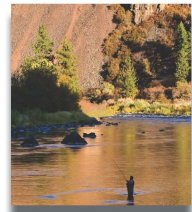
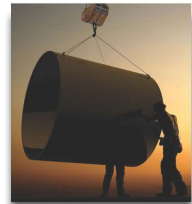


Background and Purpose

Capacity Evaluation

- Storage Capacity
- Treatment Capacity
- Irrigation Capacity

Re-use Permit Compliance



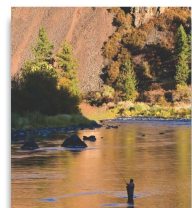
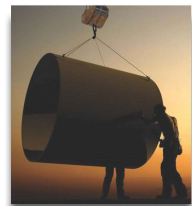
Treatment Process Overview

Lagoon Based System

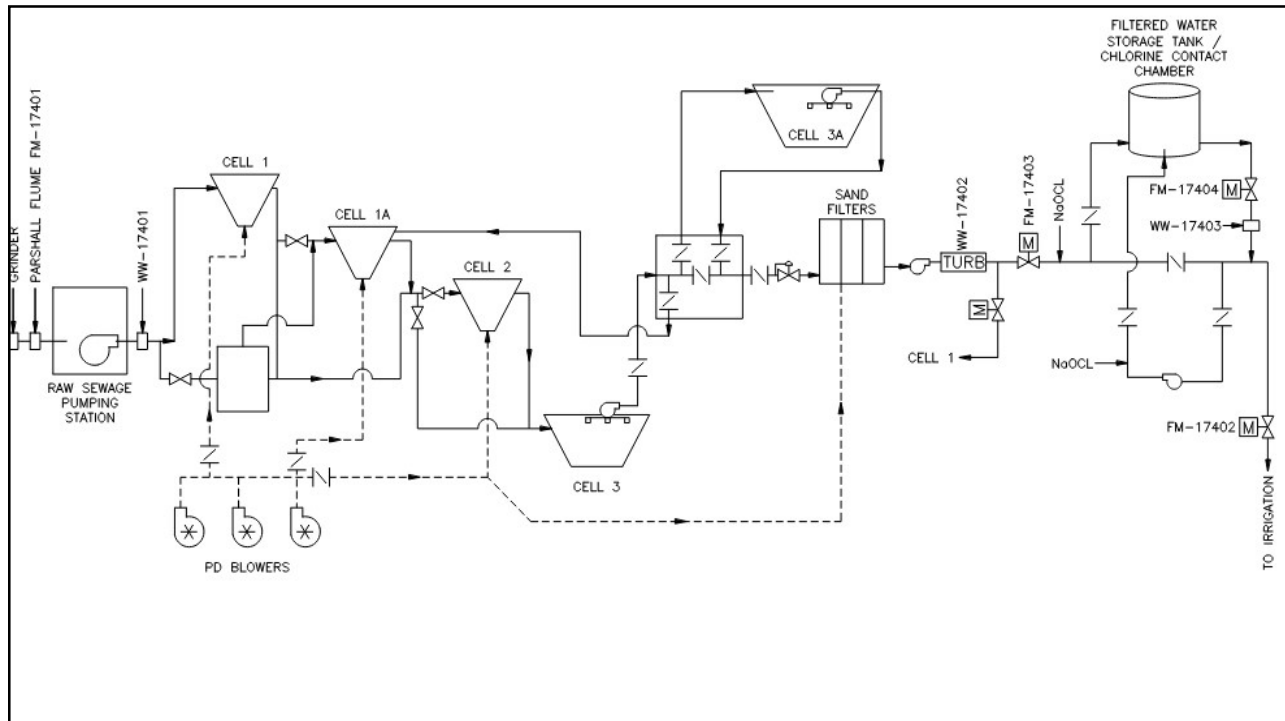
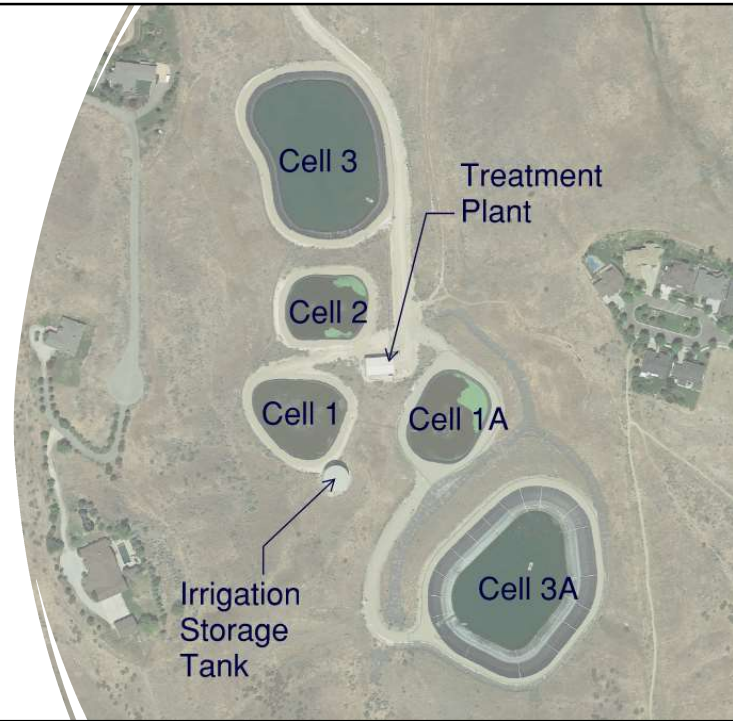
- Three Treatment Lagoons
- Two Storage Lagoons
- Full Winter Storage

