

Wastewater Treatment and Reclaimed Water Irrigation Systems (ME-12214)

2024 Annual Report: Town of Osoyoos



March 2025

Project No. 302-1352-011

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING

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List of Acronyms

BOD ₅	5-day Biochemical Oxygen Demand
BCOD ₅	5-day Biochemical Oxygen Demand, Carbonaceous
COD	Chemical Oxygen Demand
MOE	Ministry of Environment and Climate Change Strategy
OC	Operating Certificate ME-12214
TRUE	TRUE Consulting
TSS	Total Suspended Solids
WWA	Western Water Associates Ltd.

Units of Measure

ft	feet
lgpm	Imperial gallons per minute
km	kilometre
L/d	Litres per day
L/m	Litres per minute
L/s	Litres per second
lpcd	Litres per capita per day
m	metre
mg/L	milligrams per Litre
mm	millimetre
NTU	Nephelometric Turbidity Units
psi	pounds per square inch
USgpm	US gallons per minute

1.0 Wastewater Influent Flows (OC 1.0)

1.1 Wastewater Flow (OC 5.1, 7.2.4.1)

The Town of Osoyoos (the Town) discharges wastewater from the Main Lift Station (Legion Beach Lift Station, E230277) and the Golf Course Lift Station (Desert Park Lift Station, E232882) to a treatment system, as authorized by Operating Certificate ME-12214 (OC), issued by the Ministry of Environment and Climate Change Strategy (MOE). Table 1-1 below summarizes the wastewater flow from these lift station sources in 2024. The Town provided totalizer data for the Golf Course Lift Station and Main Lift Station in 2024. Monthly usage was linearly extrapolated using this data. The first reading for the Main Lift Station was provided on January 2nd, 2024 and the last reading on December 31st, 2024. The first reading for the Golf Course Lift Station was provided on January 10th, 2024 and the last reading on December 23rd, 2024. The Town's SCADA system data was not available at the time of the report.

TABLE 1-1: WASTEWATER INFLUENT FLOWS

2024 MONTHLY FLOWS								
MONTH	E230277 MAIN LIFT STATION (M ³)	E232882 GOLF COURSE LIFT STATION (M ³)	2024 MONTHLY TOTALS (M ³)	2023 MONTHLY TOTALS (M ³)	2022 MONTHLY TOTALS (M ³)	2021 MONTHLY TOTALS (M ³)	2020 MONTHLY TOTALS (M ³)	2019 MONTHLY TOTALS (M ³)
January	56,483	4,185	60,668	63,639	65,042	66,382	61,289	61,144
February	52,605	4,138	56,743	53,803	58,811	61,737	56,636	55,302
March	55,141	4,810	59,950	63,665	66,409	70,965	62,283	64,145
April	61,300	4,527	65,826	66,436	67,975	68,808	59,325	63,601
May	68,521	5,076	73,598	75,772	75,818	69,191	67,563	70,726
June	73,546	4,612	78,158	75,945	83,896	83,013	76,744	76,568
July	91,445	4,684	96,129	95,271	104,332	102,773	102,448	98,750
August	89,046	4,645	93,691	84,562	100,748	98,850	106,325	98,153
September	68,797	4,753	73,550	73,276	80,677	81,071	88,123	77,100
October	68,310	3,510	71,820	66,692	73,617	74,423	76,788	65,184
November	53,904	2,291	56,195	56,635	61,704	64,803	66,256	57,318
December	51,662	2,196	53,858	58,604	67,006	62,678	65,240	58,292
TOTALS	790,758	49,428	840,186	834,300	906,035	904,695	889,020	846,282
SUMMER FLOW (MAY-SEPT)			415,125	404,826	445,470	434,898	441,203	421,297
WINTER FLOW (OCT-APR)			425,061	429,474	460,564	469,797	447,817	424,985

The Golf Course Lift Station flow meter was connected to the Town's SCADA system in September 2019, enabling tabulation of flows on a daily basis. Totalizer values provided by the Town were used for 2024 flow values and calculations in lieu of SCADA data. Daily flow measurements for both the Golf Course Lift Station and the Main Lift Station are included in Appendix A.

Table 1-2 summarizes influent sewage flow data for a 30-year period from 1994 – 2024.

In 2012, the Northwest Sector Area Sanitary Sewer extensions were completed. These extensions service about 130 properties. All the properties are outside the Town boundaries; therefore, the population would be additional to the population reported by the Statistics Canada or BC Stats. Since 2013, it has been estimated that this represents a total population of 375 to be added to the population of the Town of Osoyoos.

Trends and other noteworthy items from Table 1-2 are summarized as follows.

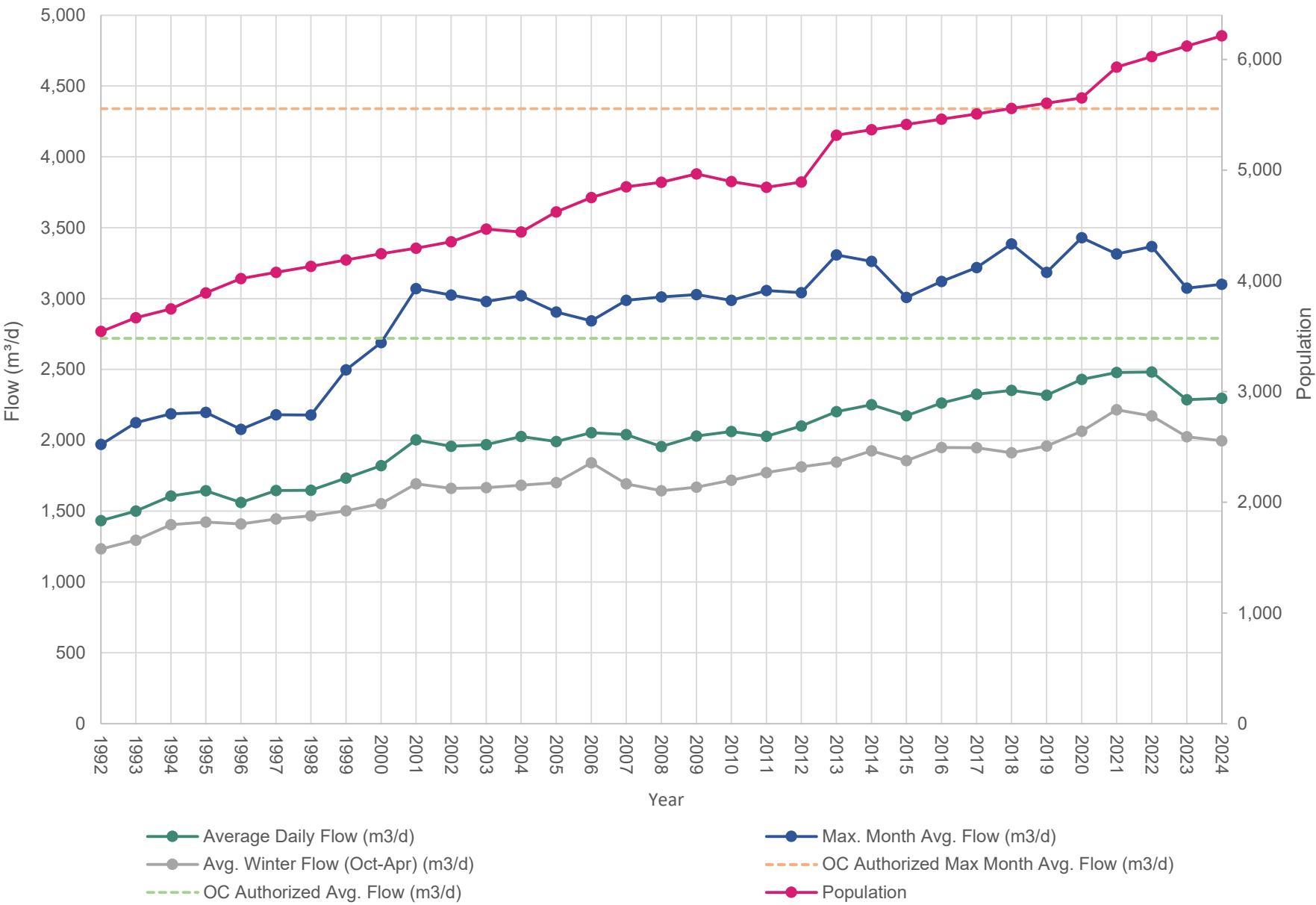
- The per capita sewage flow rate from 1994 to 2024 has ranged between 0.368 to 0.466 m³/capita/day. It is noted that 2024 experienced the lowest per capita flows. This may be caused by elevated population projections which are estimated based on the average growth rate between the two most recent census years. This will be reviewed following the next census in 2026.
- Average daily flows, maximum average monthly flows, and average winter influent flows from 1992-2024 can be seen graphically in Figure 1-1. Historical population estimates and permit annual average/maximum month average flows (as authorized in the OC) are also denoted.
- The OC for the Town's wastewater treatment and water reuse systems is dated December 18, 1998 (see Appendix B). The OC projected the annual average daily sewage flow to increase from 1,760 m³/day in 1997 to 2,720 m³/day in 2008. As shown in Table 1-2, annual average daily sewage flows have not yet reached that projected for 2008. The 2024 annual average daily flow was 2,296 m³/day.
- The OC also provides a projection of the maximum monthly average increasing from 3,250 m³/day in 2000 to 4,340 m³/day in 2008. The maximum monthly average in 2024 was 3,101 m³/day.

Overall, total annual, average daily and maximum month average daily sewage flows remain within projections presented in Section 1.1.1 of the OC. The total volume of influent in 2024 was similar to 2023; both of which were significantly lower than previous years, with 2022 having a total volume approximately 70,000 m³ higher than 2023 and 60,000 m³ higher than 2024.

TABLE 1-2: HISTORICAL INFLUENT SEWAGE FLOW DATA

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Population Osoyoos (BC Stats)	3,746	3,890	4,021	4,076	4,131	4,188	4,245	4,295	4,353	4,466	4,441	4,623	4,752	4,848	4,889	4,965
Population Northwest Sector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Population	3,746	3,890	4,021	4,076	4,131	4,188	4,245	4,295	4,353	4,466	4,441	4,623	4,752	4,848	4,889	4,965
Total Flow (Main Lift) (m³)	572,678	583,903	551,576	579,686	577,999	607,413	638,527	703,823	686,031	689,695	709,562	696,018	718,297	712,704	680,972	707,321
Total Est. Flow (Golf Course Lift) (m³)	13,797	16,097	18,396	20,696	22,995	25,295	26,280	27,375	28,105	29,018	29,930	30,660	31,390	32,120	33,033	33,580
Total Combined Flow (m³)	586,475	600,000	569,972	600,382	600,994	632,708	664,807	731,198	714,136	718,713	739,492	726,678	749,687	744,824	714,005	740,901
Average Daily Flow (m³/d)	1,607	1,644	1,562	1,645	1,647	1,733	1,821	2,003	1,957	1,969	2,026	1,991	2,054	2,041	1,956	2,030
Average per capita Flow (m³/cap/d)	0.429	0.423	0.388	0.404	0.399	0.414	0.429	0.466	0.449	0.441	0.456	0.431	0.432	0.421	0.400	0.409
Max. Month Avg. Flow (m³/d)	2,187	2,197	2,077	2,181	2,179	2,496	2,688	3,071	3,025	2,979	3,019	2,904	2,842	2,988	3,011	3,028
Max. Month Avg. Flow per capita (m³/cap/d)	0.584	0.565	0.517	0.535	0.527	0.596	0.633	0.715	0.695	0.667	0.680	0.628	0.598	0.616	0.616	0.610
Avg. Winter Flow (Oct-Apr) (m³/d)	1,404	1,423	1,409	1,445	1,467	1,502	1,553	1,693	1,660	1,665	1,683	1,700	1,841	1,692	1,644	1,669
Avg. Winter Flow per capita (Oct-Apr) (m³/cap/d)	0.375	0.366	0.351	0.354	0.355	0.359	0.366	0.394	0.381	0.373	0.379	0.368	0.387	0.349	0.336	0.336
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*	2020*	2021	2022	2023	2024	
Population Osoyoos (BC Stats)	4,896	4,845	4,893	4,941	4,989	5,037	5,085	5,133	5,181	5229	5,277	5,556	5,650	5,744	5,839	
Population Northwest Sector	-	-	-	375	375	375	375	375	375	375	375	375	375	375	375	
Total Population	4,896	4,845	4,893	5,316	5,364	5,412	5,460	5,508	5,556	5,604	5,652	5,931	6,025	6,119	6,214	
Total Flow (Main Lift) (m³)	719,126	701,765	722,804	760,112	774,427	744,992	780,129	799,795	818,786	800,271	839,020	852,013	851,873	780,333	790,758	
Total Est. Flow (Golf Course Lift) (m³)	33,580	32,120	45,902	43,319	47,009	47,986	47,769	48,675	39,898	46,011	50,000	52,682	54,162	53,967	49,428	
Total Combined Flow (m³)	752,706	733,885	768,706	803,431	821,436	792,978	827,898	848,470	858,684	846,282	889,020	904,695	906,035	834,300	840,186	
Average Daily Flow (m³/d)	2,062	2,027	2,100	2,201	2,251	2,173	2,262	2,325	2,353	2,319	2,429	2,479	2,482	2,286	2,296	
Average per capita Flow (m³/cap/d)	0.421	0.418	0.429	0.414	0.420	0.401	0.414	0.422	0.423	0.414	0.430	0.418	0.412	0.374	0.369	
Max. Month Avg. Flow (m³/d)	2,987	3,056	3,041	3,307	3,262	3,007	3,121	3,218	3,385	3,185	3,430	3,315	3,366	3,073	3,101	
Max. Month Avg. Flow per capita (m³/cap/d)	0.610	0.631	0.621	0.622	0.608	0.556	0.572	0.584	0.609	0.568	0.607	0.559	0.558	0.502	0.499	
Avg. Winter Flow (Oct-Apr) (m³/d)	1,717	1,772	1,812	1,845	1,925	1,855	1,948	1,993	1,956	1,958	2,064	2,216	2,171	2,025	1,996	
Avg. Winter Flow per capita (Oct-Apr) (m³/cap/d)	0.351	0.366	0.370	0.347	0.359	0.343	0.357	0.362	0.352	0.349	0.365	0.374	0.360	0.331	0.321	

FIGURE 1-1: TOWN OF OSOYOOS WWTP INFLUENT FLOW TRENDS



1.2 Influent Quality (OC 5.2, 7.2.4.2)

As per the requirements of the OC, grab sampling of influent to the wastewater treatment plant is to be completed semi-annually. The Town samples the influent for:

- a) Total phosphorus and ortho phosphorus, expressed as P in mg/L.
- b) 5-Day biochemical oxygen demand, mg/L.

As displayed in Table 1-3, only one sample of the influent was completed in 2024. It was sampled for COD (instead of 5-day BOD) and Total Phosphorus, but not Ortho Phosphorus. Laboratory analytical data is provided in Appendix F.

TABLE 1-3: INFLUENT MONITORING (E230037)

DATE	COD (MG/L)	TOTAL PHOSPHORUS (MG/L)	ORTHO PHOSPHATE (MG/L)
March 19, 2024	62	4.23	-
-	-	-	-

2.0 Wastewater Treatment and Winter Storage Facilities

This section discusses the Town's wastewater treatment facilities, winter storage facilities, reclaimed water irrigation system and reclaimed water infiltration bed.

2.1 Description

The Town's wastewater treatment facility and reclaimed water irrigation areas are located on the Osoyoos West Bench as illustrated on Figure 2-1. The Fairway Hills / Dividend Ridge development area, which is serviced by the Golf Course lift station referenced in Section 1.0, is the neighbourhood to the south (right side) of the wastewater treatment facility, shown on Figure 2-1. Figure 2-2 illustrates the Town's wastewater treatment, effluent storage, and reclaimed water supply works. From the inlet, the system components and upgrades are described in Table 2-1.

TABLE 2-1: WASTEWATER TREATMENT AND RECLAIMED WATER IRRIGATION SYSTEM COMPONENTS

COMPONENT	SIZE/VOLUME	YEAR CONSTRUCTED/STATUS
Aerated Cell No. 1	3,300 m ³	Liner replaced in 1994 and aeration system upgraded in 1998. De-sludged in 2021.
Aerated Cell No. 2	27,00 m ³	De-sludged and liner/aeration system replaced in 2010. De-ragging in 2021. De-sludged in 2023. Geomembrane liner at the inlet was repaired in 2024.
Aerated Cell No. 3	58,000 m ³	Liner 1978 – aeration system upgrade in 2002. Lowering of Cell in Oct. 2017 and desludging in Nov./Dec. 2017 and 2023. Liner replacement and aeration system upgrade completed in 2018.
Winter Storage 1	270,000 m ³	Expanded and liner replaced in 2008.
Winter Storage 2	295,000 m ³	Constructed 1990.
Aeration System Blowers		Replaced and upgraded in 2010. Solar power system installed in 2010 and expanded in 2018.
Aeration System		The aerators were cleaned in 2023. In 2024, the aerators and diffusers were rebuilt. Additional motor and bearing work was completed in 2024.
Effluent Pump Station		Upgraded – 2008.
Chlorine Contact Basin		Constructed – 2008.
Infiltration Bed		Constructed – 2013.
Reclaimed Booster Station		Constructed – 2014.
Reclaimed Booster Supply Main		Upgraded section from chlorine contact basin to golf course maintenance building – 2014.
Flushing Standpipe Installation		Flushing standpipe installation on reclaimed water system at the Secondary School for system flushing in 2017.
Main Lift Station		Replacement and upgrading begun in 2019 and completed in 2020. Old Main Lift Station was decommissioned in 2020 and removed in 2021.

In 2008, major capital improvements were completed at the treatment plant. Improvements comprised reconstruction and enlargement of reclaimed water storage basin No. 1, upgrading of the effluent supply pump station and appurtenant supply mains, and construction of a reinforced cast in place concrete chlorine contact basin, to replace an existing earthen basin built in 1990.

In 2010, aerated lagoon Cell No. 2 was removed from service, drained, and accumulated sludge from 32 years of service was removed. After sludge removal, the liner was replaced with a 60 mil HDPE liner. The static tube aeration system, in service since 1978, was removed and replaced with a more energy efficient fine bubble system. Concurrently, a solar panel array was installed with the objective of supplying a portion of the blower electrical energy requirements.

An infiltration bed was constructed at Desert Park in January 2013. It has an area of approximately 740 m² and is used to dispose of reclaimed water in excess of irrigation requirements.

In 2014, construction of the reclaimed booster station and installation of a 400 mm diameter supply main from the chlorine contact basin to the golf course maintenance building was completed. The reclaimed booster station is currently used to supply reclaimed water to the secondary school for irrigation of playing fields.

In 2017, aerated lagoon Cell No.3 was drained and de-sludged in preparation for replacement of the liner and aeration system. Sludge removal was completed in November and December of 2017. Biosolids were pumped into geotubes and located on the former Tree Farm site south of the secondary school for dewatering. This location was also used for sludge dewatering of Cell No. 2 in 2010. A standpipe was also installed on the reclaimed water system at the former Tree Farm site in 2017, allowing the Town to flush the supply system at the start and end of each irrigation season.

The liner and aeration system in Cell No. 3 were replaced and upgraded in the winter and spring of 2018.

In 2019, construction of a replacement for the main lift station commenced. The replacement main lift station was completed and commissioned in 2020. The existing main lift station was decommissioned in 2020 and removed in 2021. The aeration system diffuser membranes on aerated lagoon Cell No. 1 and No. 2 were replaced in 2020.

In 2021, Cell No. 1 was drained, de-sludged and the aerators cleaned. The aerators in Cell No. 2 were raised three successive times to be cleaned. All waste was transported to the Town of Osoyoos Landfill.

The Main Lift station, commissioned in 2020, has a screening rack to manage the debris entering the treatment plant, limiting deleterious materials to flows from the Golf Course Lift Station. By cleaning Cells No. 1 and No. 2 the Town intended to stabilize the accumulation of debris in the plant.

In 2022, the Town completed the upgrades to the chlorine gas monitoring system. The system now includes improved alarming, including audible and visual alarms in the event of a release of chlorine gas at the site, and is now integrated with the existing SCADA system.

In 2023, the Town completed the Osoyoos Sanitary System Infrastructure Plan which included an Asset Management Plan and Capital Plan. In addition, Cells No. 2 and No. 3 were de-sludged and the aerators were cleaned.

In 2024, the geomembrane liner at the Cell No. 2 inlet was repaired. This included re-establishing the geomembrane boot on the inlet pipe and repairing openings in the geomembrane localized to the inlet. The aerators and diffusers were rebuilt and the blowers had motor and bearing work completed.

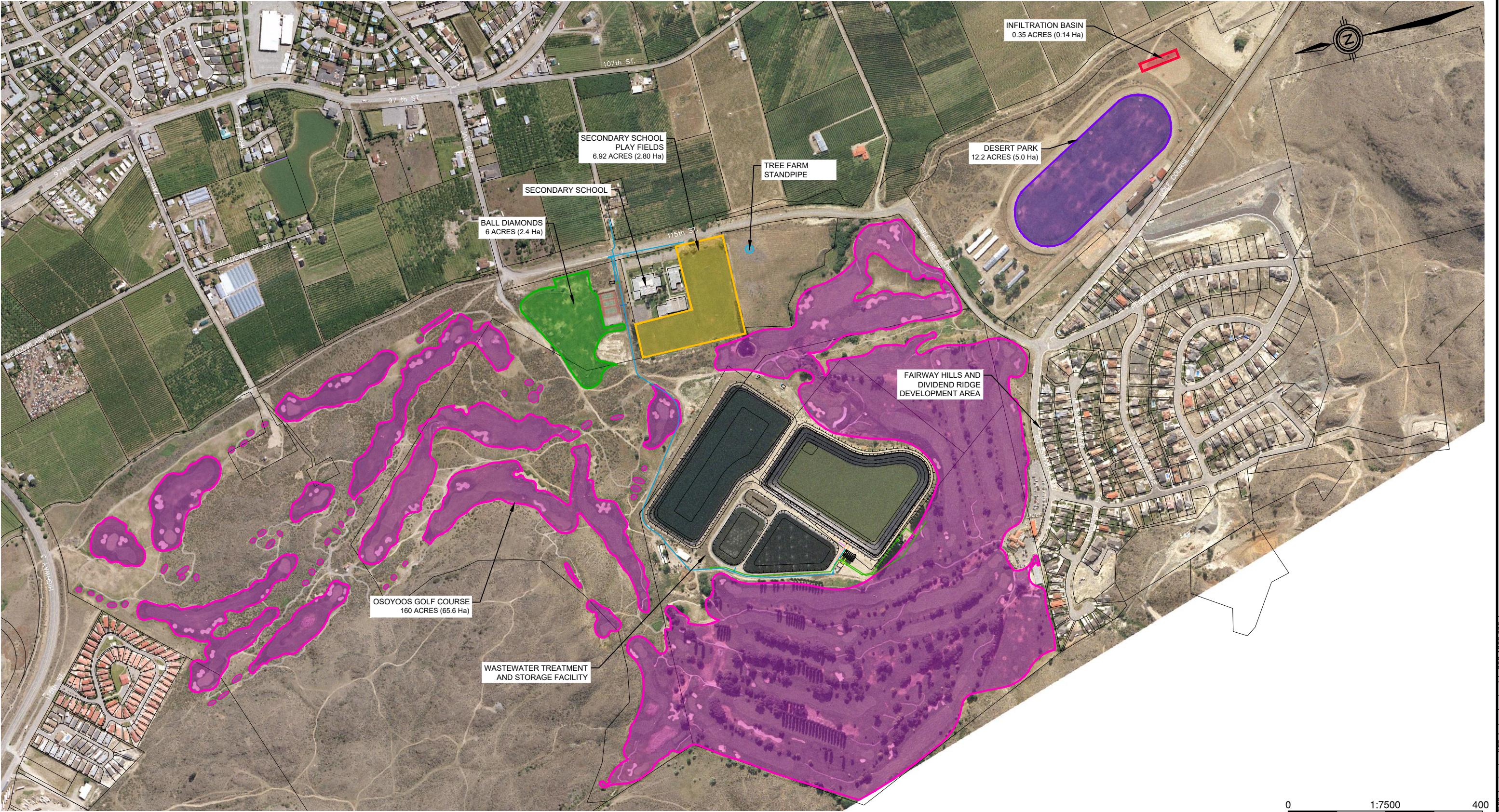
2.1.1 Lagoon Solar Power Generation

A solar power generation system was installed at the lagoons in 2010 with system upgrades and expansion in 2018. The total kilowatt hours (kWh) produced in 2024 was approximately 80,000 kWh. The solar panels were not active from January-March 27th.

