Treasurer, subject to confirmation by the Board of Directors, who shall discharge the duties of the Secretary/Treasurer in his/her absence or inability to act.

SECTION 5 - General Manager.

(a) The General Manager shall be an employee of the District. The General Manager of the District shall receive an annual salary as determined annually by the Board of Directors, and shall also receive such benefits as are provided to any other employees of the District, and such additional benefits not offered generally to the other employees the District as the Board of Directors may authorize, including (but not limited to) payment by the District of the cost of health/hospitalization/dental insurance premiums for the General Manager and his spouse. The General Manager shall have charge of and is delegated authority over the office of the District and of all employees thereof except for the District's attorneys, including the authority to hire, discipline and remove employees of the District. Except for the purposes of inquiry, the Board and its members shall deal with the subordinate employees of the General Manager through the General Manager, and neither the Board nor its members shall give orders to subordinate employees of the General Manager.

(b) The General Manager shall have authority to make contracts for goods and services and to approve purchase orders and expenditures for the administrative operations of the District, subject to the Board’s budgeting and appropriating funds for such expenditures. The General Manager shall have authority to authorize expenditures in excess of budgeted line items provided that expenditures in excess of general categories of expenditures shown on the summary page of the adopted budget of the District shall not be exceeded without prior Board authorization.

(c) Notwithstanding anything to the contrary set forth in Article II, Section 3, the General Manager shall have the authority, without approval by the Board of Directors, to enter in to contracts for inclusion in area-wide augmentation plans decreed to the District for all applications which may be approved without the requirement that notice be given to persons who filed statements of opposition, other than the State and division engineers, in the water cases in which such plan of augmentation was decreed.

(d) The General Manager as Treasurer shall be the custodian of the funds of the District and shall deposit those funds in a bank, or banks, as authorized by the Board. The General Manager shall at all times keep an accurate and correct record of the funds of the District, including the amounts and sources of all receipts and amounts and purposes of all disbursements. The General Manager shall cause an audit of the books of the District to be made on behalf of the Board annually in compliance with Colorado governmental audit law or at such other times as the Board may direct by motion or resolution.

(e) The General Manager shall sign all warrants, checks or other instruments disbursing funds of the District in amounts less than $10,000 and all checks for District employees' compensation from the District's "payroll" account. All warrants, checks or other instruments disbursing the funds of the District in amounts equal to or exceeding $10,000 shall additionally require the signature of a member of the Executive Committee. At each regular meeting of the Board of Directors, the General Manager shall provide a listing of the check number, payee, and amount of each check issued on District funds for the period of time since the last listing for the last regular meeting, including all such checks in the month prior to the month of the regular meeting for ratification by the Board.

(f) The General Manager shall give notices of regular and special meetings of the Board of Directors and of all special and standing committees of the Board of Directors as required by these Bylaws, by the Act or by the Open Meetings Law, and the District shall retain such notices or appropriate evidences thereof as part of the District's permanent records.

(g) In addition to the powers and duties stated herein, the General Manager shall do and perform any and all acts required by the Board of Directors.

(h) The General Manager shall no less frequently than every two months deliver in writing to the Directors a financial report which includes a current income statement, income comparison to budget, and list of disbursements, and identifying any recommended changes to policies and/or accounting procedures, instances of non-compliance, and similar matters.

(i) The General Manager, as Treasurer, shall work with the District’s auditor to ensure that accounting transactions comply with final audit requirements.

(j) In the fall and in accordance with Colorado law, the General Manager, as Treasurer, shall prepare the draft of a proposed budget for the District for the ensuing year, and shall prepare upon request of the Board updates to the 5-year long-term capital plan of the District.

(k) The General Manager, as Treasurer, shall assist with implementing changes adopted by the Government Accounting Standards Board and recommend revisions to accounting procedures and policies in order to maintain compliance.

(l) Before entering upon his duties as Treasurer, the General Manager shall give a good and sufficient surety bond in such sum as the Board shall, from time to time, fix by motion or resolution, conditioned upon and for the honest and faithful discharge of his/her duties, and the full and complete accounting by him/her for all funds and properties of the District which shall come into his/her hands, which bond, and the surety or sureties thereon, before becoming effective, shall be approved by the President of the District. The cost of such bond shall be a District expense.

ARTICLE VI - COMMITTEES

SECTION 1 - Executive Committee.

An Executive Committee is hereby created in order to more efficiently and economically carry out and effectuate the express powers of the District set forth in the Water Conservancy Act, including operation of the District as an Enterprise.

SECTION 2 - Executive Committee Membership and Selection.

The Executive Committee shall consist of five (5) persons, all of whom shall be members of the Board of Directors selected in the following manner:

(a) The President shall be a member and chairman of the Executive Committee. The Vice President shall also be members of the Executive Committee.

(b) The remaining members of the Executive Committee shall be selected by the vote of the Board of Directors on an annual basis.

Appointment and selection of members of the Executive Committee shall be made at the first regular meeting of the Board of Directors in each year.

SECTION 3 - Powers and Duties of Executive Committee.

The Executive Committee shall have the following powers and duties, to-wit:

(a) To act on behalf of the Board as directed by the Board of Directors at any regular or special meeting of the Board of Directors.

(b) Between regular meetings of the Board of Directors, the Executive Committee shall have power and authority to make contracts and agreements for the development and implementation of the District's policies, provided that no one such contract shall involve the expenditure or disbursement of more than $50,000.

(c) To direct the General Manager and General Counsel for the District to perform such duties and functions as are deemed necessary for the carrying on of the business and affairs of the District, until the next regular or special meeting of the Board of Directors.

(d) To authorize, subject to Board of Directors, ratification, statements of opposition in water cases and settlement of litigation.

(e) To act on behalf of the Board in an emergency.

SECTION 4 - Creation of Special Committees.

Special committees may be created upon motion or resolution adopted at any meeting of the Board of Directors. The number of members of such committees shall be provided in the motion or resolution creating the committee. The Directors who shall serve thereon shall be selected by vote of the Board of Directors, or, in default of such selection, shall be determined and appointed by the President. Authority of any such committee to act on behalf of or bind the Board shall only be delegated by Board motion or resolution. Any such committees can be dissolved by the Board. The President shall be an ex-officio member of all such committees and shall vote on committee actions only if necessary to break a tie vote of the other committee members or if there is a quorum only because of the President's attendance. The General Manager shall be an ex-officio member of each special committee, but shall have no vote thereon.

SECTION 5 - Meeting of Committees.

All Board members shall receive notice of committee meetings and information required by the Open Meetings Law. Locations and notices of such committee meetings shall conform with the requirements of Article III, Section 4. All directors are entitled to attend committee meetings, but only committee members may vote.

SECTION 6 - Conduct of Committee Meetings.

The provisions and requirements of Article III concerning quorum, voting, actions and procedures at Board meetings shall apply to committee meetings, subject to the provisions of this Article. The ex-officio member of such committees shall not be counted in determining the existence of a quorum.

ARTICLE VII - FINANCIAL ADMINISTRATION

SECTION 1 - Fiscal Year.

The fiscal year of the District shall commence on January 1 of each year and end on December 31.

SECTION 2 - Preparation of Budget.

On or before October 15th of each year, the General Manager shall prepare and submit to the Board of Directors a proposed budget for the ensuing fiscal year. Such proposed budget shall be based on policy and direction established by the Board at a regular meeting prior to preparation by the General Manager and shall be accompanied by a statement which shall describe the important features of the budget plan and by a general summary wherein shall be set forth the aggregate features of the budget in such manner as to show the balanced relations between the total proposed expenditures and the total anticipated income or other means of financing the proposed budget for the ensuing fiscal year, as contrasted with the corresponding figures for the last completed fiscal year and the current fiscal year. It shall be supported by explanatory schedules or statements classifying the expenditures contained therein by services, subjects and funds. The anticipated income of the District shall be classified according to the nature of receipts.

SECTION 3 - Adoption of Budget.

On the day set for consideration of such proposed budget, the Board shall review the proposed budget and revise, alter, increase or decrease the items as it deems necessary in view of the needs of the District and the probable income of the District. The Board shall then adopt a budget setting forth the expenditures to be made in the ensuing fiscal year. The Board shall provide for sufficient revenues to finance expenditures in the budget with special consideration given to the proposed property tax levy.

SECTION 4 - Levy and Collection of Taxes.

On or before December 15th of each year, unless an election for an increased operating tax levy is held, the Board shall certify to the Board of County Commissioners of the Counties of Routt and Moffat the mill levy established for the ensuing fiscal year, in order that, at the time and in the manner required by law for the levying of taxes, such Commissioners will levy such tax upon the assessed valuation of all taxable property within the District.

SECTION 5 - Filing of Budget.

On or before January 30th of each year, the Board shall cause a certified copy of such budget to be filed with the Division of Local Government in the State Department of Local Affairs.

SECTION 6 - Appropriating Resolution.

At the time of adoption of the budget, the Board shall enact a resolution establishing the District's mill levy and shall also enact a resolution making appropriations for the ensuing fiscal year. The amounts appropriated thereunder shall not exceed the amounts fixed therefor in the adopted budget. The income of the District, as estimated in the budget and as provided for in the tax levy resolution and other revenue and borrowing resolutions, shall be allocated in the amounts and according to the funds specified in the budget for the purpose of meeting the expenditures authorized by the appropriation resolution. The Board may make an appropriation to and for a contingent fund to be used in cases of emergency or other unforeseen contingencies.

SECTION 7 - No Contract to Exceed Appropriation.

The Board shall have no authority to enter into any contract, or otherwise bind or obligate the District to any liability for payment of money for any purposes, for which provision is not made in appropriation resolution, including any legally authorized amendment thereto, in excess of the amounts of such appropriation for that fiscal year. Any contract, verbal or written, contrary to this Section shall be void ab initio, and no District funds shall be expended in payment of such contracts, except as provided in Sections 8 and 9 below.

SECTION 8 - Contingencies.

In cases of emergency caused by a natural disaster, public enemy, or other contingency which could not reasonably have been foreseen at the time of the adoption of the budget, the Board may authorize the expenditure of funds in excess of the budget by resolution duly adopted by at least five Directors. Such resolution shall set forth in full the facts concerning the emergency and shall be included in the minutes of such meeting. If so enacted, a copy of the resolution authorizing additional expenditures shall be filed with the Division of Local Government in the State Department of Local Affairs and shall be published in compliance with statutory requirements.

SECTION 9 - Payment of Contingencies.

If there is unexpended or uncommitted money in funds other than those to which the emergency relates, the Board shall transfer such available money to the fund from which the emergency expenditure is to be paid. To the extent that transferable funds are insufficient to meet the emergency appropriation, the Board may borrow money through (a) the issuance of tax anticipation warrants, to the extent that the mill levy authority of the District is available as provided by law, or (b) the issuance of bond anticipation notes payable from future bond proceeds or operating revenue, or (c) any other lawful and approved method.

SECTION 10 - Annual Audit.

The Board shall cause an annual audit to be made at the end of each fiscal year of all financial affairs of the District through December 31st of such fiscal year by an auditor approved by the Board. In all events, the audit report must be submitted to the Board within six months of the close of such fiscal year. Such audit shall be conducted in accordance with generally

accepted auditing standards by a registered or certified public accountant, who has not maintained the books, records and accounts of District during the fiscal year. The auditor shall prepare, and certify as to its accuracy, an audit report, including a financial statement and balance sheet based on such audit, an unqualified opinion or qualified opinion with explanations, and a full disclosure of any violation of State law pursuant to statutory requirements. A copy of the audit report shall be maintained by the District as a public record for public inspection at all reasonable times. A copy of the audit report shall be forwarded to the State Auditor or other appropriate State official pursuant to statutory requirements.

ARTICLE VIII - GENERAL COUNSEL

The Board may retain an attorney licensed to practice law in the State of Colorado to act as General Legal Counsel for the District, including its Enterprise. Such General Counsel shall report to and be responsible to the Board and its committees and shall conduct legal affairs on behalf of the District subject to requirements of laws and rules governing the attorney-client relationship and with the assistance of such special legal counsel as the Board may authorize.

ARTICLE IX - PUBLIC RECORDS

SECTION 1 - General Procedures.

The Secretary/Treasurer, as custodian of the District's records, shall make the District's nonconfidential records available for inspection by the public during normal District office hours and provide copies of such documents to the public without the need for formal requests pursuant to the Open Records Act. The Secretary/Treasurer shall determine whether such records are confidential and therefore not available to the public by reference to the provisions of the Open Records Act concerning denial of inspection of public records and, as he/she deems appropriate, after conferring with the District's General Counsel. The Secretary/Treasurer also shall implement the procedures of the Open Records Act when requests for records are made by the public pursuant to that statute.

SECTION 2 - Requests for Board Meeting Information.

The Secretary/Treasurer shall provide copies of all nonconfidential documents which are provided to the Directors in connection with regular and special Board meetings to members of the public who request the same and agree to pay the costs thereof determined in accordance with the Open Records Act. In providing copies of documents to members of the public pursuant to this Section, the Secretary/Treasurer shall charge the amount allowed by statute.

ARTICLE X - CONFLICTS

SECTION 1 - Protection of Privileges.

At times Directors may be associated with other entities which have interests which are adverse to the interests of the District. Such Directors shall not disclose or use confidential information received as a District director contrary to the District's interests without approval of

the Board. If a District director acts or intends to act for another entity on a matter in which there are or reasonably are expected to be adverse interests between that entity and the District, he/she shall recuse himself/herself from participating in the District's confidential discussions of that matter and decline to receive confidential District information about that matter. Such director also shall not vote on Board actions affecting the matter. In such a situation, the director shall promptly notify the District's General Counsel, or General Manager of his/her decision or intention to act on behalf of the adverse or potentially adverse entity, and General Counsel, and the General Manager thereafter shall not provide confidential information to such director about the matter.

SECTION 2 - Code of Ethics.

District directors, officers and staff shall comply with the Colorado Code of Ethics law which is codified at C.R.S. § 24-18-101 et seq., as it may be amended from time to time.

SECTION 3 - Disclosure of Conflicts.

District directors, officers and staff shall comply with C.R.S. § 18-8-308 concerning disclosure of conflicts of interest.

ARTICLE XI - SEAL

The Seal of the District shall consist of two concentric circles within the word "SEAL" and the name of the District within said circle.

ARTICLE XII - INDEMNIFICATION OF DIRECTORS, OFFICERS AND EMPLOYEES

The District shall defend, hold harmless and indemnify any Director, officer, agent, or employee, whether elective or appointive, against any tort or liability, claim or demand, without limitation, arising out of any alleged act error or omission occurring during the performance of official duty, as more fully defined by law or by an indemnification resolution. The provisions of this Section shall be supplemental and subject to and, to the extent of any inconsistency therewith, shall be modified by the provisions of the Colorado Governmental Immunity Act, 24-10-101, et seq., C.R.S.

ARTICLE XIII - BIDDING AND CONTRACTING PROCEDURES

Except in cases in which the District will receive aid from a government agency, a notice shall be published for bids on all construction contracts for work or material, or both, involving an expense of $25,000 or more of District funds. The Board may reject any and all bids, and if it appears that the District can perform the work or secure material for less than the lowest bid, it may proceed to do so in accordance with law. All other constitutional and statutory requirements relating to sole source contracts performance bonds, retainage, and similar matters shall also be complied with.

ARTICLE XIV - AMENDMENTS

These Bylaws may be amended by the affirmative vote of a majority of the entire Board of Directors. A copy of any amendments to these Bylaws proposed to be made shall be mailed by the General Manager to each member of the Board of Directors not less than ten (10) days prior to the meeting of the Board at which such amendment is to be considered.

CERTIFICATE OF SECRETARY

I hereby certify that the foregoing Bylaws were approved by the Board of Directors of the Upper Yampa Water Conservancy District on March 27, 2020 at an emergency meeting of the Board under Article V, Section 12 of these Bylaws upon a finding of the Board that immediate action was required in order to protect the public health, safety and welfare of the persons or property of the users, customers, or electors of the District. I further certify that these Bylaws were ratified by the Board at the next regular meeting following such emergency meeting on April 8, 2020.

By_____
Kevin McBride, General Manager
and Secretary/Treasurer

UPPER YAMPA WATER CONSERVANCY DISTRICT BYLAWS INDEX

UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: Andy Rossi
Date: 07/08/20

Item: Reservoir Water Status

_____ DIRECTION
__X__ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

Water storage data for Yamcolo Reservoir and Stagecoach Reservoir are included as reference materials for a summary discussion of the 2020 water year to date.

II. Summary and Alternatives:

NA

III. Staff Recommendation:

NA

IV. Legal Issues:

NA

V. Consistency with Board Goals and Policies:

2020 UYWCD Strategic Plan 2.3

Attachments:
Yamcolo Water Storage Data (WY 2020)
Stagecoach Water Storage Data (WY 2020)

Stagecoach Reservoir Operations

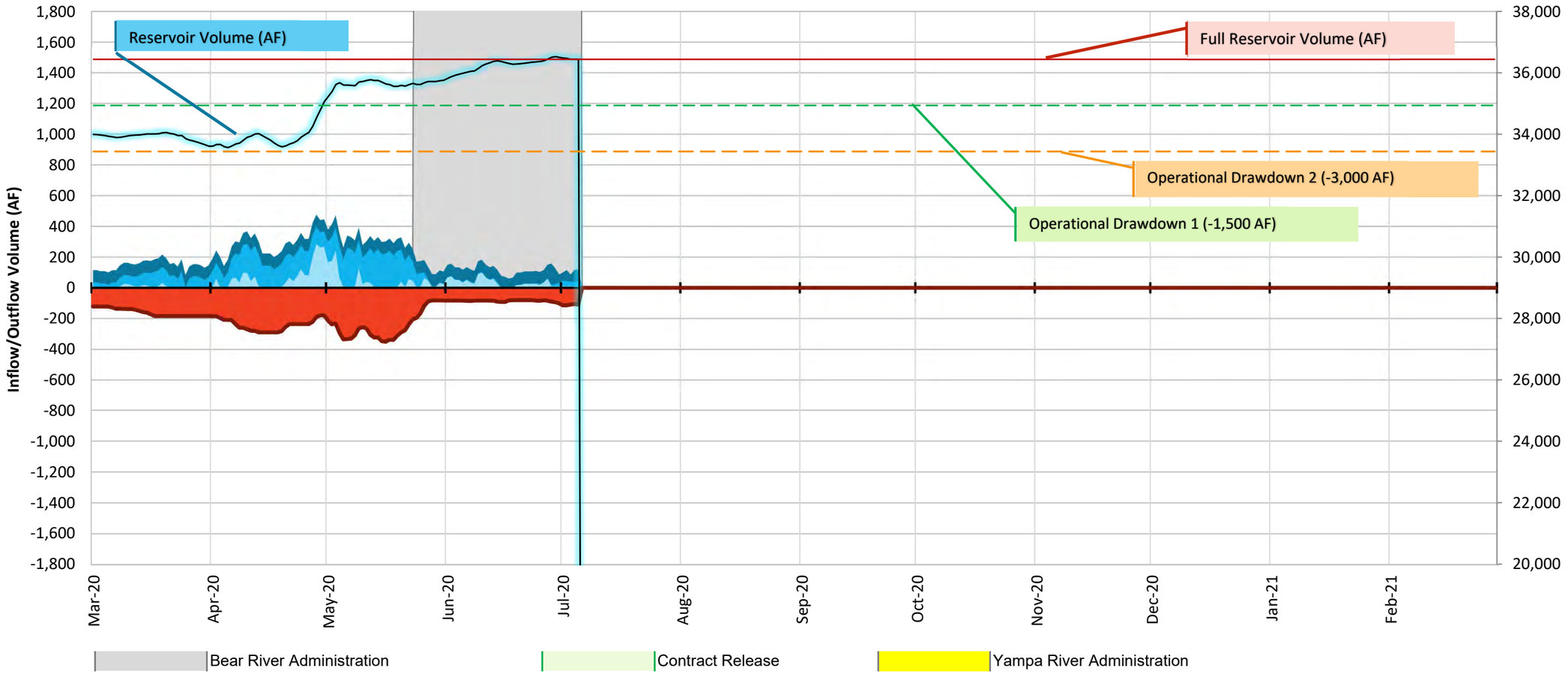
Total Monthly Volume (AF)

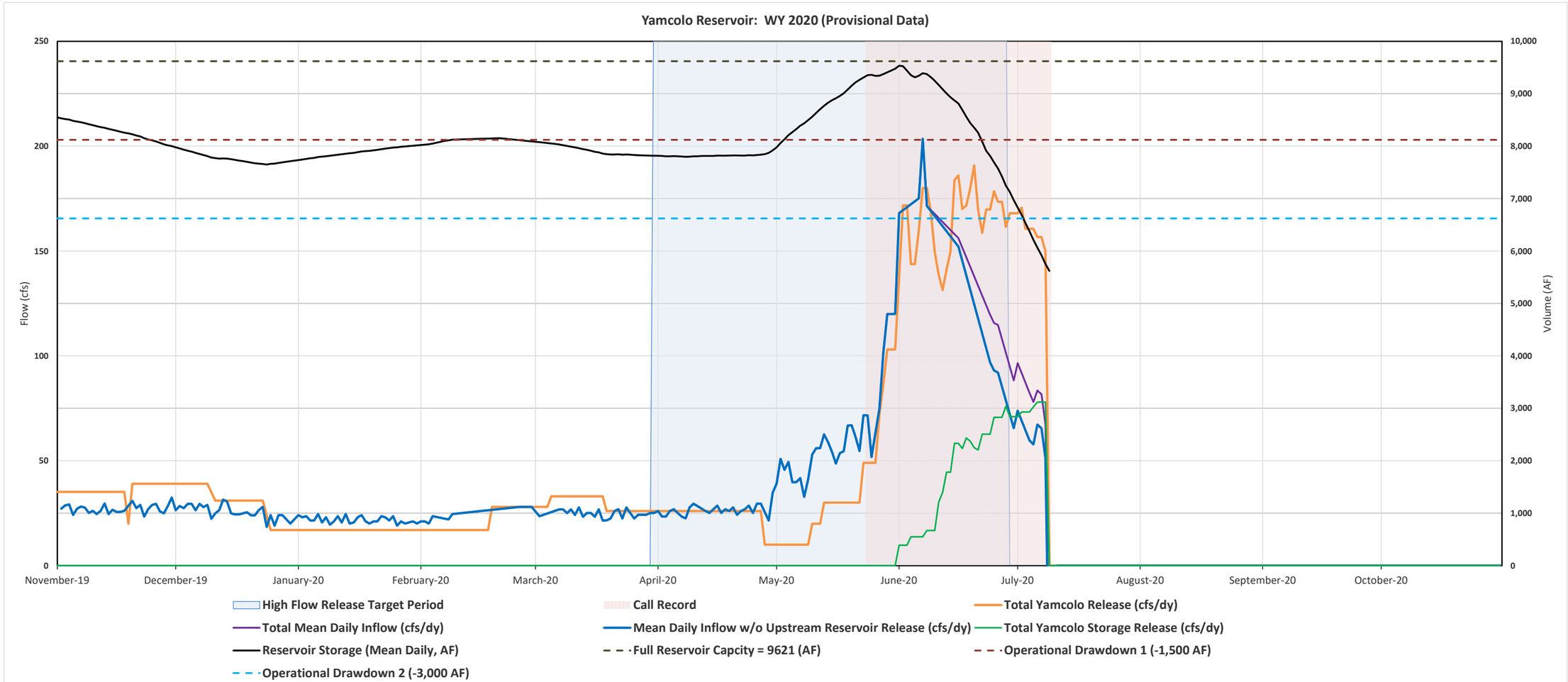
Accounting Year 2020

7/7/2020

INFLOW	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total
Physical	4,632	8,820	8,537	3,606	540								26,134
Storable	2,172	6,439	6,077	1,201	209								16,098
Stored	223	2,114	1,290	1,072	52								4,752

OUTFLOW	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total
Operator	-4,962	-7,236	-7,614	-2,537	-554								-22,903
Spill	0	0	0	-28	-8								-36
Gage	-4,962	-7,236	-7,614	-2,537	-554								-22,903




Yamcolo Reservoir: WY 2020 (Provisional Data)
Flow (cfs)
Volume (AF)
250
200
150
100
50
0
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
November-19
December-19
January-20
February-20
March-20
April-20
May-20
June-20
July-20
August-20
September-20
October-20
High Flow Release Target Period
Call Record
Total Yamcolo Release (cfs/dy)
Total Mean Daily Inflow (cfs/dy)
Mean Daily Inflow w/o Upstream Reservoir Release (cfs/dy)
Total Yamcolo Storage Release (cfs/dy)
Reservoir Storage (Mean Daily, AF)
Full Reservoir Capcity = 9621 (AF)
Operational Drawdown 1 (-1,500 AF)
Operational Drawdown 2 (-3,000 AF)

UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: Andy Rossi
Date: 07/08/20

Item: UYWCD Facilities Capital Projects

_____ DIRECTION
__X__ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

The Upper Yampa Water Conservancy District (UYWCD) continues to invest in the construction and installation of multiple facilities maintenance projects. This memo presents a summary of these efforts for 2020.

II. Summary and Alternatives:

The ongoing maintenance projects at the UYWCD facilities are contributing to the organization's operational effectiveness by improving the cleanliness, orderliness, functionality and safety of these facilities. The UYWCD staff will continue to identify facilities maintenance priorities proactively rather than reactively to extend the operational lifespan of the UYWCD infrastructure. Regular maintenance activities at all facilities will continue as needed and determined by the UYWCD staff. A summary of the facilities maintenance projects considered for 2020 is presented in the tables included with this communication form.