Sand Filtration and Chlorination

- Class B Re-use System



Treatment Plant Facilities



Wastewater Flows and Projections

Year	Hidden Springs Sewer Connections	Cartwright Ranch Sewer Connections*	Average Daily Flow (gallons)	Average Daily Flow per Connection (gallons)	Annual Flow (million gallons)
2014	826	0	119,160	144.3	43.3
2015	837	0	121,767	145.5	44.4
2016	841	14	126,061	147.4	46.1
2017	841	57	137,206	152.8	50.0
2018	843	135	126,913	140.2	46.3
2019	845	224	148,143	152.3	54.1
2020	848	360*	165,023	155.2	60.4
2021	849	445*	165,599	141.4	60.4
Average	-	-	138,734	147.4	50.6

*Total homes connected to system. Occupied homes used for flow calculations.

Water Balance

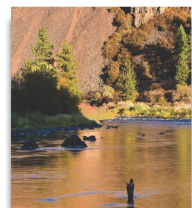
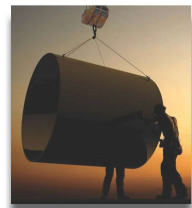
No discharge – treat and apply all water each year

Treatment units and storage must balance with inflow and irrigation application

Irrigation season from April 1 to October 31

Critical Items:

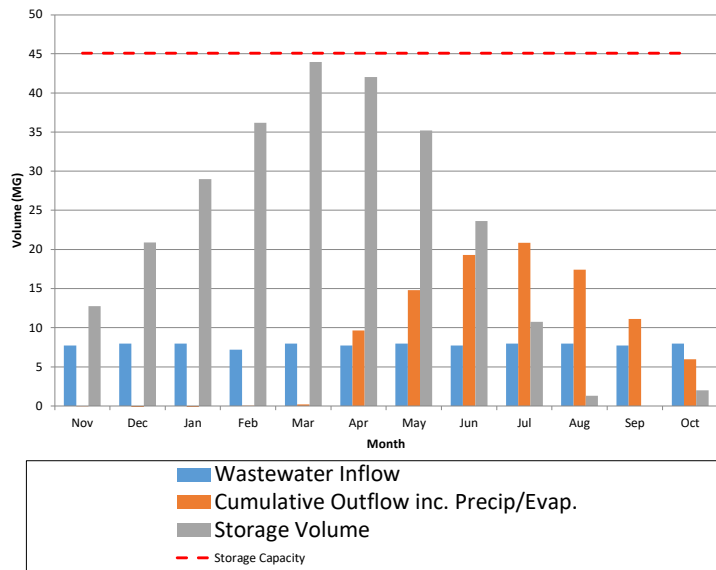
- Sufficient storage to store influent from November 1 to March 31
- Sufficient treatment capacity to apply irrigation at peak irrigation demand (July-August)
- Sufficient irrigation areas to apply water