Totalizer readings are not recorded every day throughout the year. Monthly totals were calculated by taking the last reading of each month and subtracting the last reading of the prior month. The monthly total in March is only inclusive of the dates the solar panels were active (March 27-March 31). Monthly power generation from 2019 to 2024 is summarized in Table 2-2. 2023 data was not provided. Daily totalizer values for the solar power generation can be found in Appendix D.

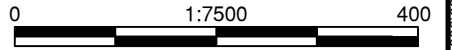
TABLE 2-2: LAGOON SOLAR POWER GENERATION SUMMARY FOR 2019 – 2024

MONTH	POWER GENERATION (kWh)				
	2019	2020	2021	2022	2024
January	1,250	1,590	1,641	1,370	0
February	2,703	6,254	6,457	6,023	0
March	5,640	10,448	10,787	8,366	1,205
April	6,096	11,623	12,000	10,977	10,739
May	6,541	12,134	12,527	11,940	11,630
June	7,716	11,486	15,306	9,508	11,854
July	6,928	14,245	13,094	13,042	12,933
August	13,774	13,645	10,327	11,481	10,967
September	8,249	9,279	8,812	8,538	9,909
October	7,814	6,911	6,852	6,770	6,916
November	3,773	3,583	2,752	3,018	1,949
December	1,602	2,280	1,940	2,295	971
Total	72,087	103,478	102,495	93,327	79,073
*Extrapolated values.					



LEGEND

-  THE OSOYOOS GOLF AND COUNTRY CLUB
-  THE BALL DIAMONDS LOCATED WEST OF OSOYOOS SECONDARY SCHOOL
-  THE INFELD AREA OF DESERT PARK
-  THE SECONDARY SCHOOL PLAYING FIELDS
-  TREE FARM STANDPIPE
-  INFILTRATION BASIN



**WWT & RW ANNUAL REPORT
RECLAIMED WATER IRRIGATION AREAS**



DRAWN BY: DL
DATE: February 2020

DESIGN BY: NA	
SCALE: 1:7500 (11x17)	
DWG NO.: FIGURE 2-1	REV:

\\lra\clients\300-399\302\302-1352-006\03 drawings\cad\02 design drawings\dn-302-1352-006.dwg

2.2 Effluent Quality (OC 1.2.1, 5.3, 7.2.4.3)

The OC for the Town's wastewater treatment system requires that the effluent quality after Cell No. 3 and prior to storage, shall be equivalent to or better than:

5 Day Biochemical Oxygen Demand (BOD₅)– 45 mg/L

Total Suspended Solids (TSS) – 60 mg/L

The OC specifies that the effluent after Cell No. 3 (EMS site number E105001) be sampled as follows:

- a) **Monthly:** 5-day biochemical oxygen demand, mg/L;
- b) **Monthly:** total suspended solids (non-filterable residue), mg/L;
- c) **Semi-annually:** total phosphorus, ortho phosphorus, and total dissolved phosphorus, all expressed as mg/L P;
- d) **Semi-annually:** total nitrogen, ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, and organic nitrogen, all expressed as mg/L N.

2024 sampling results for the effluent quality at the outlet of Cell No. 3 (E105001) are summarized in Table 2-3. Analytical results can be viewed in Appendix F.

TABLE 2-3: AERATED LAGOON CELL NO. 3 – EFFLUENT QUALITY DATA (E105001)

DATE	BOD-5 (MG/L)	CBOD-5 (MG/L)	TOTAL SUSPENDED SOLIDS (MG/L)	TOTAL PHOSPHORUS (MG/L)	TOTAL DISSOLVED PHOSPHORUS (MG/L)	ORTHO PHOSPHORUS (MG/L)	TOTAL KJELDAHL NITROGEN (MG/L)	TOTAL AMMONIA (MG/L)	NITRATE (AS N) (MG/L)	NITRITE (AS N) (MG/L)	ORGANIC NITROGEN (MG/L)
(2024) Jan. 09	-	14.6	29.0	-	-	-	-	-	-	-	-
(2024) Feb. 06	-	14.9	21.7	-	-	-	-	-	-	-	-
(2024) Mar. 19	-	9.5	25.4	4.72	4.33	3.69	33.8	35.5	1.840	0.439	< 1.00
(2024) May 21	14.5	-	14.5	-	-	-	-	-	-	-	-
(2024) Jun. 18	-	7	-	-	-	-	-	-	-	-	-
(2024) Jul. 23	-	-	10.5	-	-	-	-	-	-	-	-
(2024) Aug. 28	-	-	11.4	-	-	-	-	-	-	-	-
(2024) Sep.17	-	-	14.0	-	5.4	-	13.3	9.66	1.68	0.626	-
(2024) Oct. 08	14.5	-	12.0	-	-	-	-	-	-	-	-

BOD is to be tested monthly as per the OC. It was tested in May and October with both sampling event values being compliant. The other months tested for Carbonaceous BOD (CBOD) which is not required by the OC.

Total Suspended Solids are to be measured monthly as per the OC. Sampling was not completed in April, June, November and December.

Total phosphorus, ortho phosphorus, and organic nitrogen are to be tested semi-annually as per the OC. They were only tested once in 2024.

All other samples were in compliance with the OC.

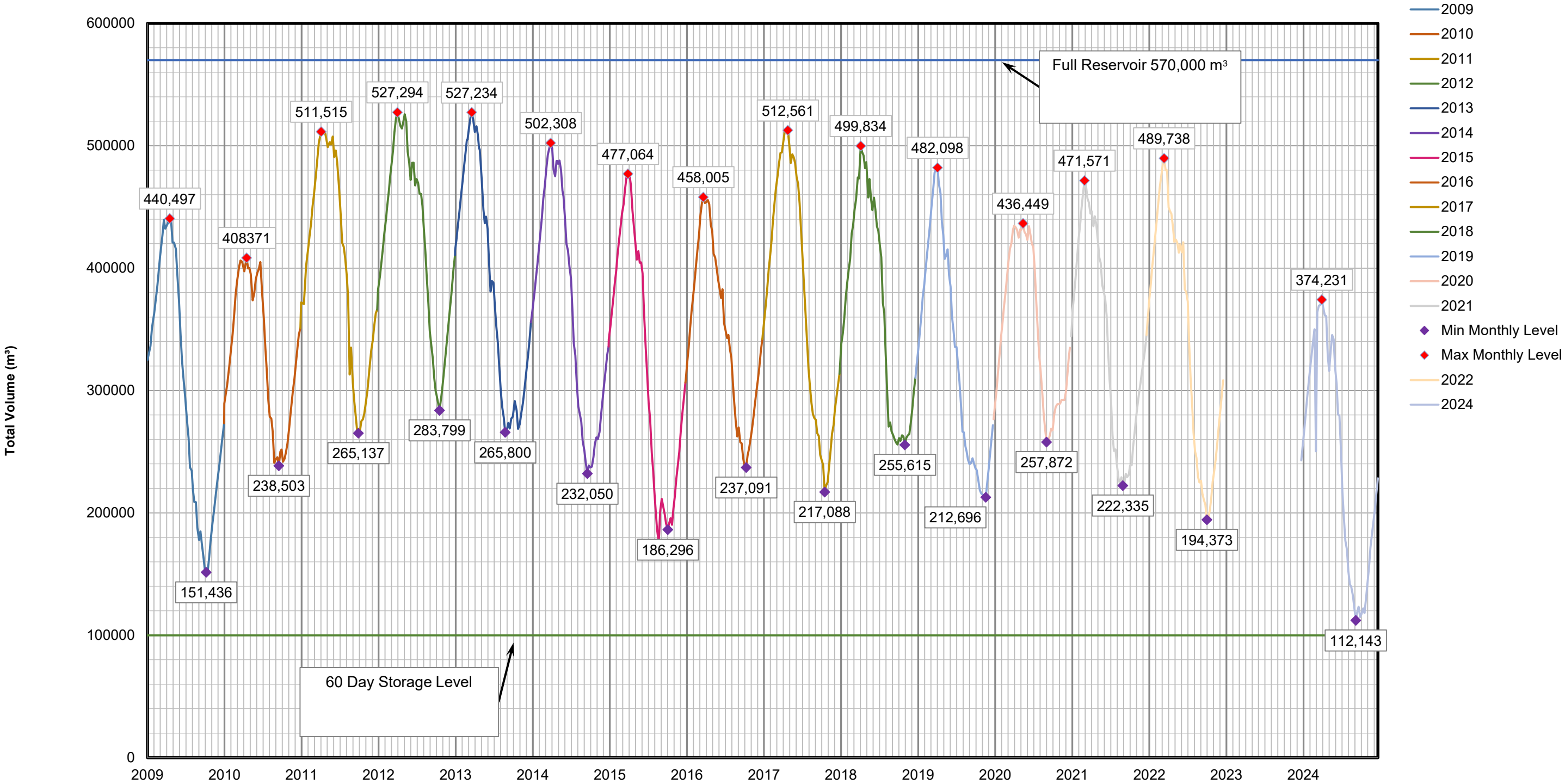
2.3 Winter Storage Facilities (OC 5.4, 7.2.4.4)

As illustrated in Figure 2-2, the Town's wastewater treatment and appurtenant facilities include two winter effluent storage reservoirs. Storage volumes from 2009-2024 are shown graphically in Figure 2-3. Data from 2023 was omitted as it was not provided. This includes the maximum and minimum monthly water level, full reservoir volume notation, and 60-day storage level notation. As per OC Section 5.4, weekly operational data and the percent full storage volume for 2024 is presented in Table 2-4. The percent full for each storage reservoir can be found in Appendix D and used to reference the corresponding storage volumes using the calibration curves provided in Appendix C.

TABLE 2-4: STORAGE POND LEVELS

DATE	STORAGE 1 %	STORAGE 2 %	TOTAL VOLUME M ³	DATE	STORAGE 1 %	STORAGE 2 %	TOTAL VOLUME M ³
2-Jan-24	60.8	50.5	242,926	9-Jul-24	48.7	63.2	250,517
9-Jan-24	64.8	50.6	254,781	16-Jul-24	34.6	64.1	217,501
16-Jan-24	68.8	50.5	266,286	23-Jul-24	41.2	52.2	194,942
23-Jan-24	73.2	50.7	280,146	30-Jul-24	47.3	40.2	177,314
30-Jan-24	77.2	50.9	293,060	6-Aug-24	54.0	29.3	170,131
6-Feb-24	81.1	51.1	305,902	13-Aug-24	50.0	26.0	152,544
13-Feb-24	84.5	51.2	317,067	20-Aug-24	46.1	25.7	141,569
20-Feb-24	85.4	54.1	328,846	27-Aug-24	44.3	27.0	139,419
27-Feb-24	85.4	57.5	339,692	3-Sep-24	35.8	33.9	132,605
5-Mar-24	85.3	60.7	350,012	10-Sep-24	26.2	39.6	123,236
12-Mar-24	47.7	63.9	250,308	17-Sep-24	20.0	40.8	112,143
19-Mar-24	82.9	66.9	364,121	24-Sep-24	25.7	38.3	118,831
26-Mar-24	80.7	70.2	369,389	1-Oct-24	31.6	34.3	123,257
2-Apr-24	77.0	73.3	369,720	8-Oct-24	28.6	33.8	114,944
9-Apr-24	74.6	76.3	374,231	15-Oct-24	24.1	39.2	117,373
16-Apr-24	68.5	79.2	367,669	22-Oct-24	20.9	43.8	122,058
23-Apr-24	62.5	81.9	361,456	29-Oct-24	13.4	48.3	118,168
30-Apr-24	57.5	85.0	360,652	5-Nov-24	13.6	52.3	130,447
7-May-24	59.0	76.3	328,202	12-Nov-24	13.7	56.1	142,531
14-May-24	63.2	70.1	315,996	19-Nov-24	14.0	59.9	155,640
21-May-24	67.9	70.9	332,811	26-Nov-24	14.8	64.0	171,479
28-May-24	73.2	70.0	345,338	3-Dec-24	14.8	67.2	182,982
4-Jun-24	78.0	65.0	341,782	10-Dec-24	18.1	67.8	192,381
11-Jun-24	82.3	54.1	318,890	17-Dec-24	22.9	67.9	203,512
18-Jun-24	79.3	52.8	305,375	24-Dec-24	28.0	68.1	216,073
25-Jun-24	68.2	55.7	280,508	31-Dec-24	32.8	68.3	228,303
2-Jul-24	63.4	59.7	279,492				

FIGURE 2-3: TOWN OF OSOYOOS RECLAIMED WATER STORAGE POND VOLUMES 2009-2024



3.0 Reclaimed Water Irrigation System

3.1 System Overview

Reclaimed water from the Town's wastewater treatment facility supplies irrigation water to areas within the West Bench. These locations are depicted on Figure 2-1 and described as follows:

- i. Osoyoos Golf and Country Club:
 - Metered from Golf Course Booster Station.
 - Total area = 160 ac (65.6 ha).
 - Irrigation type = reclaimed water.
 - Crop = turf grass.
- ii. Osoyoos Ball Diamonds:
 - Located west of 115th street adjacent to the Osoyoos Secondary School.
 - Metered from the Golf Course Booster Station.
 - Total area = 6 ac (2.4 ha).
 - Irrigation type = reclaimed water.
 - Crop = turf grass.
- iii. Desert Park Infield Area:
 - Located southeast of wastewater treatment facility.
 - Metered from Desert Park Irrigation Booster
 - (Desert Park Reclaimed Water Meter Account #5560099005).
 - Total area = 12.2 ac (5.0 ha).
 - Irrigation type = reclaimed water.
 - Crop = turf grass.
- iv. Secondary School Playing Fields:
 - Located west of wastewater treatment facility.
 - Metered from High School Booster Station
 - (Secondary School Irrigation Meter Account #70235020).
 - Constructed in 2013-2014.
 - First started irrigating with reclaimed water in 2015.
 - Total area = 6.92 ac (2.8 ha).
 - Irrigation type = domestic and reclaimed water.
 - Crop = turf grass.

- v. Former Tree Farm Standpipe:
 - Located south of secondary school playing field.
 - Metered from High School Booster Station.
 - Irrigation type = reclaimed water.
 - Crop type = tree farm and infiltration.

The combined area of the above users excluding the former Tree Farm site is approximately 185 ac (76 ha).

Figure 3-1 provides a schematic overview of the reclaimed water distribution system and metering. Chlorinated reclaimed water is supplied by gravity from the Chlorine Contact Basin to the Golf Course Booster Station and Desert Park Booster Station.

The Golf Course Booster Station supplies reclaimed water to:

- Osoyoos Golf and Country Club
- Osoyoos Ball Diamonds

The Desert Park Booster Station provides reclaimed water to the Desert Park infield. This reclaimed water supply was constructed in 2012. The High School Booster Station provides reclaimed water to the secondary school playing fields and the former Tree Farm standpipe.

If needed, the Town can supplement the reclaimed water system using the 9A Pumphouse on Osoyoos Lake, as shown in Figure 2-2. The 9A Pumphouse was formerly owned and operated by the South Okanagan Lands Irrigation District and is currently used only as a supplemental water source to the Town's reclaimed water system.

In 2013 and 2014, supply works were constructed to supply reclaimed water to the secondary school playing fields.

3.2 Reclaimed Water Usage Data (OC 5.5, 7.2.4.5)

As described in Section 3.1, reclaimed water usage is measured by three flow meter stations. Two of the meters are on supply mains to the golf course and are designated as the “Desert” and “Meadows” meters. The third meter station is in the High School Booster Station and comprises both low flow (Jockey) and high flow (Main) meters.

The Desert and Meadows meters measure reclaimed water volumes to the Golf Course, Desert Park, and Infiltration Basin.

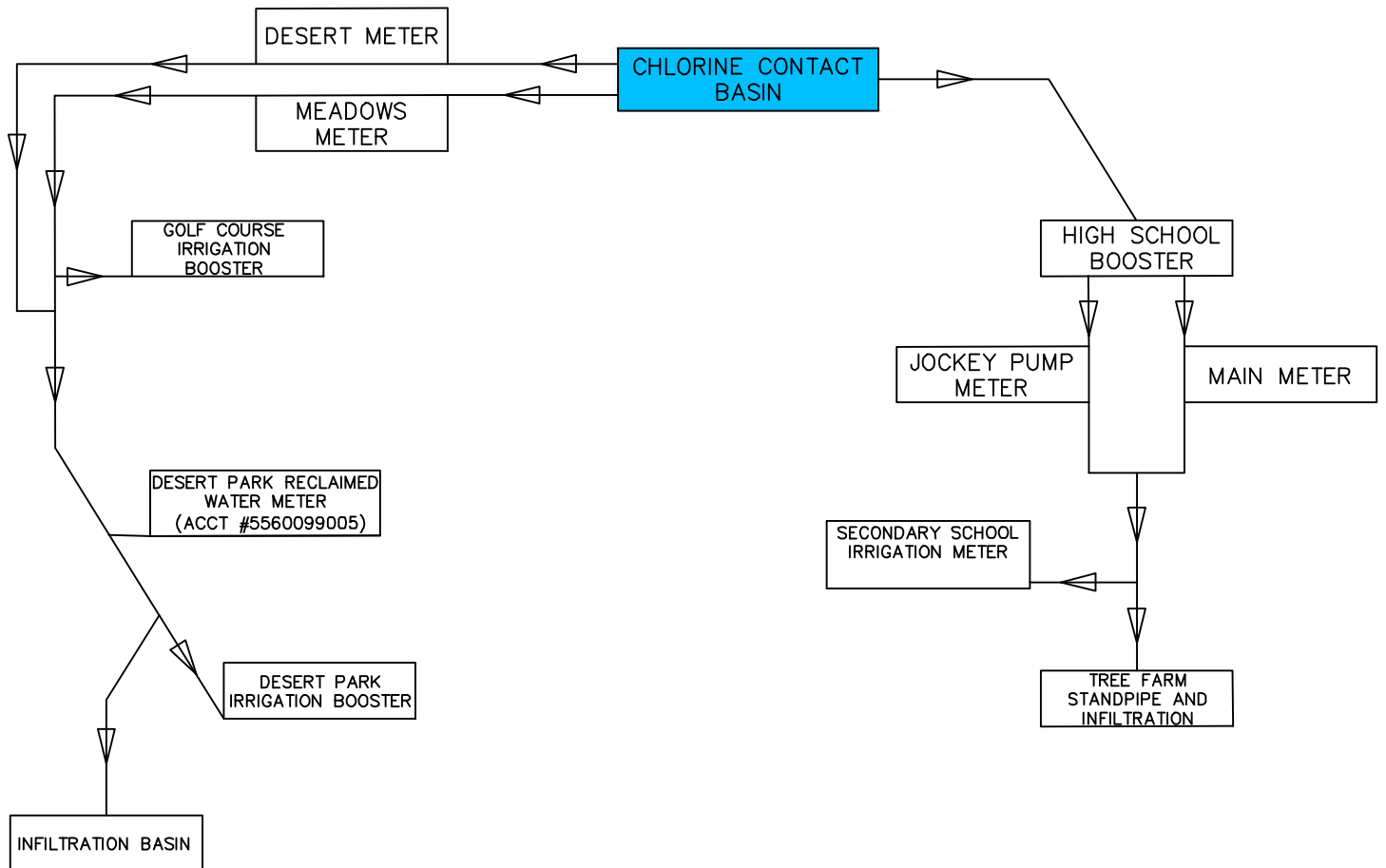
The meters in the “High School Booster” measure reclaimed water to the secondary school and former Tree Farm standpipe. A schematic illustration of the system downstream of the chlorine contact basin is presented in Figure 3-1.

The records of total reclaimed water use by month, as measured by the Desert, Meadows, and High School Booster meters from 2016 to 2024 are presented in Table 3-1. Readings from the meter stations were not taken every day. The monthly totals for each meter station are calculated by taking the last meter reading in each month and subtracting the last reading from the prior month. Operating records indicate that the irrigation was discontinued in November for the Meadows, Desert Nine and High School Booster Station meters. Daily flow readings for the Desert, Meadows, and High School Booster meters for 2024 can be found in Appendix D.

In 2024, the secondary school playing fields were irrigated with domestic water for the first month while necessary repairs were done to the irrigation system. Once the repairs were finished, the system was switched back to reclaimed water for the rest of the season.

The Secondary School Irrigation meter and Desert Park Reclaimed Water Meter data was not provided in 2024.

Historical data for seasonal precipitation for Osoyoos is presented in Appendix E.



METERING SCHEMATIC OF RECLAIMED WATER SYSTEM



DWN. BY: NA

DATE: APRIL 2018

DSGN. BY: TU

SCALE: N.T.S.

DWG. NO.:

REV.:

FIG
3-1

TABLE 3-1: RECLAIMED WATER USAGE

MONTH	2024 DESERT NINE VOLUMES	2024 MEADOWS VOLUMES	2024 HIGH SCHOOL VOLUMES	2024 TOTAL VOLUMES	2022 TOTAL VOLUMES	2021 TOTAL VOLUMES	2020 TOTAL VOLUMES	2019 TOTAL VOLUMES	2018 TOTAL VOLUMES
	m ³	m ³	m ³	m ³	m ³	m ³	m ³	m ³	m ³
January	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0
March	3,592	5,020	14	8,626	31,193	57,615	11,635	3,105	697
April	21,734	36,259	97	58,090	100,297	53,950	75,595	78,915	65,395
May	30,806	39,269	93	70,168	85,744	90,973	56,043	80,262	127,319
June	40,680	54,915	147	95,742	98,062	112,584	76,240	106,908	108,886
July	59,767	83,784	14,709	158,260	166,613	147,687	157,551	137,778	177,376
August	40,294	54,793	10,086	105,173	159,666	94,268	152,967	132,576	163,461
September	20,666	32,225	3,468	56,359	100,269	52,717	69,978	67,976	104,178
October	22,181	26,951	78	49,210	70,457	32,184	37,192	101,958	67,823
November	0	0	0	0	368	373	43,039	83,591	56,674
December	0	0	0	0	0	71	9,592	0	0
TOTALS	239,720	333,216	28,692	601,628	812,669	642,422	689,830	793,069	871,809

Referencing Figure 3-1, derivation of reclaimed water supply to irrigated areas is described as follows. Meter data for the Desert Park Irrigation Meter and Secondary School Irrigation Meter were not provided. As such, the corresponding mass balance calculations and infiltration rates could not be completed.

For the supply to Desert Park:

- | | |
|---|-----------------------|
| - Total metered reclaimed water use in 2024 was | <i>Not provided</i> |
| (minus) calculated volume to infiltration | <i>Not provided</i> |
| (equals) calculation volume to Desert Park | <i>Not Calculated</i> |

For the supply to the High School Area

- | | |
|---|-----------------------|
| - Total metered reclaimed water* at the High School | 28,692 m ³ |
| (minus) metered irrigation use to school | <i>Not provided</i> |
| (equals) calculated volume to Tree Farm Site | <i>Not Calculated</i> |

*High School Booster Main Meter and Jockey Pump Meter

For the Golf Course and Playing Fields:

- | | |
|--|------------------------|
| - Total measured flow (Desert and Meadows) was | 572,936 m ³ |
| (minus) total flow to Desert Park | <i>Not provided</i> |
| (equals) calculated use by Golf Course | <i>Not Calculated</i> |

Golf Course and Ball Diamonds:

- i. Application area: 68 ha

Desert Park:

- i. Application area: 5 ha

Secondary School:

- i. Application area: 2.8 ha

3.3 Reclaimed Water Quality Data (OC 4.1.2, 4.1.3, 5.5.3, 7.2.4.6)

The operational certificate specifies the following sampling and analysis program for reclaimed water (EMS site reference number E207444).

- a) **Monthly:** fecal and total coliforms, MPN/100 mL.
- b) **Monthly:** total phosphorus, mg/L.
- c) **Monthly:** total nitrogen, mg/L.
- d) **Weekly:** chlorine residual, mg/L.

Disinfection is to be maintained in the reclaimed water discharged from the storage reservoirs to the irrigation system. Compliance requires a chlorine residual of ≥ 1 mg/L to be maintained at all times, immediately prior to irrigating. In addition, fecal coliforms shall not exceed 200 MPN per 100 mL for agricultural, silvicultural and low public use lands, or exceed 2.2 MPN per 100 mL for high public use lands. The authorized discharge period for irrigation is during the period of March 15 to November 15 each year.