III. Staff Recommendation:

Complete remaining or incomplete maintenance tasks from 2020. Initiate facilities maintenance tasks planning for 2021.

IV. Legal Issues:

NA

V. Consistency with Board Goals and Policies:

UYWCD Strategic Plan Goal 2.3

Attachments:

2020 Facilities Projects Summary

2020 UYWCD Facilities and Engineering Tasks and Planning

Update: 7/8/2020

Facility	Task	Personnel	Frequency	Status	Cost Estimate
Stagecoach	General Facilities Operation and Management	District Engineer, UYWCD Dam Operators, YVEA	Continuous	Ongoing	Annual budget
Stagecoach	Continued Powerhouse Re-Organization and General Building Upgrades	UYWCD Facilities Operators	On going, as needed	Ongoing	Annual budget
Stagecoach	Operating Procedure Manuals and Written Observation Logs	UYWCD Facilities Operators	Updates Scheduled for October 2020	Ongoing	Annual budget
Stagecoach	RedLion Integration to IFix	District Engineer, Facilities Operators	Initial integration of existing hardware, updates as needed	Operator training complete. Cost estimate for system upgrades complete. Project cost to be included in 2021 budget.	TBD/Annual Budget
Stagecoach	Stem Guide Repair	District Engineer, Outside Contractor	30 - year recurrence interval, repairs as necessary.	Dive Contractor to be selection in 2020 pending Covid Protocol updates. Construction start TBD.	$30,000
Stagecoach	Turbine Repairs- Replace Wear Rings, W.G.	UYWCD Facilities Operators, Outside Contractor	As needed pending results of annual inspection.	New Wear Rings delivered 2019, Turbine inspection scheduled for October 2020.	$35,000
Stagecoach	Outflow Real Time Data Acquisition	USGS	One time set-up, continuous agency feedback	Initial gage re-programming complete, agency communication ongoing	Annual budget
Stagecoach	Bank Erosion/Willow Planting	Outside Contractor	One-time, installation 2017, annual maintenances possible	Planting area to be extended in August 2020 as necessary	$5,000
Stagecoach	Regulatory Agency Reporting and Permit Compliance	District Engineer	Monthly, Annual, as needed	Ongoing	Annual budget
Stagecoach	Regulatory Agency Liaison (FERC, CPW, USFS, BLM, EPA, USACE….)	District Engineer, District Manager	Continuous	Ongoing	Annual budget
Stagecoach	EAP Updates and Exercises	District Engineer	Annual	Updates complete, Exercise to be scheduled 2020	Annual budget
Stagecoach	Inflow Forecasting	District Engineer	Annual for potential fill forecast period	Ongoing	Annual budget
Stagecoach	Water Rights Accounting, Water storage release orders	District Engineer, UYWCD Facilities Operators	Continuous	Ongoing	Annual budget
Stagecoach	FERC Part 12 Inspection and Report	District Engineer, Outside Contractor	5-Year Recurring, completed 2019, next inspection 2024	Inspection required 2024	Annual budget
Stagecoach	Safety Buoys - Hardware replacement	District Engineer, Facilities Operators	One time	Regular maintenance incorporated into 2020 annual budget	Annual budget
Stagecoach	Facility Budget Tracking and Individual Project Management	District Engineer	Continuous	Ongoing	Annual budget
Stagecoach	Union Ditch Headgate Repair	District Engineer, Outside Contractor	One time, repairs as necessary	Project construction complete. Final contractor invoicing pending.	$25,000
Stagecoach	Install new fencing at Sickles Parcel	District Engineer, Outside Contractor	30 Year recurring, annual maintenance as necessary	Project construction complete. Re-imbursement from HPP Grant program pending.	$14,000 total project cost, $7,000 HPP cost share grant awarded.
Yamcolo	General Facilities Operation and Management	District Engineer, UYWCD Facilities Operators	Continuous	Ongoing	Annual budget
Yamcolo	Flow Measurement: Bear River	UYWCD Staff, Outside Contractor, USGS	One-Time, as conditions allow	Calibration of 75% operational range complete, Design and cost estimate for instrumentation upgrades, connectivity complete, installation scheduled for July, August 2020.	$25,000
Yamcolo	Butterfly Valve Repair	UYWCD Staff, Outside Contractor	One-Time, TBD based on observed conditions	Repairs dependent on conditions	$15,000
Yamcolo	Existing Dam Toe Drains Clearing and Repair	District Engineer, Outside Contractor	5-Year recurrence interval	Toe drain outfalls repaired 2019, area clearing scheduled for October 2020	Annual Budget
Yamcolo	Regulatory Agency Reporting and Permit Compliance	District Engineer	Monthly, Annual, as needed	Ongoing	Annual budget
Yamcolo	EAP Updates and Exercises	District Engineer	Annual	Minor document updates for 2020 will be necessary with CDWR Dam Safety Rules 2019 updates	Annual budget
Yamcolo	Inflow Forecasting	District Engineer	Annual for potential fill forecast period	First iteration of model complete, upgrades as necessary	Annual budget
Yamcolo	Water Rights Accounting, Water storage release orders	UYWCD Staff, Outside Contractor	Continuous	Update to consolidated calculations and tracking scheduled for 2020	Annual Budget
Yamcolo	Regulatory Agency Liaison (FERC, CPW, USFS, BLM, EPA, USACE….)	District Engineer, District Manager	Continuous	Ongoing	Annual budget
Yamcolo	Facility Budget Tracking and Individual Project Management	District Engineer	Continuous	Ongoing	Annual budget
Yamcolo	Riprap Replacement	UYWCD Staff, Outside Contractor	10 - 30 years depending on conditions	Phase 2 Construction Scheduled for September 2020.	$40,000
Stillwater Ditch	Flow Measurement at SW Ditch	District Engineer, Outside Contractor	10 - 30 years	Project construction complete, calibration complete, minor revegetation of disturbance area scheduled for September 2020	$10,000
Stillwater Ditch	Flow Control Structure Replacement	District Engineer, Outside Contractor	30 year recurrence interval, annual maintenance as necessary	Project design complete, Public Bid documents ready for UYWCD review. Public Bid Advertisement scheduled for July 2020, construction start date = 10/1/20.	$120,000
Stillwater Ditch	General Facilities Operation and Management	District Engineer, UYWCD Facilities Operators	Seasonal	Ongoing	Annual budget

BOARD COMMUNICATION FORM

From: Holly Kirkpatrick, Communications & Marketing Manager

Date: 7/9/2020

Item: Diversion Infrastructure Improvement Project Report – June 2020

_____ DIRECTION
x_____ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

The Diversion Infrastructure Improvement Project (DIIP) is in full swing as irrigators are beginning to look at projects they plan to complete this summer. The first completed applications were received in June. There were 4 completed applications received in June along with an additional 4 applications that are pending pre-approval from the Division Engineer's Office and UYWCD staff. Once pre-approval is granted, funds will be earmarked and reserved for reimbursement upon completion of the scope of work.

Reimbursement requests for Water Supply Reserve Funds (WSRF) will be submitted on a monthly basis. The first reimbursement request for June 2020 was submitted in early July. Once the first reimbursement is completed, UYWCD staff will be able to implement the steps and timeline for future DIIP reimbursement procedures, which differ from the previous mini-grant program due to involvement from outside agencies.

Marketing efforts for the DIIP include collaboration with outside agencies who work directly with irrigators and advertisement through local media outlets including print and radio. Marketing materials have been distributed to outside agencies and posted in central locations for maximum exposure.

Interest in the DIIP is continuing to rise as extensions have been granted from the Division Engineer's Office and irrigators are making plans to complete their scope of work in late summer and fall.

II. Summary and Alternatives:

N/A

UPPER YAMPA WATER
CONSERVANCY DISTRICT

III. Staff Recommendation:

N/A

IV. Legal Issues:

N/A

V. Consistency with Board Goals and Policies:

UYWCD Strategic Plan Goal: 4.1

Attachments:

Attachment 1: June 2020 Report

Attachment 2:

Additional Attachments:

Diversion Infrastructure Improvement Project June 2020		
	Tier 1	**Tier 2**
Number of Applications Received:	8	
Number of Applications Approved:	4	
Amount Approved ($)	$3633	
UYWCD:		
WSRF:		
Amount Distributed ($)		
UYWCD:		
WSRF:		

BOARD COMMUNICATION FORM

From: Holly Kirkpatrick, Communications & Marketing Manager
Date: 07/8/20

Item: John Fetcher Upper Yampa Water Conservancy District Scholarship Recipients

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_____ DIRECTION
__X__ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Background Information:

There were 12 applicants for the John Fetcher UYWCD Scholarship for the 2020-2021 school year. Scholarships are awarded with preference to local applicants first and then ranked by research and educational experience and future career goals. There were no local applicants in the candidate pool.

II. Summary and Alternatives:

For the 2020-2021 school year, two applicants stood out in their alignment with UYWCD interests in both their research/education and future career goals. Sierra Mitchell and Tanya Petach were each awarded a $2000 scholarship for the upcoming school year. Please review the attached profile and thank you letter from each recipient.

III. Staff Recommendation:

N/A

IV. Legal Issues:

N/A

V. Consistency with Board Goals and Policies:

2020 UYWCD Strategic Plan 8.2 and 10.7

Attachments:

UPPER YAMPA WATER
CONSERVANCY DISTRICT

1. Scholarship Recipient Profile
2. Thank You Letter – Sierra Mitchell
3. Thank You Letter – Tanya Petach

Sierra Mitchell
Colorado School of Mines – Graduate Student
Major: Environmental Science Engineering
Minor: Political Science

I chose to go to a school located on the western slope, Colorado Mesa University, to broaden my knowledge and understanding of the environment in Colorado. Within the first month of my freshmen year, I applied for a research assistant position with the Ruth Powell Hutchins Water Center. This position has shown me how, not only the science but also the politics of the Colorado River Basin work. I attended several annual conferences for the three years I worked with the water center. The Grand Valley watersheds have high selenium concentrations, this impacts water quality and aquatic health. As a research assistant I constructed an algae scrubber that removes selenium from irrigation ditches in the Fruita, Colorado area. We designed a scrubber that intakes water, through and filters selenium through an algae bed, and then releases the water back into the river. We collected water samples from the Colorado River, Gunnison River, and several irrigation ditches and analyzed data with the ICP machine to assess selenium concentrations. We have presented this project at the annual Upper Colorado River Basin Forum November of 2019 and will again at the Colorado Mesa Student showcase in May of 2020. I have also worked as a research assistant under one of Colorado Mesa University's engineering professors to analyze the snowpack on the Colorado National Monument and the Grand Mesa. The analysis of snowpack will quantify the impacts of aridification in the area during the years of 2015 through 2020. Throughout the year, mainly in the winter, we collected hydrology field data and analyzed it. This project will help to monitor the change in snowpack on the Colorado National Monument and Grand Mesa and quantify how these locations are being affected by aridification and other various environmental impacts to the western slope region.

Tanya Petach
University of Colorado at Boulder – PhD Student
Major: Environmental Engineering

As we conserve and manage Colorado's water supply, it is imperative that we share the precious nature of water with the next generation. During the academic year, I teach weekly water labs in local 4th grade classrooms. These labs are hands-on and targeted at sharing both the wonders and delicacy of Colorado watersheds. During the summer months, I work with the Headwaters Alliance in Creede, Colorado to run a week-long acid mine drainage summer camp with elementary age kids.

I attend workshops at the Getches-Wilkinson Center at CU Boulder and the Hutchins Water Center at Colorado Mesa University in addition to attending stakeholder meetings in the Animas River and Boulder Creek watersheds. It is my goal to understand where our engineering practices fit in the larger picture of Colorado water management.

The era of "whiskey is for drinking, water is for fighting" is slowly dwindling. Collaborative water management decisions include alfalfa subsidies during periods of drought, urban incentives to reduce water use, drought contingency plans, and flow-release agreements to minimize disruptive water calls. Collaborative decision making opens a myriad of new possibilities for water management in the West. My primary goal is to work as a water engineer on a team developing collaborative efforts for water management. Although water management in Colorado is often portrayed as a legal battle, each decision is derived from a basis of water engineering including the need to account for water quantity, movement, system changes due to changing points of diversion, head gates and water quantification. I aim to work on a team implementing cutting-edge, collaborative water management efforts in the state of Colorado.

To the UYWCD Board of Directors:

I would like to personally thank the board for awarding me the FY21 John Fetcher Upper Yampa Water Conservancy District Scholarship. This scholarship is instrumental in helping me pursue my M.S. degree in Environmental Science Engineering from Colorado School of Mines. This scholarship is even more impactful now, during the COVID-19 pandemic, then it normally would have been. My degree, that this scholarship is helping me to pursue, I know will help me along with my career in the Colorado water world. This is something I am very passionate about and have been involved in since the beginning of my college career. My education will give me the expertise to positively impact the state of water in Colorado. Thank you again, for taking the time to review my application and resume and awarding me with this Scholarship.

-Sierra Mitchell

7 July, 2020

Upper Yampa Water Conservancy District Board of Directors
John Fetcher Scholarship
2220 Curve Plaza Ste. 201
Steamboat Springs, CO, 80477

Dear Upper Yampa Water Conservancy Board of Directors,

I am writing to thank you for your generous John Fetcher Scholarship; it is an honor to have been awarded the scholarship for the 2020-2021 academic year.

I am an environmental engineering graduate student at the University of Colorado, Boulder with an emphasis in water quality in the Upper Colorado River Basin. I am thrilled about the opportunity to attend a board meeting and meet the UYWCD! Following graduation, I hope to work collaboratively with conservancy districts and municipal water users to (1) increase the efficiency of Front Range water resources and to maximize west-bound Colorado River water and (2) identify and remediate point source pollution in Upper Colorado River basins.

The John Fetcher Scholarship will help lighten my financial burden at school and enable me to focus more on research, for which I am very grateful. As someone who grew up fishing and floating on the Yampa River, this scholarship also holds additional personal significance. Thank you so very much!

Yours Sincerely,

Tanya Petach
625 University Ave
Boulder, CO, 80302

720-352-6253

UPPER YAMPA WATER
CONSERVANCY DISTRICT

BOARD COMMUNICATION FORM

From: Holly Kirkpatrick, Communications & Marketing Manager

Date: 7/10/2020

Item: Waters of the United States (WOTUS) Court Ruling

_____ DIRECTION
x_____ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information:

On May 5, 2020, the State of Colorado filed case no. 20CV1461 against the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers to invalidate the most recent definition of Waters of the United States (WOTUS), which was slated to go into effect on June 22, 2020. The new definition of WOTUS reduces protections for wetlands and navigable waters, particularly in regards to dredging and filling activities.

The State of Colorado won the case arguing the "404 permitting gap", which would allow dredging and filling activities that are prohibited under the Colorado Water Quality Control Act. Relaxed restrictions that reduce the need for Section 404 permitting would increase the enforcements necessary at the State level to uphold state water quality standards.

For further detail, please review the attachments, which include a memo from Colorado Water Congress and the court ruling for Civil Action No. 20-cv-1461-WJM-NRN.

II. Summary and Alternatives:

N/A

III. Staff Recommendation:

N/A

IV. Legal Issues:

N/A

UPPER YAMPA WATER
CONSERVANCY DISTRICT

V. Consistency with Board Goals and Policies:

UYWCD Strategic Plan Goal: 6.4 and 7.1

Attachments:

Attachment 1: Colorado Water Congress WOTUS Issues Memo

Attachment 2: Civil Action No. 20-cv-1461-WJM-NRN

WOTUS ISSUES MEMO

Peggy Montano
June 6, 2020

Summary

The State of Colorado filed case no. 20CV1461 in the U.S. District Court for the District of Colorado on May 5, 2020 against the EPA and Army Corps seeking to invalidate the new definition of Waters of the United States (WOTUS) to become effective on June 22, 2020. An injunction against the rule was requested and the judge has issued an order expediting the consideration of the injunction which will be fully briefed by June 11, 2020.

Colorado asserts that the reduced scope of federal jurisdiction under the new WOTUS rule will hurt the construction industry, recreation industry, local government construction projects, and the Colorado Department of Transportation by preventing the issuance of permits for fill activity necessary to complete construction projects (para. 41, 86). Colorado says that state law prohibits these projects from going forward in state waters without permits and that the lack of federal regulation will result in enforcement orders for violation of state law. Throughout the Complaint, the reduced scope of federal permits compared to the state requirement for permits is defined as the "404 permitting gap."

Colorado seeks relief:

> A. Declaring that the 2020 Rule is unlawful because it was promulgated in violation of the Clean Water Act, the Administrative Procedures Act, and the National Environmental Policy Act;
>
> B. Vacating and setting aside the 2020 Rule in its entirety, allowing the regulations and 2008 Guidance in effect prior to the 2020 Rule's promulgation to continue to govern Clean Water Act jurisdictional determinations;
>
> C. Issuing injunctive relief prohibiting the Agencies from using, applying, implementing, enforcing, or otherwise proceeding on the basis of the 2020 Rule; and
>
> D. Remanding the matter to the Agencies with instruction to issue a federal rule that complies with the statutory provisions of the Clean Water Act and the procedural mandates of the National Environmental Policy Act and the Administrative Procedure Act.

Significant Issues raised in the Litigation

1. The extent of, and state authority supporting, the Colorado defined "404 permitting gap" (para. 41). The 404 permitting gap is a unique term that is coined by Colorado to characterize those waters that are not regulated by the 2020 rule but are subject to an

asserted prohibition on dredge and fill activities under the Colorado Water Quality Control Act. (See also para. 20, 82-85).

2. The potential relief in this case. Some believe the discussion in the Complaint related to the significant nexus test and scientific (connectivity study) findings (see para. 7, 31-37, 56-58, 61-63, 92-94, 100) signals a desire by Colorado to reinstate the 2015 Rule on remand. The 2015 Rule is premised on Justice Kennedy's concurring opinion in *Rapanos v. U.S.* (U.S. Sup.Ct. 2008) that offered a broad "significant nexus" justification for a more expansive scope of federal jurisdiction than under the 2008 guidance. In 2019, Colorado withdrew as a party from ongoing litigation challenging the 2015 Rule, the effect of which was to reinstate that rule in Colorado prior to its repeal under the current round of rulemaking that is now the subject of this lawsuit (para. 35, 39, 61).

Other technical issues or issues that will be litigated in other arenas:

1. Use of the "typical year" criteria for limiting jurisdiction. This criteria is used for the first time in the 2020 Rule in relation to tributaries, ditches, lakes, ponds and impoundments, and adjacent wetlands. See typical year definition in para 52: "when precipitation and other climactic variables are within the normal periodic range for the geographic area of the applicable aquatic resource based on a rolling thirty-year period" (para. 5, 50). It is a question of first impression to address a "typical year" and how that will be used by the federal agencies.

2. The effect of the 2020 Rule on intermittent waters (para. 53).

3. The 2020 Rule's exclusion of ephemeral streams from regulation (para. 54, 55, 63, 64).

4. The effect of the 2020 Rule on wetlands that are adjacent to those that abut or have direct surface connection to another jurisdictional water in a typical year (para. 3, 50).

5. The exclusion of groundwater, including groundwater drained through subsurface systems, from regulation. This is mentioned in the Complaint (para. 48) (Maui case issue).

6. The requirement of a NEPA analysis for the rulemaking (para. 2, 6, 24-28, 59, 74, 75, 118-122).

7. Claims of violation of the Administrative Procedures Act (para. 6, 21-23, 90-117).

8. Colorado's claim of *parens patriae* "on behalf of its citizens and residents to protect …its waters and environment, and its economy" (para. 11).

9. The claim of a flawed economic analysis (para. 2, 66, 67, 69, 71).

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO
Judge William J. Martínez

Civil Action No. 20-cv-1461-WJM-NRN

THE STATE OF COLORADO,

Plaintiff,

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY;
ANDREW WHEELER, in his official capacity as Administrator of the U.S. Environmental Protection Agency;
U.S. ARMY CORPS OF ENGINEERS; and
R.D. JAMES, in his official capacity as Assistant Secretary of the Army for Civil Works,

Defendants.

ORDER GRANTING AS-CONSTRUED MOTION FOR STAY OF AGENCY ACTION

Plaintiff State of Colorado ("Colorado") sues the U.S. Environmental Protection Agency ("EPA") and its administrator, along with the U.S. Army Corps of Engineers ("Corps of Engineers") and its administrator, to invalidate a new regulation regarding the scope of federal jurisdiction under the Clean Water Act ("CWA"), 33 U.S.C. §§ 1251 *et seq*. The Court will refer to Defendants collectively as "the Agencies."

Currently before the Court is Colorado's Amended Motion for Preliminary Injunction. (ECF No. 24.) The Court construes this as a motion seeking a stay of agency action under 5 U.S.C. § 705. For the reasons explained below, the Court finds that Colorado advances an unusual and partly self-contradictory theory of harm, but Colorado has nonetheless satisfied the elements required to obtain preliminary relief. The Court will therefore enjoin the Agencies from implementing their new regulation in

Colorado.[1]

I. LEGAL STANDARD

Colorado explicitly moves for a preliminary injunction under Federal Rule of Civil Procedure 65. (*See* ECF No. 24 at 2.)[2] Because this case seeks review of agency action under the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 500 *et seq*., the proper authority for preliminary relief is 5 U.S.C. § 705:

> When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review. On such conditions as may be required and to the extent necessary to prevent irreparable injury, the reviewing court . . . may issue all necessary and appropriate process to postpone the effective date of an agency action or to preserve status or rights pending conclusion of the review proceedings.

But the distinction between Rule 65 and § 705 is mostly technical because a § 705 stay is a provisional remedy in the nature of a preliminary injunction, *see Winkler v. Andrus*, 614 F.2d 707, 709 (10th Cir. 1980), and its availability turns on the same four factors considered under a traditional Rule 65 analysis, *see, e.g.*, *Hill Dermaceuticals, Inc. v. U.S. Food & Drug Admin.*, 524 F. Supp. 2d 5, 8 (D.D.C. 2007).[3]

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[1] Through the Agencies' notice of supplemental authority filed a little over an hour ago (ECF No. 60), the Court has been made aware of a decision earlier today from the United States District Court for the Northern District of California denying a preliminary injunction against the new regulation at issue here. *See State of California et al. v. Wheeler*, No. 20-cv-3005 (N.D. Cal.), ECF No. 171 (filed June 19, 2020) (on this docket as ECF No. 60-1) (hereinafter, "*State of California*"). The Court explains its disagreements with *State of California* below.

[2] All citations to ECF page numbers are to the page number in the CM/ECF header, which does not always match the document's internal pagination due to unnumbered caption pages and separately numbered prefatory material (such as tables of contents).

[3] The major practical difference, it appears, between a Rule 65 proceeding and a § 705 proceeding is that Rule 65(c) requires a court granting an injunction to consider a bond amount, whereas § 705 contains no such requirement.

The Supreme Court has described the four preliminary injunction factors as follows: "A plaintiff seeking a preliminary injunction must establish [1] that he is likely to succeed on the merits, [2] that he is likely to suffer irreparable harm in the absence of preliminary relief, [3] that the balance of equities tips in his favor, and [4] that an injunction is in the public interest." *Winter v. NRDC*, 555 U.S. 7, 20 (2008).

II. STATUTORY BACKGROUND & PROCEDURAL HISTORY

Absent a permit, the CWA prohibits "discharge of any pollutant," 33 U.S.C. § 1311, into "navigable waters," *id*. § 1362(12). "Navigable waters" means "the waters of the United States." *Id*. § 1362(7). The CWA does not further define "waters of the United States," so the Agencies have defined it by regulation. *See* 33 C.F.R. § 328.3. The current definition reaches more than literally "navigable" waters, but the precise details are unimportant for present purposes. What matters is that, on June 22, 2020, the Agencies will put into effect a new rule that narrows the current definition of that term. *See* 85 Fed. Reg. 22250 (Apr. 21, 2020). In other words, the new rule puts some waters outside the reach of the CWA that the Agencies previously considered to be within the reach of the CWA. The Court will refer to the rule in effect today as the "Current Rule," the rule to take effect this coming Monday as the "New Rule," and the waters that are encompassed by the Current Rule but not by the New Rule as "Disputed Waters."

Of particular importance in this regard is the "Section 404 permit" process, which refers to the Corps of Engineers' authority under CWA § 404 (33 U.S.C. § 1344) to "issue permits . . . for the discharge of dredged or fill material into the navigable waters." *Id*. § 1344(a). Thus, for instance, if a developer wants to fill in a marshy area so it may

build on it, and if that marshy area is deemed "navigable waters"—*i.e.*, "waters of the United States" as defined in 33 C.F.R. § 328.3—then the developer must first obtain a Section 404 permit from the Corps of Engineers. On the flipside, if the marshy area is not "waters of the United States" as defined in 33 C.F.R. § 328.3, then the developer does not need a Section 404 permit—meaning, from the perspective of federal law, the developer may fill in the marshy area with impunity. If the New Rule goes into effect, such a developer would no longer need a Section 404 permit to fill Disputed Waters.

But whether federal law requires a permit or not, a state may enforce its own standards that are stricter than Section 404. *See* 33 U.S.C. § 1344(t) ("Nothing in this section shall preclude or deny the right of any State . . . to control the discharge of dredged or fill material in any portion of the navigable waters within the jurisdiction of such State . . . ."). Colorado asserts jurisdiction over "state waters," defined to mean (with exceptions not relevant here) "any and all surface and subsurface waters which are contained in or flow in or through this state." Colo. Rev. Stat. § 25-8-103(19). And "[n]o person shall discharge any pollutant into any state water from a point source without first having obtained a permit from the division [*i.e.*, the Water Quality Control Division of the Colorado Department of Public Health and Environment]." Colo. Rev. Stat. § 25-8-501(1).