Water Balance – Storage

Flow Type	Average Daily Flow (gallons)	Non-Growing Season Storage (million gallons)
2021 Average Daily	165,599	24.9
Anticipated Build-out Average Daily	257,580	38.9
Maximum Non-Growing Season Average Daily Storage Lagoon Capacity	--	45.1 (less carry-over)

Water Balance - Storage



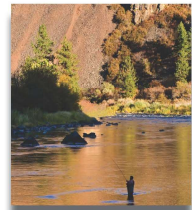
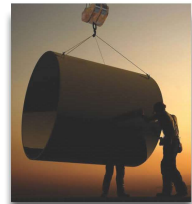
Water Balance - Treatment

Treatment via lagoon aeration and sand filtration

- Three sand filter bays
- Design capacity – 200 gpm each (ideal conditions)
- Observed peak capacity – 160 - 180 gpm each

Filtration capacity must match irrigation demand

- Max buildout irrigation demand (July) = 19.8 MG
- Average daily flow – max month = 640,000 gpd
- Required filtration capacity = **465 gpm**
- Irrigation must have flexibility and cannot be applied on “monthly average”



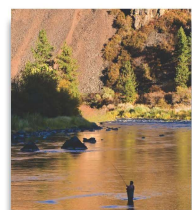
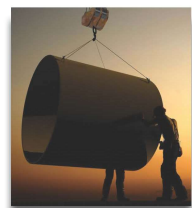
Water Balance - Treatment

Idaho Wastewater Rules (IDAPA 58.01.16)

- IDAPA 58.01.16 Section 455.04.d: The private municipal wastewater treatment plant shall be a dual train type (or equivalent/greater) with redundant pumps and blowers from influent works to the disposal site and **provide sufficient redundancy to continue processing incoming wastewater at peak flows while any one (1) component or process is out of service.**

Filtration Capacity

- Existing firm filtration capacity – 320 - 360 gpm
- Required firm filtration capacity – 465 gpm
 - Assumptions – run 23 hours per day



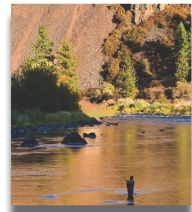
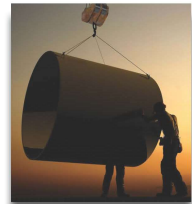
Water Balance - Irrigation

Peak irrigation demand month in July, with 19.8 million gallons land applied

- Average irrigation efficiency - 80 percent
- Average evapotranspiration of 6.5 mm/day (270,000 gallons per acre)

72.5 acres of irrigated area required to apply approximately 94 million gallons per year

- Peak irrigation in July at 19.8 million gallons
- 8 to 10 acres of additional irrigation to meet water balance requirements



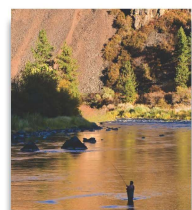
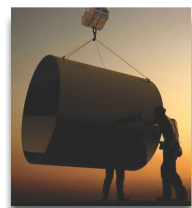
Water Balance – Summary

Maximum non-irrigation season storage is 40.1 million gallons

- Required non-irrigation season storage is 38.9 million gallons at 258,000 gallons per day influent flow.

Annual wastewater approximately 94 million gallons

- Irrigation of approximately 72.5 acres is required to land apply 94 million gallons
- Current irrigated area is approximately 63.5 acres.



Deficiencies – Treatment and Reuse



Blower Capacity

No functional backup blowers



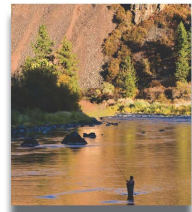
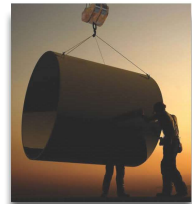
Sand Filter Capacity

Current capacity – 320 - 360 gpm
Required capacity – 465 gpm



Irrigation Area

Requires expansion to meet full build-out irrigation flows



Recommendations

Blowers

- Install two additional blowers and relocate existing blower

Sand Filtration

- Install one additional sand filtration bay
- Proposed firm capacity 480 to 540 gpm

Irrigation

- Expansion of Irrigation System to allow for application of approximately 94 million gallons per year

Aggressive management of collection system I/I