Sampling data for reclaimed water (EMS Site E207444) is summarized in Table 3-2 and Table 3-3. The chlorine residual (Free mg/L) can be found in Appendix D. The analytical reports are presented in Appendix F.

TABLE 3-2: RECLAIMED WATER QUALITY DATA (E207444)

DATE	FECAL COLIFORMS (MPN/100mL)	TOTAL NITROGEN (MG/L)	TOTAL PHOSPHORUS (MG/L)
(2024) Mar. 19	<1*	24.7	6.13
(2024) May 21	<1	-	5.83
(2024) Jun. 18	<1†	27.8†	5.64†
(2024) Jul. 23	150	24.6	4.24
(2024) Aug. 6	1	-	-
(2024) Aug. 28	<1	17.8	5.28
(2024) Sep.17	<1*	18.1	6.43
(2024) Oct. 08	<1	14.5	6.51

*The sample was prepared and/or analyzed past the recommended holding time.

†Sample has been preserved for Sulphate in the laboratory and the holding time has been extended.

As seen in Table 3-2, no data was recorded in April and there were high fecal coliforms in July. This would be considered an exceedance of the OC criteria for high public use lands.

TABLE 3-3: RECLAIMED WATER USE – CHLORINE RESIDUAL

DATE	CHLORINE RESIDUAL (MG/L)	DATE	CHLORINE RESIDUAL (MG/L)
(2024) Mar. 14	0.66	(2024) Jul. 12	1.13
(2024) Mar. 21	1.71	(2024) Jul. 19	0.14
(2024) Mar. 28	0.11	(2024) Jul. 26	0.2
(2024) Apr. 04	0.17	(2024) Aug. 02	0.12
(2024) Apr. 11	0.2	(2024) Aug. 08	0.32
(2024) Apr. 18	1.3	(2024) Aug. 16	2.2
(2024) Apr. 25	0.55	(2024) Aug. 23	0.67
(2024) May 02	0.32	(2024) Aug. 30	0.51
(2024) May 09	0.21	(2024) Sep. 06	0.45
(2024) May 16	0.3	(2024) Sep. 13	0.68
(2024) May 23	0.56	(2024) Sep. 20	0.11
(2024) May 30	1.83	(2024) Sep. 27	0.31
(2024) Jun. 06	0.32	(2024) Oct. 04	0.53
(2024) Jun. 13	0.27	(2024) Oct. 11	0.5
(2024) Jun. 20	0.45	(2024) Oct. 18	1.15
(2024) Jun. 27	0.38	(2024) Oct. 25	0.26
(2024) Jul. 05	0.66		

Per the requirements for reclaimed wastewater irrigation in the Town's OC Section 4.1.2, a chlorine residual of at least 1 mg/L must be maintained at all times, immediately prior to irrigating. As seen in Table 3-3 this residual is not being achieved consistently during sampling. The Town's operators have described that there is an apparent time difference (approx. 2-6 hours) from the stop of irrigation and chlorination to chlorine residual sampling, during which time free chlorine consumption takes place.

To address these treatment deficiencies, it is TRUE's recommendation to:

- Install an in-line chlorine analyzer which will allow for representative chlorine residual sampling results.
- Re-circulate stagnant treated reclaimed water back into the chlorination system.
- Adjust chlorination as required to achieve the 1 mg/L chlorine residual objective.

These upgrades will assist with observed fecal coliform exceedances and chlorine residual objectives.

3.4 Reclaimed Water Infiltration Bed

In 2013, an infiltration bed was constructed for surplus reclaimed water quantities from the Town's wastewater treatment facility. The infiltration bed was designed for a flow rate of 500 m³/d. The number of days the infiltration bed was used was not recorded in 2024. It is recommended that a flow meter be installed at this location.

4.0 Sludge – Monitoring Program (OC 3.20, 5.6)

In accordance with the Town of Osoyoos' OC Section 3.20, a Sludge Management Plan was prepared for the wastewater treatment facility in April 2019 which can be found in the 2018 Annual report submission - Appendix H. No changes, nor amendments, have been made to the Sludge Management Plan. This document outlines the monitoring, management, and beneficial use of the Town's municipal biosolids.

4.1 Historic Operations Summary (7.2.4.8)

The following summarizes the frequency and volumes of desludging activities to date and an operations overview for sludge removal within each cell:

- Cell No. 1 generally requires sludge removal every 5 years, based on public works operating experience. This is completed by vacuum truck removal and disposal at the Town's municipal landfill hauled liquid waste ponds. This was done most recently in 2021.
- Cell No. 2 has been de-sludged twice (in 2010 and 2023). During the most recent de-sludging, approximately 77,500 kg of sludge was removed from Cell No. 2 and Cell No. 3 collectively. In 2021 the Cell was partially drained, and rags were removed from the diffusers.
- Cell No. 3 has been de-sludged twice (in 2018 and 2023). As noted above, approximately 77,500 kg of sludge was removed from cell No. 2 and Cell No. 3 collectively.

4.2 Analytical Sampling (OC 5.6, 7.2.4.7)

Cell No. 1 is sampled annually as a part of the sludge monitoring program outlined in Section 5.6 of the OC. Sampling for 2024 is outlined in Table 4-1 below. The analytical report is presented in Appendix F.

TABLE 4-1: AERATED LAGOON CELL NO. 1 – SLUDGE SAMPLING RESULTS (E230278)

SLUDGE MONITORING PROGRAM	
ANALYSIS PARAMETER	CELL NO. 1 SEWER SITE (E230278)
Date Sampled	October 8, 2024
Date Reported	October 17, 2024
Work Order	24J1229
GENERAL PARAMETERS	
Total Solids*	7.9%
Moisture	88.2%
Total Volatile Solids*	54.9%
Total Kjeldahl Nitrogen*	1.35%
STRONG ACID LEACHABLE METALS	
Aluminum	4,170 mg/kg dry
Arsenic	9.20 mg/kg dry
Cadmium	1.02 mg/kg dry
Calcium	37,400 mg/kg dry
Chromium	49.8 mg/kg dry
Cobalt	3.26 mg/kg dry
Copper	1,160 mg/kg dry
Iron	13,300 mg/kg dry
Lead	38.6 mg/kg dry
Manganese	198 mg/kg dry
Mercury	2.00 mg/kg dry
Molybdenum	32.6 mg/kg dry
Nickel	37.3 mg/kg dry
Silver	2.54 mg/kg dry
Sodium	1,630 mg/kg dry
Zinc	1,260 mg/kg dry

5.0 System Hydraulic Balance (OC 3.16)

As defined in the OC Section 3.16, the Town is required to operate and maintain the aerated lagoons and the reclaimed wastewater storage reservoir to minimize leakage. A system hydraulic balance represents a methodology to confirm that the system is being operated in accordance with Section 3.16 of the operational certificate. A hydraulic balance for the Town of Osoyoos system in 2024 is presented in Table 5-1.

TABLE 5-1: 2024 SYSTEM HYDRAULIC BALANCE

		<u>As per data</u>	
	Volume in Storage – January 2, 2024	242,926	m ³
(plus)	Total Sewage Inflow	837,562	m ³
(plus)	Freshwater Inflow	0	m ³
(minus)	Total Reclaimed Water Use	601,628	m ³
(minus)	Unaccounted Gains/Losses	250,557	m ³
	Volume in Storage – December 31, 2024	228,303	m ³

As seen in the hydraulic balance, there is an unaccounted loss of 250,557 m³. With a surface area of 11.6 ha and an evaporation rate of 0.8 m/year, there is a potential evaporation loss of 93,000 m³/year, which can account for some of the system losses observed.

6.0 Groundwater Monitoring (OC 5.7, 7.2.4.9)

As per sections 5.7 and 7.2.4.9 of the OC, records of groundwater well elevations and ground/surface water quality are to be reported annually with results reviewed by a qualified professional engineer (hydrogeologist). Presented herein are the 2024 sampling results for the groundwater monitoring programme. A hydrogeological review of the Town of Osoyoos' reclaimed wastewater irrigation and disposal system environmental monitoring programme was reviewed by Wester Water Associates Ltd (WWA) in 2019.

Following this review, the Town of Osoyoos installed the three recommended additional groundwater monitoring wells. Two were installed in 2021 and the third was installed in 2023.

Additionally, a detailed review of the 2024 groundwater monitoring results will be completed by WWA and submitted to the Ministry as an addendum to this report.

6.1 Groundwater Monitoring

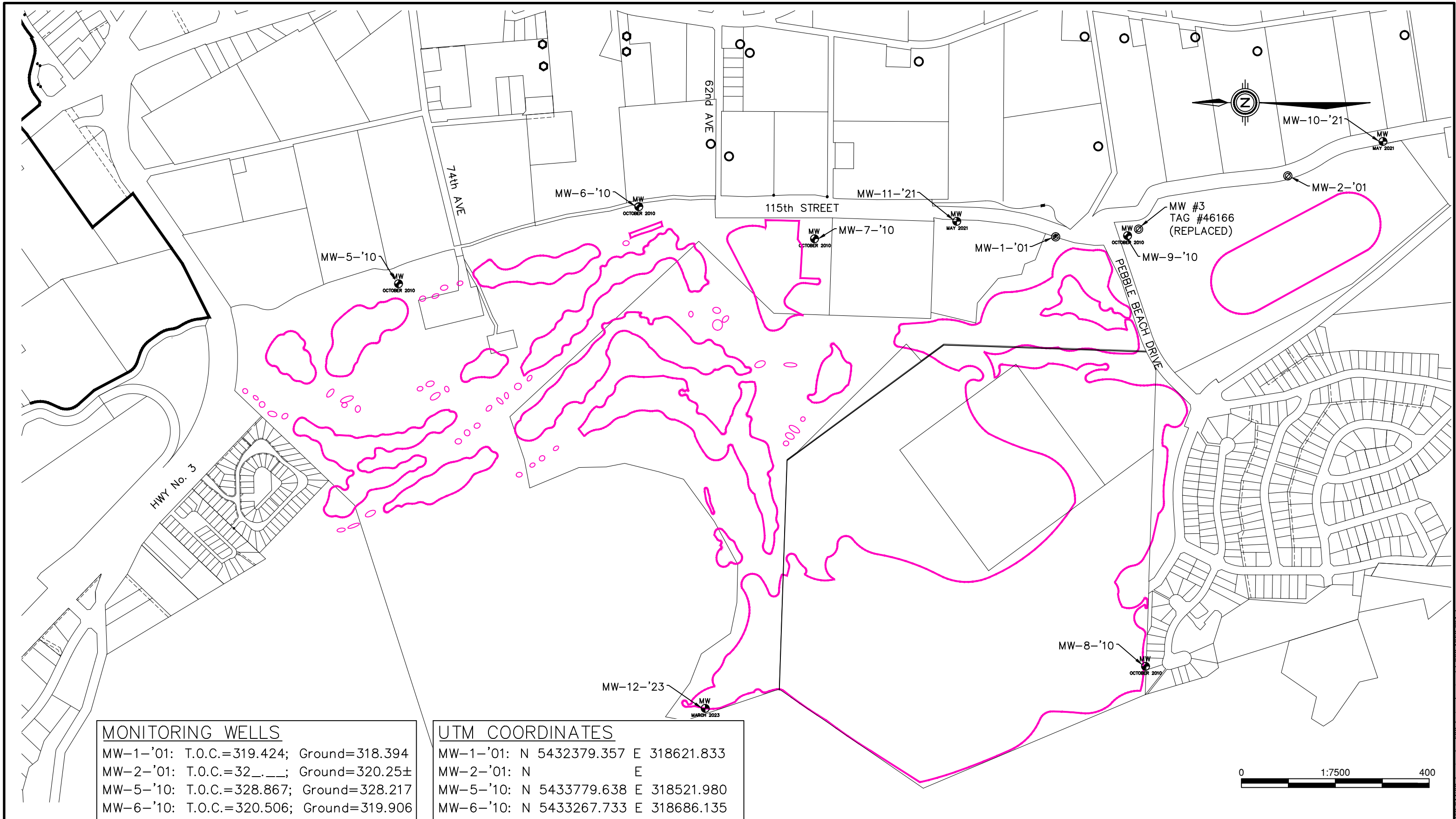
6.1.1 Monitoring Programme

The groundwater monitoring programme consists of semi-annual (May and September) monitoring of groundwater quality and monthly monitoring of water levels in the seven monitoring wells surrounding the treatment facility.

Figure 6-1 illustrates groundwater monitoring wells on the Osoyoos West Bench. Monitoring wells MW 1-'01 and MW 2-'01 represent the original wells drilled in 2001, used to monitor down gradient groundwater quality. MW-5-'10, MW-6-'10, MW-7-'10, MW-8-'10, and MW-9-'10 were drilled in 2010. MW-10-21 and MW-11-21 were drilled in 2021 and MW-12-23 in 2023.

The location of the 10 monitoring wells is illustrated on Figure 6-1. The groundwater monitoring programme consists of the following:

- Monthly measurement of the depth to the groundwater table;
- Semi-annual (May and September) analytical sampling of:
 - Total Dissolved Phosphorus
 - Ammonia (as N)
 - Nitrate-Nitrite (as N)
 - Chloride
 - Sodium
 - Hardness



MONITORING WELLS	
MW-1-'01:	T.O.C.=319.424; Ground=318.394
MW-2-'01:	T.O.C.=32____; Ground=320.25±
MW-5-'10:	T.O.C.=328.867; Ground=328.217
MW-6-'10:	T.O.C.=320.506; Ground=319.906
MW-7-'10:	T.O.C.=328.810; Ground=328.280
MW-8-'10:	T.O.C.=372.078; Ground=371.498
MW-9-'10:	T.O.C.=320.190; Ground=319.420
MW-10-'21:	T.O.C.=317.76; Ground=317
MW-11-'21:	T.O.C.=322.83; Ground=322
MW-12-'23	T.O.C.=382.9; Ground=383

UTM COORDINATES	
MW-1-'01:	N 5432379.357 E 318621.833
MW-2-'01:	N _____ E _____
MW-5-'10:	N 5433779.638 E 318521.980
MW-6-'10:	N 5433267.733 E 318686.135
MW-7-'10:	N 5432893.203 E 318617.742
MW-8-'10:	N 5432187.920 E 317707.195
MW-9-'10:	N 5432226.168 E 318624.341
MW-10-'21:	N 5431682.0 E 318825.0
MW-11-'21:	N 5432590.2 E 318654.9
MW-12-'23:	N 5433126.1 E 317617.6



GOLF COURSE AREA
GROUNDWATER MONITORING WELLS



DRAWN BY: MS
DATE: March 2025

DESIGN BY: NA

SCALE: 1:7500 (11x17)

DWG NO.:
FIGURE 6-1

REV:

FILE: E:\clients\500-589\500-589\DWG\2-1352\11103 drawings\cad\2-1352\11103.dwg

6.1.2 Groundwater Monitoring Data

Two of the seven wells (MW-02-'01 and MW-06-'10) were dry as of the year of 2011.

MW-11-'21 was reported as dry in 2023 and 2024.

In June 2013, groundwater in MW-02-'01 was once again observed and thus measured.

Monthly depth to groundwater levels are measured in each monitoring well. Town staff reporting can be found in Appendix G.

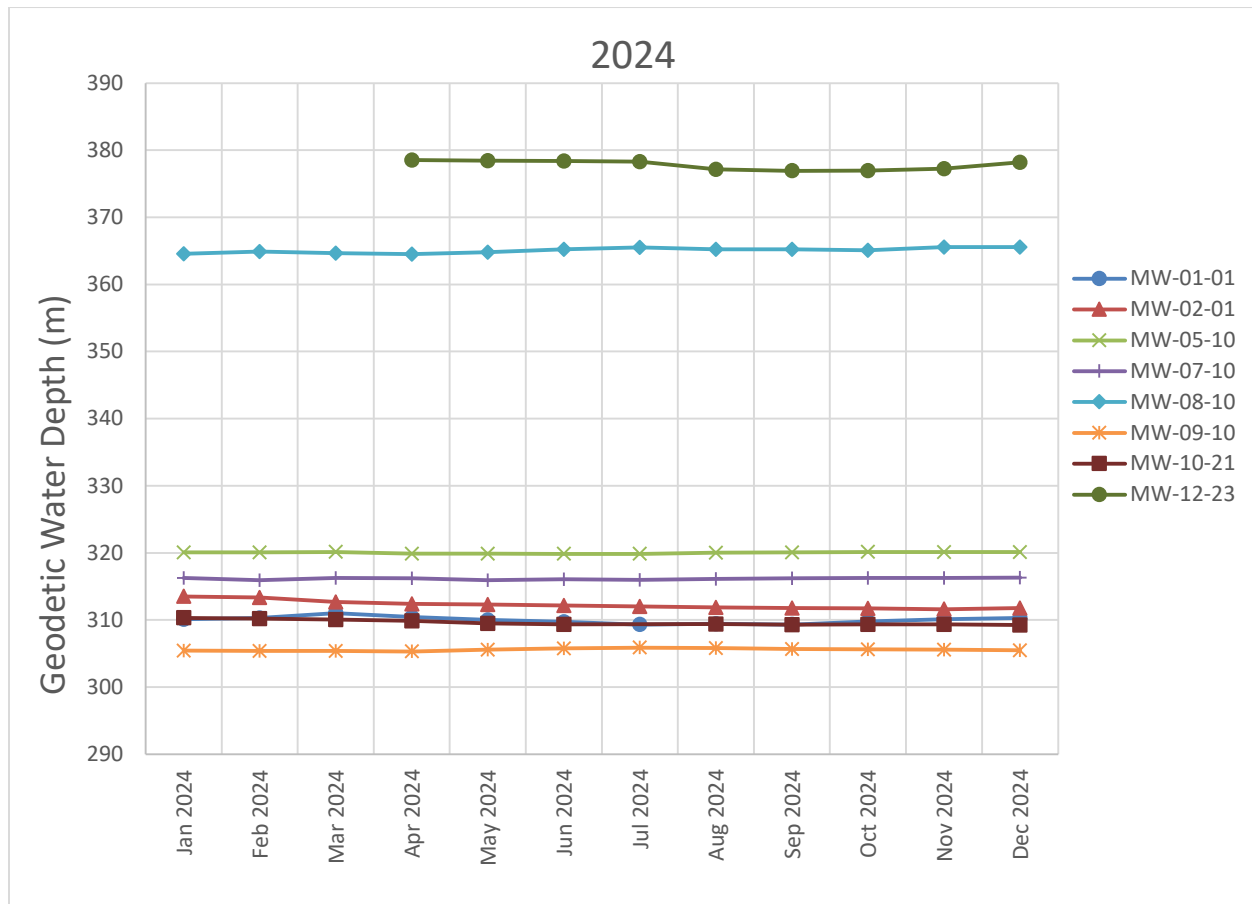


FIGURE 6-2: DEPTH TO GROUNDWATER IN MONITORING WELLS - GOLF COURSE AREA - 2024

As depicted in the above plot of the geodetic levels recorded over 2024, the depth to groundwater is relatively constant.

The analytical results for the five wells tested in 2024 are summarized in the following table. The complete analytical reports for each well can be found in Appendix G.

TABLE 6-1: 2024 GROUNDWATER MONITORING WELL DATA

ANALYSIS PARAMETER	MW-1-01		MW-5-10	
Date	(2024) Sep. 25**	-	(2024) Sep. 25**	-
Total Dissolved Phosphorus	0.0117	-	0.0194	-
Ammonia as N	<0.050	-	<0.050	-
Nitrate+nitrite as N	<0.0100	-	11.5	-
Chloride	18.1	-	301	-
Sodium	38.5	-	139.0	-
Total Hardness (as CaCO₃)	572	-	644	-

ANALYSIS PARAMETER	MW-7-10		MW-8-10 (UP GRADIENT)		MW-9-10	
Date	(2024) Sep. 25**	-	(2024) Sep. 25**	-	(2024) Sep. 25**	-
Total Dissolved Phosphorus	0.0163	-	0.0229	-	0.0607	-
Ammonia as N	<0.050	-	<0.050	-	<0.050	-
Nitrate+nitrite as N	0.032	-	6.14	-	0.395	-
Chloride	5.01	-	32.9	-	2.8	-
Sodium	12.3	-	41.1	-	15.9	-
Total Hardness (as CaCO₃)	225	-	1380	-	150	-

ANALYSIS PARAMETER	MW-10-21		MW-11-21		MW-12-23	
Date	-	-	DRY	-	-	-
Total Dissolved Phosphorus	-	-	-	-	-	-
Ammonia as N	-	-	-	-	-	-
Nitrate+nitrite as N	-	-	-	-	-	-
Chloride	-	-	-	-	-	-
Sodium	-	-	-	-	-	-
Total Hardness (as CaCO₃)	-	-	-	-	-	-

*The sample has been filtered for TDP in the laboratory. Results may not reflect conditions at the time of sampling.

†Sample has been preserved for TDP in the laboratory and the holding time has been extended.

6.2 Groundwater Monitoring Program Review

In May 2019 a hydrogeological review of the Town's reclaimed wastewater irrigation and disposal system environmental monitoring program was completed by Western Water Associates Ltd. (WWAL). This report consisted of all available data up to and including 2017. An update to this report with data collected in 2018 and 2019 was completed in 2020. The updated 2020 report included the following conclusions and recommendations:

- Continued monitoring of water levels and bi-annual sampling at the wells currently being sampled;
- Consider sampling the low flow monitoring wells (MW-2-'01 and MW-6-'10) using low flow sampling techniques (peristaltic or bladder pump);
- Installation and monitoring of two new high priority wells and one new low priority well;
- Detailed review of historical land use in the vicinity of MW-5-'10 in order to identify potential reasons for anomalous quality results;
- Addition of chloride and sodium analysis of reclaimed water at EMS sampling site E207444.

Installation of two new wells in 2021 and one in 2023 were completed. These three new wells were not sampled in 2024. The 2024 data of the sampled wells from September is consistent with previous historic trends and these conclusions remain relevant.

Sodium analysis has been added to EMS sampling site E207444, as was recommended in the 2020 report.

7.0 Operator Certification

The Town of Osoyoos is a Municipal Wastewater Treatment Class I (MWWT-I) facility under the Environmental Operators Certification Program (Facility #243). This classification was renewed in 2018. In compliance with OC Section 3.8, operator certification is summarized as follows:

Manuel Mora	Water Quality and Sampling for Water and Wastewater Chlorine Handling Certified Ground Water Distribution Level II First Aid Ticket
Dave Gordin	Water Distribution Level I
Kolton Allen	Wastewater Treatment Level I Chlorine Handling Certified Transportation of Dangerous Goods (TDG)
Kevin Carlston	Chlorine Handling Certified WD Level III Confined Space Rescue Ground Water Distribution
Brendon Jone	Water Level II Wastewater Level I Confined Space Chlorine Handling Certified
Sean Faley	Confined Space Entry Water Distribution Level II Water Treatment Level II Wastewater Treatment Level I Wastewater Small Systems Chlorine Handling Certified Gas Detection Fall Protection Transportation of Dangerous Goods (TDG)

8.0 Non-Compliance and Recommendations

Table 8-1 provides a summary of non-compliance items and recommended remedial actions to be completed by the Town.

TABLE 8-1 2024 NON-COMPLIANCE ITEMS

OC SECTION	NON-COMPLIANCE	REMEDIAL ACTION
4.1.2, 5.5.3	Weekly chlorine residual of at least 1 mg/L must be maintained at all times, immediately prior to irrigating. This residual is not being achieved consistently during sampling.	It is recommended that the Town: - Install an in-line chlorine analyzer which will allow for representative chlorine residual sampling results. - Re-circulate stagnant treated reclaimed water back into the chlorination system. - Adjust chlorination as required to achieve the 1 mg/L chlorine residual objective.
4.1.3, 5.5.3	Fecal coliforms shall not exceed 200 MPN per 100 mL for agricultural, silvicultural and low public use lands, or exceed 2.2 MPN per 100 mL for high public use lands. On July 23, 2024 the fecal coliforms greatly exceeded the requirement of 2.2 MPN per 100 ml. It was tested at 150 MPN per 100 ml.	It is recommended that the Town: Maintain compliant chlorine residual levels post chlorine contact chamber.
5.5.3	A sample for analysis of the reclaimed water to be used for irrigation is to be obtained for the following: - Fecal coliforms MPN/100 mL, monthly; - Total coliforms MPN/100 mL, monthly; - total phosphorus mg/L, monthly; - total nitrogen mg/L, monthly; and - chlorine residual mg/L, weekly. With the exception of the chlorine residual, no other testing was done in the month of April.	The Town is to complete monthly reclaimed water grab sampling as per Section 5.5.3 of the OC in 2025.
5.2, 7.2.4.2	Sampling of the plant influent is to be obtained semi-annually. The Town is to obtain analysis of the influent sample for the following: - total phosphorus and ortho phosphorus, expressed as P in mg/L; and 5-day biochemical oxygen demand, mg/L. The Town only obtained one sample in 2024 and it was analyzed for chemical oxygen demand (COD) in place of 5-day biochemical oxygen demand.	The Town is to complete semi-annual influent sampling of total phosphorus, ortho phosphorus, and 5-day biochemical oxygen demand as per Section 5.2 of the OC in 2025.