The parties do not dispute that Colorado's definition of "state waters" embraces the Disputed Waters. Thus, anyone seeking to fill Disputed Waters will still need a permit from the state when the New Rule goes into effect. However, under Colorado law, "[n]o permit shall be issued which allows a discharge that by itself or in combination with other pollution will result in pollution of the receiving waters in excess of the

pollution permitted by an applicable water quality standard unless the permit contains effluent limitations and a schedule of compliance specifying treatment requirements." Colo. Rev. Stat. § 25-8-503(4). This presents a problem for Colorado: "Because discharges of large quantities of fill, by their nature, are likely to result in exceedances of state water quality standards and compromise the classified uses of these waters, the [state] could not allow almost any of them under a state discharge permit." (ECF No. 24 at 8.) In other words, there is no state water quality standard that contemplates dumping dirt and rock into water until it becomes dry land. Thus, filling state waters is flatly prohibited under Colorado law.

Since roughly January of this year, in anticipation of the New Rule, state administrators have been working with the Colorado Legislature to amend the relevant statute to provide state authority equivalent to Section 404. (ECF No. 56 ¶ 2.) These efforts, like many other things, were disrupted by the COVID-19 pandemic. (*Id*. ¶ 3.) The legislature adjourned on June 15, 2020, without passing legislation that would provide Section 404-like authority to state administrators.

The Court will provide additional background as it becomes relevant to the legal issues addressed below.

III. ANALYSIS

A. Irreparable Harm

Among the preliminary injunction factors, "a showing of probable irreparable harm is the single most important prerequisite." *Dominion Video Satellite, Inc. v. Echostar Satellite Corp.*, 356 F.3d 1256, 1260 (10th Cir. 2004) (internal quotation marks omitted). "Without showing irreparable harm, [a party] cannot obtain a preliminary injunction." *First W. Capital Mgmt. Co. v. Malamed*, 874 F.3d 1136, 1143 (10th Cir.

2017). "[T]he party seeking injunctive relief must show that the injury complained of is of such *imminence* that there is a clear and present need for equitable relief to prevent irreparable harm." *Heideman v. S. Salt Lake City*, 348 F.3d 1182, 1189 (10th Cir. 2003) (emphasis in original; internal quotation marks omitted). "Irreparable harm, as the name suggests, is harm that cannot be undone, such as by an award of compensatory damages or otherwise." *Salt Lake Tribune Publ'g Co. v. AT&T Corp.*, 320 F.3d 1081, 1105 (10th Cir. 2003). "To constitute irreparable harm, an injury must be certain, great, actual and not theoretical." *Schrier v. University of Colorado*, 427 F.3d 1253, 1267 (10th Cir. 2005). Harm that is "merely serious or substantial" is not irreparable. *Prairie Band of Potawatomi Indians v. Pierce*, 253 F.3d 1234, 1250 (10th Cir. 2001).

In this case, the irreparable harm inquiry overlaps with whether Colorado asserts *any* cognizable harm flowing from the New Rule. If it does not, this Court does not have jurisdiction under Article III of the U.S. Constitution to adjudicate the dispute. In other words, every plaintiff in federal court must have "Article III standing," which entails the following:

> First, the plaintiff must have suffered an "injury in fact"—an invasion of a legally protected interest which is (a) concrete and particularized, and (b) "actual or imminent, not 'conjectural' or 'hypothetical.'" Second, there must be a causal connection between the injury and the conduct complained of . . . . Third, it must be "likely," as opposed to merely "speculative," that the injury will be "redressed by a favorable decision."

Lujan v. Defenders of Wildlife, 504 U.S. 555, 560–61 (1992) (citations omitted; certain alterations incorporated). "Article III standing is jurisdictional . . . ." *In re Peeples*, 880 F.3d 1207, 1212 (10th Cir. 2018).

Given the significance of irreparable harm in light of Article III standing, the Court

will address it before reaching the other preliminary injunction elements.

1. The "Permitting Gap" and Foregone Development

Colorado first asserts harm from what it calls the "permitting gap." (ECF No. 24 at 7.) The basic problem, Colorado says, is that Disputed Waters are still protected under state law (because they are "state waters") but Colorado's flat prohibition on filling state waters means that "project sponsors [*e.g.*, developers] will be left without any legal mechanism to authorize projects that require discharges of fill in these waters." (*Id*. at 8.)

It would seem that project sponsors were without such a legal mechanism—at least from the perspective of state law—even under the Current Rule, because Colorado simply prohibits fill. In other words, a developer discharging fill per a Section 404 permit would still appear to be violating state law, whether or not Colorado chose to enforce that law. However, Colorado's clean water statute further provides that "each permit issued pursuant to the federal act shall be deemed to be a temporary permit issued under this article which shall expire upon expiration of the federal permit." Colo. Rev. Stat. § 25-8-501(1). Thus, federal permits are essential to Colorado's ability to overcome its own ban on dredging and filling.

In light of the permitting gap, Colorado asserts that developers will not develop projects because Colorado cannot authorize their dredge and fill operations. From a preliminary injunction perspective, Colorado has provided no evidence of any such project, much less a project poised to start—in other words, one that needs a permit to fill Disputed Waters "before a decision on the merits [of this lawsuit] can be rendered,"

Winter, 555 U.S. at 22 (internal quotation marks omitted).[4] "Issuing a preliminary injunction based only on a *possibility* of irreparable harm is inconsistent with [the Supreme Court's] characterization of injunctive relief as an extraordinary remedy that may only be awarded upon a clear showing that the plaintiff is entitled to such relief." *Id*. (emphasis added).

But the problem is deeper than simple failure to provide the evidence needed to support a preliminary injunction. Colorado's inability to authorize these projects is the result of nothing other than Colorado's choice in the matter. If such projects never get built, leading to economic harm, it is because the Colorado Legislature made the questionable decision to enact a clean water statute that provides no exception for filling. Colorado has thus categorically prioritized environmental preservation over economic gain—a prioritization in which the Agencies had no role in effecting. Projects not built under these circumstances would therefore be consistent with state policy, a policy wholly independent of the federal environmental policies codified in the CWA. The Court simply cannot see how adherence to state policy is an injury to the state, much less one caused by the New Rule. *See Pennsylvania v. New Jersey*, 426 U.S. 660, 664 (1976) ("The injuries [complained of by the state-plaintiffs] were self-inflicted, resulting from decisions by their respective state legislatures. . . . No State can be heard to complain about damage inflicted by its own hand.").

Even if Colorado could assert the economic harm to developers as an injury to itself, Colorado may not sue the federal government to vindicate the federal rights (in this case, rights created by the APA and CWA) of its citizens (here, most notably,

[4] Obviously, if a developer plans to fill waters that remain "waters of the United States" under the New Rule, the developer can go to the Corps of Engineers for a Section 404 permit.

private developers). *See Alfred L. Snapp & Son, Inc. v. Puerto Rico ex rel. Barez*, 458 U.S. 592, 610 n.16 (1982); *Massachusetts v. Mellon*, 262 U.S. 447, 485–86 (1923); *State ex rel. Sullivan v. Lujan*, 969 F.2d 877, 883 (10th Cir. 1992). The Agencies point out as much in their response brief (*see* ECF No. 51 at 26), and Colorado's reply brief does not directly address the argument. It appears, rather, to address the argument indirectly by emphasizing "a project to improve safety on a state highway in Clear Creek County" (ECF No. 55 at 4)—in other words, something that Colorado itself (not any private developer) will forgo, and therefore outside the rule that a state may not assert its citizens' federal rights against the federal government.

The Clear Creek County project to which Colorado alludes is a plan to repair part of the famous—and famously rough—State Highway 5, which leads nearly to the summit of Mt. Evans. (*See* ECF No. 31 ¶¶ 20–28.) A 0.7-mile segment of the highway near Summit Lake is "heavily-damaged" due to frost heave. (*Id*. ¶¶ 21–22.) In part, this is because the road is surfaced with an impermeable material, which buckles when underlying groundwater freezes and thaws. (*Id*.) Colorado proposes to replace the road base with crushed rock, allowing the groundwater to freeze and thaw without displacing the road. (*Id*. ¶ 24.) According to Colorado, this will require some amount of filling in wetlands, including an approximately 1/3-acre that will become Disputed Waters under the New Rule, and therefore outside of the Section 404 permitting process. (*Id*. ¶ 26.) And, Colorado says, there is "[n]o alternative to reconstruction on the existing alignment," due to "steep conditions, land ownership, and lack of right-of-way . . . . Without a federal permitting mechanism to authorize discharge of fill into wetlands, the project could not move forward." (*Id*. ¶ 27.)

Assuming the truth of these assertions, and further assuming that inability to repair a routinely damaged but operational road segment is irreparable harm, Colorado's allegations are insufficient to show "imminent" irreparable harm. *See Heideman*, 348 F.3d at 1190. Colorado submits no evidence that it is prepared to begin reconstruction but for a permit, or that it will be prepared "before a decision on the merits [of this lawsuit] can be rendered." *Winter*, 555 U.S. at 22 (internal quotation marks omitted). To the contrary, Colorado says that "[a]n impact assessment has not been completed yet" on "the proposed project." (ECF No. 31 ¶ 25.) This strongly suggests that this particular highway repair project remains very much in the planning stages.[5]

But again, more fundamentally, the real problem is that Colorado has prohibited itself from filling "state waters," and it is apparently poised to enforce that prohibition against itself. That self-inflicted injury is manifestly not an injury caused by the New Rule.

2. Direct Environmental Harm

Colorado further claims that the New Rule will cause direct environmental harm because developers may begin filling Disputed Waters, in violation of state law. (ECF No. 24 at 9.) Notably, Colorado does not express any fear about rogue developers generally (at least not in its opening brief—but see below), probably because Colorado appreciates that a developer willing to take its chances without a state permit is

[5] It is also "generally known within [this] court's territorial jurisdiction," Fed. R. Evid. 201(b)(1), that State Highway 5 is open to the public usually only from Memorial Day to Labor Day, due to the highly inclement weather at such high elevation. Even if the construction-access season is longer than the public-access season, it cannot be much longer, and Colorado has submitted no evidence that it is prepared to begin construction before it must completely close the road for the winter season.

probably equally willing to take its chances without a Section 404 permit, whatever the scope of "waters of the United States." In other words, rogue developers operate unlawfully today under the Current Rule, and will continue to operate unlawfully under the New Rule, so the harm they cause cannot be attributed to or caused by the New Rule.

Colorado instead posits a very specific problem relating to developers "who previously sought federal permits." (ECF No. 24 at 9.) "[I]t is likely," Colorado says, "that some [of these] developers . . . may believe they are no longer subject to any regulatory oversight and will move forward with dredge and fill activities in [Disputed Waters] without taking the needed steps to protect downstream waters and mitigate any remaining environmental harm." (*Id*. at 9–10.)

Colorado certainly has an interest in protecting state waters, and that interest is cognizable for purposes of standing and irreparable harm when "the harm is sufficiently concrete." *See New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 697 n.13 (10th Cir. 2009) (summarizing *Massachusetts v. EPA*, 549 U.S. 497, 522–23 (2007)). However, Colorado's alleged chain of causation between the New Rule and the damage to state waters is pure speculation. Colorado offers no evidence in support of its contention that it is "likely" that a previously-permitted developer (one who has so far sought to obey the law) would conclude that the narrowing of one law means there must be no more laws to comply with. This is nothing more than attorney argument.

Even as attorney argument, the theory runs into a doubly strong headwind because it relies on (1) the actions of third parties and (2) the prediction that someone will disobey the law. *See, e.g.*, *Chamber of Commerce v. EPA*, 642 F.3d 192, 200–01

(D.C. Cir. 2011) (if injury will be caused by a third party, claimant has "the burden of adducing facts showing that those third-party choices have been or will be made in such manner as to produce causation and permit redressability of injury" (internal quotation marks omitted; alterations incorporated)); *R.J. Reynolds Tobacco Co. v. U.S. Food & Drug Admin.*, 810 F.3d 827, 831 (D.C. Cir. 2016) ("We have rejected assertions of imminent injury where the prospective injury depends on future illegal activity, finding, for example, that a sheriff lacked standing to challenge President Obama's immigration policy partly because the plaintiff's theory depended on immigrants' committing crimes in the future. More generally, we are relatively hesitant to find standing when the asserted injury depends on the unfettered choices made by independent actors not before the courts." (internal quotation marks and citation omitted)); *cf*. *Ind v. Colo. Dep't of Corr.*, 801 F.3d 1209, 1216 (10th Cir. 2015) (finding a challenge to prison regulations moot because, in part, "we decline to assume [the plaintiff] will repeat the misconduct that previously got him sent to administrative segregation").

A declaration from one of Colorado's water quality administrators asserts that the "EPA has historically completed between three and five enforcement cases in Colorado per year for 404 permit violations." (ECF No. 32 ¶ 15.) A declaration from a retired EPA employee describes an unpermitted fill that took place in Telluride "[i]n the late 1980s." (ECF No. 28 ¶ 21.) Colorado cites these declarations in its reply brief as "evidence that illegal fill activity occurs in the state." (ECF No. 55 at 4.) Indeed, it shows that illegal fill has happened *under the Current Rule*. Or, as the Court observed above, rogue developers will operate outside the law, whatever rule the Agencies adopt. The New Rule therefore does not cause illegal fill, nor has Colorado presented any evidence that

the New Rule will make illegal fill more likely. Nonetheless, this record of violation remains important below as part of a different standing theory.

3. Injury Through Costs of Creating and Running a Replacement Permitting Regime

Colorado claims that if the New Rule is not enjoined, it will eventually spend money to set up and administer its own 404-like permitting and enforcement regime, and the resources it expends in those efforts will ultimately be unrecoverable, even if it prevails in this lawsuit. (ECF No. 24 at 7, 9.) Colorado is correct that it cannot obtain damages from the Agencies, even if it eventually succeeds in invalidating the New Rule. *See* 5 U.S.C. § 702 (APA waives sovereign immunity only for actions "seeking relief other than money damages"). And courts have recognized that a plaintiff suffers irreparable harm if the defendant's action causes the plaintiff to spend, or deprives the plaintiff from earning, money that the plaintiff can never recover due to sovereign immunity, even if the plaintiff succeeds in proving the defendant's conduct unlawful. *See Kansas Health Care Ass'n, Inc. v. Kansas Dep't of Soc. & Rehab. Servs.*, 31 F.3d 1536, 1543 (10th Cir. 1994); *Cloud Peak Energy Inc. v. U.S. Dep't of Interior*, 415 F. Supp. 3d 1034, 1042–43 (D. Wyo. 2019).

One might argue that nothing about the New Rule forces Colorado to establish a state-law analogue to Section 404, so this alleged injury is not caused by the New Rule. The Court will pick up this argument again shortly in a context where it actually matters. In the current context, the problem for Colorado is more practical. Colorado admits that it will not spend any money to set up a Section 404-like permitting and enforcement regime until the Colorado Legislature amends Colorado's water quality statute to permit dredging and filling. (ECF No. 24 at 9 ("Colorado cannot simply start issuing dredge

and fill permits on June 22. Establishing its own permitting program for dredge and fill activities *will require legislative action* and a lengthy implementation process." (emphasis added)). And, as noted above (Part II), the Colorado Legislature adjourned for the year on June 15, 2020, without creating a Section 404 analogue. Colorado therefore will not be spending money anytime soon on a new permitting and enforcement regime.

4. Enforcement of the Current Statute

Colorado says that it "will need to and will take enforcement action against illegal fill activity in state waters"—meaning *all* fill activity in state waters—when the New Rule comes into effect. (ECF No. 32 ¶ 15.) Colorado admits that "nothing compels [it] to begin enforcing against non-permitted discharges after the [New] Rule goes into effect," but it asserts that it "cannot exercise its enforcement discretion in response to the sudden narrowing of the federal Section 404 permitting process without creating significant harm to Colorado's environment." (ECF No. 58 at 6.) Moreover, Colorado's water quality enforcers "do[] not currently have dedicated funding or staffing resources to undertake this enforcement effort, so [they] will need to pull enforcement resources currently dedicated to other clean water activities." (ECF No. 32 ¶ 15.) The question for present purposes is whether this is a cognizable Article III injury.[6]

[6] In fairness to the Agencies, none of the analysis that follows was squarely presented to the Court by Colorado. Colorado's diversion-of-resources argument comprises: (i) one ambiguous sentence in its opening brief (ECF No. 24 at 10 ("[The New Rule] imposes an immediate compliance and enforcement burden on Colorado, which does not currently have dedicated funding or staffing resources to undertake enforcement against illegal fill activities and instead has relied on EPA and Corps oversight.")); (ii) one sentence in a declaration supporting the opening brief (ECF No. 32 ¶ 15 ("The [Water Quality Control] Division does not currently have dedicated funding or staffing resources to undertake this enforcement effort, so will need to pull enforcement resources currently dedicated to other clean water activities.")); and (iii) one sentence in the reply brief (ECF No. 55 at 3 ("Enforcing against illegal fill activity in state waters will require the State to divert resources currently dedicated to other water pollution activities,

The New Rule does not require the states to pick up where the federal government left off. Strictly speaking, then, nothing about the New Rule compels Colorado to enforce its water quality laws in Disputed Waters. However, causation is not quite so strict. Article III requires that "there be a causal connection between the injury and the conduct complained of," meaning that "the injury must be *fairly traceable* to the challenged action of the defendant, and not the result of the independent action of some third party not before the court." *Bennett v. Spear*, 520 U.S. 154, 167 (1997) (emphasis added). "Fairly traceable" cannot be stretched too far, particularly through actions a plaintiff chooses (but is not legally compelled) to take due to government action: "[Plaintiffs] cannot manufacture standing merely by inflicting harm on themselves based on their fears of hypothetical future harm that is not certainly impending." *Clapper v. Amnesty Int'l USA*, 568 U.S. 398, 416 (2013). The Court nonetheless finds that Colorado's claimed injury is fairly traceable to the New Rule.

First, Colorado's choice to begin enforcing its no-fill law in the event the New Rule takes effect is not arbitrary or disproportionate to the problem. The Agencies are no longer asserting jurisdiction over Disputed Waters. As between an environmental free-for-all and a total ban on filling, Colorado's choice to enforce a total ban is reasonable in light of the potential significant environmental damage that might flow from a choice *not* to enforce its own applicable statute. (*See* ECF No. 24 at 10–11.)

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threatening compliance and enforcement across clean water programs.")). Colorado does not support these assertions with case law, and seems unaware of the various issues that a diversion-of-resources argument entails. But because the argument revolves around legal principles rather than factual development, it appears to be one of those arguments that the Tenth Circuit would deem to be "preserve[d] (although barely)," *Stender v. Archstone-Smith Operating Tr.*, 958 F.3d 938, 948 (10th Cir. 2020), meaning it would be error for this Court to disregard it as inadequately developed.

Second, Colorado's fear of environmental damage is not "fear[] of hypothetical future harm that is not certainly impending." *Clapper*, 568 U.S. at 416. Although the New Rule will not *cause* anyone to violate water quality laws and therefore does not create injury on that account (*see* Part III.A.2, above), Colorado has nonetheless made a sufficient record—uncontested by the Agencies—that "EPA has historically completed between three and five enforcement cases in Colorado per year for 404 permit violations." (ECF No. 32 ¶ 15.) In other words, regardless of cause, the record shows that violations of Section 404 consistently happen, requiring enforcement action. At least some of that enforcement burden (*i.e.*, filling in Disputed Waters) will now fall in Colorado's lap. That share of the enforcement burden is not at all minimal or speculative. Colorado asserts, and the Agencies do not dispute, that about half of state waters protected by the Current Rule will be unprotected by the New Rule. (ECF No. 29 ¶ 13.)

Third, for several decades it has been established that diversion of resources is a cognizable harm in the context of Article III standing analysis. *See Havens Realty Corp. v. Coleman*, 455 U.S. 363, 379 (1982). Although cases upholding diversion of resources as a cognizable harm are almost always about nonprofit organizations seeking to advance a social goal (mostly fair housing, voting rights, and immigrant rights),[7] the Court is not aware of any case couching the diversion-of-resources injury

[7] *See, e.g.*, *id*. (fair housing organization "devote[d] significant resources to identify and counteract [the defendants'] racially discriminatory steering practices" (internal quotation marks omitted)); *Centro de la Comunidad Hispana de Locust Valley v. Town of Oyster Bay*, 868 F.3d 104, 110 (2d Cir. 2017) ("enforcement [of day-laborer solicitation ordinance] will require [the plaintiff] to divert resources from other of its [pro-immigrant] activities to combat the effects of the Ordinance"); *OCA-Greater Houston v. Texas*, 867 F.3d 604, 610 (5th Cir. 2017) (challenged law forced voting rights organization to "spend extra time and money educating its members about these Texas provisions and how to avoid their negative effects"); *see also* 13A Charles

as something unique to nonprofit organizations, or that is otherwise a "special relaxation" of standing. *Zeppelin v. Fed. Highway Admin.*, 305 F. Supp. 3d 1189, 1198 (D. Colo. 2018).

Fourth, diversion of resources creates economic harm that—in a case against a private litigant—could be recovered through compensatory damages. *See Fair Housing of Marin v. Combs*, 285 F.3d 899, 906 (9th Cir. 2002). However, as discussed in Part III.A.3, above, Colorado cannot recover its economic losses against the Agencies, even if it succeeds on the merits of this lawsuit, because the APA does not waive sovereign immunity to money damages.

For these reasons, the Court finds that Colorado is poised to suffer an injury in fact that is fairly traceable to the New Rule, and would be redressed by a favorable ruling in this case. Moreover, that injury is certainly impending and would be irreparable. Accordingly, Article III standing and the irreparable harm requirement of the preliminary injunction test are both satisfied.

B. Likelihood of Success on the Merits

The Court now turns to whether Colorado is likely to succeed in proving at least one of its theories that the Agencies unlawfully promulgated the New Rule.

1. Legal Standards

Although this case centers around interpretation of the CWA, Colorado's right to sue arises under the APA. The APA empowers a reviewing court to "set aside" agency action if it is, among other things, "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). Generally, an agency

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Alan Wright et al., *Federal Practice & Procedure* § 3531.9.5 nn.15–18 (3d ed., Apr. 2020 update).

decision will be considered arbitrary and capricious

> if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983).

A reviewing court should engage in a "thorough, probing, in-depth review," *Wyoming v. United States*, 279 F.3d 1214, 1238 (10th Cir. 2002) (citation omitted), with its review of the merits "generally limited to . . . the administrative record," *Custer Cnty. Action Assoc. v. Garvey*, 256 F.3d 1024, 1027 n.1 (10th Cir. 2001). However, "[t]he scope of review under the 'arbitrary and capricious' standard is narrow and a court is not to substitute its judgment for that of the agency." *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43.

2. The Supreme Court's *Rapanos* Decision

The history of litigation over "waters of the United States" is long and complicated. For present purposes, the overridingly relevant decision is *Rapanos v. United States*, 547 U.S. 715 (2006). The Court finds the Third Circuit's summary of *Rapanos*—and the problems it has created—to be helpful for present purposes:

> In *Rapanos*, a consolidation of two cases, the Court considered "whether four Michigan wetlands, which lie near ditches or man-made drains that eventually empty into traditional navigable waters, constitute 'waters of the United States' within the meaning of the Act." *Id*. at 729 (plurality opinion). The Court of Appeals for the Sixth Circuit had upheld the Corps' claim of jurisdiction. The Supreme Court, in a fractured 4-1-4 decision, vacated those judgments and remanded for further proceedings to determine whether the wetlands were subject to the restrictions of the CWA.
>
> Four dissenting Justices took an expansive view of the

CWA's reach. Justice Stevens, writing for the dissenting Justices, stated that the Court should have deferred to what he and his fellow dissenting Justices viewed as the Corps' reasonable interpretation of its jurisdiction. *Id*. at 796 (Stevens, J., dissenting). However, five Justices believed that the Corps' jurisdiction is more limited, although they did not all agree on the proper test to determine the scope of that jurisdiction.

Justice Scalia, writing for a four-Justice plurality, stated that the term "waters of the United States" as used in the CWA "includes only those relatively permanent, standing or continuously flowing bodies of water 'forming geographic features' that are described in ordinary parlance as 'streams [,] . . . oceans, rivers, [and] lakes.'" *Id*. at 739 (alterations in original) (citing Webster's New International Dictionary 2882 (2d ed. 1954)). The plurality opinion noted that "the phrase ['the waters of the United States'] does not include channels through which water flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall." *Id*. As for wetlands, the Justices in the plurality concluded that they only fall within the scope of the CWA if they have "a continuous surface connection to bodies that are 'waters of the United States' in their own right, so that there is no clear demarcation between 'waters' and wetlands." *Id*. at 742.

Justice Kennedy concurred. Although agreeing with the plurality's conclusion that the Corps' jurisdiction was more limited than the dissenters believed and that the case should be remanded, Justice Kennedy disagreed with the plurality's jurisdictional test. Under Justice Kennedy's approach, wetlands are subject to the strictures of the CWA if they possess a "significant nexus" with "waters of the United States," meaning that the wetlands, "either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'" *Id*. at 779, 780 (Kennedy, J., concurring).

At first glance, the *Rapanos* opinions seem to present an analytical problem: the three opinions articulate three different views as to how courts should determine whether wetlands are subject to the CWA, and no opinion was joined by a majority of the Justices. So which test should apply? Interestingly, after explaining why he would have affirmed the judgments below, Justice Stevens noted that, "[i]t has been [the Supreme Court's] practice in a case coming to us

> from a lower federal court to enter a judgment commanding that court to conduct any further proceedings pursuant to a specific mandate." *Id*. at 810 (Stevens, J., dissenting). That practice, he observed "has, on occasion, made it necessary for Justices to join a judgment that did not conform to their own views." *Id*. (citations omitted). Then, Justice Stevens stated that, although the Justices voting to remand disagreed about the appropriate test to be applied, the four dissenting Justices—with their broader view of the CWA's scope—would nonetheless support a finding of jurisdiction under either the plurality's or Justice Kennedy's test, and that therefore the Corps' jurisdiction should be upheld in all cases in which either test is satisfied. *Id*. at 810 & n.14.