5.3.2, 7.2.4.3	5.3.2 of the OC specifies that the effluent after Cell No. 3 be sampled as follows: a) 5-day biochemical oxygen demand, mg/l, monthly; b) total suspended solids (non-filterable residue), mg/L, monthly; c) total phosphorus, ortho phosphorus and total dissolved phosphorus, all expressed as mg/L P, semi-annually; and d) total nitrogen, ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, and organic nitrogen, all expressed as mg/L N, semi-annually. These testing increments are not being properly maintained. The chemical oxygen demand (COD) is being measured in place of 5-day biochemical oxygen demand for several months.	The Town must ensure that all testing increments for the samples are being met and that the proper testing methods are being used.
5.7.3, 7.2.4.9	The ground water monitoring program specifies that a ground water depth measurement is to be recorded monthly and analytical sampling is to be completed semi-annually for all 10 wells. Not all monitoring wells were measured for depth and/or sampled in 2024.	The Town is to ensure measurements and analytical sampling is completed for all 10 monitoring wells as per the schedule outlined in the ground water monitoring program.

9.0 Capital Project Budget 2025

The town has the following capital projects anticipated for 2025:

- CCTV Program
- Magnolia Place Sanitary Sewer and Water Replacement
- Manhole Smart Covers
- Piazza Lift Station Replacement
- Marina WWPS
- Quail Place Sanitary Sewer Reconstruction
- Ponderosa Dr. Sanitary Upgrades and Watermain Replacement

APPENDIX A

Influent Flow Summaries (OC 7.2.4.10)

Golf Course Vaughn Pump Station 2024																		
Inspection				Total Volume m3		Wet Well			Pump 1					Pump 2				
Month	Date	Time	Operator	Total	Demand	PSI	GPM	Well %	Total Hours	Run Time	Amps	Hz	Oil	Total Hours	Run Time	Amps	Hz	Oil
January	10	12:50PM	GW	219547	136			1.31	2350	3.35			Good	2291	1.59			Good
January	17	2:30PM	GW	220533	142		206	1.53	2368	2.67			Good	2303	1.66	16	65	Good
January	24	9:35AM	GW	221437	126		191	1.37	2386	2.23	16	65	Good	2315	1.6	0	0	Good
February	1	11:20AM	GW	222546	136		162	1.66	2404	2.09			Good	2329	1.64	15	65	Good
February	6	9:35AM	GW	223239	132		165	1.7	2415	2.01	18	65	Good	2337	1.69	0	0	Good
February	7	11:35AM	MM	223386	140		75	1.54	2418	2.61	14	65	Good	2339	1.84	0	0	Good
February	13	11:18	GW	224210	140		0	1.47	2431	1.72		65	Good	2350	3.11	0	65	Good
February	14	11:27PM	MM	224338	142		81	1.62	2433	2.46			Good	2353	2.27	14	65	Good
February	15	1:10PM	GW	224492	140		190	1.5	2435	1.64	17	65	Good	2356	3.01	0	0	Good
February	16	12:50PM	GW	224628	142		175	1.7	2437	1.78	0	0	Good	2358	2.86	16	65	Good
February	20	9:17AM	MM	225186	150		103	1.35	2445	2.16	14	65	Good	2367	2.03	0	0	Good
February	21	11:45AM	GW	225322	140		0	1.21	2447	1.85	0	0	Good	2369	2.16	0	0	Good
February	23	11:20AM	GW	225616	140		201	1.7	2452	2.25	16	65	Good	2373	1.94	0	0	Good
February	27	1:34 PM		226256	149		0	1.3	2461	2.52	0	0	Good	2382	1.99	0	0	Good
March	5	8:42 AM		227356	155		195	1.55	2480	3	16.8	65	Good	2395	1.85	0	0	Good
March	6	9:35AM	GW	227502	147		0	1.3	2482	2.33	0	0	Good	2396	1.74	0	0	Good
March	7	12:57PM	GW	227683	146		195	1.19	2485	2.04	16	65	Good	2398	1.81	0	0	Good
March	11	11:20AM	GW	228282	159		84	1.7	2495	2.84	15	65	Good	2406	2.01	0	0	Good
March	12	2:40PM	GW	228459	152		199	1.59	2498	2.76	0	0	Good	2408	1.99	16	65	Good
March	13	1:35PM	GW	228617	155		0	1.32	2500	2.42	0	0	Good	2410	2.06	0	0	Good
March	14	10:40AM	GW	228755	148		0	1.23	2502	2.32	0	0	Good	2412	1.88	0	0	Good
March	15	10:30AM	GW	228896	151		0	1.18	2505	2.43	0	0	Good	2414	2.4	0	0	Good
March	19	1:19 PM		229528	157		89	1.52	2517	2.75	14.6	65	Good	2422	2	0	0	Good
March	25	11:19 AM		230459	166		0	1.22	2532	2.7	0	0	Good	2434	2.2	0	0	Good
April	3	11:35AM	GW	231939	149		56	1.7	2558	3.98	15	65	Good	2451	1.59	0	0	Good
April	4	1:45 AM		232123	150		0	1.36	2562	3.77	0	0	Good	2453	1.61	0	0	Good
April	8	10:51 AM		232759	154		165	1.68	2574	3.11	16.5	60	Good	2460	1.62	0	0	Good
April	10	2:55 PM		233167	167		225	1.62	2582	3.5	0	0	Good	2463	1.73	16	65	Good
April	15	11:27 AM		233894	155		0	1.34	2596	2.54	0	0	Good	2471	1.4	0	0	Good
April	18	8:56 AM		234314	152		81	1.53	2603	2.68	15	65	Good	2475	1.36	0	0	Good
April	23	1:45PM	GW	235041	153		270	1.45	2619	2.68	0	0	Good	2482	1.43	15	65	Good
April	26	11:45PM	MM	235452	151		0	1.44	2627	2.8	0	0	Good	2486	1.3	0	0	Good
April	30	11:30AM	GW	236013	151		0	1.31	2637	2.68	0	0	Good	2491	1.38	0	0	Good
May	6	11:20AM	GW	236918	159		230	1.25	2651	1.62	16	65	Good	2507	2.89	0	0	Good
May	9	2:28 PM		237396	154		98	1.47	2657	1.86	14	65	Good	2515	2.75	0	0	Good
May	14	11:40PM	MM	238129	156		0	1.3	2665	1.99	0	0	Good	2528	2.71	0	0	Good
May	15	1:35PM	GW	238287	151		208	1.53	2668	2.1	0	0	Good	2531	2.42	15	65	Good
May	16	12:48 PM		238436	154		62	1.51	2669	1.91	0	0	Good	2534	3.21	15	65	Good
May	17	2:59 PM		238598	149		0	1.32	2571	1.49	0	0	Good	2538	3.57	0	0	Good
May	21	1:45PM	GW	239307	177		240	1.6	2679	1.82	16	65	Good	2551	4.1	0	0	Good
May	22	2:41PM	MM	239496	161		0	1.17	2681	1.56	0	0	Good	2555	3.6	0	0	Good
May	24	8:37AM	MM	239757	157		159	1.24	2638	1.61	16	65	Good	2562	3.41	0	0	Good
May	27	7:45AM	GW	240325	171		195	1.62	2689	2.04	0	0	Good	2572	3.8	16	65	Good
May	28	1:38 PM		240511	165		0	1.27	2691	1.72	0	0	Good	2576	3.01	0	0	Good
May	30	11:05AM	KF	240848	168		0	1.34	2695	2.04	0	0	Good	2580	2.33	0	0	Good

				Golf Course Vaughn Pump Station 2024															
Inspection				Kiosk								Pump Can						VC	
Month	Date	Time	Operator	Heater	Fan	Insulation	Clean	Antenna	Blower	Odor Control	Security	Chains	Cables	Rails	Can	H2S	Security	Temp	Security
January	10	12:50PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
January	17	2:30PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
January	24	9:35AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	1	11:20AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	6	9:35AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	7	11:35AM	MM	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	13	11:18	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	14	11:27PM	MM	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	15	1:10PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	16	12:50PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	20	9:17AM	MM	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	21	11:45AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	23	11:20AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
February	27	1:34 PM		Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
March	5	8:42 AM		Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
March	6	9:35AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
March	7	12:57PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	11	11:20AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	12	2:40PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	13	1:35PM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	14	10:40AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	15	10:30AM	GW	Working		Winterized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	19	1:19 PM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
March	25	11:19 AM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	3	11:35AM	GW	Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	4	1:45 AM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	8	10:51 AM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	10	2:55 PM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	15	11:27 AM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	18	8:56 AM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	23	1:45PM	GW	Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
April	26	11:45PM	MM	Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		
April	30	11:30AM	GW	Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	6	11:20AM	GW	Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
May	9	2:28 PM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	14	11:40PM	MM	Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	15	1:35PM	GW		Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	16	12:48 PM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	17	2:59 PM		Working	Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	21	1:45PM	GW		Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	22	2:41PM	MM		Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	24	8:37AM	MM		Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure
May	27	7:45AM	GW		Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	28	1:38 PM			Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Dirty		Secure		Secure
May	30	11:05AM	KF		Working	Summerized	Yes	Good	Working	Good	Secure	Good	Good	Good	Clean		Secure		Secure

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Main Lift 2024																						
Inspection				Total Volume m3		Low Lift Pump #1		Low Lift Pump #2		Low Lift Pump #3		Odor Control Fan		Drum Screen #1		Drum Screen #2		Auger Press #1		Auger Press #2		
Month	Date	Time	Op	Total	Demand	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	
April	2	10:31		32041	1952	3194	2.14	3144	1.98	3110	2.04	32440.3	24	11329.6	16.7	11348.9	16.7	602.5	0.9	606	0.9	
April	3	8:58 AM		33739	2006	3196	2.14	3146	2.12	3112	2.01	32462.7	24	11336.3	6.7	11355.5	6.6	602.9	0.4	606.4	0.4	
April	4	9:07 AM		35742	1952	3198	2.06	3148	2.02	3114	2.01	32486.9	24	11343.8	7.5	11363.1	7.6	603.3	0.4	606.8	0.4	
April	5	1:25PM	GW	38114	1966	3201	2.08	3150	2.04	3116	2.03	32515.1	24	11352.9	9.1	11372.2	9.1	603.8	0.5	607.3	0.5	
April	8	8:36 AM		43850	2014	3207	2.18	3156	2.14	3122	2.06	32583	24	11374.8	21.9	11394	21.8	604.9	1.1	608.4	1.1	
April	9	9:30AM	GW	45976	2166	3209	2.31	3159	2.27	3124	2.23	32607.3	24	11382.8	8	11402.1	8	605.4	0.5	608.9	0.5	
April	10	1:00 PM		48413	2106	3212	2.24	3161	2.15	3127	2.2	32634.8	24	11392.1	9.3	11411.3	9.2	605.9	0.5	609.4	0.5	
April	11	10:30AM	GW	50100	1924	3213	2.07	3163	2.12	3128	2	32656.2	24	11398.6	6.5	11417.5	6.2	606.2	0.3	609.7	0.3	
April	12	9:23 AM		52071	2150	3215	2.29	3165	2.31	3130	2.22	32679.1	24	11406.1	7.5	11425	7.5	606.6	0.4	610.1	0.4	
April	15	9:21		58146	2138	3222	2.2	3172	2.21	3137	2.27	32751.2	24	11429.3	23.2	11448.3	23.3	607.8	1.2	611.4	1.3	
April	16	7:54 AM		59897	1932	3224	2.04	3173	2.08	3139	1.97	32773.7	24	11436.1	6.8	11455	6.7	608.2	0.4	611.7	0.3	
April	17	2:34 PM		62543	1951	3227	2.1	3176	2.06	3141	2.01	32804.3	24	11446.2	10.1	11465.2	10.2	608.7	0.5	612.3	0.6	
April	18	9:27 AM		63930	1897	3228	2.16	3178	1.96	3143	2.02	32823.2	24	11451.6	5.4	11470.6	5.4	609	0.3	612.6	0.3	
April	19	8:14 AM	GW	74379	2224	3239	2.39	3189	2.36	3154	2.33	32942	24	11462	10.4	11480.9	10.3	609.6	0.6	613.1	0.5	
April	22	2:31PM	MM	73060	2106	3238	2.17	3187	2.26	3152	2.18	329244	24	11486	24	11505.3	24.4	610.9	1.3	614.4	1.3	
April	23	8:20 AM		74404	2224	3239	2.39	3189	2.36	3154	2.33	32942.1	24	11491.7	5.7	11510.6	5.3	611.2	0.3	614.7	0.3	
April	24	9:03 AM		76447	1982	3242	2.08	3191	2.1	3156	2.05	32966.8	24	11499.6	7.9	11518.5	7.9	611.6	0.4	615.1	0.4	
April	25	11:37AM		78764	1976	3244	2.15	3193	2.08	3158	2.08	32993.4	24	11508.5	8.9	11527.4	8.9	612.1	0.5	615.6	0.5	
April	26	10:44AM	GW	89254	2025	3255	2.24	3205	2.09	3169	2.12	33112.5	24	11548.6	40.1	11567.6	40.2	614.2	2.1	616	0.4	
April	29	2:40PM	MM	8																		

				Main Lift 2024																							
Inspection				High Lift Pump #1		High Lift Pump #2		High Lift Pump #3		Bypass Pump #1		Bypass Pump #2		Room Temperatures					H2S/LEL Levels					Low Lift	High Li		
Month	Date	Time	Op	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Odor Control	Screen	High Lift	Electrical	Mechanical	Odor Control	Screen	High Lift	Electrical	Mechanical	Well %	Well %	PSI	
April	2	10:31		3121	2.84	3076	2.75	2476	0	11	0	9	0	25.7	18.9	19.6	24.1	20.1		0/0.1	0/0			1	1	97	
April	3	8:58 AM		3123	3.04	3078	2.71	2476	0	11	0	9	0	25.5	18.6	19.1	24	20.6		0/0	0/0			1.85	1.35	109	
April	4	9:07 AM		3126	2.81	3081	2.76	2476	0	11	0	9	0	23.8	17	18.1	24	20.4		0/0	0/0			1.09	1.04	109	
April	5	1:25PM	GW	3130	2.73	3084	2.89	2476	0	11	0	9	0	21	15	16	24	21		0/0	0/0			1.07	1.4	109	
April	8	8:36 AM		3138	2.83	3092	2.9 5	2476	0	11	0	9	0	22	15.3	16.1	24.1	21.3		0/0	0/0			0.83	1.81	110	
April	9	9:30AM	GW	3141	3.3	3095	2.9	2476	0	11	0	9	0	22	16	16	24	22		0/0	0/0			1.27	1.19	97	
April	10	1:00 PM		3145	3.13	3098	2.9	2476	0	11	0	9	0	25.2	18.3	18.6	23.9	20.3		0/0.1	0/0			1.77	0.91	97	
April	11	10:30AM	GW	3147	2.79	3101	2.74	2476	0	11	0	9	0	24	17	18	24	20		0/0	0/0			1.12	1.08	97	
April	12	9:23 AM		3150	3.07	3104	3.11	2476	0	11	0	9	0	24.2	18.1	18.7	24	20.3		0/0.1	0/0			1.63	1.04	110	
April	15	9:21		3159	3.2	3112	2.95	2476	0	11	0	9	0	28.5	21.8	22	24.8	21.4		0/0.1	0/0			1.51	0.95	111	
April	16	7:54 AM		3161	2.82	3115	2.73	2476	0	11	0	9	0	25.8	16.3	18.7	24.9	21		0/0.1	0/0			1.59	0.57	111	
April	17	2:34 PM		3165	2.75	3119	2.83	2476	0	11	0	9	0	26.3	19.5	19.8	23.9	20.3		0/0.1	0/0			1.52	1.42	110	
April	18	9:27 AM		3167	2.63	3121	2.79	2476	0	11	0	9	0	23.6	16.1	17	23.9	20.2		0/0.1	0/0			1.8	1.48	105	
April	19	8:14 AM	GW	3171	2.98	3125	2.73	2476	0	11	0	9	0	27	20	20	24	20		0/0.1	0/0			1.04	0.9	110	
April	22	2:31PM	MM	3180	3.06	3134	3	2476	0	11	0	9	0	28	21	21	24	20		0/0.1	0/0			0.83	1.42	97	
April	23	8:20 AM		3182	3.2	3136	3.27	2476	0	11	0	9	0	23.6	15.2	18.4	25	21.1		0/0.1	0/0			1.79	0.6	109	
April	24	9:03 AM		3185	2.97	3139	2.74	2476	0	11	0	9	0	20.8	15.8	16.6	24.4	20.3		0/0	0/0			1.33	1.82	110	
April	25	11:37AM		3189	2.85	3142	2,86	2476	0	11	0	9	0	19.7	15.8	16.8	24.2	20.5		0/0	0/0			1.63	1.13	111	
April	26	10:44AM	GW	3192	2.89	3145	3.01	2476	0	11	0	9	0	19													

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Main Lift 2024									
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Main Lift 2024									
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Inspection				High Lift Pump #1		High Lift Pump #2		High Lift Pump #3		Bypass Pump #1		Bypass Pump #2		Room Temperatures					H2S/LEL Levels				
Month	Date	Time	Op	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Odor Control	Screen	High Lift	Electrical	Mechanical	Odor Control	Screen	High Lift	Electrical	Mechanical
August	1	13:24	KA	3471	4.06	3413	3.02	2633	2.62	12	0	10	0	31.9	29.3	22.2	21.1	25.1		0/0.1	0/3		
August	2	8:05AM	GW	3473	2.76	3415	2.72	2635	2.79	12	0	10	0	30	27	19	21	25		0/0.1	0/3.6		
August	4	9:30AM	KF	3479	3.25	3421	3.32	2641	2.86	12	0	10	0	31	28	21	21	26		0/.1	0/3		
August	6	11:30AM	KF	3487	3.44	3428	3	2647	2.86	12	0	10	0	31	28	21	21	25		0/.1	0/2.9		
August	7	11:10AM	MM	3492	3.2	3431	2.81	2650	2.74	12	0	10	0	31	28	20	21	25		0/0	0/3		
August	8	6:55AM	GW	3492	2.9	3433	2.92	2652	2.44	12	0	10	0	28	25	17	20	25		0/0.1	0/4.3		
August	9	9:20AM	GW	3495	2.74	3436	2.72	2655	2.74	12	0	10	0	30	27	19	21	25		0/0.1	0/3.5		
August	12	1:15PM	MM	3506	2.94	3445	2.9	2663	2.45	12	0	10	0	30	27	20	21	25		0/0	0/3.6		
August	13	11:04AM	MM	3509	3.09	3448	2.62	2666	2.68	12	0	10	0	29	26	19	21	25		0/0.1	0/4.3		
August	14	11.15AM	KF	3511	2.81	3450	2.94	2668	2.49	12	0	10	0	28	25	18	21	24		0/.1	0/4.8		
August	15	11:02AM	MM	3514	2.72	3453	2.6	2671	2.48	12	0	10	0	29	26	18	21	24		0/.1	0/4.8		
August	16	1:05PM	GW	3518	2.8	3456	2.63	2673	2.53	12	0	10	0	29	26	19	21	24		0/0.1	0/4.3		
August	19	8:06 AM	KA	3525	2.69	3463	2.68	2680	2.47	12	0	10	0	27	24.4	16.4	21.6	24.6		0/0.1	0/4.8		
August	20	7:54 AM	KA	3527	2.45	3465	2.6	2682	2.42	12	0	10	0	26.7	23.4	16.3	21.4	24.1		0/0.1	0/4.6		
August	21	9:11 AM	KA	3530	2.71	3468	2.62	2685	2.39	12	0	10	0	26.2	23.7	16.4	21.1	24.2		0/0.1	0/5.9		
August	22	11:35AM	GW	3533	2.84	3471	2.3	2688	2.39	12	0	10	0	27	24	17	21	23		0/0.1	0/5.4		
August	23	10:23AM	KA	3536	2.47	3473	2.5	2690	2.37	12	0	10	0	27.1	24.6	17.6	21.2	23.3		0/0.1	0/5.4		
August	26	11:35AM	KA	3545	2.72	3482	2.62	2697	2.34	12	0	10	0	24.5	22.2	21.6	21.6	22.5		0.6/0.1	0/4.4		
August	27	1:40 PM	KA	3548	2.71	3484	2.61	2700	2.37	12	0	10	0	27	23.8	20.8	20.8	23.1		0/0.1	0/2.8		
August	28	1:34 PM	KA	3550	2.57	3487	2.44	2702	2.28	12	0	10	0	26.4	23.1	22.5	21.3	22.6		0/0.1	0/3.4		
August	29	2:34 PM	KA	3553	2.59	3489	2.27	2705	2.14	12	0	10	0	27.9	24.3	24.1	21.3	23		0/0.1	0/3		

Main Lift 2024

Inspection				Total Volume m3		Low Lift Pump #1		Low Lift Pump #2		Low Lift Pump #3		Odor Control Fan		Drum Screen #1		Drum Screen #2		Auger Press #1		Auger Press #2	
Month	Date	Time	Op	Total	Demand	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time
September	3	6:44AM	MM	420722	2618	3607	2.82	3552	2.78	3511	2.68	316132.6	24	12796.9	38.5	12815.9	38.5	680.3	2.1	684.1	2.1
September	4	1:12 PM	KA	423815	2351	3611	2.51	3555	2.42	3514	2.42	36163	24	12809	12.1	12828	12.1	680.9	0.6	684.8	0.7
September	5	12:46PM	KA	426067	2231	3613	2.36	3557	2.32	3516	2.36	36186.6	24	12817.8	8.8	12836.7	8.7	681.4	0.5	685.2	0.4
September	6	7:56 AM	KA	427715	2321	3615	2.43	3559	2.56	3518	2.4	36206	24	12824.3	6.5	12843.3	6.6	681.7	0.3	685.6	0.4
September	9	8:51 AM	KA	434918	2320	3623	2.55	3567	2.45	3526	2.42	36278.7	24	12852	27.7	12871	27.7	683.2	1.5	687	1.4
September	10	11:30AM	KA	437708	2313	3626	2.52	3570	2.47	3528	2.34	36305.3	24	12862.8	10.8	12881.8	10.8	683.7	0.5	687.6	0.6
September	11	1:21 PM	KA	440062	2264	3628	2.44	3572	3572	3531	2.4	36331.7	24	12872.1	9.3	12891	9.2	684.2	0.5	688.1	0.5
September	12	11:17AM	KA	442006	2157	3630	2.38	3574	2.31	3533	2.3	36353.3	24	12879.8	7.7	12898.8	7.8	684.6	0.4	688.5	0.4
September	13	11:17AM	KA	444333	2219	3633	2.38	3577	2.29	3536	2.29	36377.4	24	12888.8	9	12907.8	9	685.1	0.5	689	0.5
September	16	1:12 AM	KA	451570	2317	3641	2.49	3584	2.47	3543	2.45	36451.1	24	12916.6	27.8	12935.9	28.1	686.6	1.5	690	1
September	17	2:35 PM	KA	454062	2277	3643	2.47	3546	2.42	3546	2.29	36476.4	24	12926.6	10	12945.6	9.7	687.1	0.5	691.1	1.1
September	18	1.32 PM	KA	456163	2340	3645	2.55	3589	2.44	3548	2.46	36499.4	24	12934.7	8.1	12953.7	8.1	687.5	0.4	691.4	0.3
September	19	1:00PM	MM	458229	2218	3648	2.33	3591	2.33	3550	2.31	36522.8	24	12942.8	8.1	12961.8	8.1	688	0.5	691.9	0.5
September	20	9:20AM	MM	459950	2126	3659	2.34	3593	2.22	3552	2.16	36534.2	24	12949.5	6.7	12968.5	6.7	688.3	0.3	692.2	0.3
September	23	9:30 AM	KA	466597	2129	3657	2.38	3600	2.25	3559	2.26	36615.4	24	12975.4	25.9	12994.4	25.9	689.7	1.4	693.6	1.4
September	24	1:40PM	MM	469527	2175	3660	2.33	3603	2.3	3562	2.3	36643.6	24	12986.7	11.3	13005.7	11.3	690.3	0.6	694.2	0.6
September	25	11:33AM		471339	2385	3662	2.51	3605	2.46	3564	2.44	36665.4	24	12993.9	7.2	13012.9	7.2	690.6	0.3	694.6	0.4
September	26	1:30 PM		473707	2015	3664	2.19	3608	2.18	3566	2.11	36691.4	24	13003.1	9.2	13022.1	9.2	691.1	0.5	695.1	0.5
September	27	1:04 PM	KA	475893	2155	3667	2.35	3612	2.26	3568	229	36714.9	24	13011.5	8.4	13030.5	8.4	691.6	0.5	695.5	0.4
September																					

Main Lift 2024	
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				Main Lift 2024																			
Inspection				High Lift Pump #1		High Lift Pump #2		High Lift Pump #3		Bypass Pump #1		Bypass Pump #2		Room Temperatures					H2S/LEL Levels				
Month	Date	Time	Op	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Total Hours	Run Time	Odor Control	Screen	High Lift	Electrical	Mechanical	Odor Control	Screen	High Lift	Electrical	Mechanical
October	1	2:40PM	MM	3629	2.52	3563	2.44	2773	2.04	12	0	10	0	22	20	19	21	21		0/.1	0/6.1		
October	2	1:15PM	KF	3631	2.15	3564	2.28	2775	1.99	12	0	10	0	21	18	19	21	21		0/.1	0/6.3		
October	3	2:30 PM		3633	1.91	3566	1.75	2777	2	12	0	10	0	22	19	18	22	21		0/0.1	0/6.3		
October	4	12:50PM	MM	3635	2.08	3568	1.73	2779	1.91	12	0	10	0	18	16	16	21	21		/0.01	0/6.6		
October	9	1:23 PM	KA	3645	1.97	3578	2	2788	1.82	12	0	10	0	22	19.4	19.6	21.6	21.1		0/0.1	0/7		
October	10	11:30AM		3647	1.94	3580	2.19	2790	1.9	12	0	10	0	20	18	18	21	21		0/0.1	0/6.4		
October	11	9:17 AM	KA	3649	2.25	3582	2.19	2792	2.07	12	0	10	0	16.8	14.9	14.3	21.4	20.6		0/0.1	0/6.6		
October	13	11:41AM	KA	3653	2.03	3586	2.11	2796	1.84	12	0	10	0	18.9	16.2	16.5	21.7	20		0/0	0/6.9		
October	15	3:07 PM	KA	3659	2.47	3591	2.2	2800	1.9	12	0	10	0	22.5	19.5	20.6	21.3	20.9		0//0.1	0/6.3		
October	12:00 AM	1:09 PM	KA	3660	2.34	3592	1.99	2802	2.04	12	0	10	0	20.5	18.3	18.7	21	21.1		0/0.1	0/7.8		
October	17	11:28AM	KA	3662	1.98	3594	1.91	2804	1.7	12	0	10	0	18.5	15.8	16	21.4	20.1		0/0	0/7.1		
October	23	1:21 PM	KA	3674	2.04	3505	2.07	2814	1.84	12	0	10	0	17.2	14.4	14.1	20.9	19.1		0/0	0/7.8		
October	24	11:00AM		3675	1.88	3607	1.74	2816	1.9	12	0	10	0	14	12	12	21	18		0/0	0/7.8		
October	25	9:19 AM	KA	3677	1.87	3609	1.98	2817	1.78	12	0	10	0	12.9	11.6	10.4	19.7	18		0/0	0/7.8		
October	28	1:05PM		3683	1.89	3615	1.8	2823	1.73	12	0	10	0	23	23	17	22	20		0/0.1	0/6.3		
October	29	2:30PM		3686	1.74	3617	1.62	2825	1.74	12	0	10	0	24	21	17	21	19		0/0.1	0/6.6		
October	30	11:20AM		3687	1.94	3618	1.93	2826	1.74	12	0	10	0	21	22	16	21	19		0/0.1	0/6.6		
October	31	11:51AM	KA	3689	1.89	3620	1.79	2828	1.54	12	0	10	0	20.9	21.5	15.1	20.9	19.4		0.7/0.1	0/7.1		

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[illegible]

Grease shots only added to odour control fan bearings no grease tubes available for fan motor

Main Lift Maintenance Record 2024

[illegible]

Pin hole leak after meter.fixed. Clean rpz backflow of debris and tested by Klempner.

APPENDIX B

Operational Certificate No. ME-12214

December 18, 1998

File: 76750-40/ME-12214(01)
PE-00086(02)

REGISTERED MAIL

Town of Osoyoos
PO Box 3010
Osoyoos BC V0H 1V0

Dear Ms. Elsie Lemke:

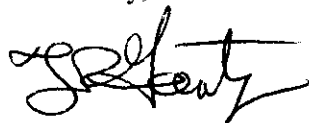
Enclosed is Operational Certificate ME-12214 issued under the provisions of the *Waste Management Act*. This Operational Certificate supercedes Permit PE-86 which is hereby cancelled in accordance with Section 18(12) of the *Waste Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the Operational Certificate. An annual fee will be determined according to the *Waste Management Permit Fees Regulation*.

This Operational Certificate does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority shall rest with the holder of the Operational Certificate. This Operational Certificate is issued pursuant to the provisions of the *Waste Management Act*, which makes it an offence to discharge waste without proper authorization. It is also the responsibility of the holder of the Operational Certificate to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This Operational Certificate may be appealed by persons who consider themselves aggrieved by this decision in accordance with Part 7 of the *Waste Management Act*. Written notice of intent to appeal must be received by the Regional Waste Manager within thirty (30) days.

Administration of this Operational Certificate will be carried out by staff from our Regional Office located at Suite 201, 3547 Skaha Lake Road, Penticton, B.C., V2A 7K2. Plans, data and reports pertinent to the Operational Certificate are to be submitted to the Regional Waste Manager at this address.

Yours truly,



T.R. Forty, P.Eng.
Assistant Regional Waste Manager
Pollution Prevention
Southern Interior Region

Enclosure



MINISTRY OF ENVIRONMENT,
LANDS AND PARKS

OPERATIONAL CERTIFICATE

ME-12214

Under the Provisions of the Waste Management Act

TOWN OF OSOYOOS

PO BOX 3010

OSOYOOS BRITISH COLUMBIA

VOH 1VO

is authorized to discharge effluent, from a municipal sewage collection and treatment system, to the ground by irrigation and infiltration, at Osoyoos, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the Waste Management Act and may result in prosecution.

1. AUTHORIZED DISCHARGES

- 1.1.** This subsection applies to the discharge of effluent from the municipal sewage treatment facility to the reclaimed water storage reservoirs. The flow is measured at the Legion Beach Lift Station, the Environmental Monitoring (EMS) site reference number for this site is E230277 and at the Desert Park lift station EMS site reference number E232882.

T.R. Forty, P.Eng.
Assistant Regional Waste Manager

- 1.1.1.** The maximum authorized rate of sewage wastes received, and therefore the maximum authorized rate of effluent to be discharged from the aerated sewage treatment lagoon system to the reclaimed water storage reservoirs, averaged on a monthly basis is the total of the flow from the Legion Beach Lift Station and the Desert Park lift station:

Year	Projection Annual Average	Projection Maximum Month Average
1997	1760 m ³ /day	2820 m ³ /day
1998	1800 m ³ /day	2880 m ³ /day
1999	1830 m ³ /day	2930 m ³ /day
2000	2030 m ³ /day	3250 m ³ /day
2001	2240 m ³ /day	3580 m ³ /day
2002	2410 m ³ /day	3860 m ³ /day
2003	2460 m ³ /day	3930 m ³ /day
2004	2510 m ³ /day	4010 m ³ /day
2005	2560 m ³ /day	4090 m ³ /day
2006	2610 m ³ /day	4170 m ³ /day
2007	2660 m ³ /day	4260 m ³ /day
2008	2720 m ³ /day	4340 m ³ /day

- 1.1.2.** The authorized works are sewage collection system, sewage and effluent pumping stations, pressure forcemain, and related appurtenances approximately located as shown on Site Plan A.

- 1.1.3.** The location of the sewage collection system is described generally as Osoyoos and surrounding area.

- 1.2.** This subsection applies to the discharge of effluent from the aerated sewage treatment lagoon system, after Cell #3, prior to storage. The Environmental Monitoring (EMS) site reference number for this discharge is E105001.

- 1.2.1.** The characteristics of the effluent discharged from the aerated sewage treatment lagoon system, after Cell #3, prior to storage, shall be equivalent to, or better than:

5 Day Biochemical Oxygen Demand	45 mg/L; and
Total Suspended Solids	60 mg/L.



T.R. Forty, P.Eng.
Assistant Regional Waste Manager

- 1.2.2. The authorized works are aerated sewage treatment lagoon system and related appurtenances approximately located as shown on attached Site Plan A.
- 1.2.3. The location of the aerated sewage treatment lagoon system facilities is Lot 766, Plan 2476 and Lot 974, Plan 16985, SDYD.
- 1.3. This subsection applies to the reclaimed water which is beneficially used for trickle and spray irrigation, after storage and chlorination. The EMS site reference number for this discharge is E207444.
 - 1.3.1. There is no maximum authorized rate of reclaimed water which may be beneficially used for irrigation.
 - 1.3.2. The authorized works are two (2) effluent storage reservoirs, chlorination facilities, spray and trickle irrigation facilities, and related appurtenances approximately as shown on attached Site Plan A.
 - 1.3.3. The locations where reclaimed wastewater may be irrigated are described generally as Osoyoos and surrounding area, as indicated in the approved Town of Osoyoos Liquid Waste Management Plan.
- 1.4. This subsection applies to the discharge of surplus effluent to the infiltration basin facilities. The EMS site reference number for this discharge is E218460.
 - 1.4.1. The Town of Osoyoos is authorized to discharge effluent that is surplus to the needs of the effluent irrigation system to an infiltration basin facility. There is no maximum authorized amount, as this is, in effect, a safety valve for the system.
 - 1.4.2. The authorized works are infiltration facilities and related appurtenances approximately as shown on attached Site Plan A.
 - 1.4.3. The location of the point of discharge is Lot 766, Plan 2476, and Lot 974, Plan 16985, SDYD.

2. ANNUAL PERMIT FEE CALCULATION

For the purposes of permit fee calculation, the following discharge factors have been assumed for the characteristics of the reclaimed wastewater discharged from the reclaimed wastewater storage reservoirs and beneficially used for irrigation:

- 2.1. The reclaimed water flow irrigated is assumed to equal the flow of sewage into the aerated sewage treatment system, as measured at the Legion Beach Lift Station (E230277) and Desert Park lift station (E232882).



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- 2.2.** The quality parameters to be used for permit fee calculation purposes are:

5 Day Biochemical Oxygen Demand	10 mg/L; and
Total Suspended Solids	10 mg/L.

3. REQUIREMENTS - GENERAL

3.1. Maintenance of Works, Emergency Procedures and Non-Compliance Reporting

Inspect the pollution control works regularly and maintain them in good working order. In the event of an emergency or condition which prevents the Town of Osoyoos from complying with a requirement of the Operating Certificate that would otherwise be applicable, that requirement will be suspended for such time as the emergency exists or as otherwise directed by the Regional Waste Manager provided that:

- 3.1.2.** The Town can demonstrate the exercise of due diligence in relation to the process, operation or event which has caused the emergency, and that the emergency has occurred notwithstanding this exercise of due diligence;
- 3.1.3.** The Regional Waste Manager has been immediately notified of the emergency; and,
- 3.1.4.** The Town is proceeding with due diligence to correct the emergency condition.

3.2. Bypasses

The discharge of effluent which has bypassed the designated treatment works is prohibited unless the approval of the Regional Waste Manager is obtained and confirmed in writing.

3.3. Process Modifications

The Town shall notify the Regional Waste Manager prior to implementing changes to any process that may affect the quality and/or quantity of the discharge. The approval of the Regional Waste Manager shall be received prior to implementing the process modifications.

3.4. Alternate Water Supply

The Town shall provide alternate water supplies if any privately owned well should be adversely affected by irrigation with reclaimed water, as determined by the Regional Waste Manager.



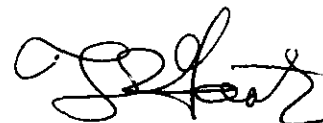
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3.5. Plans - New Works

- 3.5.1. Plans and specifications of any proposed new works, modifications or additions to the existing works authorized in this Operational Certificate, with the exception of the sewage collection system, shall be submitted to the Regional Waste Manager, and his written consent obtained before construction commences. Plans shall be signed and sealed by a Professional Engineer licensed to practise in the Province of British Columbia. The works shall be constructed in accordance with such plans.
- 3.5.2. Copies of all "as-built" plans and drawings for the sewage treatment system, signed and sealed by a Professional Engineer licensed to practise in the Province of British Columbia, shall be submitted to the Regional Waste Manager.
- 3.5.3. Retain a copy of all "as-built", plans of modifications and/or extensions to the sewage collection system for perusal by the Regional Waste Manager, or his designate, upon request.
- 3.5.4. Design and construct the irrigation works in accordance with best current agricultural practice, and in accord with:
- The "Pollution Control Guidelines for Municipal Effluent Application to Land", dated January 1983, and any amendments thereto, issued by the Ministry of Environment of British Columbia.
- The "B.C. Sprinkler Irrigation Manual" 1989 issue, prepared by the B.C. Ministry of Agriculture and Fisheries.
- The "B.C. Trickle Irrigation Manual" 1987 issue, prepared by the B.C. Ministry of Agriculture and Fisheries.
- The "Health and Safety Criteria for the Use of Reclaimed Wastewater", 1991, developed by the Ministry of Health and the Ministry of Environment.

3.6. Operation and Maintenance

- 3.6.1. Operate and maintain a system of preventative maintenance for the sewage treatment, reclaimed wastewater utilization and infiltration works.
- 3.6.2. Develop and maintain an Operation and Maintenance Manual for the sewage treatment, reclaimed wastewater utilization and infiltration works. The Operation and Maintenance Manual shall be completed by **December 31, 2003**. A copy of the Operation and Maintenance Manuals shall be retained at the treatment plant for inspection, by the Regional Waste Manager or designate.



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3.7. Facility Classification

Maintain the wastewater treatment facility classification as authorized in this Operational Certificate with the "Environmental Operator's Certification Program" (EOCP). The sewage treatment plant, reclaimed wastewater utilization system and the effluent disposal works are presently classified as a Level I facility.

3.8. Operator Certification

3.8.1. The works shall be operated and maintained by persons certified within and according to the program provided by the EOCP. Certification must be completed to the satisfaction of the Regional Waste Manager. In addition, the Regional Waste Manager shall be notified of the classification level of the facility and certification level of the operators, and changes of operators and/or operator certification levels within 30 days of any change. List of current Certified Operators shall be included in the annual report.

3.8.2. All operators in training (OIT) working at this facility currently classified by the EOCP as Level I, shall be required to successfully pass an OIT examination within three (3) months of commencement of employment at the facility. The OIT certificate shall be valid for fifteen (15) months from the date of issue. Prior to the expiry date of the OIT certificate, but not sooner than twelve (12) months from the date when the OIT commenced facility operation, the OIT shall successfully complete a Class I certification examination in order to continue to operate at the facility.

3.9. Improvement of Works

The Town shall acquire and/or reserve sufficient land for the construction or expansion of future sewage treatment facilities. The phasing of new works shall be in accord with the Town of Osoyoos Liquid Waste Management Plan.

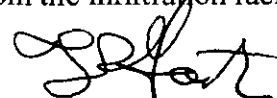
3.10. Infiltration Facilities

3.10.1. Details regarding any proposed discharge to infiltration shall be under the direction of a suitably qualified consultant. A copy of the proposed discharge details, including rate, volume and quality, and rationale for the discharge, is to be submitted to the Regional Waste Manager.

3.10.2. The use of the infiltration facilities shall occur only with the written authorization of the Regional Waste Manager.

3.10.3. The Town shall maintain a minimum freeboard of 0.5 m and ensure that there is no overflow from the infiltration facilities to the environment.

3.10.4. Surface drainage shall be diverted away from the infiltration facilities.



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3.10.5. Any residue removed from the infiltration facility shall be disposed of in a manner approved by the Regional Waste Manager.

3.10.6. Details of discharges to infiltration to be included in the Annual Report each year.

3.11. Fencing

The Operational Certificate holder shall erect a fence around the treatment plant facilities and such other areas, as required by the Regional Waste Manager. The height and type of fencing shall meet the approval of the Regional Waste Manager.

3.12. Odours

Should odours become objectionable, additional works shall be provided when so directed in writing by the Regional Waste Manager.

3.13. Influent Wastes Bylaw

In order to minimize the potential effect of heavy metals or other toxic materials in the effluent and/or sludge, amend as required, the Influent Wastes Bylaw, Building Bylaw, or other bylaws, to regulate the input of such wastes to the sewage collection system. The Town is encouraged to discourage the installation of devices to process household putrescible waste for disposal to the sewage collection system. Any amendments made to the Influent Bylaw shall be noted in the Annual Report.

3.14. Surface Water Diversionary Works

Surface water shall be intercepted and diverted away from the effluent treatment facilities to the greatest extent possible.

3.15. Signage

3.15.1. A suitable sign erected at the main entrance to the treatment plant site shall have the appropriate emergency phone numbers for use by the general public and others.

3.15.2. Prominent "No Trespassing" signs, acceptable to the Regional Waste Manager shall be erected and maintained around the reclaimed wastewater reservoir advising of the contents of the reservoir.

3.15.3. Prominent "NO TRESPASSING", signs shall be erected around agricultural and silvicultural sites irrigated with reclaimed wastewater, warning persons of the possible health hazard during the irrigation season and advising that the water used for irrigation is NOT POTABLE. The wording shall be in language or symbols readily comprehensible by the general public. e.g. "NO TRESPASSING - RECLAIMED WASTEWATER - DO NOT DRINK".



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3.16. Leakage

Operate and maintain the aerated lagoons and the reclaimed wastewater storage reservoirs to minimize fluid leakage. Leakage shall not aggravate or produce soil or bedrock instability or erosion, or contaminate ground or surface water.

3.17. Contingency Plan

The Town is to prepare a Contingency Plan that will address the appropriate course of action to be taken in any particular preconceived emergency situation. The Contingency Plan shall include Spill Procedures including other leaks and any potential point of concern in the collection, treatment and disposal systems. Attention is to be given to public safety and the protection of the environment. The Contingency Plan is to be completed by **December 31, 2003**, and updated annually, or as necessary, to reflect the current operation. A copy of the Contingency Plan, when complete shall be submitted to the Regional Waste Manager. Any changes or amendments to the Contingency Plan shall be included in the annual report.

3.18. Irrigation Plan

The Town is required to submit an Irrigation Plan of all new areas of land to be irrigated. The Irrigation Plan shall include: property location, owner, acreage, irrigation type, duration, rates, crops and intensity, or other wastewater use where reclaimed wastewater is beneficially used (i.e. dust control purposes).

To be included in the Irrigation Plan, a detailed Soils Assessment is required for any new areas of land to be irrigated.

Written authorization from the Regional Waste Manager is required prior to commencement of irrigation with reclaimed wastewater on any new areas.

A plan is to be submitted with the Annual Report each year showing all areas irrigated with reclaimed water during the previous year.

3.19. Soils Assessment

A detailed Soil Assessment shall be completed of any new agricultural areas to be irrigated. The Soils Assessment shall be submitted to the Regional Waste Manager and is to be included in the "Irrigation Plan", which shall be performed by a suitably qualified professional (Agrologist or Pedologist), using best current climate and soils data to substantiate that the proposed irrigation land is capable of accepting reclaimed wastewater for irrigation purposes. The Soils Assessment is to include any suggested restrictions or recommendations, also the assessment will include the recommendation as to the frequency required for further soil assessments of the agricultural areas irrigated.



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Written authorization from the Regional Waste Manager, to proceed with irrigation on any new agricultural area(s), must be received prior to commencing irrigation.

3.20. Sludge Management Plan

The frequency of withdrawal of sludge from the sewage treatment plant facilities and used for disposal and/or utilization shall be developed into a Sludge Management Plan. The Sludge Management Plan shall be prepared and submitted to the Regional Waste Manager for approval on or before **December 31, 1999**. The Sludge Management Plan shall be amended as required. Any changes or amendments to the Sludge Management Plan shall be included in the Annual Report.

4. REQUIREMENTS - RECLAIMED WASTEWATER IRRIGATION

4.1. Disinfection - Chlorination

- 4.1.1.** Disinfection shall be maintained in the reclaimed water discharged from the reclaimed water storage reservoirs to the irrigation system.
- 4.1.2.** Reclaimed water used for irrigation must have at least one hour of chlorine contact time at average flow rate. A chlorine residual of at least 1 mg/L must be maintained at all times, immediately prior to irrigating.
- 4.1.3.** Reclaimed water utilized for irrigation shall conform to the effluent irrigation guidelines developed by the B.C. Ministry of Health and Ministry of Environment, Lands and Parks. Fecal coliforms shall not exceed 200 MPN per 100 mL for agricultural, silvicultural and low public use lands, or exceed 2.2 MPN per 100 mL for high public use lands.

4.2. Annual Irrigation Period

- 4.2.1.** The authorized discharge period for irrigation using spray/trickle irrigation techniques is during the period **March 15 to November 15** each year.
- 4.2.2.** With the written authorization of the Regional Waste Manager, the irrigation schedule may be extended on a weekly basis beyond these limits. Any extension will be considered only upon receipt of a substantiated written request and submission of a soils assessment produced by a suitably qualified professional agrologist for those areas to receive irrigation.

4.3. Buffer Zones

- 4.3.1.** The requirement for formal buffer zones surrounding lands irrigated with reclaimed water is no longer in effect, however, buffer zones may be specified by the Regional Waste Manager.



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4.3.2. Reclaimed water applied by irrigation shall not be applied to the ground any closer than 15 metres from the edge of flowing streams or bodies of water.

4.3.3. There shall be no reclaimed water irrigated within 30 metres of any well or in-ground reservoir used for domestic supply purposes.

4.4. Surface Runoff

There shall be no surface runoff of irrigated reclaimed water from the irrigated lands.

4.5. Surfacing Reclaimed Water

Irrigation shall be managed in such a fashion as to preclude surfacing of irrigation tailwater downslope of the point of irrigation.

4.6. Spray Irrigation Drift

The following strategy shall be followed to minimize the necessity to shut down the irrigation system, or portions thereof, during windy conditions:

4.6.1. The reclaimed water irrigation system shall be managed in such a fashion as to preclude aerosol drift from leaving the irrigated lands.

4.7. Irrigation Rates

4.7.1. The general philosophy of the operation of the irrigation system shall be for beneficial utilization of reclaimed water, not disposal. This philosophy is necessary to prevent excessive irrigation and subsequent negative impact on the irrigated lands and lands downgradient of the irrigated lands.

4.7.2. Irrigation rates for spray irrigation shall not exceed the rates given in "B.C. Sprinkler Irrigation Manual", dated 1989, prepared by the B.C. Ministry of Agriculture and Fisheries.

4.7.3. Irrigation rates for trickle irrigation shall not exceed the rates given in "B.C. Trickle Irrigation Manual", dated 1987, prepared by the B.C. Ministry of Agriculture and Fisheries.

4.7.4. Irrigated lands shall be monitored to prevent saturation, erosion, surfacing tailwater, and instability both in the irrigated areas and downgradient of the irrigated lands.

4.8. Agricultural Products Lag Time

4.8.1. A three day lag time is required before uninspected livestock intended for human consumption are permitted on areas irrigated with reclaimed water. No lag time is required if livestock are subjected to the federal meat inspection program.



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- 4.8.2. A six day lag time is required before dairy cattle are permitted in areas irrigated with reclaimed water.
- 4.8.3. A three day lag time, after irrigation has ceased, is required before a crop intended for animal feed is harvested.

5. MONITORING PROGRAMS

5.1. Wastewater Flow - Monitoring Program

5.1.1. Flow Measurement - Legion Beach Lift Station

Provide and maintain a suitable flow measuring device and **record once per day**, at the **Legion Beach lift station**, the water discharged to the sewage treatment facility over a 24-hour period. The EMS site reference number for this site is **E230277**.