United States v. Donovan, 661 F.3d 174, 179–80 (3d Cir. 2011) (parallel citations omitted).

In the immediate wake of *Rapanos*, the Agencies did not amend the definition of "waters of the United States" in 33 C.F.R. § 328.3, so federal courts (such as the Third Circuit in *Donovan*) were forced to grapple with what sort of gloss, if any, *Rapanos* imposed on that definition. Some courts, like the Third Circuit, concluded based on Justice Stevens's closing remarks that "the CWA is applicable to wetlands that meet either the test laid out by the plurality or by Justice Kennedy in *Rapanos*." *Donovan*, 661 F.3d at 184. Other courts, like the Seventh Circuit, have concluded that Justice Kennedy's "significant nexus" test controls. *United States v. Gerke Excavating, Inc.*, 464 F.3d 723, 724 (7th Cir. 2006).

3. Colorado's Previous Suit to Prevent Federal "Overreach"

In 2015, the Agencies amended 33 C.F.R. § 328.3, purporting to codify Justice Kennedy's "significant nexus" test. *See* 80 Fed. Reg. 37,054 (June 29, 2015) ("2015 Rule"). Several states—including Colorado—successfully sued to enjoin the 2015 Rule. *North Dakota v. EPA*, 127 F. Supp. 3d 1047 (D.N.D. 2015). Specifically, they convinced the district court that the 2015 Rule's interpretation of "significant nexus" likely "violate[d]

the congressional grant of authority to the EPA" because it swept more broadly than Justice Kennedy would have allowed. *Id*. at 1056. In the *North Dakota* case, Colorado very much cared to ensure that the Agencies did not overstep their jurisdiction, regardless of the environmental benefits of broader regulation. (*See North Dakota et al. v. EPA et al.*, No. 3:15-cv-59 (D.N.D.), ECF No. 212 at 39 (filed June 1, 2018) ("Any implication that waters and lands falling outside federal CWA jurisdiction are somehow 'unregulated' and thus 'unprotected' must be rejected: what is at issue here are the limits of federal jurisdiction, not environmental protection. . . . Instead of Plaintiff States regulating the land and water within their borders to advance their own sovereign responsibilities to protect their resources and citizens, the [2015] Rule would have them defer to the federal government's vast regulatory overreach.").)

4. The New Rule

Not long after taking office, President Trump directed the Agencies to rescind or revise the 2015 Rule, and to "consider interpreting the term 'navigable waters,' as defined in 33 U.S.C. 1362(7), in a manner consistent with the opinion of Justice Antonin Scalia in *Rapanos*." 82 Fed. Reg. 12497, 12497 (Feb. 28, 2017). In October 2019, after two district courts had invalidated the 2015 Rule following full merits briefing,[8] the Agencies repealed the 2015 Rule and reinstated the rule in effect at the time of *Rapanos*, *i.e.*, what this Court has called the "Current Rule." 84 Fed. Reg. 56626 (Oct. 22, 2019). Challengers promptly sued, arguing that the Current Rule violates the CWA by protecting too little, *Murray et al. v. Wheeler et al.*, No. 19-cv-1498 (N.D.N.Y., filed Dec. 4, 2019), and too much, *see, e.g.*, *N.M. Cattle Growers' Ass'n v. EPA et al.*, No.

[8] *See Georgia v. Wheeler*, 418 F. Supp. 3d 1336 (S.D. Ga. 2019); *Texas v. EPA*, 389 F. Supp. 3d 497 (S.D. Tex. 2019).

19-cv-988 (D.N.M., filed Oct. 22, 2019).

In April 2020, the Agencies published the New Rule (formally, "The Navigable Waters Protection Rule"), to take effect June 22, 2020. 85 Fed. Reg. 22250 (Apr. 21, 2020). It makes numerous changes to the Current Rule, which the Court need not describe in detail. For present purposes, the Court notes that one of the explicit purposes of the New Rule is to establish "categorically jurisdictional and categorically excluded waters." *Id*. at 22270. Among the categorical exclusions are "[e]phemeral features, including ephemeral streams, swales, gullies, rills, and pools." *Id*. at 22340.

5. Colorado's Current Challenge

Since the *North Dakota* case, Colorado has had a change of Attorney General administrations, and federal "overreach" is apparently now no longer such a great concern. Colorado now wants to force the federal government to remain in the role carved out for it in the Current Rule. Colorado's lead argument in this regard is that the New Rule is contrary to the CWA's purpose and legislative history because the New Rule—surprisingly—"conflicts with Congress' intent to create *a federal-state partnership* in which both the Agencies and the states would *work together* to protect the broadly defined 'waters of the United States.'" (ECF No. 24 at 13 (emphasis added).)

The Court frankly does not understand what sort of "federal-state partnership" Colorado envisions in the dredge-and-fill sphere. Colorado's unusual legislative policy is that dredge and fill is forbidden—without exception. But, as a practical matter, Colorado overlooks this policy and relies on a federal permit loophole, *see* Colo. Rev. Stat. § 25-8-501(1), because some wetlands are worth filling in pursuit of money or, more nobly, safety. In other words, Colorado "delegates" to the federal government the decision whether to issue a permit to do something that Colorado otherwise would not

allow, and Colorado reaps the benefits, at the expense of legislative policy. Colorado therefore has an unusual view of "work[ing] together to protect the broadly defined 'waters of the United States.'" (ECF No. 24 at 13.) *See also Rapanos*, 547 U.S. at 798 n.6 (2006) (Stevens, J., dissenting) ("Indeed, the Corps approves virtually all section 404 permits, though often requiring applicants to avoid or mitigate impacts to wetlands and other waters." (internal quotation marks omitted; alterations incorporated)).

As it turns out, however, the Court need not decide whether Colorado's (current) view about the purpose and history of the CWA wins the day. One of Colorado's alternate arguments has much more obvious merit, namely, that *Rapanos* already forecloses the approach taken in the New Rule.

It is notoriously difficult to understand what *Rapanos* is *for*, *see, e.g.*, *United States v. Johnson*, 467 F.3d 56, 60–66 (1st Cir. 2006), but it is much simpler to understand what *Rapanos* is *against*. Specifically, five justices rejected the Scalia plurality's categorical exclusion of "channels containing merely intermittent or ephemeral flow." 547 U.S. at 733–34 (plurality op.); *compare id*. at 768–70 (Kennedy, J., concurring in judgment) (finding the plurality's approach to "intermittent and ephemeral streams" to be "without support in the language and purposes of the [CWA]"); *id*. at 800–04 (Stevens, J., dissenting [joined by Souter, Ginsburg, and Breyer]) (rejecting plurality's categorical exclusion of intermittent or ephemeral stream beds). And more generally, five justices found the plurality opinion to be "inconsistent with the [CWA's] text, structure, and purpose." *Id*. at 776 (Kennedy, J., concurring in judgment); *see also id*. at 800 (Stevens, J., dissenting) ("[the plurality's] creative opinion is utterly unpersuasive"). The New Rule, however, is self-consciously intended to take the

plurality opinion (including its categorical exclusion of ephemeral watercourses), flesh out the details, and make it the new law of the land. *See* 85 Fed. Reg. at 22259–325. *Rapanos* forecloses this interpretation of the CWA. *See Vasquez v. Hillery*, 474 U.S. 254, 262 n.4 (1986) (agreement of five justices, even when not joining each other's opinions, "carr[ies] the force of law").[9]

The Agencies emphasize Justice Kennedy's statement in *Rapanos* that, "[a]bsent more specific regulations, the Corps must establish a significant nexus on a case-by-case basis when seeking to regulate wetlands based on adjacency to nonnavigable tributaries, in order to avoid unreasonable applications of the [CWA]." 547 U.S. at 782. The Agencies apparently view the New Rule as providing the called-for "more specific regulations." (ECF No. 51 at 15.) Whether or not the New Rule is more specific than the Current Rule, or helps to avoid unreasonable applications of the CWA, Justice Kennedy and the dissenters already rejected the specific approach the Agencies adopted here.

The Agencies also emphasize *National Cable & Telecommunications Association v. Brand X Internet Services*, 545 U.S. 967 (2005) ("*Brand X*"). There, the Supreme Court held that "[a] court's prior judicial construction of a statute trumps an agency construction . . . only if the prior court decision holds that its construction follows from the unambiguous terms of the statute and thus leaves no room for agency discretion." *Id*. at 982. The Agencies argue that *Rapanos* was not this kind of prior court decision, so the Agencies were free to reinterpret "waters of the United States." (ECF No. 51 at

[9] *State of California* views the reasoning here as a "suspect attempt to cobble together a holding from the [*Rapanos*] concurrence and the dissent." (ECF No. 60-1 at 11.) That decision appears unaware of *Vasquez v. Hillery*.

14–15.) The Court agrees with the premise, but, under the circumstances, the conclusion does not follow.

Again, it is difficult to discern what *Rapanos* was *for*—no judicial construction of the CWA offered in that case had the support of five justices. So the Agencies are correct that *Rapanos* did not "hold[] that its construction [of the CWA] follows from the unambiguous terms of the statute and thus leaves no room for agency discretion." *Brand X*, 545 U.S. at 982. However, *Rapanos* is unambiguously *against* the construction offered in the plurality opinion, on which the New Rule is modeled.[10] So, although nothing in *Rapanos* forecloses reinterpretation of "waters of the United States," that decision *does* foreclose the reinterpretation at issue here.[11]

For at least these reasons, Colorado is likely to succeed in proving at least that the New Rule is "not in accordance with law." 5 U.S.C. § 706(2)(A).

C. Balance of Harms & Public Interest

In analyzing whether a preliminary injunction should issue against the government, the final two elements of the preliminary injunction test are treated

[10] For this reason, the Court disagrees with *State of California*'s reasoning that *Brand X* leaves open the interpretation adopted in the New Rule. (*See* ECF No. 60-1 at 11.) *Brand X* was about affirmative statements of how a statute *must* be interpreted, not about *foreclosed* interpretations (when other interpretations might be available).

[11] The problem for the Agencies, unfortunately, is that *Rapanos* arguably forecloses *every* formulation of "waters of the United States" proposed in *Rapanos*, or proposed by the Agencies thus far. For example, eight justices rejected Justice Kennedy's case-by-case "significant nexus" approach. *See Rapanos*, 547 U.S. at 753–57 (plurality op.) (arguing that Justice Kennedy's approach has no basis in the CWA); *id*. at 797–98, 807–09 (Stevens, J., dissenting) (arguing that case-by-case determination is foreclosed by earlier Supreme Court decisions and that Justice Kennedy's approach is therefore both incorrect and unnecessarily inefficient). And the plurality and Justice Kennedy (totaling five justices) rejected the categorically broad approach espoused by the dissenters and the Agencies. *See id*. at 746–53 (plurality op.); *id*. at 778–82 (Kennedy, J., concurring in judgment). In short, the Agencies will get sued—such as by Colorado, twice now—regardless of what they try. (*See* Part III.B.3, above.) But that is a problem for the Supreme Court to resolve. For present purposes, it remains unavoidable that five justices in *Rapanos* rejected the Agencies' current approach.

together. *Nken v. Holder*, 556 U.S. 418, 435 (2009).

Colorado argues, "When a case is brought under an environmental statute, the courts place extraordinary weight on a general concern for the public interest." (ECF No. 24 at 23 (citing *Wilson v. Amoco Corp.*, 989 F. Supp. 1159, 1171 (D. Wyo. 1998)).) Colorado forgets that it wants this injunction, at least in part, so development can continue at the expense of the environment. Nonetheless, the Court agrees that the public interest would be better served by not allowing the New Rule to take effect at this time. If the Court were to decide otherwise, but then ultimately invalidate the New Rule (as appears probable on this record), it would likely create unnecessary confusion among the regulated community about what standard really applies. The Court finds it in the public interest, therefore, to maintain the *status quo*—what the regulated community is already accustomed to—pending resolution on the merits. *Cf*. *RoDa Drilling Co. v. Siegal*, 552 F.3d 1203, 1208 (10th Cir. 2009) ("the primary goal of a preliminary injunction is to preserve the pre-trial status quo").

The Agencies argue that any injunction must "address[] *only* the *specific* regulatory provisions purportedly creating imminent, irreparable harm." (ECF No. 51 at 30 (emphasis in original).) It appears, however, that the entire approach of the New Rule is contrary to *Rapanos*. Regardless, the Court finds it against the public interest to attempt to create a hybrid Current-New Rule, which would likely be even more confusing and unworkable than allowing the New Rule to take effect and later invalidating it. Rather, the Court will enjoin the Agencies to continue administering Section 404 in Colorado under the Current Rule.[12]

[12] Colorado does not seek a nationwide injunction (*see* ECF No. 55 at 12), presumably because Colorado is downstream of no other state, so it is difficult for Colorado to argue that

IV. CONCLUSION

For the reasons set forth above, the Court ORDERS as follows:

1. Colorado's Amended Motion for Preliminary Injunction (ECF No. 24), construed as a motion for stay of agency action under 5 U.S.C. § 705, is GRANTED;
2. The effective date of the Navigable Waters Protection Rule, 85 Fed. Reg. 22250 (Apr. 21, 2020) is STAYED within the District of Colorado; and
3. The Agencies (along with their officers, agents, servants, employees, attorneys, and all others who are in active concert or participation with any of them) are hereby PRELIMINARILY ENJOINED to continue administering Section 404 in Colorado under the provisions of 33 C.F.R. § 328.3 as it is presently codified.

Dated at Denver, Colorado this 19th day of June, 2020.

BY THE COURT:

William J. Martínez
United States District Judge

implementation of the New Rule elsewhere affects Colorado.

BOARD COMMUNICATION FORM

From: Scott Grosscup, legal counsel

Date: July 8, 2020

Item: Water Resume Review

_____ DIRECTION
X____ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information: The Water Resumes for Water Divisions 5 and 6 for water court filings in the month of June are not available at this time. I will update the board at the meeting.

BOARD COMMUNICATION FORM

From: Scott Grosscup, legal counsel

Date: July 10, 2020

Item: Catamount Application, Case No. 20CW3015

_____ DIRECTION
X____ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information: At the June Board meeting, the Directors authorized the filing of a statement of opposition to the application filed by Catamount Development, Inc. and the Catamount Metropolitan District to make the Lake Catamount Refill Right absolute in the amount of 4,000 acre feet for municipal and irrigation purposes. This water right has an appropriation date of 1986 and is senior to some of the District's water rights stored in Stagecoach and Yamcolo Reservoir, including the Second Fill rights and water rights stored for augmentation purposes.

A portion of this water right was first made absolute in Case No. 90CW152 for the in-reservoir recreational purposes. Since that time, the legislature has changed the law to allow a right stored in the reservoir to be made absolute for all decreed uses irrespective of whether the water right was released for such purpose. In this case, the applicants are basing their claim on the finding in Case No. 90CW152 that the full 4,000 acre feet of the refill right had been diverted and stored.

This presents an interesting legal issue about the applicability of this new statute to an act that occurred 30 years ago.

But it also could create an issue for the District if the Applicants were to begin releasing water from the reservoir for municipal and irrigation purposes, something that I understand has not been done. For example, Catamount could fill then start releasing and call for its refill right limiting the ability of the District to exercise its refill right or store for augmentation purposes.

A term and condition limiting use to within the boundaries of the Catamount District and that Catamount would not place a call for this water if it results in curtailment of the District's current water rights should resolve this concern.

BOARD COMMUNICATION FORM

From: Scott Grosscup, legal counsel

Date: July 8, 2020

Item: Water Court Cases Update

__ ____ DIRECTION
X____ INFORMATION
_____ MOTION
_____ RESOLUTION

Following is an update of the status of water court cases in which the Upper Yampa Water Conservancy District is an Applicant or Opposer and matters pending before the Utah Division of Water Resources.

Case No. 17CW3043 – This is the application by the City of Steamboat Springs for an augmentation plan for Casey's Pond. The District has stipulated consenting to the form of ruling in 2019. The ruling uses the District's water rights from Stagecoach reservoir in its augmentation plan for Casey's Pond. The Applicant has reached stipulations with all parties and submitted a proposed Ruling of Referee for the court's consideration. The proposed Ruling is consistent with the form of decree stipulated to by the District

Case No. 18CW3020 – This is the application by the Mt. Werner Water & Sanitation District for new junior water rights at the Yampa Meadows Infiltration Gallery and plan for augmentation using water from Stagecoach and Yamcolo Reservoirs under two contracts with the UYWCD. The District stipulated with the Applicant, which was approved by the Referee, consenting to the relief requested and properly identifying water rights that may be used from Yamcolo Reservoir for augmentation. The case is still pending before the water court.

Case No. 19CW3005 – This is an application for finding of reasonable diligence filed by Tri-State Generation and Transmission Association related to conditional water rights it owns in the Four Counties Ditch No. 3, Headgate 8 and in the Wessels Canal. Tri-State has now responded to the Division Engineer's Consultation Report that questioned future need and demand for the water rights. Tri-State responded that the water rights could be used for "new generation facilities" such as pumped storage hydropower near the Craig Station. Tri-State has yet to propose a Ruling for review.

Water Horse Resources – The Wyoming State Engineer accepted Water Horse Resources request to supplement its application to transport water from Utah to Colorado's East Slope. The applicant provided its files on the project along with some new ones that they pointed out are specific to cost analysis and demands prepared after the hearing in 2018. The District is working

with the Colorado River Water Conservation District and Utah counsel to review the documents. Utah counsel will review the new materials and will prepare a letter reiterating the speculative nature of the project.

BOARD COMMUNICATION FORM

From: Scott Grosscup, legal counsel

Date: July 8, 2020

Item: Division 6 Abandonment Yamcolo Water Rights

_____ DIRECTION
X_____ INFORMATION
_____ MOTION
_____ RESOLUTION

I. Request/Issue and Background Information: The State and Division Engineers have released their 2020 abandonment lists for water rights throughout the State. There are roughly 700 water rights included in the Division 6 list, of which approximately 200 are alternate points of diversion. The list identifies both partial and complete abandonment of certain water rights.

Included in the list is the full abandonment list of the District's 525 acre feet decreed to the Yamcolo Reservoir Second Enlargement and 410.9 acre feet decreed to the Yamcolo Reservoir First Enlargement. The issue is that Yamcolo Reservoir has 9,621 acre feet of capacity with 10,556.9 acre feet of water rights made absolute for the first fill. The Division Engineer is recommending abandonment of the excess or difference between the capacity and decreed amount. Following is a summary of the Yamcolo water rights taken from the District's master plan.

Yamcolo Reservoir: 9,621.0 AF Capacity		Total Right	Absolute	Conditional
First Fill	Original Right	6,531.9 AF	6,531.9 AF	0.0 AF
	Pleasant Valley Reservoir	2,500.0 AF	2,500.0 AF	* 2,500.0 AF
	1st Enlargement	1,000.0 AF	1,000.0 AF	0.0 AF
	2nd Enlargement	525.0 AF	525.0 AF	* 525.0 AF
	Coal Creek Diversion	100.0 cfs	0.0cfs	100.00 cfs
		10,556.9 AF	**10,556.9 AF**	*** 3,025.0 AF**
Second Fill	Refill Right	8,000.0 AF	914.0 AF	7,086.0 AF
	Coal Creek Diversion			100.00 cfs
		8,000.0 AF	**914.0 AF**	**7,086.0 AF**

Notes: 1.) * Indicates that the water right has not been made absolute for all decreed purposes.

2.) The Coal Creek Diversion can be stored in Yamcolo Reservoir. Water stored under this right, however, cannot be claimed under any of the other storage rights in Yamcolo Reservoir unless specifically decreed as a source of supply. Details related to the Coal Creek Diversion can be found in the following sub-section.

The Yamcolo Reservoir, First Enlargement right is the only absolute water right that may be released for augmentation purposes from Yamcolo Reservoir. The District decreed the original

right and Pleasant Valley Rights absolute for “storage, irrigation, domestic and manufacturing” in Case No 82CW210. That decree does not expressly mention the stock watering, municipal, or power purposes being made absolute. The conditional uses for the 525 acre feet Second Enlargement right were made absolute for municipal, domestic and industrial uses in Case No. 09CW60 in 2013.

Under Colorado’s abandonment process, the District has until July 1, 2021 to object to the Division Engineer. If no resolution occurs, then the Division Engineer files the list with the water court by January 31, of 2022. Interested parties then have until June 30, 2022 to protest the inclusion of the water right with the water court. The court then makes the final determination of whether a water right should be abandoned.

COLORADO
Division of Water Resources
Department of Natural Resources

ABANDONMENT LIST OF
WATER RIGHTS IN WATER DIVISION 6

July 1, 2020

The Division Engineer, in accordance with §37-92-401, Colorado Revised Statutes (2019), has compiled the list of absolute water rights that he or she "has determined to have been abandoned in whole or in part and which previously have not been adjudged to have been abandoned."

If you wish to object to the inclusion of any water right on the Division Engineer's abandonment list, you must file a written statement of objection with the Division Engineer by **July 1, 2021**. We request that objections be submitted using **DWR's Abandonment Objection Form**, which can be obtained on the DWR website (search keyword "Abandonment 2020") or from any DWR office.

The Abandonment List, with any revisions made as a result of written statements of objection, will be filed with the Water Court by December 31, 2021. Once the list is adjudged by the entry of a decree by the Water Court, such decree will be conclusive as to the abandonment of the water right.

If you have questions about the abandonment list, please contact the Division Office or submit an inquiry through the AskDWR page on DWR's website with the topic "Water Rights Abandonment 2020".