5.1.2. Flow Measurement - Desert Park Lift Station

Provide and maintain a suitable flow measuring device and record once per day, at the **Desert Park Lift Station**, the water discharged to the sewage treatment facility over a 24-hour period. The EMS site reference number for this site is **E232882**.

5.2. Influent - Monitoring Program

5.2.1. Grab Sampling

Install and maintain a suitable sampling facility at the **headworks of the plant** and obtain a grab sample of the plant influent **semi-annually** (a proportional continuous sampler is desirable, but not mandatory). The EMS site reference number for this site is **E230037**.

5.2.2. Analyses

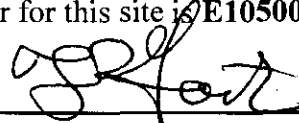
Obtain analyses of the influent sample for the following:

- (a) total phosphorus and ortho phosphorus, expressed as P in mg/L; and
- (b) 5-day biochemical oxygen demand, mg/L.

5.3. Effluent - Monitoring Program

5.3.1. Grab Sampling

The Town shall install and maintain a suitable sampling facility and obtain a grab sample of the effluent **from the aerated lagoons, after Cell #3 prior to storage**. The EMS site reference number for this site is **E105001**.



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5.3.2. Analyses

Obtain analyses of the sample for the following:

- a) 5-day biochemical oxygen demand, mg/L, **monthly**;
- b) total suspended solids (non-filterable residue), mg/L, **monthly**;
- c) total phosphorus, ortho phosphorus and total dissolved phosphorus, all expressed as mg/L P, **semi-annually**; and
- d) total nitrogen, ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, and organic nitrogen, all expressed as mg/L N, **semi-annually**.

5.3.3. Occasional full chemical analysis of the main cations and anions and other characteristics may be required at the discretion of the Regional Waste Manager.

5.4. Storage Reservoir - Monitoring Program

5.4.1. Water Levels

Provide and maintain suitable staff gauges or other similar devices, as approved by the Regional Waste Manager, **in the two (2) reclaimed water storage reservoirs**. Take **weekly measurements** of the water levels in the storage reservoirs on a year round basis. The EMS site reference numbers for the reservoirs are as follows:

Storage Reservoir #1 (older reservoir to south) - **E230038**

Storage Reservoir #2 (new reservoir to north) - **E230039**

5.4.2. Storage Volumes

Calculate and record the corresponding volumes of reclaimed water contained in each storage reservoir on a **weekly basis** for graphical analysis.

5.5. Irrigation - Monitoring Program

5.5.1. Flow Measurement

Provide and maintain a suitable flow measuring device and record, on a **weekly basis**, the **reclaimed water irrigation volumes**, location/area, property owner, irrigation type, duration, rate, and crop or other use. Submit the monthly and annual summaries to the Regional Waste Manager with the Annual Report.

5.5.2. Grab Sampling

The Town shall obtain a grab sample of the reclaimed water, **during the irrigation season, from the discharge end of the chlorine contact chamber**. The EMS site reference number is **E207444**.



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5.5.3. Analyses

Obtain analyses of the sample for the following:

- a) fecal coliforms MPN/100 ml, **monthly**;
- b) total coliforms MPN/100 ml, **monthly**;
- c) total phosphorus mg/L, **monthly**;
- d) total nitrogen, mg/L, **monthly**; and
- e) chlorine residual, mg/L, **weekly**.

5.6. Sludge - Monitoring Program

5.6.1. Sampling

Obtain a representative sample of the sludge produced at the treatment plant **once per year from the first aerated lagoon, Cell #1**. The EMS site reference number is **E230278**.

5.6.2. Analyses

Obtain analyses of the sludge sample for the following:

Total solids (TS), g/L;
Moisture content, %;
Volatile suspended solids (V.S.S), g/L;
Total Kjeldahl Nitrogen (T.K.N.), g/L and g/kg dry solids;
Aluminum, mg/kg;
Arsenic, mg/kg;
Cadmium, mg/kg;
Calcium, mg/kg;
Chromium, mg/kg;
Cobalt, mg/kg;
Copper, mg/kg;
Iron, mg/kg;
Manganese, mg/kg;
Mercury, mg/kg;
Molybdenum, mg/kg;
Nickel, mg/kg;
Lead, mg/kg;
Silver, mg/kg;
Sodium, mg/kg; and
Zinc, mg/kg.

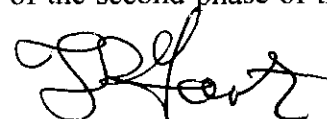


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- 5.6.3. Occasional full chemical analysis of the main cations and anions and other characteristics may be required at the discretion of the Regional Waste Manager.

5.7. Ground And Surface Water - Monitoring Program

- 5.7.1. A Ground and Surface Water Monitoring Program, shall be submitted to the Regional Waste Manager. The Monitoring Program shall be designed by a suitably qualified Professional Engineer (Hydrogeologist) or a Hydrogeological Technologist licensed to practice in the Province of British Columbia. The Monitoring Program is to establish with acceptable scientific accuracy, the groundwater flow pattern and nutrient removal capability of the soil to ensure reasonable notice of impending high phosphorus or nitrate levels that may adversely affect surface water, groundwater or domestic waterwells. The sampling, measurement frequency, water level elevations and analyses shall be conducted in accordance with the Monitoring Program upon its written authorization by the Regional Waste Manager.
- 5.7.2. The Monitoring Program will consist of two phases. The **first phase** will consist of an inventory of all existing ground and surface water monitoring sites. This inventory is to be completed and submitted to the Regional Waste Manager by **March 31, 1999**. The **second phase** of the program will assess and determine the most appropriate sites for monitoring; upgrade wells, if required; establish and install any additional new recommended monitoring sites; and submit the outline for Ground and Surface Water Monitoring Program. The second phase of the monitoring program is to be complete and submitted to the Regional Waste Manager by **December 31, 1999**.
- 5.7.3. The results of the Ground and Surface Water Monitoring Program is to be reviewed annually by a suitably qualified Professional Engineer (Hydrogeologist) or a Hydrogeological Technologist licensed to practice in the Province of British Columbia and any recommendations for changes to the Monitoring Program are to be included with the Annual Report each year.
- 5.7.4. The Ground and Surface Water Monitoring Program is to incorporate the existing EMS groundwater monitoring wells and the surface water monitoring sites that were previously monitored by the Ministry of Environment, Lands and Parks, or other agencies, and any proposed or future monitoring sites, as authorized by the Regional Waste Manager.
- 5.7.5. The Town shall provide precise latitude and longitude values, with an accuracy of at least plus or minus 10 metres, for each ground and surface water monitoring site established as part of the second phase of the Ground



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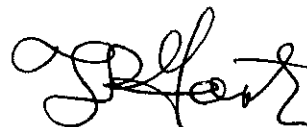
and Surface Water Monitoring Program, and for any additional sites that may be added each year. The data is to be submitted to the Regional Waste Manager with the Annual Report.

6. SAMPLING AND ANALYTICAL REQUIREMENTS

- 6.1. Proper care should be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.
- 6.2. Occasional full chemical analysis of the main cations and anions and other characteristics may be required at the discretion of the Regional Waste Manager.
- 6.3. The Town is required to follow the terms and conditions of the Quality Assurance Regulation (EQDA), or other legislation that may be in effect at the time. Ten percent of the samples collected shall be duplicated to provide data quality assurance. Quality control information generated by the Permittee lab while analyzing parameters required by this Operational Certificate shall also be provided with the raw data required to be reported.
- 6.4. The sampling, flow and monitoring requirements specified in Section 8 (including all subsections) above shall be carried out in accordance with the appropriate procedures listed in the table below. Alternative test methods may be used provided that the alternative test methods are authorized by the Regional Waste Manager prior to performing the actual source testing. Test methods for parameters not listed below require the consent of the Regional Waste Manager.

LIQUID EFFLUENTS, SURFACE WATER, GROUND WATER, SOILS, SEDIMENTS, VEGETATIVE MATTER:		
Parameter	Source Testing Procedure	Analytical Procedure
Metals Nutrients Organics Toxicity	British Columbia Field Sampling Manual for Continuous Monitoring plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 1996 Permittee Edition	British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials, March, 1994, Permittee Edition

The above manuals are available from Queen's Printer Publications Centre, P.O. Box 9452, Stn. Prov. Govt, Victoria, BC, V8W 9V7 (1-800-663-6105 or (250)387-4609). The above manuals are also available for inspection at all Pollution Prevention offices.



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7. REPORTING

7.1. General Reporting

- 7.1.1.** Maintain all monitoring data required for inspection by the Regional Waste Manager or his designate.
- 7.1.2.** The influent, effluent, spray/trickle reclaimed water irrigation, infiltration and sludge analyses and related flow data is to be submitted to the Regional Waste Manager such that they are received by the Regional Waste Manager within 30 days of the results being received, or produced, by the Town.
- 7.1.3.** Monitoring data shall be entered into EMS electronically and submitted in electronic and printed format satisfactory to the Regional Waste Manager.

7.2. Annual Reporting

- 7.2.1.** Submit an Annual Report which includes a summary of the results of all sampling and monitoring programs as specified in this Operational Certificate. Provide data interpretation and trend analyses where appropriate.
- 7.2.2.** The Annual Report is to be in a format which is suitable for review by the public and/or other government agencies.
- 7.2.3.** The Annual Report is due on or before 90 days following the end of a calendar year for that year's monitoring. Raw data, suitably tabulated, including the EDQA quality control information, are to be attached as appendices to the report.
- 7.2.4.** Maintain and submit records of the following, each year, which are to be part of the Annual Report:
 - 7.2.4.1.** Records of sewage flow to the aerated treatment lagoons as required under the Wastewater Flow - Monitoring Program.
 - 7.2.4.2.** Records of sewage treatment plant influent quality, as required under the Influent - Monitoring Program.
 - 7.2.4.3.** Records of effluent quality prior to the storage reservoirs as required in the Effluent - Monitoring Program.
 - 7.2.4.4.** Records of the elevations for both reclaimed water storage reservoirs and the corresponding annual storage volumes available, as required under the Storage Reservoir - Monitoring Program.
 - 7.2.4.5.** Records of the reclaimed water quality and volumes beneficially used, as well as, property location, owner, acreage, irrigation type,



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duration, rate, crop and intensity, or other use, where irrigation occurs, as required under the Irrigation - Monitoring Program.

- 7.2.4.6. Records of effluent quantity and quality for discharges to the infiltration facilities.
- 7.2.4.7. Records of sludge quality as per the Sludge - Monitoring Program.
- 7.2.4.8. Frequency of withdrawal and volumes for disposal and/or utilization, as required in the Sludge Management Plan.
- 7.2.4.9. Records of groundwater well elevations and ground and surface water quality, as required under the Ground and Surface Water - Monitoring Program.
- 7.2.4.10. Copy of the Annual Flow Summaries.
- 7.2.4.11. Copy of the Annual Irrigation Summaries.
- 7.2.4.12. Copy of monthly precipitation records for Osoyoos area (arrangements can be made to obtain precipitation information, contact Gary Myers, Climate Services, Environmental Canada, at 604-664-9067).



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APPENDIX A

Requirements of Reclaimed Wastewater Users

The holder of this Operational Certificate (The reclaimed wastewater supplier) shall be responsible for ensuring that contractual agreement(s) with each Reclaimed Wastewater User are in accordance with the Operational Certificate.

A copy of this Appendix is to be provided to EACH USER prior to the commencement of irrigation EACH YEAR.

8. GENERAL REQUIREMENTS

8.1. Plans - New Works - New Agricultural Areas

- 8.1.1. Plans for modifications and/or extensions to the reclaimed water irrigation system shall be approved by a person qualified in the design of irrigation systems and the Irrigation Plan and the Soils Assessment is to be submitted to the Regional Waste Manager for authorization prior to the commencement of irrigation on new agricultural areas.
- 8.1.2. Design and construct the irrigation works in accordance with best current agricultural practice and the "Pollution Control Guidelines for Municipal Effluent Application to Land", dated January 1983, and any amendments thereto, issued by the Ministry of Environment of British Columbia, and also in accordance with the "B.C. Sprinkler Irrigation Manual", dated 1989, prepared by the B.C. Ministry of Agriculture and Fisheries or the "B.C. Trickle Irrigation Manual", dated 1987, prepared by the B.C. Ministry of Agriculture and Fisheries.

8.2. Construction Criteria

- 8.2.1. All reclaimed water user valves, shall be of a type, or secured in a manner, that permits operation by only personnel authorized by each wastewater user. All piping, valves and outlets should be clearly marked to differentiate reclaimed wastewater from domestic water. All reclaimed wastewater controllers, valves, etc., shall be affixed with reclaimed water warning signs. It is recommended that, where possible purple coloured pipe and fixtures be utilized to facilitate identification of reclaimed water piping and fixtures.



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- 8.2.2. Use or installation of hose-bibs on any irrigation system presently operating, or designated to operate with reclaimed wastewater, regardless of the hose-bib construction or identification, is not permitted.
- 8.2.3. There shall be at least a 3 metre horizontal and a 0.3 metre vertical separation (with domestic water pipeline above the reclaimed water pipeline) between all pipelines transporting reclaimed water and those transporting domestic water.
- 8.2.4. There shall be no connection between a potable water supply, irrigation water or industrial well, and piping containing reclaimed wastewater, except through an air gap separation or reduced pressure principle device.

8.3. Fencing

The reclaimed water user **may be** required by the Regional Waste Manager to erect a fence around the disposal area to restrict public access. The height and type of fencing shall meet the approval of the Regional Waste Manager.

8.4. Signage

- 8.4.1. Prominent "NO TRESPASSING", signs shall be erected around agricultural and silvicultural sites irrigated with reclaimed water, warning persons of the possible health hazard during the irrigation season and advising that the water used for irrigation is NOT POTABLE. The wording shall be in language or symbols readily comprehensible by the general public. e.g. "NO TRESPASSING - RECLAIMED WASTEWATER - DO NOT DRINK"
- 8.4.2. Warning signs shall be posted in sufficient numbers and size and at strategic locations to advise the public that reclaimed water is being used. Additional signage may be required as directed by the Regional Waste Manager.

9. GENERAL REQUIREMENTS - RECLAIMED WASTEWATER IRRIGATION

9.1. Buffer Zones

- 9.1.1. The requirement for formal buffer zones surrounding lands irrigated with reclaimed water is no longer in effect, however, a buffer zone may be specified by the Regional Waste Manager.
- 9.1.2. Reclaimed water applied by irrigation shall not be applied to the ground any closer than 15 metres from the edge of flowing streams or bodies of water.
- 9.1.3. There shall be no reclaimed water irrigated within 30 metres of any well or in-ground reservoir for domestic supply.



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Assistant Regional Waste Manager

9.2. Surface Runoff

- 9.2.1. There shall be no surface runoff of irrigated reclaimed wastewater from the irrigated lands.
- 9.2.2. The maximum ground slope shall not exceed 20% without the written consent of the Regional Waste Manager.

9.3. Surfacing Reclaimed Water

- 9.3.1. Irrigation shall be managed in such a fashion as to preclude surfacing of irrigation tail water down slope of the point of irrigation.
- 9.3.2. Irrigation shall be managed as to prevent ponding.

9.4. Spray Irrigation Drift

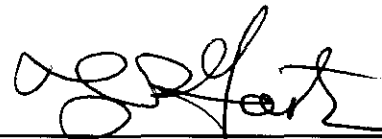
- 9.4.1. Reclaimed water shall be confined to the area designated and approved for irrigation with reclaimed water. The reclaimed water irrigation system shall be managed in such a fashion as to prevent aerosol drift from leaving the irrigated lands.
- 9.4.2. Precautions shall be taken to ensure that reclaimed water will not have contact with any facility or area not designated for reclamation, such as passing vehicles, buildings, domestic water facilities, fruit and vegetable gardens, or food handling facilities.
- 9.4.3. Drinking water facilities shall be protected from direct or wind blown reclaimed water spray.

9.5. Irrigation Rates

- 9.5.1. Irrigation rates for spray irrigation shall not exceed the rates given in "B.C. Sprinkler Irrigation Manual", dated 1989, prepared by the B.C. Ministry of Agriculture and Fisheries and irrigation rates for trickle irrigation shall not exceed the rates given in those given in "B.C. Trickle Irrigation Manual", dated 1987, prepared by the B.C. Ministry of Agriculture and Fisheries.
- 9.5.2. Soils of the irrigated lands will be monitored periodically or as otherwise directed by the Regional Waste Manager or the Town, to prevent saturation, erosion, and instability.

9.6. Agricultural Products Lag Time

- 9.6.1. A three day lag time is required before uninspected livestock intended for human consumption are permitted on areas irrigated with reclaimed water. No lag time is required if livestock are subjected to the federal meat inspection program.



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9.6.2. A six day lag time is required before dairy cattle are permitted in areas irrigated with reclaimed wastewater.

9.6.3. A three day lag time, after irrigation has ceased, is required before a crop intended for animal feed is harvested.

9.7. Insect and Vector Control

Adequate measures shall be taken to prevent the breeding of insects and other vectors of health significance, and the creation of odours, slimes or unsightly deposits.

9.8. Irrigation of Public Areas

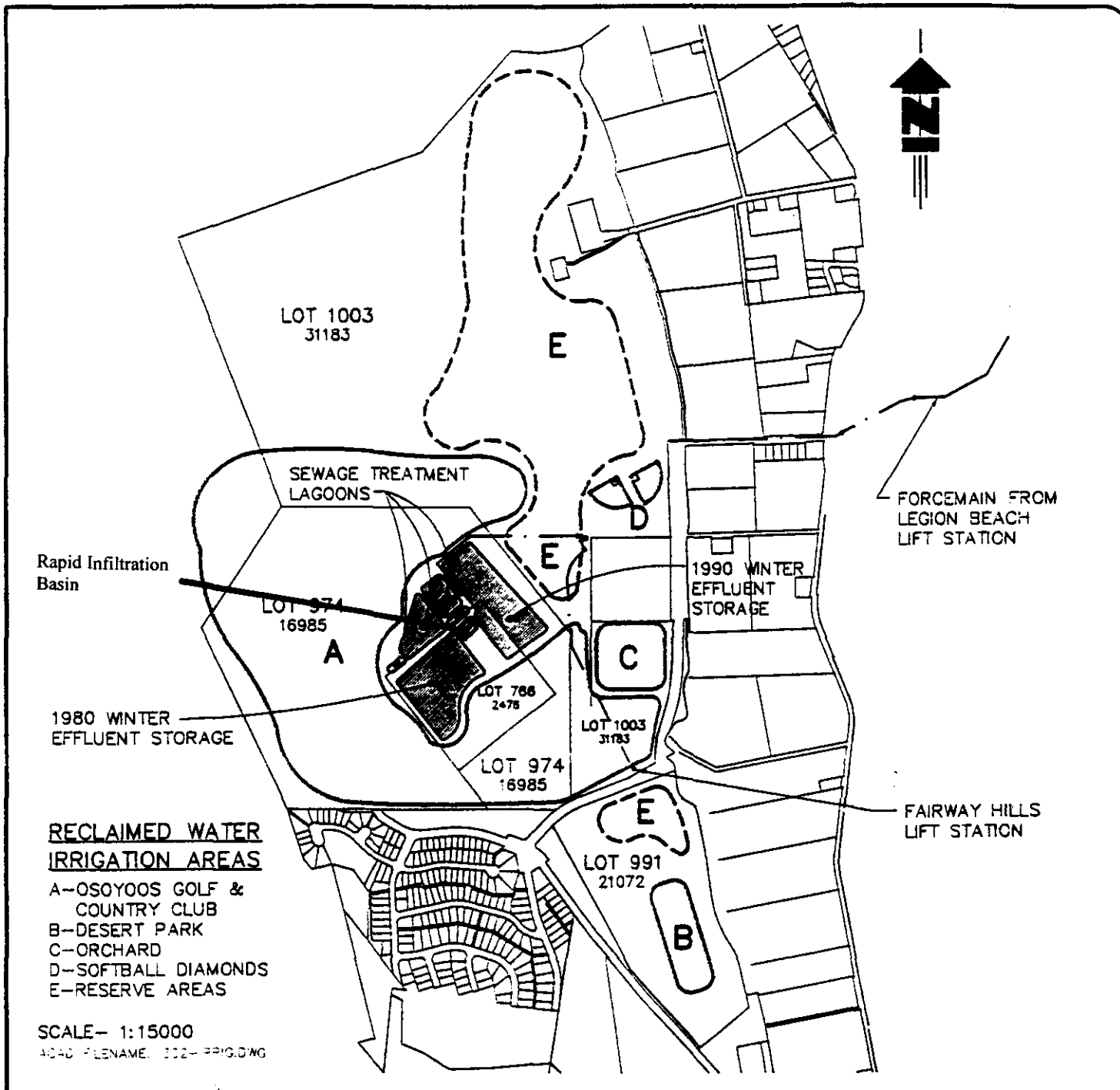
9.8.1. Irrigation on golf courses or cemeteries shall only be practised when the public are not present.