Erin C.H. Light, Division Engineer

Kevin Rein, State Engineer

Division Engineer Abandonment List

July 1, 2020

Structure Name	Water Source	Decreed Amount*	Abandon Amount	Remaining Amount	U **	Abandon Decreed Use(s)***	Abandon Decreed Place of Use	Admin Number	Adjudication Date	Appropriation Date	WDID
A BAR A DITCH	North Platte River	12.0000	12.0000	0.0000	C	ALL DECREED USES		47481.39505	1980-12-31	1958-02-28	4702054
A Q NO 2 DITCH SPPL HG	Good Spring Creek	4.2000	1.4000	2.8000	C	ALL DECREED USES		36295.32627	1960-09-01	1939-05-01	4400935
AKERS DITCH	Wheeler Creek	6.0000	6.0000	0.0000	C	ALL DECREED USES		30280.17288	1939-06-20	1897-05-01	4701002
ALKALI DITCH	Grizzly Creek	20.0000	5.0000	15.0000	C	ALL DECREED USES		55882.41485	2003-12-31	1963-08-01	4700537
ALLEN BASIN SUPPLY D	Mill Creek	15.0000	5.0000	10.0000	C	ALL DECREED USES		39254.37913	1964-03-30	1953-10-20	5800506
ANDY DITCH	Yampa River	3.0000 (AP)	1.8900	1.1100	C	ALL DECREED USES		51499.50921	1991-12-31	1989-06-01	4401275
ANDY DITCH ALT PT 1	Yampa River	0.0000	3.0000	0.0000	C	ALL DECREED USES		51499.50921	1991-12-31	1989-06-01	4402330
ANDY DITCH ALT PT 2	Yampa River	0.0000	3.0000	0.0000	C	ALL DECREED USES		51499.50921	1991-12-31	1989-06-01	4402334
APPLE DITCH	Beaver Creek	3.0000	1.5950	1.4050	C	IRR,WLD		44559.30680	1972-12-31	1933-12-31	5600622
APPLE DITCH	Beaver Creek	3.0000	3.0000	0.0000	C	FIS		44559.30680	1972-12-31	1933-12-31	5600622
AQUA FRIA RES	Beaver Creek	730.7500	180.7500	550.0000	A	ALL DECREED USES		34247.00000	1958-01-10	1943-10-07	4703726
ARNOLD PUMP D ALT PT 1	Yampa River	0.0000	3.0000	0.0000	C	ALL DECREED USES		35320.34893	1953-03-09	1945-07-14	5801984
ARNOLD PUMP D ALT PT 2	Yampa River	0.0000	3.0000	0.0000	C	ALL DECREED USES		35320.34893	1953-03-09	1945-07-14	5801983
ARNOLD SPRING DITCH	Yampa River	1.0000	1.0000	0.0000	C	ALL DECREED USES		46386.45456	1977-12-31	1974-06-15	5700806
AW WELL FIELD	White River	0.3000 (AP)	0.3000	0.0000	C	ALL DECREED USES		44194.35476	1971-12-31	1947-02-17	4305008
BAALHORN DITCH	Trull Creek	1.5000	1.5000	0.0000	C	ALL DECREED USES		37688.37286	1957-06-22	1952-02-01	5800516
BAILEY DITCH	Yampa River	13.5000	13.5000	0.0000	C	ALL DECREED USES		40421.33372	1972-05-30	1941-05-15	4400541
BALANCED ROCK DITCH	Morrison Creek	3.0000	1.0000	2.0000	C	ALL DECREED USES		41727.34850	1972-05-30	1945-06-01	5801072
BAR BEL LAKES WATER SYS.	Peltier Creek	2.0000	2.0000	0.0000	C	ALL DECREED USES		29127.00000	1929-10-16	1929-09-30	4302004
BAR BELL MESA D SYSTEM	South Fork White River	13.7700 (AP)	13.7700	0.0000	C	DOM		38499.00000	1958-11-26	1955-05-29	4300530
BAR BELL MESA D SYSTEM	South Fork White River	13.7700	8.7700	5.0000	C	OTH		38499.00000	1958-11-26	1955-05-29	4300530
BAR BELL MESA D SYSTEM	South Fork White River	13.7700	4.7700	9.0000	C	IRR		38499.00000	1958-11-26	1955-05-29	4300530
BEAR RIVER QUALITY WELL	Yampa River	0.0334	0.0334	0.0000	C	ALL DECREED USES		45290.45076	1974-12-31	1973-05-31	5706001
BECKMAN DITCH	Moose Creek	11.2000 (AP)	3.0000	8.2000	C	DOM		38499.00000	1958-11-26	1955-05-29	4300537
BECKMAN DITCH	Moose Creek	11.2000 (AP)	8.2000	3.0000	C	DOM,OTH		38499.00000	1958-11-26	1955-05-29	4300537
BIG GRIZZLY DITCH ALT PT	Grizzly Creek	42.5000	18.0000	24.5000	C	ALL DECREED USES		56613.56031	2005-12-31	2003-05-29	4701054
BIG WILLOW DITCH	Willow Creek	31.0000	11.0000	20.0000	C	ALL DECREED USES		30280.13301	1939-06-20	1886-06-01	4700513
BILL DITCH 1	Deacon Gulch	2.0000	1.7500	0.2500	C	ALL DECREED USES		47847.47745	1981-12-31	1980-09-20	4402116
BISKUP WELL	Yampa River	1.0000	1.0000	0.0000	C	ALL DECREED USES		37483.00000	1972-12-31	1952-08-16	4405008
BLACKS ELK CREEK DIVR	Elk Creek	0.2500	0.2500	0.0000	C	ALL DECREED USES		47481.42550	1980-12-31	1966-07-01	5702044
BOETTLER DITCH	Fish Creek	4.3400 (AP)	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5700506
BOETTLER DITCH	Fish Creek	0.0000	1.5000	0.0000	C	ALL DECREED USES		13985.00000	1892-09-22	1888-04-15	5700506
BOOR DITCH	South Hunt Creek	0.0000	3.0000	0.0000	C	ALL DECREED USES		39254.33007	1964-03-30	1940-05-15	5800547
BOOR DITCH #2	Bull Creek	4.0000	4.0000	0.0000	C	ALL DECREED USES		53325.42138	1996-12-31	1965-05-15	5801838
BOSTON DITCH 1	Spring Creek	4.0000	4.0000	0.0000	C	ALL DECREED USES		23016.22979	1923-03-06	1912-11-30	4700520
BOWERS PUMP DIVERSION	Big Gulch	0.6700	0.6700	0.0000	C	ALL DECREED USES		47847.46577	1981-12-31	1977-07-10	4402313
BOWERS SPG & P L	Bowers Creek	0.1350	0.1350	0.0000	C	DOM		36341.00000	1953-03-09	1949-07-01	5800553
BROCKER DITCH	Indian Creek	3.2400	3.2400	0.0000	C	ALL DECREED USES		30280.29738	1939-06-20	1931-06-03	4700529
BUFFALOW DITCH	Morrison Creek	1.0000	1.0000	0.0000	C	IRR		54056.46872	1998-12-31	1978-05-01	5801888
BUFFHAM DIVR NO 1	Cedar Mountain Gulch	0.5000	0.4670	0.0330	C	STK		46697.00000	1977-12-31	1977-11-07	4402003
BUFFHAM DIVR NO 1	Cedar Mountain Gulch	0.5000	0.5000	0.0000	C	IRR,DOM,FIS		46697.00000	1977-12-31	1977-11-07	4402003

Division Engineer Abandonment List

July 1, 2020

Structure Name	Water Source	Decreed Amount*	Abandon Amount	Remaining Amount	U **	Abandon Decreed Use(s)***	Abandon Decreed Place of Use	Admin Number	Adjudication Date	Appropriation Date	WDID
BUNN DITCH	East Fork Williams Fork	2.0000	1.2000	0.8000	C	ALL DECREED USES		46453.00000	1977-12-31	1977-03-08	4402060
BUNN PIT	Yampa River	2.1500	1.2220	0.9280	C	ALL DECREED USES		47116.45776	1979-12-31	1975-05-01	4402061
BURKE DITCH	Buffalo Creek	10.0000	3.5000	6.5000	C	ALL DECREED USES		50403.40348	1988-12-31	1960-06-20	4700532
BURNS DITCH	Chedsey Creek	13.5000	13.5000	0.0000	C	ALL DECREED USES		33534.29522	1958-01-10	1930-10-30	4700533
BURNS DITCH	Chedsey Creek	4.5000	3.5000	1.0000	C	ALL DECREED USES		26727.14762	1932-11-26	1890-06-01	4700533
BURNT MESA SUPPLY D	South Hunt Creek	15.0000	14.6000	0.4000	C	ALL DECREED USES		39687.00000	1964-03-30	1958-08-29	5800570
BURR SPRING	Illinois River	1.0000	1.0000	0.0000	C	ALL DECREED USES		43829.25322	1970-12-31	1919-05-01	4701086
BUTTON DITCH NO 1	Deep Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		51790.00000	1991-12-31	1991-10-18	5801690
CALIFORNIA CO WATER PL	White River	7.4890	7.3000	0.1890	C	ALL DECREED USES		39186.00000	1958-11-26	1957-04-15	4300564
CAMERON PASS DITCH	Michigan River	10.0000	1.1000	8.9000	C	ALL DECREED USES		11899.00000	1902-04-23	1882-07-30	4704602
CAMERON PASS DITCH	Michigan River	12.0000	12.0000	0.0000	C	ALL DECREED USES		17720.00000	1902-04-23	1898-07-07	4704602
CAMP CREEK DITCH	Camp Creek	20.0000	5.0600	14.9400	C	ALL DECREED USES		30280.15462	1939-06-20	1892-05-01	4700538
CAMP P L WATER TANK	Camp Creek	0.0557	0.0557	0.0000	C	ALL DECREED USES		30280.22461	1939-06-20	1911-07-01	4700539
CASITA DIVERSION	Oak Creek	0.0330	0.0330	0.0000	C	ALL DECREED USES		54421.53873	1999-12-31	1997-07-01	5801926
CATARACT DITCH	Little Bear Creek	10.9400	6.1600	4.7800	C	ALL DECREED USES		36295.36050	1960-09-01	1948-09-13	4400573
CAW PUMP STATION	Fortification Creek	1.0000	0.9670	0.0330	C	ALL DECREED USES		46918.00000	1978-12-31	1978-06-16	4400931
CEMETARY PUMP STA	Michigan River	0.2500	0.2200	0.0300	C	ALL DECREED USES		43829.40825	1970-12-31	1961-10-10	4702070
CLARK & BURKE DITCH	Elk River	0.5000	0.5000	0.0000	C	ALL DECREED USES		48167.00000	1981-12-31	1981-11-16	5800588
CLAUDE OFF DITCH	Middle Hunt Creek	2.5000	1.0000	1.5000	C	ALL DECREED USES		39628.00000	1964-03-30	1958-07-01	5801070
CLAYTON RICH DITCH	Pinkham Creek	4.0000	1.2500	2.7500	C	ALL DECREED USES		23016.22888	1923-03-06	1912-08-31	4700557
COCHRANE DITCH	Ninegar Creek	30.0000	12.5000	17.5000	C	ALL DECREED USES		23016.14037	1921-08-02	1888-06-06	4701024
CONNELL DITCH	Trout Creek	13.0000 (AP)	13.0000	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5700513
COOK DITCH	Owl Creek	10.0000	5.4900	4.5100	C	ALL DECREED USES		50403.37390	1988-12-31	1952-05-15	4701146
CORLISS DITCH	Fish Creek	6.0000	6.0000	0.0000	C	ALL DECREED USES		39925.37942	1962-11-15	1953-11-18	5700515
COTTON SPRING DITCH	Yampa River	1.0000	0.9500	0.0500	C	ALL DECREED USES		45290.42899	1974-12-31	1967-06-15	5700688
COURT WELL 1	Yampa River	0.0890	0.0890	0.0000	C	ALL DECREED USES		46020.46010	1976-12-31	1975-12-21	5705004
COVE DITCH 2	Cottonwood Creek	2.0000	2.0000	0.0000	C	ALL DECREED USES		49308.35183	1985-12-31	1946-04-30	5601046
CRAIG STATION D & PL #1	Yampa River	44.9300 (AP)	44.9300	0.0000	C	ALL DECREED USES		45290.44865	1974-12-31	1972-11-01	4400522
CRAIG STATION D & PL #2	Yampa River	0.0000	45.8900	0.0000	C	ALL DECREED USES		39599.00000	1964-03-30	1958-06-02	4401990
CRAIG STATION D & PL #3	Yampa River	0.0000	45.8900	0.0000	C	ALL DECREED USES		39599.00000	1964-03-30	1958-06-02	4401991
CRAIG STATION D & PL #3	Yampa River	0.0000	45.7000	0.0000	C	ALL DECREED USES		40815.00000	1964-03-30	1961-09-30	4401991
CRAIG'S PUMP	Yampa River	0.0330	0.0330	0.0000	C	ALL DECREED USES		55882.54223	2003-12-31	1998-06-16	5802576
CROSS MTN PUMP - GROUNDS	Yampa River	6.8440	3.7500	3.0940	C	ALL DECREED USES		40421.39186	1972-05-30	1957-04-15	4400583
CROSS MTN PUMP - GROUNDS	Yampa River	5.8000 (AP)	5.8000	0.0000	C	ALL DECREED USES		52731.00000	1994-12-31	1994-05-16	4400583
CROWNER DITCH 1	Chimney Creek	4.7500	2.2500	2.5000	C	ALL DECREED USES		45290.35701	1974-12-31	1947-09-30	5801405
DALOM DITCH	North Platte River	12.0000	3.0000	9.0000	C	ALL DECREED USES		47845.00000	1980-12-31	1980-12-29	4700581
DALOM DITCH	North Platte River	12.0000	12.0000	0.0000	C	REC, FISH, DOM		47845.00000	1980-12-31	1980-12-29	4700581
DAM DITCH	North Platte River	28.0000	5.8000	22.2000	C	ALL DECREED USES		30280.13393	1939-06-20	1886-09-01	4700582
DAMFINO DITCH	Grizzly Creek	25.0000 (AP)	9.2100	15.7900	C	ALL DECREED USES		21366.20964	1913-01-06	1907-05-26	4700583
DAVIS DITCH	Pinkham Creek	8.0000	2.0000	6.0000	C	ALL DECREED USES		51499.32354	1991-12-31	1938-08-01	4701158
DEAKINS SPRING NO. 2 PIPELINE	Buck Gulch	0.0670	0.0670	0.0000	C	ALL DECREED USES		41417.00000	1972-05-30	1963-05-25	4402447

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DECKER IRR DITCH ALT PT 1	East Douglas Creek	1.0000 (AP)	1.0000	0.0000	C	ALL DECREED USES		48212.46933	1982-12-31	1978-07-01	4302413
DECKER IRR DITCH ALT PT 1	East Douglas Creek	0.0000	6.0000	0.0000	C	ALL DECREED USES		20737.18353	1906-10-12	1900-04-01	4302413
DECKER IRR DITCH ALT PT 1	East Douglas Creek	0.0000	1.0000	1.8000	C	IND		13640.00000	1890-10-22	1887-05-06	4302413
DECKER IRR DITCH ALT PT 2	East Douglas Creek	0.0000	6.0000	0.0000	C	ALL DECREED USES		20737.18353	1906-10-12	1900-04-01	4302607
DECKER IRR DITCH ALT PT 2	East Douglas Creek	0.0000	1.0000	1.8000	C	IND		13640.00000	1890-10-22	1887-05-06	4302607
DEEP CUT IRR D	Yampa River	34.3700	10.7400	23.6300	C	ALL DECREED USES		46386.46151	1977-12-31	1976-05-10	4400589
DEEP WELL	Yampa River	0.0160	0.0160	0.0000	C	ALL DECREED USES		54705.00000	1999-12-31	1999-10-11	5805091
DEJOURNETTE D NO 1	Beaver Creek	3.0000	1.9400	1.0600	C	ALL DECREED USES		44559.41028	1972-12-31	1962-05-01	5600587
DELASHMUTT PUMP 1	Elk River	0.2200	0.1500	0.0700	C	ALL DECREED USES		54056.53126	1998-12-31	1995-06-15	5801890
DEQUINE DITCH	Morrison Creek	1.2500	0.6000	0.6500	C	ALL DECREED USES		52960.51742	1995-12-31	1991-08-31	5801282
DEQUINE DITCH ALT PT #1	Bushy Creek	1.2500	0.6100	0.6400	C	ALL DECREED USES		52960.51742	1995-12-31	1991-08-31	5801288
DEWEY DITCH	Flag Creek	3.7000	3.7000	0.0000	C	ALL DECREED USES		53325.46833	1996-12-31	1978-03-23	4301054
DICKINSON DITCH NO 1	Talamantes Creek	6.0000	2.0000	4.0000	C	ALL DECREED USES		55395.00000	2001-12-31	2001-08-31	5600603
DIETZ SPG & DITCH 2	West Willow Creek	1.5000	1.5000	0.0000	C	ALL DECREED USES		45290.39901	1974-12-31	1959-03-31	4301545
DIETZ SPRING NO 1	West Willow Creek	1.0000	0.5000	0.5000	C	FIS		45290.39901	1974-12-31	1959-03-31	4301547
DIETZ SPRING NO 1	West Willow Creek	1.0000	1.0000	0.0000	C	IRR,STK		45290.39901	1974-12-31	1959-03-31	4301547
DINOSAUR MUN WELL 2	Dripping Rock Creek	0.0660	0.0660	0.0000	C	ALL DECREED USES		47847.40328	1981-12-31	1960-05-31	4306130
DORAN DITCH 4	Doran Creek	8.0000	4.0000	4.0000	C	ALL DECREED USES		44559.39977	1972-12-31	1959-06-15	4702033
DORAN PUMP STATION	Elk River	2.2000	2.2000	0.0000	C	ALL DECREED USES		55882.55683	2003-12-31	2002-06-15	5800795
DOTTIES PUMP	Yampa River	0.5790	0.5460	0.0330	C	ALL DECREED USES		54008.00000	1997-12-31	1997-11-13	4401868
DOWDEN PUMPSITE #1	Fortification Creek	2.0000	2.0000	0.0000	C	ALL DECREED USES		56812.00000	2005-12-31	2005-07-18	4402437
DRIVEWAY SPRING	Little Snake River	1.0000	1.0000	0.0000	C	ALL DECREED USES		55395.00000	2001-12-31	2001-08-31	5401163
DRY CK DITCH ALT PT C	Dry Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		24285.23168	1916-07-19	1913-06-07	5701212
DRY CK DITCH ALT PT C	Dry Creek	0.0000	2.5000	0.0000	C	ALL DECREED USES		40368.00000	1962-11-15	1960-07-10	5701212
DRY CRK DITCH MICHIGAN R	Michigan River	15.0000 (AP)	11.7000	3.3000	C	ALL DECREED USES		45868.00000	1975-12-31	1975-08-01	4700595
DRY FORK DITCH	Owl Creek	5.0000	2.6100	2.3900	C	ALL DECREED USES		50403.37390	1988-12-31	1952-05-15	4701137
DUTCH CREEK DIVERSION	Dutch Creek	0.0330	0.0330	0.0000	C	COM		49673.49084	1986-12-31	1984-05-21	5801391
DUZIK PUMP DIV	Yampa River	4.9000	4.0900	0.8100	C	ALL DECREED USES		43585.00000	1972-05-30	1969-05-01	4400805
E & F DITCH NO 1	East Sawmill Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		45504.00000	1974-12-31	1974-08-02	4302040
E & F DITCH NO 2	East Sawmill Creek	2.1000	2.1000	0.0000	C	ALL DECREED USES		45504.00000	1974-12-31	1974-08-02	4302041
E K CALLOWAY PUMP	Yampa River	0.0500	0.0500	0.0000	C	ALL DECREED USES		45290.43251	1974-12-31	1968-06-01	4401087
EAST GULCH FEEDER	Rye Grass Draw	4.8000	4.3000	0.5000	C	IRR		37041.00000	1964-10-09	1951-06-01	5600539
EAST GULCH FEEDER	Rye Grass Draw	4.8000	4.8000	0.0000	C	DOM		37041.00000	1964-10-09	1951-06-01	5600539
EAST SIDE DITCH	Fish Creek	8.0000	1.5000	6.5000	C	ALL DECREED USES		41226.41042	1972-05-30	1962-05-15	5700524
ECKMAN PARK D ALT PT 2 AND 3	Foidel Creek	0.0000	13.3300	0.0000	C	ALL DECREED USES		21458.20249	1908-10-08	1905-06-10	5701214
ECKMAN PARK D ALT PT 4 AND 5	Foidel Creek	0.0000	13.3300	0.0000	C	ALL DECREED USES		21458.20249	1908-10-08	1905-06-10	5701215
ELK CREEK DITCH	Elk Creek	0.7500	0.7500	0.0000	C	ALL DECREED USES		46020.26023	1976-12-31	1921-04-01	4702003
ELLIS & KITCHENS D	North Fork Elkhead Creek	6.0000	2.6600	3.3400	C	ALL DECREED USES		45655.42657	1975-12-31	1966-10-16	4400614
ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14001.00000	1892-09-22	1888-05-01	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14005.00000	1892-09-22	1888-05-05	5705012

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ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14012.00000	1892-09-22	1888-05-12	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		14081.00000	1892-09-22	1888-07-20	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	7.6600	0.0000	C	ALL DECREED USES		14318.00000	1892-09-22	1889-03-14	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		14385.00000	1892-09-22	1889-05-20	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14472.00000	1892-09-22	1889-08-15	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	4.0000	0.0000	C	ALL DECREED USES		18817.00000	1901-09-15	1901-07-09	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	4.6600	0.0000	C	ALL DECREED USES		18885.18748	1902-09-15	1901-05-01	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		19116.00000	1902-09-15	1902-05-04	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		19251.19236	1903-09-21	1902-09-01	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	3.3300	0.0000	C	ALL DECREED USES		19628.19116	1903-09-29	1902-05-04	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		23167.20672	1913-06-09	1906-08-07	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	0.9000	0.0000	C	ALL DECREED USES		32711.31978	1940-11-22	1937-07-21	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		39925.35184	1962-11-15	1946-05-01	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	1.9000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	5.3400	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5705012
ENERGY AREA PIT WELL	Foidel Creek	0.0000	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5705012
ENERGY WELL 3-2	Fish Creek	0.1450	0.1450	0.0000	C	ALL DECREED USES		46751.46678	1978-12-31	1977-10-19	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14001.00000	1892-09-22	1888-05-01	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14005.00000	1892-09-22	1888-05-05	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14012.00000	1892-09-22	1888-05-12	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		14081.00000	1892-09-22	1888-07-20	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	7.6600	0.0000	C	ALL DECREED USES		14318.00000	1892-09-22	1889-03-14	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		14385.00000	1892-09-22	1889-05-20	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14472.00000	1892-09-22	1889-08-15	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	4.0000	0.0000	C	ALL DECREED USES		18817.00000	1901-09-15	1901-07-09	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	4.6600	0.0000	C	ALL DECREED USES		18885.18748	1902-09-15	1901-05-01	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		19116.00000	1902-09-15	1902-05-04	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		19251.19236	1903-09-21	1902-09-01	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	3.3300	0.0000	C	ALL DECREED USES		19628.19116	1903-09-29	1902-05-04	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		23167.20672	1913-06-09	1906-08-07	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	0.9000	0.0000	C	ALL DECREED USES		32711.31978	1940-11-22	1937-07-21	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		39925.35184	1962-11-15	1946-05-01	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.9000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	5.3400	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5705017
ENERGY WELL 3-2	Fish Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5705017
ENERGY WELL 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14001.00000	1892-09-22	1888-05-01	5706035
ENERGY WELL 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14005.00000	1892-09-22	1888-05-05	5706035
ENERGY WELL 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14012.00000	1892-09-22	1888-05-12	5706035
ENERGY WELL 6	Foidel Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		14081.00000	1892-09-22	1888-07-20	5706035
ENERGY WELL 6	Foidel Creek	0.0000	7.6600	0.0000	C	ALL DECREED USES		14318.00000	1892-09-22	1889-03-14	5706035

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ENERGY WELL 6	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		14385.00000	1892-09-22	1889-05-20	5706035
ENERGY WELL 6	Foidel Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14472.00000	1892-09-22	1889-08-15	5706035
ENERGY WELL 6	Foidel Creek	0.0000	4.0000	0.0000	C	ALL DECREED USES		18817.00000	1901-09-15	1901-07-09	5706035
ENERGY WELL 6	Foidel Creek	0.0000	4.6600	0.0000	C	ALL DECREED USES		18885.18748	1902-09-15	1901-05-01	5706035
ENERGY WELL 6	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		19116.00000	1902-09-15	1902-05-04	5706035
ENERGY WELL 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		19251.19236	1903-09-21	1902-09-01	5706035
ENERGY WELL 6	Foidel Creek	0.0000	3.3300	0.0000	C	ALL DECREED USES		19628.19116	1903-09-29	1902-05-04	5706035
ENERGY WELL 6	Foidel Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		23167.20672	1913-06-09	1906-08-07	5706035
ENERGY WELL 6	Foidel Creek	0.0000	0.9000	0.0000	C	ALL DECREED USES		32711.31978	1940-11-22	1937-07-21	5706035
ENERGY WELL 6	Foidel Creek	0.0000	1.9000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5706035
ENERGY WELL 6	Foidel Creek	0.0000	5.3400	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5706035
ENERGY WELL 6	Foidel Creek	0.0000	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5706035
ENERGY WELL 6	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5706035
ENERGY WELL 6	Foidel Creek	0.0000	0.7530	0.0000	C	ALL DECREED USES		44925.41272	1977-12-31	1962-12-31	5706035
ENERGY WELL 6	Foidel Creek	0.0000	0.6640	0.0000	C	ALL DECREED USES		46750.00000	1977-12-31	1977-12-30	5706035
ENERGY WELL 6	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		39925.35184	1962-11-15	1946-05-01	5706035
ENERGY WELL 7	Foidel Creek	0.0490	0.0490	0.0000	C	ALL DECREED USES		46564.00000	1977-12-31	1977-06-27	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14001.00000	1892-09-22	1888-05-01	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14005.00000	1892-09-22	1888-05-05	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14012.00000	1892-09-22	1888-05-12	5705016
ENERGY WELL 7	Foidel Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		14081.00000	1892-09-22	1888-07-20	5705016
ENERGY WELL 7	Foidel Creek	0.0000	7.6600	0.0000	C	ALL DECREED USES		14318.00000	1892-09-22	1889-03-14	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		14385.00000	1892-09-22	1889-05-20	5705016
ENERGY WELL 7	Foidel Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14472.00000	1892-09-22	1889-08-15	5705016
ENERGY WELL 7	Foidel Creek	0.0000	4.0000	0.0000	C	ALL DECREED USES		18817.00000	1901-09-15	1901-07-09	5705016
ENERGY WELL 7	Foidel Creek	0.0000	4.6600	0.0000	C	ALL DECREED USES		18885.18748	1902-09-15	1901-05-01	5705016
ENERGY WELL 7	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		19116.00000	1902-09-15	1902-05-04	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		19251.19236	1903-09-21	1902-09-01	5705016
ENERGY WELL 7	Foidel Creek	0.0000	3.3300	0.0000	C	ALL DECREED USES		19628.19116	1903-09-29	1902-05-04	5705016
ENERGY WELL 7	Foidel Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		23167.20672	1913-06-09	1906-08-07	5705016
ENERGY WELL 7	Foidel Creek	0.0000	0.9000	0.0000	C	ALL DECREED USES		32711.31978	1940-11-22	1937-07-21	5705016
ENERGY WELL 7	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		39925.35184	1962-11-15	1946-05-01	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.9000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5705016
ENERGY WELL 7	Foidel Creek	0.0000	5.3400	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5705016
ENERGY WELL 7	Foidel Creek	0.0000	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5705016
ENERGY WELL 7	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5705016
ENTERPRISE DITCH	Walton Creek	14.0000	3.8600	10.1400	C	ALL DECREED USES		33145.30467	1940-12-30	1933-06-01	5800627
ENTERPRISE DITCH	Walton Creek	1.0000 (AP)	1.0000	0.0000	C	ALL DECREED USES		54296.00000	1998-12-31	1998-08-28	5800627
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	0.5330	0.0000	C	ALL DECREED USES		22445.22279	1911-06-16	1910-12-31	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5801980

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EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5801980
EXCELSIOR DITCH 1 ALT PT	Burgess Creek	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5801980
EXPERIMENT DITCH	Arapaho Creek	10.0000	4.0000	6.0000	C	ALL DECREED USES		38859.00000	1958-01-10	1956-05-23	4700616
EXPERIMENT DITCH	Arapaho Creek	32.5000	25.6000	6.9000	C	ALL DECREED USES		33534.33159	1958-01-10	1940-10-14	4700616
FARNSWORTH DITCH	Farnsworth Creek	0.0670	0.0670	0.0000	C	ALL DECREED USES		46386.39963	1977-12-31	1959-06-01	5800632
FIRST CHANCE DITCH	Big Creek	0.5000	0.5000	0.0000	C	ALL DECREED USES		35320.29371	1953-03-09	1930-06-01	5800640
FISH CR MUN WATER INTAKE	Fish Creek	3.0000	3.0000	0.0000	C	ALL DECREED USES		35320.33181	1953-03-09	1940-11-05	5800642
FISH CR MUN WATER INTAKE	Fish Creek	3.7000	3.7000	0.0000	C	ALL DECREED USES		35320.35215	1953-03-09	1946-06-01	5800642
FISH CR MUN WATER INTAKE	Fish Creek	3.8600	3.8600	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5800642
FISH CR MUN WATER INTAKE	Fish Creek	3.5000	3.5000	0.0000	C	ALL DECREED USES		41851.00000	1972-05-30	1964-08-01	5800642
FJORD DITCH	Day Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		51499.51013	1991-12-31	1989-09-01	5801685
FLYNN BOTTOM DITCH	Green River	12.0000	5.3600	6.6400	C	ALL DECREED USES		47847.44737	1981-12-31	1972-06-26	5600590
FLYNN BOTTOM DITCH	Green River	8.0000	8.0000	0.0000	C	ALL DECREED USES		47847.47589	1981-12-31	1980-04-17	5600590
FOUR COUNTIES D3HG8	Long Park Creek	45.8900	32.3400	13.5500	C	ALL DECREED USES		39599.00000	1964-03-30	1958-06-02	5802813
FOX DITCH	South Fork Canadian River	8.6500	5.8300	2.8200	C	ALL DECREED USES		18457.00000	1908-07-01	1900-07-14	4700622
FOX DITCH NO1	Butcherknife Gulch	1.5000	1.5000	0.0000	C	ALL DECREED USES		44559.44345	1972-12-31	1971-05-31	5700642
FRANK MORRISON DITCH	Cherry Creek	2.5000	2.5000	0.0000	C	ALL DECREED USES		40738.00000	1966-11-21	1961-07-15	4300646
FRENTRESS DITCH AND PUMPING PL	Yampa River	1.7800 (AP)	1.7800	0.0000	C	ALL DECREED USES		39925.38161	1962-11-15	1954-06-25	5700537
FRITZ D & STK POND	Fritz Draw	1.0000	1.0000	0.0000	C	ALL DECREED USES		45655.37407	1975-12-31	1952-06-01	5801432
GARRITSON PUMP	Mad Creek	0.4000	0.3000	0.1000	C	ALL DECREED USES		48022.00000	1981-12-31	1981-06-24	5802381
GEER GULCH COLLECTION D	North Platte River	1.4000	0.4000	1.0000	C	STK		51499.37254	1991-12-31	1951-12-31	4701179
GEER GULCH COLLECTION D	North Platte River	1.4000	1.4000	0.0000	C	IRR		51499.37254	1991-12-31	1951-12-31	4701179
GEORGE S WITTER DITCH	White River	7.9000	7.9000	0.0000	C	ALL DECREED USES		39776.39392	1966-11-21	1957-11-07	4300653
GIBRALTAR DITCH	Yampa River	40.6800	40.6800	0.0000	C	IRR,ALL		44559.38137	1972-12-31	1954-06-01	5700539
GIBRALTAR DITCH	Yampa River	40.6800	37.6800	3.0000	C	STK		44559.38137	1972-12-31	1954-06-01	5700539
GIVEADAM JONES DITCH	Canadian River	1.3300	1.3300	0.0000	C	ALL DECREED USES		14750.00000	1892-09-19	1890-05-20	4700637
GIVEADAM JONES DITCH	Canadian River	0.6700	0.6700	0.0000	C	ALL DECREED USES		15143.00000	1892-09-19	1891-06-17	4700637
GLEN EDEN WELL 1	Yampa River	0.0670	0.0670	0.0000	C	ALL DECREED USES		48577.44772	1983-12-31	1972-07-31	5806136
GORDON C. WINN PUMP 2	Little Snake River	10.0000	3.3200	6.6800	C	ALL DECREED USES		41393.00000	1972-05-27	1963-05-01	5500515
GRAY PUMP DIVERSION AP 2	Fortification Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		52454.00000	1993-12-31	1993-08-12	4400794
GREENO DITCH 1	Hunter Creek	2.8300	1.0000	1.8300	C	ALL DECREED USES		47847.42515	1981-12-31	1966-05-27	4302473
GREENO DITCH 2	Hunter Creek	2.6700	1.0000	1.6700	C	ALL DECREED USES		47847.42515	1981-12-31	1966-05-27	4302474
GREENO DITCH 3	Hunter Creek	2.5000	2.2500	0.2500	C	ALL DECREED USES		47847.42515	1981-12-31	1966-05-27	4302475
GREENO DITCH 4	Hunter Creek	2.5000	1.0000	1.5000	C	ALL DECREED USES		47847.42515	1981-12-31	1966-05-27	4302476
GRIMES DITCH	Green River	15.0000	5.8900	9.1100	C	ALL DECREED USES		44559.43864	1972-12-31	1970-02-04	5600594
GUIRE COLLECTION PL	Fortification Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		43881.00000	1972-05-30	1970-02-21	4400885

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GUMPRECHT WILKINS SEEP 2	Yampa River	5.0000	2.1700	2.8300	C	ALL DECREED USES		35320.32421	1953-03-09	1938-10-07	5800985
H G SHALLOW WELL 1	Dry Creek	0.0000	0.1250	0.0000	C	ALL DECREED USES		23549.18809	1914-10-06	1901-07-01	5706054
HAGEMEISTER SEEP 1	Elk River	2.7000 (AP)	2.7000	0.0000	C	ALL DECREED USES		41727.32293	1972-05-30	1938-06-01	5800994
HAGEMEISTER SEEP 2	Elk River	2.7000	2.7000	0.0000	C	ALL DECREED USES		41727.32293	1972-05-30	1938-06-01	5800995
HAGGERTY DITCH NO 2 WILLIAMS FO	Williams Fork	0.0000	2.5000	0.5000	C	ALL DECREED USES		47847.42955	1981-12-31	1967-08-10	4402468
HAGGERTY DITCH NO 2 WILLIAMS FO	Williams Fork	3.0000 (AP)	1.5000	1.5000	C	ALL DECREED USES		47847.42955	1981-12-31	1967-08-10	4402467
HALPEN PUMP PIPELINE	White River	4.0000 (AP)	3.0800	0.9200	C	IRR,STK		41943.00000	1966-11-21	1964-11-01	4300673
HALPEN PUMP PIPELINE	White River	4.0000	4.0000	0.0000	C	DOM		41943.00000	1966-11-21	1964-11-01	4300673
HANS CLAUSON D NO 2	Beaver Creek	8.0000	1.6000	6.4000	C	ALL DECREED USES		16588.00000	1923-03-06	1895-06-01	4700648
HANSEN PARK WELL	Michigan River	0.0000	0.3300	0.0000	C	ALL DECREED USES		40013.00000	1972-12-31	1959-07-21	4705060
HARD ROCK DITCH	Newcomb Creek	20.0000	20.0000	0.0000	C	ALL DECREED USES		45655.38938	1975-12-31	1956-08-10	4701051
HARRISON DITCH	Ninegar Creek	6.2800	4.1200	2.1600	C	ALL DECREED USES		26727.15141	1932-11-26	1891-06-15	4700654
HART DITCH	Morapos Creek	9.0000	5.3900	3.6100	C	ALL DECREED USES		40421.40312	1972-05-30	1960-05-15	4400812
HARTZELL DITCH	Newcomb Creek	11.0000	4.7000	6.3000	C	ALL DECREED USES		26727.21815	1932-11-26	1909-09-23	4700656
HATTIE DIVERSION	Morrison Creek	0.5000	0.4670	0.0330	C	IRR		50038.31958	1987-12-31	1937-07-01	5801478
HAXTON DIVERSION	Elkhead Creek	0.2500	0.2500	0.0000	C	ALL DECREED USES		47116.45472	1979-12-31	1974-07-01	4402080
HAYSTACK PUMP	Yampa River	6.7000	4.1500	2.5500	C	ALL DECREED USES		48212.31624	1982-12-31	1936-08-01	5502034
HEADACHE D NO 2	Elk River	1.0000	1.0000	0.0000	C	ALL DECREED USES		51134.49504	1990-12-31	1985-07-15	5801635
HEFLEY PUMP PLANT NO 1	White River	5.6000	5.6000	0.0000	C	ALL DECREED USES		35679.34128	1958-11-26	1943-06-10	4300687
HEFLEY PUMP PLANT NO 2	White River	11.4000	10.0400	1.3600	C	ALL DECREED USES		35679.33024	1958-11-26	1940-06-01	4300688
HIGH MESA IRR D	North Hunt Creek	1.6700	1.6700	0.0000	C	ALL DECREED USES		33782.30832	1946-09-14	1934-06-01	5800685
HIGHLAND DITCH	White River	50.1000	39.0000	11.1000	C	ALL DECREED USES		46020.43220	1976-12-31	1968-05-01	4300694
HILL CREEK NO 3 DITCH	Hill Creek	9.5000	5.8800	3.6200	C	ALL DECREED USES		38499.00000	1958-11-26	1955-05-29	4300695
HILL DITCH NO 2	Lake Creek	18.0000	6.0000	12.0000	C	ALL DECREED USES		30280.14411	1939-06-20	1889-06-15	4700664
HOGUE RES	Yampa River	54.3900	54.3900	0.0000	A	ALL DECREED USES		46386.45168	1977-12-31	1973-08-31	5803632
HOLLORAN RIVER PUMP DITCH	Yampa River	0.1500	0.1500	0.0000	C	ALL DECREED USES		52960.52017	1995-12-31	1992-06-01	5801787
HOOKER PUMP & PL	Hutchinson Gulch	0.2000	0.2000	0.0000	C	ALL DECREED USES		47612.00000	1980-12-31	1980-05-10	5702059
HOOVER JACQUES DITCH	Elk River	1.0000	1.0000	0.0000	C	ALL DECREED USES		45190.00000	1973-12-31	1973-09-22	5800694
HOOVER JACQUES DITCH	Elk River	2.5000	2.5000	0.0000	C	ALL DECREED USES		44673.00000	1972-12-31	1972-04-23	5800694
HOOVER JACQUES DITCH	Elk River	0.5000	0.5000	0.0000	C	ALL DECREED USES		44897.00000	1972-12-31	1972-12-03	5800694
HOOVER JACQUES DITCH	Elk River	6.7400	6.7400	0.0000	C	ALL DECREED USES		33782.30993	1946-09-14	1934-11-09	5800694
HORSESHOE DITCH	Green River	9.0000	2.4300	6.5700	C	ALL DECREED USES		40572.00000	1964-10-09	1961-01-30	5600555
HORSESHOE DITCH	Green River	1.0000	1.0000	0.0000	C	ALL DECREED USES		47847.44681	1981-12-31	1972-05-01	5600555
HOWARD DITCH	Willow Creek	30.0000 (AP)	30.0000	0.0000	C	ALL DECREED USES		50403.32768	1988-12-31	1939-09-19	4700672
HOWARD DITCH	Willow Creek	75.0000	29.8100	45.1900	C	ALL DECREED USES		22188.00000	1913-01-06	1910-10-01	4700672
HUGH GRIFFITH DITCH	Michigan River	5.4000	5.4000	0.0000	C	ALL DECREED USES		23016.14001	1923-03-06	1888-05-01	4700677
HUNTER DITCH	Canadian River	18.1600	1.2500	16.9100	C	ALL DECREED USES		30280.28641	1939-06-20	1928-06-01	4700679
HUNTER DITCH	Canadian River	22.0000	22.0000	0.0000	C	ALL DECREED USES		50403.35245	1988-12-31	1946-07-01	4700679
INDEPENDENCE DITCH	South Fork Big Creek	95.0000	43.0000	52.0000	C	ALL DECREED USES		16750.00000	1923-03-06	1895-11-10	4700683
IVA MAY DITCH	Michigan River	12.0000	4.0000	8.0000	C	ALL DECREED USES		47116.18811	1979-12-31	1901-07-03	4702050
IVO E SHULTS D & PUMP	White River	5.0000	2.0000	3.0000	C	ALL DECREED USES		39776.34423	1966-11-21	1944-03-31	4300714

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J W SUTTON DITCH	East Branch Willow Creek	24.0000	7.7900	16.2100	C	ALL DECREED USES		30280.14731	1939-06-20	1890-05-01	4700705
JACOBS PUMP & PL	White River	4.0000	1.5000	2.5000	C	ALL DECREED USES		38933.00000	1958-11-26	1956-08-05	4301108
JAMES DITCH	Fourmile Creek	1.5000	1.5000	0.0000	C	ALL DECREED USES		48203.00000	1981-12-31	1981-12-22	5402086
JAY DITCH	Jack Creek	20.0000	13.4000	6.6000	C	ALL DECREED USES		30280.18414	1939-06-20	1900-06-01	4700699
JEFFWAY GULCH DITCH	Jeffway Gulch	2.0000	1.0000	1.0000	C	ALL DECREED USES		44075.00000	1970-12-31	1970-09-03	4400866
JESSIE DITCH	Beaver Creek	5.0000	2.0000	3.0000	C	ALL DECREED USES		26727.21702	1932-11-26	1909-06-02	4700701
JESSUP RESERVOIR DITCH	Piceance Creek	12.0000	8.2000	3.8000	C	ALL DECREED USES		54056.47116	1998-12-31	1978-12-31	4302514
JOE FOX DITCH & PL	Papoose Creek	2.2200	0.9700	1.2500	C	ALL DECREED USES		39776.30511	1966-11-21	1933-07-15	4300726
JOHN S SUTTON DITCH	Jack Creek	12.0000	10.0000	2.0000	C	ALL DECREED USES		23016.22949	1923-03-06	1912-10-31	4700702
JORDAN DITCH	Arapaho Creek	4.6000	3.1000	1.5000	C	ALL DECREED USES		15858.00000	1902-04-23	1893-06-01	4700704
JUNIPER DITCH	Yampa River	2.0000 (AP)	2.0000	0.0000	C	ALL DECREED USES		45655.45534	1975-12-31	1974-09-01	4400674
JUNIPER DITCH	Yampa River	3.0000 (AP)	3.0000	0.0000	C	ALL DECREED USES		45697.00000	1975-12-31	1975-02-11	4400674
JUNIPER DITCH AP 1	Yampa River	0.0000	1.8300	0.0000	C	ALL DECREED USES		19250.13949	1902-09-18	1888-03-10	4402314
KAGIE DITCH	Salt Creek	4.8000	2.3000	2.5000	C	ALL DECREED USES		40421.35549	1972-05-30	1947-05-01	4400818
KANOUSE SEEPAGE D HG 2	Butcherknife Creek	0.0000	0.9000	0.1000	C	ALL DECREED USES		37688.36067	1957-06-22	1948-09-30	5802178
KERN FEEDER D	Grouse Creek	0.5000	0.5000	0.0000	C	ALL DECREED USES		38569.00000	1957-06-22	1955-08-07	5800715
KERN RES	Grouse Creek	0.3800	0.3800	0.0000	A	ALL DECREED USES		38569.00000	1957-06-22	1955-08-07	5803514
KERR DITCH	Rock Creek	6.5000	3.7000	2.8000	C	ALL DECREED USES		30280.14762	1939-06-20	1890-06-01	4700710
KLINGLESMITH PUMP 1	White River	3.0000	3.0000	0.0000	C	ALL DECREED USES		44741.00000	1972-12-31	1972-06-30	4302104
L K DITCH 1	White River	1.4900	1.4900	0.0000	C	ALL DECREED USES		34463.00000	1947-09-08	1944-05-10	4300751
L WATSON DITCH	Green River	12.0000	12.0000	0.0000	C	ALL DECREED USES		44559.43864	1972-12-31	1970-02-04	5600620
LAST CHANCE DITCH	Trout Creek	9.0000 (AP)	1.0000	8.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5700555
LATERAL A DITCH	South Hunt Creek	8.6400	5.2800	3.3600	C	ALL DECREED USES		37688.34828	1957-06-22	1945-05-10	5800730
LEA PUMP	Fish Creek	0.3300	0.3300	0.0000	C	ALL DECREED USES		53911.00000	1997-12-31	1997-08-08	5801876
LEE IRR DITCH ALT PT	Elk River	0.0000	0.4150	0.0000	C	ALL DECREED USES		18898.14045	1902-09-15	1888-06-14	5802126
LEE IRR DITCH ALT PT	Elk River	0.0000	2.4700	0.0000	C	ALL DECREED USES		33782.26084	1946-09-14	1921-06-01	5802126
LEE IRR DITCH ALT PT	Elk River	0.0000	5.4000	0.0000	C	ALL DECREED USES		41727.32293	1972-05-30	1938-06-01	5802126
LEE IRR DITCH ALT PT	Elk River	0.0000	2.1150	0.0000	C	ALL DECREED USES		41727.39963	1972-05-30	1959-06-01	5802126
LEE WATER LINE	Yampa River	0.1000	0.1000	0.0000	C	ALL DECREED USES		49151.00000	1984-12-31	1984-07-27	5801329
LEGAL TENDER DITCH	North Fork North Platte River	47.0000	17.2100	29.7900	C	ALL DECREED USES		30280.14397	1939-06-20	1889-06-01	4700720
LEWIS DITCH	Colorado Creek	40.0000	19.9900	20.0100	C	ALL DECREED USES		23016.14184	1921-08-02	1888-10-31	4700723
LEWIS PUMP	Big Gulch	0.2500	0.2500	0.0000	C	ALL DECREED USES		47862.00000	1981-12-31	1981-01-15	4402134
LIBRARY PARK DIVERSION	Soda Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		20349.19489	1905-09-19	1903-05-12	5801897
LIESKE DITCH	Middle Creek	2.5000	2.5000	0.0000	C	ALL DECREED USES		39925.36294	1962-11-15	1949-05-15	5700556
LINDA'S DITCH	Martin Creek	1.5000	1.5000	0.0000	C	ALL DECREED USES		47481.40329	1980-12-31	1960-06-01	5802268
LITTLE BEAR CR D	Little Bear Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		41727.29340	1972-05-30	1930-05-01	5801022
LITTLE BEAR DITCH	Little Bear Creek	11.0000	6.5400	4.4600	C	ALL DECREED USES		36295.33566	1960-09-01	1941-11-25	4400688
LITTLE GRIZZLY DITCH	Little Grizzly Creek	14.5000	5.5800	8.9200	C	ALL DECREED USES		13758.00000	1892-09-19	1887-09-01	4700728
LITTLE HILLS WELL 15	Dry Fork Piceance Creek	0.8440	0.5840	0.2600	C	IRR		39344.00000	1972-12-31	1957-09-20	4305007
LITTLE HILLS WELL 15	Dry Fork Piceance Creek	0.8440	0.8440	0.0000	C	DOM,FIS		39344.00000	1972-12-31	1957-09-20	4305007
LODORE DITCH	Vermillion Creek	20.0000 (AP)	20.0000	0.0000	C	ALL DECREED USES		51094.00000	1989-12-31	1989-11-21	5601260

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LODORE DITCH ALT PT 1	Vermillion Creek	0.0000	20.0000	0.0000	C	ALL DECREED USES		51094.00000	1989-12-31	1989-11-21	5601360
LODORE DITCH ALT PT 2	Vermillion Creek	0.0000	20.0000	0.0000	C	ALL DECREED USES		51094.00000	1989-12-31	1989-11-21	5601361
LOG CABIN SPRING NO 1	Bighole Gulch	2.0000	1.9670	0.0330	C	STO		46552.00000	1977-12-31	1977-06-15	5502006
LOG CABIN SPRING NO 1	Bighole Gulch	2.0000	2.0000	0.0000	C	IRR		46552.00000	1977-12-31	1977-06-15	5502006
LORENA DITCH	North Platte River	3.5000	3.5000	0.0000	C	ALL DECREED USES		14077.00000	1892-09-19	1888-07-16	4700736
LORENA DITCH	North Platte River	4.0000	4.0000	0.0000	C	ALL DECREED USES		13619.00000	1892-09-19	1887-04-15	4700736
LOST CREEK DITCH	Lost Creek	9.0000	5.0000	4.0000	C	ALL DECREED USES		23016.22409	1921-08-02	1911-05-10	4700737
LOWER LITTLE MUDDY D	Muddy Creek	14.0000	5.5100	8.4900	C	ALL DECREED USES		45655.40469	1975-12-31	1960-10-19	4701041
LOWER PLEASANT VALLEY D	Yampa River	3.4600	3.4600	0.0000	C	ALL DECREED USES		33782.30467	1946-09-14	1933-06-01	5800749
LYNN DITCH	Kelly Creek	20.0000	3.1000	16.9000	C	ALL DECREED USES		45655.40460	1975-12-31	1960-10-10	4701042
MACK DITCH	Yampa River	7.5000	2.3800	5.1200	C	ALL DECREED USES		43255.00000	1972-05-30	1968-06-05	4400821
MACK PUMP #2	Yampa River	4.9060 (AP)	3.5660	1.3400	C	ALL DECREED USES		53151.00000	1995-12-31	1995-07-10	4405075
MACLEAR NO 2 DITCH	North Elk Creek	0.5600 (AP)	0.3000	0.2600	C	ALL DECREED USES		32172.31228	1942-05-26	1935-07-02	4300786
MANVILLE DITCH NO 2	South Fork Beaver Creek	30.0000	7.8800	22.1200	C	ALL DECREED USES		45655.37888	1975-12-31	1953-09-25	4700753
MARR DITCH 1	Little Grizzly Creek	8.5000	2.5000	6.0000	C	ALL DECREED USES		14329.00000	1892-09-19	1889-03-25	4700754
MARY ISH DITCH	Deer Creek	4.5000	1.5000	3.0000	C	ALL DECREED USES		23016.13315	1923-03-06	1886-06-15	4700757
MAYBELL CANAL	Yampa River	86.8000	24.1600	62.6400	C	ALL DECREED USES		40421.35168	1972-05-30	1946-04-15	4400694
MAYBELL MILL PIPELINE	Yampa River	2.2280	2.2280	0.0000	C	ALL DECREED USES		39057.00000	1960-09-01	1956-12-07	4400695
MAYFLOWER DITCH	South Hunt Creek	3.0000	1.5000	1.5000	C	ALL DECREED USES		39254.33007	1964-03-30	1940-05-15	5800767
MC GREW SEEPAGE	Michigan River	0.5000	0.5000	0.0000	C	ALL DECREED USES		46386.14426	1977-12-31	1889-06-30	4702010
MCCLEERY DITCH NO 1	Stinking Gulch	0.2000	0.2000	0.0000	C	ALL DECREED USES		51275.00000	1990-12-31	1990-05-21	4401362
MCDOWELL NO. 1 DITCH	White River	8.0000	8.0000	0.0000	C	ALL DECREED USES		40778.00000	1966-11-21	1961-08-24	4301034
MCINTYRE DITCH	Yampa River	18.7000	10.0900	8.6100	C	ALL DECREED USES		38359.00000	1960-09-01	1955-01-09	4400702
MCKINLAY DITCH NO 2	Elkhead Creek	4.0000	4.0000	0.0000	C	ALL DECREED USES		45857.00000	1975-12-31	1975-07-21	4400700
MCKINLAY DITCH NO 2	Elkhead Creek	8.0000	1.6600	6.3400	C	ALL DECREED USES		45655.42656	1975-12-31	1966-10-15	4400700
MCKINNIS CREEK DITCH 3	Mckinnis Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		41727.39252	1972-05-30	1957-06-20	5801093
MEEKER POWER DITCH	White River	56.9800	56.9800	0.0000	C	ALL DECREED USES		33748.32021	1947-09-08	1937-09-02	4300809
MEEKER WELL B 1	White River	1.2200	1.2200	0.0000	C	ALL DECREED USES		46020.45514	1976-12-31	1974-08-12	4306045
MEEKER WELL B 2	White River	1.3300	1.3300	0.0000	C	ALL DECREED USES		46020.45878	1976-12-31	1975-08-11	4306046
MEEKER WELL B 3	White River	1.3300	1.3300	0.0000	C	ALL DECREED USES		46020.45878	1976-12-31	1975-08-11	4306047
MEEKER WELL B 4	White River	1.3300	1.3300	0.0000	C	ALL DECREED USES		46020.45878	1976-12-31	1975-08-11	4306048
MEEKER WELL B 5	White River	1.2200	1.2200	0.0000	C	ALL DECREED USES		47789.00000	1980-12-31	1980-11-03	4306139
MESA IRR DITCH	South Fork Fortification Creek	7.3300	3.3200	4.0100	C	ALL DECREED USES		37010.00000	1960-09-01	1951-05-01	4400704
MIDLAND DITCH	Illinois River	135.0000	124.5000	10.5000	C	ALL DECREED USES		48516.00000	1982-12-31	1982-10-31	4700774
MIKES DITCH	Elk River	1.0000	1.0000	0.0000	C	ALL DECREED USES		49474.00000	1985-12-31	1985-06-15	5801389
MILK CK DITCH 1	Milk Creek	13.6400	7.5700	6.0700	C	ALL DECREED USES		37163.00000	1960-09-01	1951-10-01	4400707
MILK CREEK D ALT PT 1	Milk Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14414.00000	1892-09-22	1889-06-18	5802132
MILL CREEK DITCH	Mill Creek	12.0000	7.6400	4.3600	C	ALL DECREED USES		38622.00000	1958-01-10	1955-09-29	4700776
MILL CREEK DITCH	Mill Creek	3.0000 (AP)	3.0000	0.0000	C	ALL DECREED USES		39254.33007	1964-03-30	1940-05-15	5801085
MILL CREEK DITCH	Mill Creek	3.0000	3.0000	0.0000	C	ALL DECREED USES		40753.00000	1964-03-30	1961-07-30	5801085
MILL CREEK DITCH	Mill Creek	2.0000	2.0000	0.0000	C	ALL DECREED USES		53325.52864	1996-12-31	1994-09-26	5801085