9.8.2. Golf score cards shall indicate that reclaimed water is used for irrigation on the golf course lands.

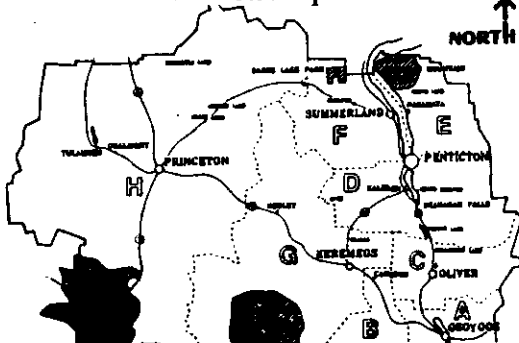


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Assistant Regional Waste Manager

SITE PLAN A



Location Map



Operational Certificate No.: ME-12214

Date: December 18, 1998

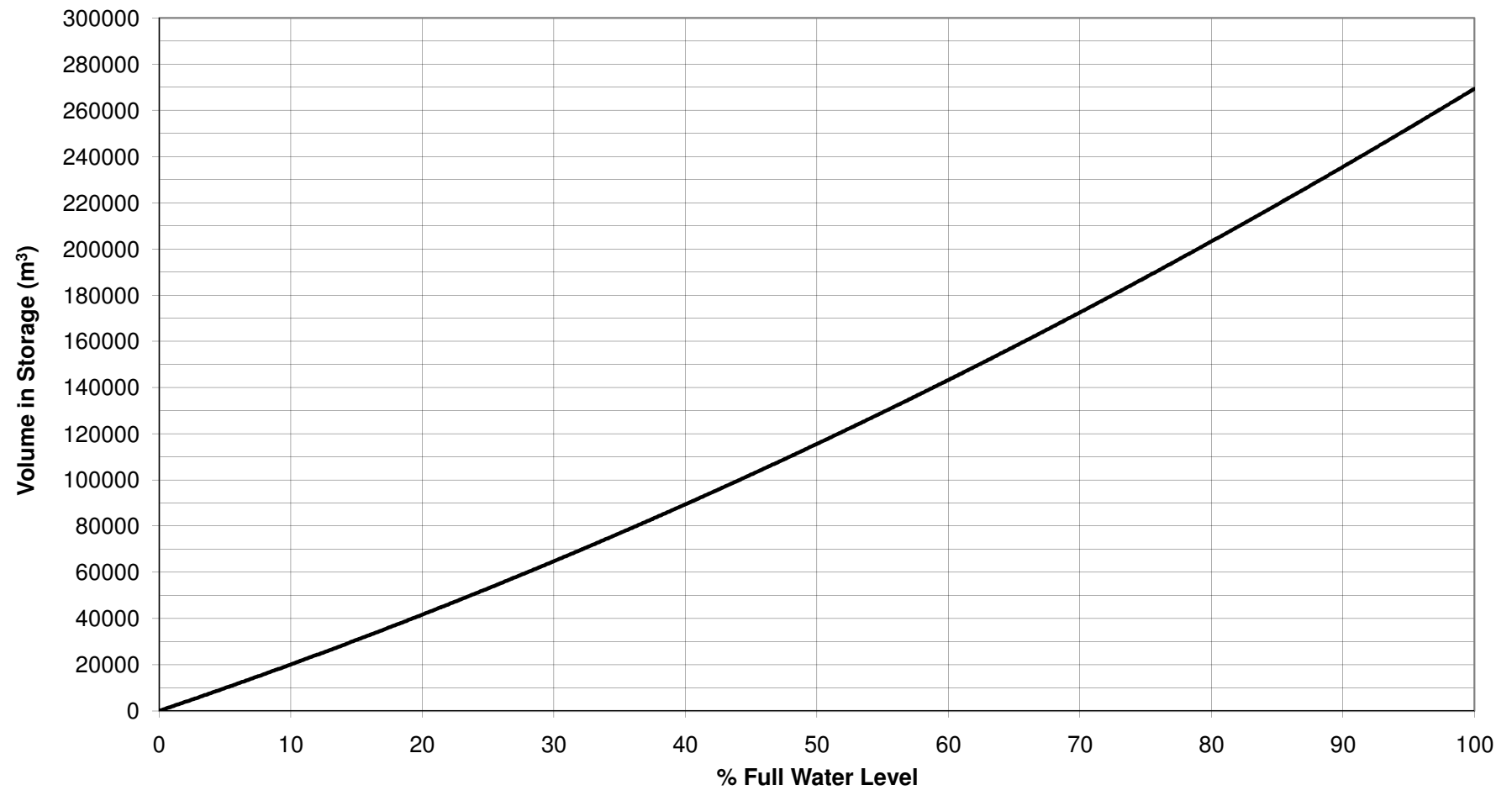
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Assistant Regional Waste Manager

APPENDIX C

Winter Effluent Storage Lagoon Calibration Curves (OC 7.2.4.4)

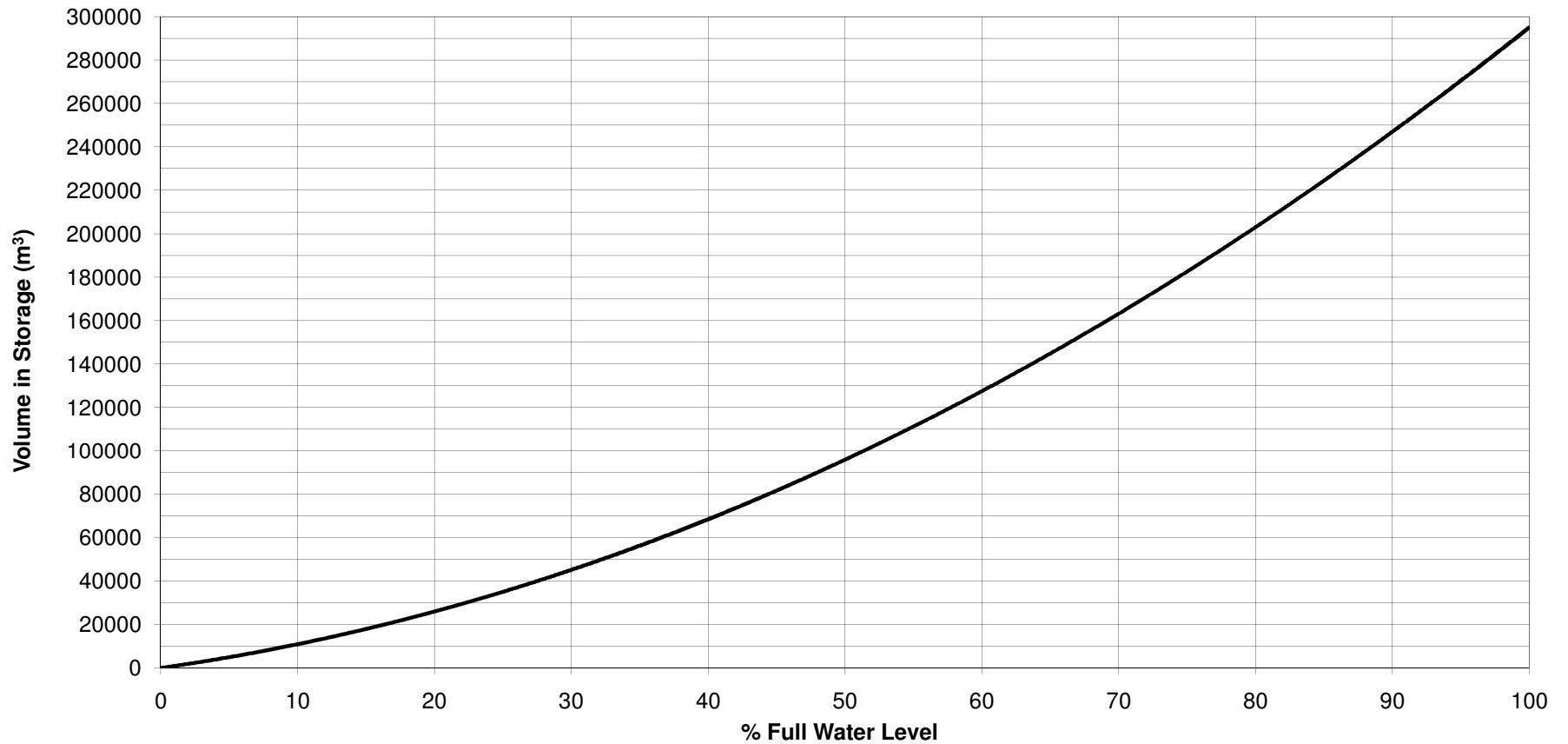
Winter Storage Lagoon #1 Calibration Curve

$$\text{vol} = 7.6499x^2 + 1928.6x$$



Winter Storage Lagoon # 2 Calibration Curve

$$\text{vol} = 20.646x^2 + 885.85x$$



APPENDIX D

Storage Pond 2024 Water Level Summary (O.C. 5.4,
7.2.4.4)

Reclaimed Water Irrigation 2024 Total Flow Summary
(OC 7.2.4.11)

Reclaimed Water 2024 Residual Chlorine Summary (O.C.
4.1.2, 5.5.3, 7.2.4.6)

Lagoon 2024 Solar Power Generation Summary

January Lagoons/Blower Station 2024

[illegible]

January Lagoons/Blower Station 2024

[illegible]

[illegible]

[illegible]

[illegible]

February Lagoon/Blower Station 2024

[illegible]

[illegible]

[illegible]

[illegible]

March Lagoon/Blower Station 2024

[illegible]

[illegible]

[illegible]

April Lagoon/Blower Station 2024

[illegible]

April Lagoon/Blower Station 2024

Inspection				Pump #3				Discharge		Air	Compressor #1					Compressor #2					Compressor #3					Dis.
Date	Time	Op	Security	Total Hours	Run Time	Amps	Hz	PSI	GPM	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	PSI
2	11:11 AM		Secure	507	7.312					19	11166	24	49	60	85	10385	0	0	0		7193	24	43	60	89	9.1
3	7:46 AM		Secure	512	5.33					9	11185	24	49	60	73	10385	0	0	0		7211	24	44	60	74	8.4
4	12:42 AM		Secure	517	4.49					9	11212	24	49	60	72	10385	0	0	0		7239	24	43	60	74	9
5	11:16 AM		Secure	518	1.41					7	11235	24	49	60	68	10385	0	0	0		7261	24	43	60	70	8.4
8	7:32 AM		Secure	519	0.52					3	11301	24	49	60	64	10385	0	0	0		7328	24	44	60	65	8.5
9	11:10AM	GW	Secure	520	0.49					13	11328	24	49	60	77	10385	0	0	0		7355	24	44	60	78	8.5
10	11:01 AM		Secure	520	0.55					10	11352	24	49	60	71	10385	0	0	0		7378	24	44	60	74	9
11	11:12		Secure	526	4.21					12	11375	24	43	60	62	10385	0	0	0		7385	16.73	0	0	16	7.2
12	11:39 AM		Secure	531	5.12					14	11399	24	43	60	78	10385	0	0	0		7409	14.05	43	60	80	7.4
15	10:13		Secure	548	8.23					16	11468	24	48	60	80	10385	0	0	0		7478	24	43	60	84	9
16	10:34 AM		Secure	549	3.16					8	11492	24	49	60	70	10385	0	0	0		7502	24	43	60	73	9
17	10:41 AM		Secure	557	5.9					10	11515	24	49	60	70	10385	0	0	0		7525	24	43	60	74	9
18	7:43 AM		Secure	558	3.21					2	11536	24	49	60	61	10385	0	0	0		7546	24	43	60	64	9
19	11:19 AM		Secure	567	5.71					13	11563	24	49	60	74	10385	0	0	0		7573	24	44	60	75	8.5
22	11:29 AM		Secure	577	5.52					14	11633	24	49	60	76	10385	0	0	0		7643	24	43	60	80	9.2
23	9:08 AM		Secure	577	3.27					8	11655	24	49	60	70	10385	0	0	0		7665	24	43	60	73	9
24	7:45 AM		Secure	587	5.73					10	11677	24	49	60	70	10385	0	0	0		7687	24	44	60	73	9
25	10:37 AM		Secure	594	9.61					9	11703	24	49	60	70	10385	0	0	0		7713	24	43	60	75	9.1
26	10:49AM		Secure	599	5.99					12	11726	24	50	60	76	10385	0	0	0		7736	24	44	60	79	8.3
29	1:11PM	MM	Secure	601	0.29					14	11799	24	49	60	73	10385	0	0	0		7809	24	43	60	76	8.3
30	10:47AM	MM	Secure	602	0.68					12	11820	24	49	60	70	10385	0	0								

April Lagoon/Blower Station 2024

[illegible]

April Lagoon/Blower Station 2024

[illegible]

[illegible]

May Lagoon/Blower Station 2024																				
Inspection				Storage			Discharge Total Volume m3						Pump #1				Pump #2			
Date	Time	Op	Security	Pond 1 %	Pond 2 %	Contact Tank %	Desert M3	Demand	Meadow M3	Demand	Combined M3	Total M3	Total Hours	Run Time	Amps	Hz	Total Hours	Run Time	Amps	Hz
1	7:50AM	DS	Secure	56	85.4	79.6	359065	1511	384991	1868	3379	744056	1101	1.12	0	0	698	0	0	0
2	7:37 AM		Secure	55.7	85.8	73.6	359600	674.4	384991	600.6	1275	744591	1101	0	0	0	698	0	0	0
3	10:46 AM		Secure	56.4	85.5	85.9	359831	261.1	385231	252.7	513.8	745062	1101	0	0	0	698	0	0	0
6	7:49 AM		Secure	58.2	82.7	81.5	364119	1373.1	391838	1844.5	3217.6	755957	1105	0.99	0	0	698	0	0	0
7	1:01 PM		Secure	59	76.3	70.6	364360	1064.9	391927	1602.7	2667.6	756287	1105	0.83	0	0	698	0	0	0
8	12:53 PM		Secure	59.6	82.4	83.8	364602	305.6	391941	9.4	315	756543	1105	0	0	0	698	0	0	0
9	8:10AM	GW	Secure	60.1	80.8	86.2	366658	2056	395532	3591	5647	762190	1107	1.04	0	0	698	0	0	0
10	8:08 AM		Secure	60.7	73.8	84.7	368257	2337.8	397772	3452.7	5790.5	766029	1110	3.28	0	0	698	0	0	0
13	12:55 PM		Secure	62.7	76.7	84.7	372645	2196.2	404609	3443.8	5640	777254	1115	2.22	0	0	698	0	0	0
14	8:15AM	MM	Secure	63.2	70.1	72.8	374530	2109	407370	2723	4832	781900	1117	2.44	0	0	698	0	0	0
15	9:15AM	GW	Secure	63.8	74.4	78.3	376069	1844	409136	2423	4267	785205	1119	2.02	0	0	698	0	0	0
16	9:26 AM		Secure	64.4	74.2	79	376145	254.8	409565	514.5	769.3	785710	1119	0	0	0	698	0	0	0
17	2:21 PM		Secure	65	72.7	82.1	378775	1629.9	412102	1530.5	3160.4	790877	1120	1.01	0	0	698	0	0	0
21	1:07PM	MM	Secure	67.9	70.9	82.3	381773	295.8	414874	145.4	441.2	796647	1120	0	0	0	698	0	0	0
22	1:01 PM		Secure	68.9	70.8	74.9	382075	383.1	415026	151.9	535	797101	1120	0	0	0	698	0	0	0
23	12:59 PM		Secure	69.8	70.8	76.7	382075	119.8	415026	4.4	124.2	797101	1120	0	0	0	698	0	0	0
24	8:05AM	GW	Secure	70.4	70.6	81.2	382214	191.9	415026	4.5	196.4	797240	1120	0	0	0	698	0	0	0
27	8:41 AM		Secure	72.5	70.2	66.7	382790	71.7	415330	5.2	76.9	798120	1120	0	0	0	698	0	0	0
28	12:56 PM		Secure	73.2	70	75.4	382940	246.6	415331	8.2	254.8	798271	1120	0	0	0	698	0	0	0
29	9:24AM	MM	Secure	73.8	68.6	63.6	385095	1732.1	417873	1598	3330.1	802968	1123	1.74	0	0	698	0	0	0
30	9:45AM	KF	Secure	74.4	67.5	86.4	386555	1957.3	419789	2542.1	4499.4	806344	1124	2.1	0	0	698	0.24	0	0
31	8:10AM	GW	Secure	75	60.9	78.3	388321	1777.3	421756	2148.7	3926	810077	1126	1.94	0	0	698	0	0	0

[illegible]

[illegible]

				June Lagoon/Blower Station 2024																			
Inspection				Discharge		Air	Compressor #1					Compressor #2					Compressor #3					Dis.	
Date	Time	Op	Security	PSI	GPM	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	PSI	
3	9:15	KF	Secure			11	12615	24	49	60	74	10385	0	0	0	0	8614	24	44	60	76	8.5	
4	2:55		Secure			22	12644	23	49	60	79	10385	0	0	0	0	8644	24	43	60	83	8.5	
5	1:40PM	KF	Secure			18	12666	24	50	60	80	10385	0	0	0	0	8665	24	44	60	85	8.5	
6	11:07 AM		Secure			19	12687	24	49	60	86	10385	0	0	0		8687	24	44	60	81	8.4	
7	1:17 PM		Secure			24	12713	24	49	60	91	10385	0	0	0		8713	24	44	60	86	8.4	
10	9:18 AM		Secure			18	12779	24	49	60	86	10385	0	0	0		8779	24	44	60	79	8.3	
11	12:50PM	GW	Secure			26	12806	24	49	60	90	10385	0	0	0		8806	24	44	60	97	8.5	
12	12:50PM	GW	Secure			22	12826	20.3	49	60	82	10385	0	0	0		8825	20.3	43	60	86	8.5	
13	8:30AM	KF	Secure			16	12845	24	49	60	75	10385	0	0	0		8844	24	43	60	80	8.5	
14	8:17 AM		Secure			19	12870	24	49	60	76	10385	0	0	0		8869	24	43	60	81	8.4	
17	1:15PM	GW	Secure			19	12943	24	49	60	78	10385	0	0	0		8943	24	43	60	83	8.5	
18	10:43 AM	KA	Secure			16	12965	24	49	60	74	10385	0	0	0		8964	24	43	60	80	8.4	
19	11:20AM	MM	Secure			20	12989	24	49	60	80	10385	0	0	0		8988	24	43	60	86	8.5	
20	11:20AM	GW	Secure			24	13012	24	49	60	82	10385	0	0	0		9011	24	43	60	88	8.5	
21	11:24 AM	KA	Secure			23	13035	24	49	60	84	10385	0	0	0		9035	24	43	60	91	8.4	
24	2:34 PM	KA	Secure			25	13109	24	47	60	80	10385	0	0	0		9059	0	45	60	65	8.2	
25	12:55 PM	KA	Secure			25	13131	24	49	60	87	10385	0	0	0		9081	10.65	43	60	93	8.5	
26	9:20AM	KF	Secure			22	13150	24	49	60	80	10385	0	47	60	35	9100	24	43	60	78	8.9	
27	1:10PM	GW	Secure			20	13178	24	49	60	82	10412	16.6	45	60	80	9100	7.3	0	0		8.9	
28	9:01AM	MM	Secure			17	13197	24	49	60	79	10432	24	45	60	76	9100	0	0	0	0	8.8	
30	11:20AM	GW	Secure			19	13246	24	49	60	84	10481	24	45	60	81	9100	0	0	0		8.8	

[illegible]

[illegible]

July Lagoon/Blower Station 2024																				
Inspection				Storage			Discharge Total Volume m3						Pump #1				Pump #2			
Date	Time	Op	Security	Pond 1 %	Pond 2 %	Contact Tank %	Desert M3	Demand	Meadow M3	Demand	Combined M3	Total M3	Total Hours	Run Time	Amps	Hz	Total Hours	Run Time	Amps	Hz
2	8:19AM	MM	Secure	63.4	59.7	83.1	429176	194.6	476889	260.8	455.4	906065	1136	0	0	0	751	0	0	0
3	2:10PM	KA	Secure	61.3	60.1	87.2	431486	1780.3	479937	1922.7	3703	911423	1136	0	0	0	754	1.81	0	0
4	8:45AM	KF	Secure	59.7	60.5	85.6	433217	2050.6	481921	2916.1	4966.7	915138	1136	0	0	0	754	1.38	0	0
5	9:30AM	KF	Secure	57.6	61.1	88.3	435166	2125.3	485232	2290.1	4415.4	920398	1136	0	0	0	757	2.43	0	0
8	2:43PM	MM	Secure	51.1	62.8	87.9	441280	2096.7	494965	3097.3	5194	936245	1136	0	0	0	765	2.3	0	0
9	9:30AM	KF	Secure	48.7	63.2	83.6	443468	2542.7	498652	3747.3	6290	942120	1136	0	0	0	768	3.97	0	0
10	11:20AM	KF	Secure	46.5	63.7	89.6	445624	2219.9	502011	3620.8	5840.7	947635	1136	0	0	0	771	2.92	0	0
11	1:30PM	KF	Secure	44.1	64.2	83.3	447863	2069.7	505140	3364.7	5434.4	953003	1136	0	0	0	774	2.46	0	0
12	8:08 AM	KA	Secure	41.3	64.5	88.4	450828	2709	508798	3174.3	5883.3	959626	1136	0	0	0	779	3.85	0	0
15	9:30AM	KF	Secure	33.5	65.8	88.3	458022	1986.7	519084	2947.1	4933.8	977106	1136	0	0	0	792	2.86	0	0
16	1:04 PM	KA	Secure	34.6	64.1	91.7	461100	2575.1	522647	3578.9	6154	983747	1136	0	0	0	799	5.42	0	0
17	8:00AM	KF	Secure	35.4	62	87.7	463626	2935.7	525404	3517.1	6452.8	989030	1136	0	0	0	804	6.69	0	0
18	7:30AM	KF	Secure	36.4	60.4	89.6	465322	2233.6	528300	2929	5162.6	993622	1136	0	0	0	813	7.09	0	0
19	7:45AM	KF	Secure	37.4	58.6	90.3	467150	2070.1	531136	3090.7	5160.8	998286	1136	0.08	0	0	823	9.32	0	0
22	1:15PM	MM	Secure																	
23	7:30AM	KF	Secure	41.2	52.2	86.7	475242	1671.8	540503	1335.4	3007.2	1015745	1136	0	0	0	858	7.32	0	0
24	11:40AM	KF	Secure	42	50.3	83.9	477750	1663.4	543325	1983.3	3646.7	1021075	1136	0	0	0	868	8.31	0	0
25	8:30AM	KF	Secure	42.8	48.8	83.6	479414	2535.7	545634	2375.8	4911.5	1025048	1136	0	0	0	877	11.13	0	0
26	7:30AM	MM	Secure	43.6	46.9	88.9	482041	1875.4	548316	1954.2	3829.6	1030357	1136	0	0	0	888	8.7	0	0
29	6:54AM	MM	Secure	46.3	42	85.5	486713	1686.7	556443	2279.6	3966.3	1043156	1136	0	0	0	916	9.68	0	0
30	7:44AM	MM	Secure	47.3	40.2	83.3	488589	1589.3	559070	2269.3	3858.6	1047659	1136	0	0	0	926	8.8	0	0
31	8:29 AM	KA	Secure	48.3	39.5	83.2	488768	596.5	560455	2286	2882.5	1049223	1136	0	0</					

[illegible]

[illegible]

[illegible]

August Lagoon/Blower Station 2024																										
Inspection				Pump #3				Discharge		Air	Compressor #1					Compressor #2					Compressor #3					Dis.
Date	Time	Op	Security	Total Hours	Run Time	Amps	Hz	PSI	GPM	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	PSI
1	11:11 AM	KA	Secure	1109	2.32	0	0			29	13996	24	52	60	101	11230	24	47	60	97	9715	24	46	60	105	8.8
2	6:47AM	MM	Secure	1113	4.04	0	0			30	14015	24	53	60	94	11249	24	48	60	91	9734	24	47	60	96	8.7
4	8:45AM	KF	Secure	1126	5.92	0	0			23	14063	24	54	60	97	11297	24	49	60	95	9782	23.7	47	60	100	9.8
6	7:50AM	KF	Secure	1132	1.23	0	0			21	14109	24	54	60	97	11344	24	50	60	95	9828	24	47	60	100	9.8
7	8:40AM	MM	Secure	1141	5.33	0	0			26	14134	24	54	60	100	11368	23.97	49	60	96	9853	24	47	60	102	8.8
8	6:31AM	MM	Secure	1142	4.35	0	0			25	14156	24	55	60	92	11390	24	50	60	88	9874	24	48	60	94	8.7
12	1:21 PM	KA	Secure	1155	3.76	0	0			27	14256	24	55	60	104	11490	24	50	60	99	9975	24	47	60	106	9.8
13	7:16AM	MM	Secure	1155	2.11	0	0			28	14273	24	50	60	92	11508	24	0	0	0	9992	24	42	60	92	8.8
14	6:41AM	MM	Secure	1157	0	0	0			26	14296	24	54	60	96	11527	24	50	60	92	10015	24	47	60	99	8.7
15	7:23AM	MM	Secure	1159	0	0	0			21	14320	24	55	60	94	11551	24	50	60	93	10039	24	47	60	94	8.8
16	7:35AM	KF	Secure	1162	2.42	0	0			19	14344	24	55	60	97	11575	24	50	60	93	10062	24	47	60	96	9.8
19	7:55AM	GW	Secure	1167	2.54	0	0		422	14	14415	24	55	60	95	11646	24	50	60	89	10133	24	48	60	96	9.7
20	9:18 AM	KA	Secure	1169	2.27	0	0			22	14440	24	55	50	97	11671	24	51	60	91	10158	24	48	60	98	9.8
21	7:48 AM	KA	Secure	1173	2.41	0	0		101	18	14462	24	55	60	94	11693	24	50	60	97	10180	24	48	60	95	9.9
22	10:08 AM	KA	Secure	1173	1.23	0	0		0	21	1448	24	55	60	97	11719	24	50	60	91	10206	24	48	60	99	9.8
23	7:46AM	KA	Secure	1175	1.92	0	0			20	14509	24	55	60	98	11750	24	50	60	97	10227	24	47	60	101	9.8
26	8:00 AM	KA	Secure	1175	0	0	0		0	21	14582	24	55	60	94	11813	24	49	60	94	10301	24	48	60	97	9.8
27	12:52 PM	KA	Secure	1175	0	0	0			22	14607	24	54	60	96	11838	24	49	60	92	10326	24	48	60	99	9.9
28	10:25 AM	KA	Secure	1176	0.88	0	0			22	14631	24	55	60	96	11862	24	50	60	90	10349	24	48	60	96	9.9
29	1:41 PM	KA	Secure	1177	0.94	0	0			24	14655	24	55	60	99	11886	24	50	60	94	10373	24	48	60	102	9.9
30	10:38 AM	KA	Secure	1177	0.69	0	0			22	14676	24	54	60	97	11907	24	50	60	92	10394	24	48	60	100	9.8

August Lagoon/Blower Station 2024

[illegible]

[illegible]

[illegible]

[illegible]