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MILL CREEK DITCH	Mill Creek	5.0000	2.0000	3.0000	C	ALL DECREED USES		50769.47968	1989-12-31	1981-05-01	5801598
MILLEN DIVERSION	Long Gulch	0.1000	0.1000	0.0000	C	ALL DECREED USES		45655.45600	1975-12-31	1974-11-06	5801458
MILLER DITCH & PUMP	Fortification Creek	2.0000	2.0000	0.0000	C	ALL DECREED USES		42578.00000	1972-05-30	1966-07-29	4400827
MIRROR CREEK DITCH	Mirror Creek	3.3700	2.3100	1.0600	C	ALL DECREED USES		32172.31959	1942-05-26	1937-07-02	4300824
MOCK DITCH NO 3	Yampa River	4.3000	3.3190	0.9810	C	ALL DECREED USES		40694.00000	1972-05-30	1961-06-01	4400828
MOFFAT CO FAIR WELL	Fortification Creek	0.2500	0.2500	0.0000	C	ALL DECREED USES		41160.00000	1972-12-31	1962-09-10	4405003
MOFFAT CO PUMP DIV #4	Little Snake River	2.0000	2.0000	0.0000	C	ALL DECREED USES		52960.43964	1995-12-31	1970-05-15	5501082
MOFFAT CO SHOP PUMP NO 1	Yampa River	1.5000	1.2000	0.3000	C	ALL DECREED USES		52960.49308	1995-12-31	1984-12-31	4401654
MOLLY'S POND	Farnsworth Creek	0.2000	0.2000	0.0000	A	ALL DECREED USES		54421.51545	1999-12-31	1991-02-15	5803686
MORAINE DITCH	Colorado Creek	16.0000	4.0000	12.0000	C	ALL DECREED USES		38990.00000	1958-01-10	1956-10-01	4700785
MORTON DITCH	Deacon Gulch	4.0000 (AP)	3.0000	1.0000	C	ALL DECREED USES		45655.36690	1975-12-31	1950-06-15	4401102
MORTON DITCH ALT PT	Deacon Gulch	0.0000	4.0000	0.0000	C	ALL DECREED USES		45655.36690	1975-12-31	1950-06-15	4402327
MT WERNER BURGESS PL	Burgess Creek	2.8665 (AP)	2.8665	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5801027
MT WERNER BURGESS PL	Burgess Creek	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5801027
MT WERNER BURGESS PL	Burgess Creek	2.8665 (AP)	1.1600	1.7065	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5801027
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5804032
MT WERNER SEWAGE TREATMENT P	Fish Creek	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5804032
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.6700 (AP)	0.6700	0.0000	C	ALL DECREED USES		42962.00000	1972-05-30	1967-08-17	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805209
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.6400 (AP)	0.6400	0.0000	C	ALL DECREED USES		42962.00000	1972-05-30	1967-08-17	5805210

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MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805210
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.5400 (AP)	0.5400	0.0000	C	ALL DECREED USES		42962.00000	1972-05-30	1967-08-17	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805211
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.3700 (AP)	0.3700	0.0000	C	ALL DECREED USES		42962.00000	1972-05-30	1967-08-17	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805212
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.2000	0.2000	0.0000	C	ALL DECREED USES		42962.00000	1972-05-30	1967-08-17	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805213
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.2700	0.2700	0.0000	C	ALL DECREED USES		42962.00000	1972-05-30	1967-08-17	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805214

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Structure Name	Water Source	Decreed Amount*	Abandon Amount	Remaining Amount	U **	Abandon Decreed Use(s)***	Abandon Decreed Place of Use	Admin Number	Adjudication Date	Appropriation Date	WDID
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805214
MT WERNER YAMPA RIVER MUNICIP	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805214
MURPHY DITCH FETCHER EXT AND E	Cottonwood Gulch	2.5000	1.0000	1.5000	C	ALL DECREED USES		45254.00000	1973-12-31	1973-11-25	5801997
MYERS DITCH NO 2	Yampa River	4.2000	1.7000	2.5000	C	ALL DECREED USES		38293.00000	1960-09-01	1954-11-04	4400719
MYERS IRR DITCH	Deal Gulch	1.5000 (AP)	1.2300	0.2700	C	ALL DECREED USES		36295.32993	1960-09-01	1940-05-01	4400705
N ELK DOM PUMP & PL	North Elk Creek	0.0660	0.0660	0.0000	C	ALL DECREED USES		47116.42247	1979-12-31	1965-09-01	4302288
NANCY JANE DITCH	Michigan River	2.0000	2.0000	0.0000	C	ALL DECREED USES		46751.36676	1978-12-31	1950-06-01	4702040
NEISH PUMP	Grouse Creek	0.5000	0.5000	0.0000	C	ALL DECREED USES		48212.40116	1982-12-31	1959-11-01	5802518
NELLIE E DITCH	Spring Creek	6.2000	4.7000	1.5000	C	ALL DECREED USES		23016.19722	1923-03-06	1903-12-31	4700788
NEW BURKE DITCH	Buffalo Creek	12.0000	9.0000	3.0000	C	ALL DECREED USES		21366.20616	1913-01-06	1906-06-12	4700789
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14001.00000	1892-09-22	1888-05-01	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14005.00000	1892-09-22	1888-05-05	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14012.00000	1892-09-22	1888-05-12	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		14081.00000	1892-09-22	1888-07-20	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	7.6600	0.0000	C	ALL DECREED USES		14318.00000	1892-09-22	1889-03-14	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		14385.00000	1892-09-22	1889-05-20	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14472.00000	1892-09-22	1889-08-15	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	4.0000	0.0000	C	ALL DECREED USES		18817.00000	1901-09-15	1901-07-09	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	4.6600	0.0000	C	ALL DECREED USES		18885.18748	1902-09-15	1901-05-01	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		19116.00000	1902-09-15	1902-05-04	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		19251.19236	1903-09-21	1902-09-01	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	3.3300	0.0000	C	ALL DECREED USES		19628.19116	1903-09-29	1902-05-04	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	13.3300	0.0000	C	ALL DECREED USES		21458.20249	1908-10-08	1905-06-10	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		23167.20672	1913-06-09	1906-08-07	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	0.9000	0.0000	C	ALL DECREED USES		32711.31978	1940-11-22	1937-07-21	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		39925.35184	1962-11-15	1946-05-01	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.9000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	5.3400	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	0.0610	0.0000	C	ALL DECREED USES		44925.41272	1977-12-31	1962-12-31	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5705023
NEW ENERGY WELL NO 6	Foidel Creek	0.0000	0.6640	0.0000	C	ALL DECREED USES		46750.00000	1977-12-31	1977-12-30	5705023
NEW TIPPLE WELL	Foidel Creek	0.0334	0.0334	0.0000	C	ALL DECREED USES		45655.45605	1975-12-31	1974-11-11	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14001.00000	1892-09-22	1888-05-01	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14005.00000	1892-09-22	1888-05-05	5706020

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NEW TIPPLE WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		14012.00000	1892-09-22	1888-05-12	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		14081.00000	1892-09-22	1888-07-20	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	7.6600	0.0000	C	ALL DECREED USES		14318.00000	1892-09-22	1889-03-14	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		14385.00000	1892-09-22	1889-05-20	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	2.6600	0.0000	C	ALL DECREED USES		14472.00000	1892-09-22	1889-08-15	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	4.0000	0.0000	C	ALL DECREED USES		18817.00000	1901-09-15	1901-07-09	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	4.6600	0.0000	C	ALL DECREED USES		18885.18748	1902-09-15	1901-05-01	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		19116.00000	1902-09-15	1902-05-04	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	1.6600	0.0000	C	ALL DECREED USES		19251.19236	1903-09-21	1902-09-01	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	3.3300	0.0000	C	ALL DECREED USES		19628.19116	1903-09-29	1902-05-04	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	0.5000	0.0000	C	ALL DECREED USES		23167.20672	1913-06-09	1906-08-07	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	0.9000	0.0000	C	ALL DECREED USES		32711.31978	1940-11-22	1937-07-21	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	5.0000	0.0000	C	ALL DECREED USES		39925.35184	1962-11-15	1946-05-01	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		39925.38259	1962-11-15	1954-10-01	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	1.9000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	5.3400	0.0000	C	ALL DECREED USES		39925.37741	1962-11-15	1953-05-01	5706020
NEW TIPPLE WELL	Foidel Creek	0.0000	4.3400	0.0000	C	ALL DECREED USES		39925.37908	1962-11-15	1953-10-15	5706020
NEWPORT DITCH	Pinkham Creek	15.5000	1.0500	14.4500	C	ALL DECREED USES		21696.00000	1913-01-06	1909-05-27	4700793
NEWPORT DITCH	Pinkham Creek	20.4000	20.4000	0.0000	C	ALL DECREED USES		22407.00000	1913-01-06	1911-05-08	4700793
NICHOLS DITCH NO 3	Yampa River	4.0000	2.1100	1.8900	C	ALL DECREED USES		36295.34822	1960-09-01	1945-05-04	4400722
NIELSON PUMP DIV #1	Big Gulch	1.0000	1.0000	0.0000	C	ALL DECREED USES		53858.00000	1997-12-31	1997-06-16	4401862
NINE MILE IRR DITCH	Little Snake River	12.6000	4.6000	8.0000	C	ALL DECREED USES		36572.00000	1972-05-27	1950-02-17	5500507
NO. 1 DITCH (GARLAND)	Jack Creek	19.0000	17.5800	1.4200	C	ALL DECREED USES		30280.14884	1939-06-20	1890-10-01	4701061
NORMAN DITCH HG 2	Dutch Creek	0.0000	0.8300	0.0000	C	ALL DECREED USES		25389.18591	1919-07-10	1900-11-25	5801999
NORMAN DITCH HG 2	Dutch Creek	0.0000	1.0000	0.0000	C	ALL DECREED USES		54786.33012	2000-12-31	1940-05-20	5801999
NORTH PARK DITCH NO 2	Mendenhall Creek	3.0000	3.0000	0.0000	C	ALL DECREED USES		12188.00000	1892-09-19	1883-05-15	4700800
NORTH PARK DITCH NO 3	Coon Creek	3.0000	2.0000	1.0000	C	ALL DECREED USES		12940.00000	1892-09-19	1885-06-05	4700801
NORTH PARK DITCH NO 4	Michigan River	3.5000	3.5000	0.0000	C	ALL DECREED USES		50403.32659	1988-12-31	1939-06-02	4700802
NORTH PARK DITCH NO 5	Michigan River	2.5000	2.5000	0.0000	C	ALL DECREED USES		50403.32659	1988-12-31	1939-06-02	4700803
NORTH PARK DITCH NO 5	Michigan River	23.5000	8.8600	14.6400	C	ALL DECREED USES		30280.15462	1939-06-20	1892-05-01	4700803
NORTH PARK SCHOOL DISTRICT WE	Michigan River	0.5570	0.4470	0.1100	C	ALL DECREED USES		45655.45481	1975-12-31	1974-07-10	4703724
NORTH SIDE OXBOW LAKES D	Little Snake River	40.0000	29.5000	10.5000	C	ALL DECREED USES		54910.00000	2000-12-31	2000-05-03	5401143
NORTHRUP SPRING	Yampa River	1.0000	0.8500	0.1500	C	STK		41226.36854	1972-05-30	1950-11-26	5700652
NORTHRUP SPRING	Yampa River	1.0000	1.0000	0.0000	C	IRR,DOM		41226.36854	1972-05-30	1950-11-26	5700652
NORVELL DITCH	Elkhead Creek	20.0000	10.0000	10.0000	C	ALL DECREED USES		36295.32627	1960-09-01	1939-05-01	4400724
NOVELTY DITCH	Saint Francis Creek	8.0000	5.5600	2.4400	C	ALL DECREED USES		15151.00000	1892-09-19	1891-06-25	4700805
OIL SHALE CORP WELL	Piceance Creek	0.5000	0.5000	0.0000	C	ALL DECREED USES		41811.00000	1971-12-31	1964-06-22	4306052
OLD S C DITCH	Michigan River	20.0000	4.3000	15.7000	C	ALL DECREED USES		47938.00000	1981-12-31	1981-04-01	4700813
OLD S C DITCH	Michigan River	4.5000	4.4400	0.0600	C	ALL DECREED USES		43829.40825	1970-12-31	1961-10-10	4700813
OLDLAND DITCH 1	Piceance Creek	6.9000	6.9000	0.0000	C	ALL DECREED USES		54056.36889	1998-12-31	1950-12-31	4300850
OLDLAND DITCH 2	Piceance Creek	9.4700	9.4700	0.0000	C	ALL DECREED USES		54056.36889	1998-12-31	1950-12-31	4300851

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OLLIVER DITCH	Rock Creek	13.2500	4.8500	8.4000	C	ALL DECREED USES		30280.18171	1939-06-20	1899-10-01	4701032
OVERLAND DITCH	South Fork Michigan River	30.0000	7.6000	22.4000	C	ALL DECREED USES		19924.00000	1908-07-01	1904-07-20	4700819
OVERLAND DITCH	South Fork Michigan River	12.8200	12.8200	0.0000	C	ALL DECREED USES		23285.00000	1923-03-06	1913-10-02	4700819
OVERLAND DITCH	South Fork Michigan River	20.0000	20.0000	0.0000	C	ALL DECREED USES		33534.33237	1958-01-10	1940-12-31	4700819
PARK DITCH	Lake Creek	11.0000	11.0000	0.0000	C	ALL DECREED USES		30280.14037	1939-06-20	1888-06-06	4701033
PELTIER LAKE DIVERSION	South Fork White River	0.0000	7.0000	0.0000	C	ALL DECREED USES		38499.00000	1958-11-26	1955-05-29	4300558
PELTIER NO. 2 DITCH	Peltier Creek	0.0000	7.5000	0.0000	C	ALL DECREED USES		38499.00000	1958-11-26	1955-05-29	4300609
PELTON PLACE PUMP	Butcherknife Creek	0.0220	0.0220	0.0000	C	ALL DECREED USES		47847.44346	1981-12-31	1971-06-01	5802467
PEN NO. 7 DITCH	Smith Creek	1.0000	0.9300	0.0700	C	ALL DECREED USES		55882.53156	2003-12-31	1995-07-15	5802653
PLEASANT VALLEY DITCH	North Fork North Platte River	36.0000	23.0000	13.0000	C	ALL DECREED USES		14536.00000	1902-04-23	1889-10-18	4700837
POLE MTN RES FEEDER D	Mexican Creek	35.0000	35.0000	0.0000	C	ALL DECREED USES		43829.41069	1970-12-31	1962-06-11	4700838
POLE MTN RES FEEDER D	Mexican Creek	10.0000	10.0000	0.0000	C	ALL DECREED USES		43829.41825	1970-12-31	1964-07-06	4700838
POMROY DITCH 1	Canadian River	15.6000	7.9000	7.7000	C	ALL DECREED USES		18160.00000	1902-04-23	1899-09-20	4700840
PONCA CITY PUB CO D 1	South Fork White River	1.1200	1.1200	0.0000	C	ALL DECREED USES		40472.00000	1966-11-21	1960-10-22	4301265
POST RANCH HYDRO	East Fork Williams Fork	2.0000	2.0000	0.0000	C	ALL DECREED USES		49532.00000	1985-12-31	1985-08-12	4401166
POTTER DITCH NO 2	Potter Creek	5.0000	5.0000	0.0000	C	ALL DECREED USES		20270.00000	1908-07-01	1905-07-01	4700843
POVERTY FLAT D NO 1	Michigan River	20.0000	8.0500	11.9500	C	ALL DECREED USES		38605.00000	1958-01-10	1955-09-12	4700845
POVERTY FLAT D NO 2	South Fork Michigan River	16.0000	12.6600	3.3400	C	ALL DECREED USES		38605.00000	1958-01-10	1955-09-12	4700844
RAILROAD DITCH	Michigan River	0.5000	0.5000	0.0000	C	ALL DECREED USES		52230.51279	1993-12-31	1990-05-25	4701195
RAMS HORN FEEDER D	Dome Creek	15.0000	15.0000	0.0000	C	ALL DECREED USES		39254.32688	1964-03-30	1939-07-01	5802102
RAVINE DITCH	Alderdice Draw	7.4000	7.4000	0.0000	C	ALL DECREED USES		48577.45091	1983-12-31	1973-06-15	4700851
RAVINE DITCH NO 2	Alderdice Draw	15.0000	4.8400	10.1600	C	ALL DECREED USES		48577.45091	1983-12-31	1973-06-15	4702103
READY MIX WELL NO 1	Yampa River	0.1114	0.1114	0.0000	C	ALL DECREED USES		45459.00000	1974-12-31	1974-06-18	4405006
REDMON PUMP	Yampa River	0.5900	0.5900	0.0000	C	ALL DECREED USES		58291.00000	2009-12-31	2009-08-05	4402477
RINKER PUMP NO 2	Yampa River	0.2228	0.2228	0.0000	C	ALL DECREED USES		50951.00000	1989-12-31	1989-07-01	4401303
ROBINSON WARDELL PUMP 7	White River	4.0000	1.0000	3.0000	C	ALL DECREED USES		46020.45488	1976-12-31	1974-07-17	4301258
ROLANDO POND & PUMP	Dry Creek	0.0450	0.0450	0.0000	C	ALL DECREED USES		46020.42633	1976-12-31	1966-09-22	5700786
ROSLYN DITCH	East Branch Willow Creek	7.0000	5.6800	1.3200	C	ALL DECREED USES		47847.46886	1981-12-31	1978-05-15	4702091
ROUND BOTTOM D NO 1	Yampa River	2.8000	2.8000	0.0000	C	ALL DECREED USES		40421.36374	1972-05-30	1949-08-03	4400749
ROWLEYS FOLLY	Sand Gulch	0.3000	0.3000	0.0000	C	ALL DECREED USES		48086.00000	1981-12-31	1981-08-27	4402161
SAINT FRANCES DITCH 7	Sherman Creek	6.0000	3.5000	2.5000	C	ALL DECREED USES		14127.00000	1892-09-19	1888-09-04	4700861
SALEM DITCH	Willow Creek	36.8000	13.8000	23.0000	C	ALL DECREED USES		30280.14731	1939-06-20	1890-05-01	4700863
SALES DITCH	North Fork Michigan River	22.4000	22.4000	0.0000	C	ALL DECREED USES		23626.00000	1923-03-06	1914-09-08	4700864
SANBORN DITCH	Canadian River	35.0000	13.0000	22.0000	C	ALL DECREED USES		30280.14124	1939-06-20	1888-09-01	4700865
SANDELIN DITCH	Big Creek	5.0000	3.5000	1.5000	C	ALL DECREED USES		39254.30509	1964-03-30	1933-07-13	5800848
SANDELIN STORAGE AND POWER D	Big Creek	6.0000 (AP)	6.0000	0.0000	C	FIS,STK		47481.33389	1980-12-31	1941-06-01	5800849
SANDELIN STORAGE AND POWER D	Big Creek	3.0000	2.0000	1.0000	C	ALL DECREED USES		41356.00000	1963-04-01	1963-03-25	5800849
SCHOOL SECTION DITCH	East Branch Willow Creek	15.0000	11.1500	3.8500	C	ALL DECREED USES		47847.33007	1981-12-31	1940-05-15	4700867
SCHOOL WW DITCH NO 2	Michigan River	1.5000	1.5000	0.0000	C	ALL DECREED USES		46751.44681	1978-12-31	1972-05-01	4702028
SENECA COALS LIMITED MINE DIVER	Grassy Creek	1.1000	0.8200	0.2800	C	ALL DECREED USES		46386.45661	1977-12-31	1975-01-06	5700815
SEYMOUR DITCH 2	Grizzly Creek	5.5000	2.0000	3.5000	C	ALL DECREED USES		38624.00000	1958-01-10	1955-10-01	4700870

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Structure Name	Water Source	Decreed Amount*	Abandon Amount	Remaining Amount	U **	Abandon Decreed Use(s)***	Abandon Decreed Place of Use	Admin Number	Adjudication Date	Appropriation Date	WDID
SHAFER DITCH	Shafer Creek	40.0000	7.5500	32.4500	C	ALL DECREED USES		30280.14436	1939-06-20	1889-07-10	4700871
SHAFFER RESERVOIR	Willow Creek	31.4000	14.6000	16.8000	A	ALL DECREED USES		46386.32034	1977-12-31	1937-09-15	4403739
SHAFTO DITCH	Michigan River	3.0000	2.0000	1.0000	C	IRR		49407.00000	1985-12-31	1985-04-09	4700872
SHAWN'S IRRIGATION DITCH	Priest Creek	1.6000	1.6000	0.0000	C	ALL DECREED USES		53691.30436	1997-12-31	1933-05-01	5801944
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5801591
SHERATON GOLF COURSE PUMP	Fish Creek	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5801591
SHERMAN TAYLOR DITCH	White River	5.0000	5.0000	0.0000	C	ALL DECREED USES		40922.00000	1966-11-21	1962-01-15	4301036
SHISLER SPRING	South Hunt Creek	0.0220	0.0220	0.0000	C	ALL DECREED USES		55152.55000	2001-12-31	2000-08-01	5801955
SINDEN SEEPAGE DITCH	Yampa River	2.5000	1.0000	1.5000	C	ALL DECREED USES		37688.30467	1957-06-22	1933-06-01	5801100
SIZEMORE DITCH 1	North Fork White River	2.0000	2.0000	0.0000	C	ALL DECREED USES		48212.35406	1982-12-31	1946-12-09	4300929
SKCK DIVERSION	Yampa River	2.0000	1.5000	0.5000	C	ALL DECREED USES		57708.45122	2008-12-31	1973-07-16	5802955
SLACK DITCH	Buffalo Creek	10.7500	5.4100	5.3400	C	ALL DECREED USES		30280.17684	1939-06-20	1898-06-01	4700879
SLACK WEISS DITCH	Ninegar Creek	13.9700	4.7700	9.2000	C	ALL DECREED USES		26727.14764	1932-11-26	1890-06-03	4700880
SMITH DITCH #1	Watering Trough Gulch	1.0000	1.0000	0.0000	C	ALL DECREED USES		54380.00000	1998-12-31	1998-11-20	5701181
SODA CREEK DITCH NO 1	Soda Creek	0.0000	18.0000	0.0000	C	ALL DECREED USES		20349.19489	1905-09-19	1903-05-12	5801986
SOUTH ROUTT CEM PUMP	Watson Creek	1.0000	0.7500	0.2500	C	ALL DECREED USES		46020.42944	1976-12-31	1967-07-30	5800969
SOUTH SIDE DITCH EXT	Williams Fork	2.6700	1.5000	1.1700	C	ALL DECREED USES		40421.37407	1972-05-30	1952-06-01	4401281
SPAULDING DITCH	Pinkham Creek	3.7500	3.7500	0.0000	C	ALL DECREED USES		16222.00000	1901-05-17	1894-05-31	4700888
SPAULDING DITCH	Pinkham Creek	0.5000	0.5000	0.0000	C	ALL DECREED USES		14417.00000	1892-09-19	1889-06-21	4700888
SPAULDING DITCH	Pinkham Creek	1.0000	1.0000	0.0000	C	ALL DECREED USES		14027.00000	1892-09-19	1888-05-27	4700888
SPRING CK RES	Spring Creek	70.0000	20.0000	50.0000	A	ALL DECREED USES		48212.46705	1982-12-31	1977-11-15	4704432
SPRING CREEK D PUMP 1	White River	5.2000 (AP)	2.2000	3.0000	C	ALL DECREED USES		35679.33367	1958-11-26	1941-05-10	4300939
SPRING CREEK D PUMP 1	Spring Creek	0.0000	0.6670	0.0000	C	ALL DECREED USES		14424.00000	1892-09-22	1889-06-28	5802482
SPRING CREEK D PUMP 1	Spring Creek	0.0000	2.0000	0.0000	C	ALL DECREED USES		20349.19489	1905-09-19	1903-05-12	5802482
SPRING CREEK D PUMP 1	White River	5.2000	1.8000	3.4000	C	ALL DECREED USES		35679.33367	1958-11-26	1941-05-10	4300939
SPRING CREEK D PUMP 3	White River	1.0000	0.7500	0.2500	C	ALL DECREED USES		35679.34463	1958-11-26	1944-05-10	4301450
SPRING CREEK D PUMP 4	White River	1.0000	0.7500	0.2500	C	ALL DECREED USES		38892.00000	1958-11-26	1956-06-25	4301451
SPRING CREEK DITCH	North Platte River	4.0000	4.0000	0.0000	C	ALL DECREED USES		21366.18779	1913-01-06	1901-06-01	4700891
SPROD DITCH 1	Flag Creek	6.0000	2.5000	3.5000	C	ALL DECREED USES		36695.00000	1958-11-26	1950-06-20	4300944
STAGECOACH WELL 9	Little Morrison Creek	0.0220	0.0220	0.0000	C	ALL DECREED USES		53691.53550	1997-12-31	1996-08-12	5805081
STAPLES DITCH NO 2	Newcomb Creek	32.1000	10.5000	21.6000	C	ALL DECREED USES		18839.00000	1908-07-01	1901-07-31	4700896
STATE WALDEN PL	Potter Creek	0.7500	0.7500	0.0000	C	ALL DECREED USES		30280.27559	1939-06-20	1925-06-15	4700897
STEAMBOAT GARDENS D	Spring Creek	0.0000	11.9900	0.0000	C	ALL DECREED USES		20349.19489	1905-09-19	1903-05-12	5800884
STEMLER DITCH	Sales Creek	20.0000	17.1100	2.8900	C	ALL DECREED USES		47481.46505	1980-12-31	1977-04-29	4700900

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STEVENS DITCH	Mckinnon Creek	3.0000	3.0000	0.0000	C	ALL DECREED USES		30280.24267	1939-06-20	1916-06-10	4700901
STILLWATER DITCH	Canadian River	16.0000	9.3000	6.7000	C	ALL DECREED USES		30280.16201	1939-06-20	1894-05-10	4700905
STOFFLE PUMP & PL	Yampa River	1.7000	1.6670	0.0330	C	IRR		51864.48363	1992-12-31	1982-05-31	4401392
STOFFLE PUMP & PL	Yampa River	1.7000	1.6890	0.0110	C	DOM		51864.48363	1992-12-31	1982-05-31	4401392
STOK DIVERSION NO. 2	Yampa River	0.5000	0.5000	0.0000	C	ALL DECREED USES		55708.00000	2002-12-31	2002-07-10	5802154
STORM MOUNTAIN RES	Burgess Creek	1.7400	1.7400	0.0000	A	ALL DECREED USES		43767.00000	1969-12-31	1969-10-30	5803949
STUKEY PIPELINE ALT PT	Spring Creek	0.0000	11.9900	0.0000	C	ALL DECREED USES		20349.19489	1905-09-19	1903-05-12	5801985
STUKEY PIPELINE ALT PT	Spring Creek	0.0000	1.2000	0.0000	C	ALL DECREED USES		19621.19114	1903-09-22	1902-05-02	5801985
SUNNYSIDE DITCH 1	Hinman Creek	6.4000	4.5390	1.8610	C	ALL DECREED USES		44194.42498	1971-12-31	1966-05-10	5800895
TAYLOR DITCH	Spring Creek	5.0000	5.0000	0.0000	C	ALL DECREED USES		23016.22933	1923-03-06	1912-10-15	4700914
THIRTY SIX DITCH	Canadian River	15.0000	7.8000	7.2000	C	ALL DECREED USES		23016.22469	1923-03-06	1911-07-09	4700917
THOMAS DITCH	White River	4.7600	2.0500	2.7100	C	ALL DECREED USES		39776.36659	1966-11-21	1950-05-15	4300965
THOMAS DITCH 2	White River	6.0000	4.6700	1.3300	C	ALL DECREED USES		39776.39628	1966-11-21	1958-07-01	4300966
THOMAS DOUDLE DITCH	Beaver Creek	4.3400	4.3400	0.0000	C	FIS		44559.29371	1972-12-31	1930-06-01	5600536
THOMPSON DITCH 1	Trout Creek	0.8000 (AP)	0.8000	0.0000	C	ALL DECREED USES		39925.36417	1962-11-15	1949-09-15	5700600
THOMPSON SEEP WASTE D	Elk River	4.0000	3.0000	1.0000	C	ALL DECREED USES		51316.00000	1990-12-31	1990-07-01	5801428
THREE MILE DITCH	Threemile Creek	9.0000	6.7000	2.3000	C	ALL DECREED USES		23016.21336	1923-03-06	1908-06-01	4700918
TIMBERS W&S DIS SUP PL	Mckinnis Creek	0.0557	0.0557	0.0000	C	ALL DECREED USES		49278.00000	1984-12-31	1984-12-01	5801067
TIMOTHY HILL DITCH	Little Buffalo Creek	15.0000	9.7900	5.2100	C	ALL DECREED USES		30280.17653	1939-06-20	1898-05-01	4700921
TITANIC DITCH	Arapaho Creek	8.0000	2.5000	5.5000	C	ALL DECREED USES		23016.22177	1921-08-02	1910-09-20	4700922
TOGO DITCH NO 2	Cabin Creek	10.0000	6.0000	4.0000	C	ALL DECREED USES		25370.00000	1923-03-06	1919-06-18	4700923
TOWN DITCH	Michigan River	2.0000	2.0000	0.0000	C	ALL DECREED USES		52230.50158	1993-12-31	1987-04-30	4701186
TOWN OF HAYDEN INTAKE PIPELINE	Yampa River	2.0000	2.0000	0.0000	C	ALL DECREED USES		44606.00000	1972-12-31	1972-02-16	5700604
TRAVIS DITCH	Oak Creek	1.0000	0.7600	0.2400	C	ALL DECREED USES		54056.46142	1998-12-31	1976-05-01	5801901
TUCKER SPRING	North Fork White River	1.0000	0.3300	0.6700	C	IRR		51864.42184	1992-12-31	1965-06-30	4301843
UPPER LITTLE MUDDY DITCH	Muddy Creek	12.0000	3.0000	9.0000	C	ALL DECREED USES		45655.40074	1975-12-31	1959-09-20	4701040
UTTERBACK LATERAL TO THE COLO	Yampa River	6.0000	6.0000	0.0000	C	ALL DECREED USES		39925.39202	1962-11-15	1957-05-01	5700675
VALLEY PUMP	Yampa River	5.0000	5.0000	0.0000	C	ALL DECREED USES		46320.00000	1976-12-31	1976-10-26	4402025
VAN PATTEN DITCH	Buffalo Creek	15.0000	11.5500	3.4500	C	ALL DECREED USES		30280.17685	1939-06-20	1898-06-02	4700931
VAUGHAN PUMP #1	Elkhead Creek	2.0000	1.7500	0.2500	C	ALL DECREED USES		55340.00000	2001-12-31	2001-07-07	4401987
VAUGHN D NO 1	Yampa River	1.0700	1.0700	0.0000	C	ALL DECREED USES		53691.53417	1997-12-31	1996-04-01	4401776
VAUGHN D NO 2	Yampa River	1.0700	1.0700	0.0000	C	ALL DECREED USES		53691.53417	1997-12-31	1996-04-01	4401777
VAUGHN D NO 3	Yampa River	0.7400	0.7400	0.0000	C	ALL DECREED USES		53691.53417	1997-12-31	1996-04-01	4401778
VAUGHN D NO 4	Yampa River	0.7400	0.7400	0.0000	C	ALL DECREED USES		53691.53417	1997-12-31	1996-04-01	4401779
VAUGHN D NO 5	Yampa River	0.7400	0.7400	0.0000	C	ALL DECREED USES		53691.53417	1997-12-31	1996-04-01	4401780
VAUGHN D NO 6	Yampa River	1.1500	1.1500	0.0000	C	ALL DECREED USES		53691.53417	1997-12-31	1996-04-01	4401781
VAUGHN PUMP	Yampa River	25.0000	23.4200	1.5800	C	ALL DECREED USES		49051.00000	1984-12-31	1984-04-18	4401122
VISINTAINER DITCH	Little Snake River	3.6000	0.6000	3.0000	C	ALL DECREED USES		29106.00000	1972-05-27	1929-09-09	5500513
VISINTAINER DITCH	Little Snake River	1.4000	1.4000	0.0000	C	ALL DECREED USES		42641.00000	1972-05-27	1966-09-30	5500513
VITA DITCH	Kelly Creek	6.2000	6.2000	0.0000	C	ALL DECREED USES		33534.33130	1958-01-10	1940-09-15	4700933
WAIT DITCH	No Name Creek	2.0000	2.0000	0.0000	C	ALL DECREED USES		53691.26916	1997-12-31	1923-09-11	4701306

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WALDEN MICHIGAN R DIV	Michigan River	1.2500	1.1110	0.1390	C	ALL DECREED USES		43829.40825	1970-12-31	1961-10-10	4701083
WARNER DITCH	Little Bear Creek	3.0200 (AP)	3.0200	0.0000	C	ALL DECREED USES		42837.00000	1972-05-30	1967-04-14	4402026
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805201
WELL NO4 (MT WERNER WATER)	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805201
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	5.1240	0.0000	C	ALL DECREED USES		14466.00000	1892-09-22	1889-08-09	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	2.8665	0.0000	C	ALL DECREED USES		18452.16594	1900-09-24	1895-06-07	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	0.5650	0.0000	C	ALL DECREED USES		18529.15200	1901-09-16	1891-08-13	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	1.7100	0.0000	C	ALL DECREED USES		19985.18830	1904-09-20	1901-07-22	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	0.5570	0.0000	C	ALL DECREED USES		22438.22048	1911-06-13	1910-05-14	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	0.1125	0.0000	C	ALL DECREED USES		22445.14503	1911-06-16	1889-09-15	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	3.4170	0.0000	C	ALL DECREED USES		22544.22156	1912-07-01	1910-08-30	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	2.9510	0.0000	C	ALL DECREED USES		22999.19173	1912-12-21	1902-06-30	5805202
WELL NO5 (MT WERNER WATER)	Yampa River	0.0000	4.0265	0.0000	C	ALL DECREED USES		42156.00000	1972-05-30	1965-06-02	5805202
WELSH #1	Sage Creek	0.3500	0.3500	0.0000	C	ALL DECREED USES		55289.00000	2001-12-31	2001-05-17	5701203
WELSH #2	Sage Creek	0.3500	0.3500	0.0000	C	ALL DECREED USES		55289.00000	2001-12-31	2001-05-17	5701204
WESSELS CANAL	Yampa River	45.7000 (AP)	31.0100	14.6900	C	ALL DECREED USES		40815.00000	1964-03-30	1961-09-30	5802120
WEST ARAPAHOE FEEDER D 2	Indian Creek	60.0000	38.5200	21.4800	C	ALL DECREED USES		47574.00000	1980-12-31	1980-04-02	4702049
WEST BUFFALO DITCH	Buffalo Creek	4.0000	3.9000	0.1000	C	ALL DECREED USES		30280.17655	1939-06-20	1898-05-03	4700949
WEST SIDE DITCH	Willow Creek	9.6000	9.6000	0.0000	C	ALL DECREED USES		30280.18414	1939-06-20	1900-06-01	4700952
WEST SIDE DITCH	Fish Creek	6.5000	4.6400	1.8600	C	ALL DECREED USES		39925.30102	1962-11-15	1932-06-01	5700612
WEST SIDE DITCH	Willow Creek	9.6000	4.1600	5.4400	C	ALL DECREED USES		30280.16588	1939-06-20	1895-06-01	4700952
WESTFIELD DITCH	Rock Creek	11.5000	8.9000	2.6000	C	ALL DECREED USES		32011.00000	1939-06-20	1937-08-23	4700953
WHEELER D	Wheeler Creek	2.5000 (AP)	1.3000	1.2000	C	ALL DECREED USES		35320.29736	1953-03-09	1931-06-01	5800932
WHEELER DITCH	South Fork White River	18.1000	9.1000	9.0000	C	IRR		38499.00000	1958-11-26	1955-05-29	4301004
WHEELER DITCH	Wheeler Creek	6.0000	6.0000	0.0000	C	ALL DECREED USES		30280.13635	1939-06-20	1887-05-01	4700954
WHEELER DITCH	South Fork White River	18.1000	1.0000	17.1000	C	DOM		38499.00000	1958-11-26	1955-05-29	4301004
WHISKY DITCH NO 1	Green River	1.5000	1.5000	0.0000	C	ALL DECREED USES		44194.39724	1971-12-31	1958-10-05	5600581
WHISKY DITCH NO 2	Green River	1.5000	1.5000	0.0000	C	ALL DECREED USES		44194.39724	1971-12-31	1958-10-05	5600582
WHITE DITCH	White Creek	0.0000	3.0000	0.0000	C	ALL DECREED USES		38499.00000	1958-11-26	1955-05-29	4300676
WHITE RIVER BRIDGE MOON LAKE P	White River	5.7000	5.2000	0.5000	C	ALL DECREED USES		44194.35476	1971-12-31	1947-02-17	4302668
WILHELM EXTENSION	Sutton Creek	10.0000	4.4000	5.6000	C	ALL DECREED USES		47481.23010	1980-12-31	1912-12-31	4702066
WILLFORD DITCH	Beaver Creek	20.0000	20.0000	0.0000	C	ALL DECREED USES		38243.00000	1958-01-10	1954-09-15	4700957
WILLS RES	Sixmile Creek	38.9000	28.9000	10.0000	A	ALL DECREED USES		30280.24653	1939-06-20	1917-07-01	4703629
WINTON DIVERSION	Bear Creek	0.0330	0.0330	0.0000	C	ALL DECREED USES		52014.00000	1992-12-31	1992-05-29	5801724

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WITHER DITCH	Elk River	0.5000	0.5000	0.0000	C	ALL DECREED USES		48370.00000	1982-12-31	1982-06-07	5800940
WYCOFF DITCH	Willow Creek	25.5000	13.5700	11.9300	C	ALL DECREED USES		30280.14884	1939-06-20	1890-10-01	4700962
YAMCOLO RES	Bear River	525.0000	525.0000	0.0000	A	ALL DECREED USES		50769.50653	1989-12-31	1988-09-06	5804240
YAMCOLO RES	Bear River	1000.0000	410.9000	589.1000	A	ALL DECREED USES		47481.37136	1980-12-31	1951-09-04	5804240
YAMPA RANGER STATION P L	Yampa River	0.3500	0.3500	0.0000	C	IRR,DOM		33782.33106	1946-09-14	1940-08-22	5800952
YAMPA RANGER STATION P L	Yampa River	0.0330	0.0330	0.0000	C	ALL DECREED USES		53852.00000	1997-12-31	1997-06-10	5800952

** An (AP) following the Decreed Amount is used to indicate that the Structure listed has decreed Alternate Point(s) which are subject to abandonment*

*** Units of specified abandonment amounts: C - CFS; A - Acre Feet.*

**** ALL-ALL BENEFICIAL USES, AUG-AUGMENTATION, COM-COMMERCIAL, DOM-DOMESTIC, FIR-FIRE, FIS-FISHERY, GEO-GEOTHERMAL, HUO-HOUSEHOLD USE ONLY, IND-INDUSTRIAL, IRR-IRRIGATION, MUN-MUNICIPAL, OTH-OTHER, PWR-POWER GENERATION, RCH-RECHARGE, REC-RECREATION, SNO-SNOW MAKING, STK-STOCK, STO-STORAGE, WLD-WILDLIFE*

COLORADO
Division of Water Resources
Department of Natural Resources

2020 Abandonment Timeline with Statutes

July 2020

July 1, 2020: Official Publication Date for the Division Engineer's Proposed Abandonment List per CRS 37-92-401(1)(a).

By July 31, 2020: The Division Engineer shall send by certified mail notices to the owner or last-known owner or claimant (if known) of every water right on the proposed abandonment list per CRS 37-92-401(2)(b).

July-August 2020: Publication shall be made of the respective portion of the abandonment list in each county for four successive weeks per CRS 37-92-401(2)(b).

July 1, 2021: Deadline for filing a written Statement of Objection to the Division Engineer per CRS 37-92-401(3).

July - Dec. 2021: The Division Engineer shall consider the Statements of Objections received and make any revisions to the abandonment that he/she deems proper per CRS 37-92-401(4)(a).

By Dec. 31, 2021: The Division Engineer shall file his or her revised abandonment list in Water Court and make copies available to the public per CRS 37-92-401(4)(c).

By Jan. 31, 2022: The Water Clerk publishes notice of the revised abandonment list in the Water Court resume per CRS 37-92-401(4)(d).

June 30, 2022: Deadline for filing written protests with the Water Court Clerk ($45 fee) and with the Division Engineer per CRS 37-92-401(5)(a).

October 2022: The Water Court Judge may begin conducting trials on abandonment cases with opposition after which the Judge enters a ruling and decree confirming the Final 2020 Abandonment List per CRS 37-92-401(6) through (10).

Listing of Abandonment Statutes

37-92-103(2) - "Abandonment of a water right" means the termination of a water right in whole or in part as a result of the intent of the owner thereof to discontinue permanently the use of all or part of the water available there under. Any period of nonuse of any portion of a water right shall be tolled, and no intent to discontinue permanent use shall be found for purposes of determining an abandonment of a water right for the duration that:

(a) The land on which the water right has been historically applied is enrolled under a federal land conservation program; or

(b) The nonuse of a water right by its owner is a result of participation in:

(I) A water conservation program approved by a state agency, a water conservation district, or a water conservancy district;
(II) A water conservation program established through formal written action or ordinance by a municipality or its municipal water supplier;
(III) An approved land fallowing program as provided by law in order to conserve water;
(IV) A water banking program as provided by law;
(V) A loan of water to the Colorado water conservation board for instream flow use under section 37-83-105 (2); or
(VI) Any contract or agreement with the Colorado water conservation board that allows the board to use all or a part of a water right to preserve or improve the natural environment to a reasonable degree under section 37-92-102 (3).

37-92-301(5) - In all proceedings for a change of water right and for approval of reasonable diligence with respect to a conditional water right, it is appropriate for the referee and the courts to consider abandonment of all or any part of such water right or conditional water right.... In all such proceedings, no water storage right shall be declared abandoned in whole or in part on account of carrying water over in storage from year to year.

37-92-401(1)(a) – The division engineer of each division with the approval of the state engineer shall also prepare decennially, no later than July 1, 1990, and each tenth anniversary thereafter, a separate abandonment list comprising all absolute water rights that he or she has determined to have been abandoned in whole or in part and that previously have not been adjudged to have been abandoned.

37-92-401(1)(c) - In making his [or her] determinations with respect to abandonment, the division engineer shall investigate the circumstances relating to each water right for which the available water has not been fully applied to a beneficial use and in such cases shall be guided by the criteria set out in section 37-92-402(11). The decennial abandonment list, when concluded by judgment and decree as provided in this section, shall be conclusive as to absolute water rights or portions thereof determined to have been abandoned.

37-92-401(2)(b) - No later than July 31, 1990, and every tenth anniversary thereafter, the division engineer shall mail a copy of the respective decennial abandonment list by certified mail, return receipt requested, to the owner or last-known owner or claimant, if known, of every absolute water right which the division engineer has found to have been abandoned in whole or in part. The division engineer shall make such examination as is reasonably appropriate to determine the owner or claimant of such absolute water rights. He/she shall also cause publication to be made of the respective portion of the decennial abandonment list in each county in which the points of diversion of any absolute water rights on the list are located. Such publication shall be made for four successive weeks and shall be published, if possible, in a newspaper published in the county where the decreed point of diversion of the water right is located. The publication and mailing requirements of this paragraph (b) shall apply only to absolute water rights or portions thereof which previously have not been adjudged to have been abandoned.

37-92-401(2)(c) - ... not later than July 1, 1991, and every tenth anniversary thereafter, any person wishing to object to the inclusion of any absolute water right or portion thereof in the decennial abandonment list must file a statement of objection in writing with the division engineer.

37-92-401(4)(a) - Not later than December 31, 1991, and every tenth anniversary thereafter, the division engineer shall make such revisions, if any, as he deems proper to the decennial abandonment list. In considering the matters raised by statements of objection, the division engineer may consult with any interested persons. The division engineer shall consult with the state engineer and shall make any revisions in the decennial abandonment list determined by the state engineer to be necessary or advisable.

37-92-401(4)(c) - The division engineer shall file the decennial abandonment list, together with any revisions, signed by the division engineer and the state engineer or his or her duly authorized deputy, with the water clerk as promptly as possible, but not later than December 31, 1991, and every tenth anniversary thereafter. Each respective division engineer, water clerk, and the state engineer shall make a copy of the decennial abandonment list, together with any revisions, available for inspection in their offices at any time during regular office hours, as well as on the state engineer's web site, and the division engineer shall furnish or mail a copy to anyone requesting a copy upon payment of a fee in an amount set in section 37-80-110(1)(h).

37-92-401(4)(d) - If the decennial abandonment list is revised, the water clerk, in cooperation with the division engineer, not later than January 31, 1992, and every tenth anniversary thereafter, shall cause notice of the availability of such revision to be included in the resume described in section 37-92-302 (3) of cases filed in the respective water divisions during said month of December stating that the revision may be inspected or a copy thereof obtained as specified in paragraph (c) of this subsection (4). In addition, the water clerk shall cause such publication of the notice as is necessary to obtain general circulation once in each county or portion thereof which is in the division.

37-92-401(5)(a) - Any person who wishes to protest the inclusion of any water right in a decennial abandonment list after its revision by the division engineer shall file a written protest with the water clerk and with the division engineer. All such protests to the decennial abandonment list shall be filed not later than June 30, 1992, or the respective tenth anniversary thereafter. Such protest shall set forth in detail the factual and legal basis therefor. Service of a copy of the protest or any other documents is not necessary for jurisdictional purposes, but the water judge may order service of a copy of the protest or any other document on any person and in any manner which he or she may deem appropriate. The fee for filing such protest with the water clerk shall be forty-five dollars.

37-92-401(7) - If no protests have been filed, then promptly after July 1, 1992, and every tenth anniversary thereafter, the water judge shall enter a judgment and decree incorporating and confirming the decennial abandonment list of the division engineer without modification.

37-92-401(8) - A copy of the judgment and decree entered under subsection (6) or (7) of this section shall be filed with the state engineer and the division engineer and shall be provided by the water clerk to any other person requesting same upon payment of a fee of seventy-five cents per page. Promptly after receiving such judgment and decree, the division engineer and the state engineer shall enter in their records the determinations therein made as to the absolute water rights or portions thereof adjudged to have been abandoned and shall regulate the distribution of water accordingly.

37-92-402(11) - For the purpose of procedures under this section, failure for a period of ten years or more to apply to a beneficial use the water available under a water right when needed by the person entitled to use same shall create a rebuttable presumption of abandonment of a water right with respect to the amount of

such available water which has not been so used; except that such presumption may be waived by the division engineer or the state engineer if special circumstances negate an intent to abandon.

DETERMINATION OF NEXT MEETING AGENDA

AGENDA

UPPER YAMPA WATER CONSERVANCY DISTRICT
BOARD OF DIRECTORS MEETING
THURSDAY, SEPTEMBER 17, 2020 (12:00 PM)
ONLINE MEETING: HTTPS://BLUEJEANS.COM/XXXXXXX

INSTRUCTIONS ON HOW TO JOIN A BLUEJEANS MEETING FOLLOW THE AGENDA

A Board of Directors meeting packet is available for public review on our website at http://www.upperyampawater.com/board-of-directors/agendas/ on the Friday before the meeting. Amendments to the Agenda and new documents that are generated or submitted after the original posting of the meeting materials will be posted under "Additional Documents" on the website for the relevant meeting.

MEETING PROCEDURE: Comments from the Public are welcome at two different times during the course of the meeting: 1) Comments no longer than three (3) minutes on items **not** scheduled on the Agenda will be heard under Public Input and Comment; and 2) Comments no longer than three (3) minutes on all scheduled public hearing items will be heard following the presentation. Please wait until you are recognized by the President. With the exception of subjects brought up during Public Input and Comment, on which no action will be taken or a decision made, the Board may take action on, and may make a decision regarding, ANY item referred to in this agenda, including, without limitation, any item referenced for "review", "update", "report", or "discussion" whether or not listed as an "Action Item."

(1) Establishment of Quorum and Call to Order

(2) Approval of Agenda for Meeting **Action item**

(3) Public Input and Comment

The Board will make no decision nor take action, except to direct the General Manager. Those addressing the Board are requested to identify themselves by name, organization, if any, and address. Comments shall not exceed three (3) minutes.

(4) Consent Agenda; **Action item**

a) Approval of the minutes of July 15, 2020 Special Meeting and July 16, 2020 Board Meeting

b) Financial Reports

i) Approval of Disbursement

ii) Budget Comparison

(5) Report of General Manager

a) Preliminary 2021 DRAFT Budget Report

b) October 2020 UYWCD Board of Director's Retreat

c)

(6) Committee Reports

(7) Report of General Counsel

a)

b)

(8) District Engineer Report
   a) Presentation from High Altitude Snow Observatory Program
   b) Reservoir Water Status

(9) Consideration/Action on District Projects
   a)
   b)

(10) Board Member Reports

(11) Discussion of Pending Legislation and State Affairs

(12) Pending Water Cases
   a) Water Resumes;
   b) Status of other Water Cases, if any;
   c) Update on UYWCD Water Rights included on Colorado Division of Water Resources 2020 Abandonment List

(13) New Business

(14) Executive Sessions:
   a) Executive session under CRS § 24-6-402(4)(b) to discuss legal issues on Water Resumes, Water Cases, Contract Negotiations and_____(insert description) . Mere presence or participation of an attorney at an executive session is not sufficient to satisfy the requirements of CRS § 24-6-402(4)(b). Executive sessions to discuss legal matters are not recorded.
   b) Executive session under CRS § 24-6-402(4)(e)(I) for the purpose of determining positions relative to matters that may be subject to negotiations; developing strategy for negotiations; and instructing negotiators with respect to _____(insert brief description). This session will be recorded, and a copy of the recording maintained for not less than 90 days.

(15) Board actions in regard to Executive Session

(16) Determination of Next Meeting Agenda

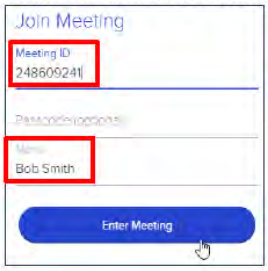
(17) Adjournment.

How to join a BlueJeans meeting

Go to: **BlueJeans.com** and click on "**Join Meeting**" 

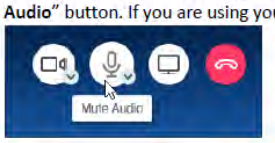
located in the upper right hand corner.

In the "**Join Meeting**" dialogue box, enter the "**Meeting ID**" (the ID number is provided in the meeting agenda) and your "**Name**" and then click "**Enter Meeting.**"



You will now be launched into the BlueJeans meeting. The "**Use Phone Audio**" dialogue box will appear. Follow the steps to connect via phone audio. Once you are connected, or if you were already connected, click on the "**X**" in the upper right hand corner to close the box.

When you enter the meeting, place your phone on Mute. If have used your computer for audio, click on the "**Mute Audio**" button. If you are using your own phone, press the mute button. Unmute to join the conversation.



Contact Deb Bastian for any questions

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