September Lagoon/Blower Station 2024

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

November Lagoon/Blower Station 2024																										
Inspection				Pump #3				Discharge		Air	Compressor #1					Compressor #2					Compressor #3					Dis.
Date	Time	Op	Security	Total Hours	Run Time	Amps	Hz	PSI	GPM	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	Total Hours	Run Time	Amps	Hz	Temp	PSI
1	1:23 PM	KA	Secure	1270	0	0	0			6	16147	24	53	60	72	13378	24	49	60	71	11865	24	47	60	77	9.8
4	11:30 AM	KA	Secure							7	16216	24	53	60	72	13448	24	49	60	71	11935	24	47	60	77	9.8
5	12.50PM	KA	Secure							11	16241	24	50	60	70	13473	24	45	60	69	11955	24	0	0	36	9
6	9:10AM	MM	Secure							4	16261	24	48	60	56	13492	24	43	60	55	11955	7.4	0	0	0	8.9
7	11.12AM	KA	Secure							8	16286	24	48	60	63	13518	24	44	60	62	11955	0	0	0	0	8.9
8	1:40 PM	KA	Secure							10	16312	24	49	60	66	13544	24	43	60	65					8.9	
10	2:57 PM	KA	Secure							8	16360	24	50	60	66	13592	24	44	60	65	11955	0	0	0	0	8.9
12	9:00AM	KF	Secure							5	16401	24	49	60	64	13633	24	44	60	64					8.8	
13	12:53 AM	KA	Secure							6	16429	24	49	60	66	13660	24	45	60	64	11955	0	0	0	0	8.9
14	12:51 PM	KA	Secure							11	16452	24	49	60	70	13684	24	44	60	68	11955	0	0	0	0	8.9
15	1:16 PM	KA	Secure							9	16176	24	49	60	68	13707	24	44	60	68	11955	0	0	0	0	8.9
18	1:22 PM	KA	Secure							3	16546	24	49	60	60	13778	24	44	60	68	11955	0	0	0	0	8.9
19	9:22AM	MM	Secure							-1	16567	24	49	60	57	13797	24	44	60	54	11955	0	0	0	0	8.9
20	11:22AM	MM	Secure							4	16591	24	49	60	58	13822	24	44	60	57	11955	0				8.9
21	1:15 PM		Secure							4	16616	24	49	60	58	13848	24	44	60	58	11955	0	0	0	0	8.9
22	9:11 AM	KA	Secure	1270	0	0	0			3	16636	24	49	60	60	13848	24	44	60	60	11955	0	0	0	0	8.9
25	2:26 PM	KA	Secure							2	16711	24	49	60	59	13943	24	45	60	57	11955	0	0	0	0	8.9
26	8:57 AM	KA	Secure							2	16730	24	50	50	59	13961	24	44	60	56	11955	0	0	0	0	8.9
27	11:14 AM	KA	Secure							2	16755	24	49	60	59	13987	24	44	60	57	11955	0	0	0	0	8.9
28	2:38 PM	KA	Secure							2	16782	24	49	60	56	14013	24	45	60	54	11955	0	0	0	0	8.9
29	11:10 AM	KA	Secure							2	16802	24	49	60	56	14034	24	45	60	54	11955	0	0	0	0	8.9

November Lagoon/Blower Station 2024

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[illegible]

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December Lagoon/Blower Station 2024

[illegible]

December Lagoon/Blower Station 2024

[illegible]

[illegible]

[illegible]

High School Booster Station 2024																	
Inspection				Total Volume m3			Contact Tank			Jockey Pump				Pump 1			
Month	Date	Time	Operator	Total	Demand	LPS	Level %	Suction PSI	Discharge PSI	Total Hours	Run Time	Ampls	Hz	Total Hours	Run Time	Amps	Hz
January	26	11:05AM	DS	205667	0					4766	0			7187	0		
March	6	1:45PM	GW														
March	27	7:50AM	GW	205681	14	6.9	83	29	81	4769	0	4	60	7187	0	0	0
April	4	2:36 PM		205701	0.3	0	86.1	29.7	88.8	4775	0	0	0	7202	0	0	0
April	5	11:01 AM		205706	0.3	4.4	83.9	29.5	79.9	4777	2	0	0	7202	0	0	0
April	8	10:38 AM		205714	0.3	0	80.7	29.5	84.2	4779	0	0	0	7208	0	0	0
April	9	3:05PM	GW	205717	0.3	0		29	76	3	0	0	0	7208	0	0	0
April	10	2:44 PM		205720	0.3	0	78.1	29.3	84	4	0	0	0	7212	0	0	0
April	11	11:45AM	GW	205723	0.3	0	82.4	30	75	5	0	0	0	7212	0	0	0
April	15	11:12 AM		205734	0.3	0	87.1	29.8	70.1	8	0	0	0	7218	0	0	0
April	16	11:37 AM		205736	2	0	73.8	29.2	72.9	8	0	0	0	7221	3	0	0
April	17	11:37 AM		205739	3	0	73.2	29.2	70.9	9	1	0	0	7221	0	0	0
April	18	8:47 AM		205742	3	0	77.2	29.3	90.2	10	1	0	0	7224	3	0	0
April	22	11:50 AM		205756	14	0	72.9	29.1	72.2	13	0	0	0	7228	4	0	0
April	23	9:47		209759	3	0	71.2	29.1	71.7	14	1	0	0	7228	0	0	0
April	24	8:41		205762	3	0	83.4	29.2	74.9	15	1	0	0	7228	0	0	0
April	25	11:19		205764	2		84.9	29.7	103.3	17	2	0	0	7228	0	0	0
April	29	1:45PM	GW	205775	11	0	71.4	29.3	102.9	21	0	0	0	7254	0	0	0
April	30	11:20AM	GW	205778	3	0	72.4	29.1	74.5	22	0	0	0	7261	0	0	0
May	1	8:35AM	DS	205780	0.3	0	79.7	29.4	80.9	24	0	0	0	7267	5.8	0	0
May	3	11:40 AM		205789	0.3	0	85.9	29.7	76.7	26	0	0	0	7281	0	0	0
May	6	8:48 AM		205796	7	0	81.5	29.3	81.1	30	4	0	0	7301	20	0	0
May	7	1:46 PM		205799	3	0	70.6	29.7	76.3	31	1	0	0	7307	6	0	0
May	8	1:42 PM		205802	3	0	83.8	29.5	77.1	31	1	0	0	7314	7	0	0
May	9	9:00AM	KF	205807	0.3	0	84.2	29.7	79.7	33	0	0	0	7321	5.9	0	0
May	10	8:52 AM		205810	3	0	84.7	29.7	78.6	34	1	0	0	7321	0	0	0
May	13	1:50 PM		205818	8	0	84.7	29.7	74.9	38	4	0	0	7321	0	0	0
May	14	11:30AM	KM	205820	0.3	0		29.1	76.9	39	0	0	0	7321	0	0	0
May	15	1:25PM	GW	205825	5	0	78.3	29	82	41	0	0	0	7321	0	0	0
May	16	10:20 AM		205828	3	0	79	29.4	83.9	42	1	0	0	7328	7	0	0
May	17	2:53 PM		205831	3	0	82.1	29.5	80.9	43	1	0	0	7335	7	0	0
May	22	1:40 PM		205846	15	0	74.9	29.1	98.2	49	6	0	0	7368	33	0	0
May	23	1:47 PM		205849	3	0	76.7	29.2	82.2	50	1	0	0	7374	6	0	0
May	27	9:341 AM		205860	11	0	66.7	28.8	85.7	54	4	0	0	7402	28	0	0
May	28	1:32 PM		205866	6	0	74.5	29.1	77.9	55	1	0	0	7408	6	0	0
May	29	9:10AM		205869	0.3	0		28.6	81.4	56	0	0	0	7408	0	0	0
May	30	10:55AM	KF	205871	0.3	0		29.5	80.9	56	0	0	0	7408	0	0	0
June	3	1:42PM	MM	205882	0.3	0		29.7	101.8	60	0	0	0	7408	0	0	0
June	6	11:39 AM		205887	5	0	82.7	29.5	81.3	62	1	0	0	7408	0	0	0
June	7	1:59 PM		205890	3	0	87.2	29.3	81.3	62	0	0	0	7408	0	0	0
June	10	11:40AM	MM	205899	0.3	0		29.5	29,5	64	0	0	0	7408	0	0	0
June	11	1:50PM	GW	205904	5	0	86.1	29.3	81.8	65	0	0	0	7408	0	0	0
June	12	1:45PM	GW	205904	0	0	83.8	29.3	106.2	65	0	0	0	7408	0	0	0

High School Booster Station 2024																	
Inspection				Total Volume m3			Contact Tank			Jockey Pump				Pump 1			
Month	Date	Time	Operator	Total	Demand	LPS	Level %	Suction PSI	Discharge PSI	Total Hours	Run Time	Ampls	Hz	Total Hours	Run Time	Amps	Hz
June	13	8:55AM	KF	205907	0.3	0	88.2	29.3	82.8	66	0	0	0	7408	0	0	0
June	14	9:49 AM		205910	3	0	87.7	29.3	82	67	1	0	0	7409	1	0	0
June	17	1:55PM	GW	205931	21	5	89.5	30.4	88.9	72	0	0	0	7426	0.1		40
June	19	1:28 PM	KA	205935	4	0	87.6	29.4	81.6	72	2	0	0	7426	0	0	0
June	20	3:07 PM	KA	205938	3	0	81.8	29.4	89.4	75	3	0	0	7426	0	0	0
June	24	1:47 PM	KA	205996	58	0	87.8	29.4	104.5	86	11	0	0	7427	1	0	0
June	25	1:38 PM	KA	206002	6	0	90.4	29.6	100.1	96	10	0	0	7427	0	0	0
June	26	9:50AM	KF	206006	0.4	0	88.9	29.4	104.1	97	1	0	0	7427	0	0	0
June	28	1:31PM	MM	206018	0.4	0		29.4	92.4	100	3	0	0	7427	0	0	0
July	2	9:10AM	KF	208036	0.9	0	90	29.4	73.9	106	6	0	0	7449	0	0	0
July	3	2:59 PM	KA	208165	0.4	0	87.2	29.4	80.9	108	2	0	0	7458	9	0	0
July	4	1:45 PM	KA	208649	0.9	0	85.6	29.5	70.9	110	2	0	0	7466	8	0	0
July	5	1:55PM	KF	209254	0.9	11.5	88.9	28.5	105	115	5	0	0	7468	2	19	48
July	9	8:45AM	KF	211321	0.9	0	87.4	29.3	84	120	5	0	0	7485	7	0	0
July	10	10:40AM	KF	211485	0.4	0	84.6	29.5	75.4	122	2	0	0	7494	9	0	0
July	11	1:40PM	KF	212010	9	0	88.9	29.7	106	123	1	0	0	7503	9	0	0
July	12	1:23PM	MM	212530	0.9	0	88.4	29.6	102.2	7676	0	0	0	7504	0	0	0
July	15	12:52 PM	KA	214119	0.9	103.6	88.3	28.9	105	133	0	0	0	7509	5	0	0
July	16	2:00 PM	KA	214622	503	0	91.7	29.6	73	134	1	0	0	7510	1	0	0
July	17	8:15AM	KF	214771	0.4	0	88.7	29.3	107	135	1	0	0	7510	1	0	0
July	18	9:50AM	KF	214844	0.4	0	87.8	29.4	77.5	137	2	0	0	7512	2	0	0
July	19	8:10AM	KF	215369	0.9	0	90.2	29.5	92.9	138	1	0	0	7513	1	0	0
July	22	2:00PM	MM	216941	0.9	0		29.5	74.6	142	0	0	0	7518	0	0	0
July	23	9:05AM	KF	217439	0.9	0	88.7	29.4	80.9	143	1	0	0	7519	1	0	0
July	24	1:30PM	MM	217582	0.4	0		29.5	73.8	144	0	0	0	7529	0	0	0
July	25	8:55AM	KF	218097	0.9	0	88.9	29.5	70.2	145	1	0	0	7530	6	0	0
July	26	8:08AM	MM	218624	0.9	0		29.4	76.9	146	0	0	0	7532	0	0	0
July	29	7:45AM	KF	220211	0.9	0	86.7	29.3	75.8	150	4	0	0	7536	4	0	0
July	30	8:30AM	KF	220727	0.9	0	88.4	29.5	106.1	151	1	0	0	7538	2	0	0
August	1	1:55PM	GW	221424	0.9	0	89.1	29.5	94.1	154	0	0	0	7552	0	0	0
August	2	8:00AM	KF	221937	0.9	0	88.2	29.6	104.5	155	1	0	0	7559	7	0	0
August	4	8:55AM	KF	222939	0.9	0	88.7	29.5	71.6	158	3	0	0	7562	3	0	0
August	6	8:15AM	KF	223954	0.9	0	86.2	29.5	100.4	161	3	0	0	7569	7	0	0
August	7	9:40AM	MM	224093	0.4	0	87.8	29.4	101.9	162	0	0	0	7579	0	0	0
August	8	7:19AM	MM	224120	0.4	0	86.5	29.4	77.5	165	0	0	0	7579	0	0	0
August	9	8:50AM	KF	224127	0.4	0	86.2	29.4	108	166	1	0	0	7579	0	0	0
August	12	1:40PM	MM	225216	0.9	0		29.4	84.9	170	0	0	0	7598	0	0	0
August	14	7:40AM	KF	225229	0.4	0	88.9	29.2	97.8	174	4	0	0	7607	9	0	0
August	15	8:20AM	KF	225743	0.9	0	88.3	29.5	84	175	1	0	0	7615	8	0	0
August	16	8:05AM	KF	226271	0.9	0	88.1	29.3	93.6	176	1	0	0	7624	9	0	0
August	20	12:50PM	GW	228369	0.9	1.7		30	107	184	0	4	60	7652	0	0	0
August	21	8:47 AM	KA	228373	0.4	2.8	89.7	28.8	81.2	188	4	4.1	60	7652	0	0	0
August	22	1:03 PM	KA	228382	9	0.2	84.7	29.4	80.4	195	8	0	0	7660	8	0	0

High School Booster Station 2024																	
Inspection				Total Volume m3			Contact Tank			Jockey Pump				Pump 1			
Month	Date	Time	Operator	Total	Demand	LPS	Level %	Suction PSI	Discharge PSI	Total Hours	Run Time	Ampls	Hz	Total Hours	Run Time	Amps	Hz
August	27	1:27 PM	KA	230780	0.9	0.1	87.5	29.4	85.4	204	9	0	0	7680	20	0	0
August	28	1:17 PM	KA	230813	33	0	89.8	29.4	92.5	207	3	0	0	7687	7	0	0
September	3	1:16PM	MM	232567	1	0	88.2	29.3	86.9	224	0	0	0	7696	0	0	0
September	4	9:40AM	MM	232617	0.4	0	88.2	29.4	70.3	226	0	0	0	7696	0	0	0
September	6	1:34 PM	KA	232617	0	0.11	87.8	29.4	88.9	229	3	0	0	7696	0	0	0
September	13	1:43 PM	KA	234241	0.4	3	86.8	31	77	304	0	4	60	7715	0	0	0
September	16	9:52 AM	KA	234246	0	0	84.7	29.3	78	308	0	0	0	7715	0	0	0
September	17	1:40 PM	KA	234250	0.3	0	83.5	29.5	99.2	309	0	0	0	7715	0	0	0
September	19	9:36 AM	KA	234258	0	0	87.5	29.5	75.9	310	0	0	0	7715	0	0	0
September	20	11:20AM	MM	234266	0.3	0	90.3	29.7	102	312	0	0	0	7715	0	0	0
September	23	8:44AM	KA	234277	0.3	0	86.5	29.3	100.7	313	0	0	0	7720	0	0	0
September	24	2:45PM	MM	234281	0.3	0		29.5	97.8	314	0	0	0	7720	0	0	0
October	1	3:10PM		234310	0.3	0	84.6	29.3	97.1	317	0	0	0	7725	0	0	0
October	2	2:57Pm	MM	234322	0	0		29.4	102.1	318	0	0	0	7730	0	0	0
October	4	8:53AM	KA	234328	6	0	84.7	29.3	96	319	1	0	0	7736	6	0	0
October	8	2:14 PM	KA	234343	15	0	88.8	29.4	94.9	321	2	0	0	7741	5	0	0
October	9	11:37AM	MM	234349	0.3	0		29.3	91.3	321	0	0	0	7746	0	0	0
October	10	1:40PM		234353	0	0	85.8	29.3	98.7	321	0	0	0	7746	0	0	0
October	11	11:15AM		234359	0.3	0	86.6	29.3	92	321	0	0	0	7752	0	0	0

High School Booster Station 2024

Inspection				Pump 2				Station							
Month	Date	Time	Operator	Total Hours	Run Time	Amps	Hz	Heater	Fan	Insulation	Clean	Antenna	Pressure Tanks	Security	Temp
January	26	11:05AM	DS	1311	0			Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
March	6	1:45PM	GW					Working	Working	Winterized	Yes	Good	Not Leaking	Secure	23
March	27	7:50AM	GW	1315	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	20
April	4	2:36 PM		1324	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22.9
April	5	11:01 AM		1329	0.1	13	37	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22.5
April	8	10:38 AM		1332	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21.1
April	9	3:05PM	GW	1336	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21
April	10	2:44 PM		1336	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21
April	11	11:45AM	GW	1339	0.1	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	20
April	15	11:12 AM		1345	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	23
April	16	11:37 AM		1345	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	17	11:37 AM		1349	4	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	18	8:47 AM		1349	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	20
April	22	11:50 AM		1359	10	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	23	9:47		1366	7	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	24	8:41		1372	6	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	25	11:19		1379	7	9	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	29	1:45PM	GW	1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
April	30	11:20AM	GW	1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
May	1	8:35AM	DS	1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21
May	3	11:40 AM		1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21
May	6	8:48 AM		1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	22
May	7	1:46 PM		1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21
May	8	1:42 PM		1379	0	0	0	Working	Working	Winterized	Yes	Good	Not Leaking	Secure	21
May	9	9:00AM	KF	1379	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	21
May	10	8:52 AM		1386	7	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	18
May	13	1:50 PM		1405	19	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
May	14	11:30AM	KM	1412	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	22
May	15	1:25PM	GW	1418	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	22
May	16	10:20 AM		1418	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	21
May	17	2:53 PM		1418	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	19
May	22	1:40 PM		1418	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	14
May	23	1:47 PM		1418	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	17
May	27	9:341 AM		1418	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	15
May	28	1:32 PM		1419	1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	20
May	29	9:10AM		1426	5.7	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	16
May	30	10:55AM	KF	1434	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	15
June	3	1:42PM	MM	1461	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	17
June	6	11:39 AM		1468	7	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	21
June	7	1:59 PM		1475	7	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
June	10	11:40AM	MM	1496	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	22
June	11	1:50PM	GW	1503	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	25
June	12	1:45PM	GW	1503	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	23

				High School Booster Station 2024											
Inspection				Pump 2				Station							
Month	Date	Time	Operator	Total Hours	Run Time	Amps	Hz	Heater	Fan	Insulation	Clean	Antenna	Pressure Tanks	Security	Temp
June	13	8:55AM	KF	1512	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	20
June	14	9:49 AM		1519	7	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	21
June	17	1:55PM	GW	1528	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	19
June	19	1:28 PM	KA	1537	9	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	22
June	20	3:07 PM	KA	1546	9	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	25
June	24	1:47 PM	KA	1554	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
June	25	1:38 PM	KA	1554	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
June	26	9:50AM	KF	1562	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
June	28	1:31PM	MM	1576	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	23
July	2	9:10AM	KF	1595	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	22
July	3	2:59 PM	KA	1595	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
July	4	1:45 PM	KA	1595	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
July	5	1:55PM	KF	1605	10	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	29
July	9	8:45AM	KF	1626	11	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
July	10	10:40AM	KF	1627	1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	31
July	11	1:40PM	KF	1629	2	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	32
July	12	1:23PM	MM	1638	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	32
July	15	12:52 PM	KA	1663	25	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	33
July	16	2:00 PM	KA	1672	9	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	33
July	17	8:15AM	KF	1681	9	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
July	18	9:50AM	KF	1690	9	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	29
July	19	8:10AM	KF	1698	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
July	22	2:00PM	MM	1723	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
July	23	9:05AM	KF	1731	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
July	24	1:30PM	MM	1731	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	30
July	25	8:55AM	KF	1739	4	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	25
July	26	8:08AM	MM	1748	0.1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	21
July	29	7:45AM	KF	1773	25	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	26
July	30	8:30AM	KF	1781	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	22
August	1	1:55PM	GW	1789	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	30
August	2	8:00AM	KF	1791	2	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	26
August	4	8:55AM	KF	1807	16	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
August	6	8:15AM	KF	1818	11	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
August	7	9:40AM	MM	1818	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
August	8	7:19AM	MM	1827	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
August	9	8:50AM	KF	1835	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
August	12	1:40PM	MM	1847	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	28
August	14	7:40AM	KF	1855	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
August	15	8:20AM	KF	1857	2	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
August	16	8:05AM	KF	1858	1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	25
August	20	12:50PM	GW	1870	0.1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	26
August	21	8:47 AM	KA	1878	8	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	23
August	22	1:03 PM	KA	1878	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	25

				High School Booster Station 2024											
Inspection				Pump 2				Station							
Month	Date	Time	Operator	Total Hours	Run Time	Amps	Hz	Heater	Fan	Insulation	Clean	Antenna	Pressure Tanks	Security	Temp
August	27	1:27 PM	KA	1903	25	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	23
August	28	1:17 PM	KA	1904	1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	22
September	3	1:16PM	MM	1935	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
September	4	9:40AM	MM	1942	0.1	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	24
September	6	1:34 PM	KA	1942	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	27
September	13	1:43 PM	KA	1971	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	23
September	16	9:52 AM	KA	1976	0	0	0	Working	Working	Summerized	Yes	Good	Not Leaking	Secure	20
September	17	1:40 PM	KA	1980	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	23
September	19	9:36 AM	KA	1985	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	19.6
September	20	11:20AM	MM	1991	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	20
September	23	8:44AM	KA	1996	0.1	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	18.1
September	24	2:45PM	MM	2001	0.1	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	25
October	1	3:10PM		2022	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	19
October	2	2:57Pm	MM	2023	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	16
October	4	8:53AM	KA	2023	0	0	0		Working	Summerized	Yes	Good	Not Leaking	Secure	18
October	8	2:14 PM	KA	2034	1	0	0				Yes	Good	Not Leaking	Secure	21
October	9	11:37AM	MM	2034	0	0	0				Yes	Good	Not Leaking	Secure	21
October	10	1:40PM		2034	0	0	0				Yes	Good	Not Leaking	Secure	21
October	11	11:15AM		2034	0	0	0				Yes	Good	Not Leaking	Secure	19

APPENDIX E

Seasonal Precipitation Summary: 2009 - 2024
for Osoyoos, BC (Station: Osoyoos CS, OC 7.2.4.12)

Seasonal Precipitation Summary: 2009 - 2024
Total Monthly Precipitation (mm) for Osoyoos CS

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total for Season
Climate Normals 1971-2000	27.8	25.5	22.5	23.5	37.4	35.9	24.3	21.2	16.1	17.1	32.1	34.2	175.5
2009	-	-	-	13.8	35.8	47.0	63.4	61.0	34.2	27.2*	11.8	-	282.4
2010	-	-	12.2	22.6	90.2	61.4	19.0*	5.4*	28.2*	16.8	13.6	-	243.6
2011	-	-	51.4	13.4	65.6	6.2*	19.2*	2.6*	5.0*	18.6	18.8	-	130.6
2012	-	-	54.2*	34.0	17.6	79.8*	49.5*	2.1*	0.7*	35.4*	58.7	61.5	219.0
2013	18.9	5.3	12.6	15.6	19.5	41.5	4.0	15.9	50.7	7.0	20.7	13.3*	154.2
2014	12.3	31.6	9.1	19.4	15.4	23.7*	24.9	9.8	7.6	28.2	51.5	28.9	129.0
2015	23.7	10.1	14.5	4.8	36.6	33.9	8.2	7.5	0.6	15.2	27.4	74.6*	106.8
2016	34.3*	21.7	42.0	9.3	12.8	32.3	25.0	20.3	7.0	59.7	36.3	15.0	166.4
2017	25.4	19.8	31.2	71.7	52.2	8.2	0.0	0.6	0.9	6.2	48.4	28.9	139.8
2018	65.6	18.0	58.7	39.1	35.9*	35.5	4.5	0.0	5.7	17.8	16.1	33.0	138.5*
2019	22.9	15.9	16.7	10.5	0.4*	M	M	M	M	M	M	M	10.9*
2020	M	M	M	M	M	43.3	5.1	5.7	2.2	30.4	31.8	32.0	150.5*
2021	45.3	22.9	2.3	14.3*	0.0	33.5	2.7	7.5	7.4	53.8	25.6	31.5	246.8*
2022	36.1	9.6	15.4	11.5	16.3	47.1	21.6	0.5	3.7	3.7	37.1	45.2	104.4
2023	31.1	11.8	8.7	19.1	40.3	5.7	9.6*	19.0*	17.6	13.8	19.1	33.5	125.1*
2024	35.7	15.8	26.2	9.9*	17.3*	20.9*	7.3	27.3	16.3	10.3*	56.5	42.3*	109.3*

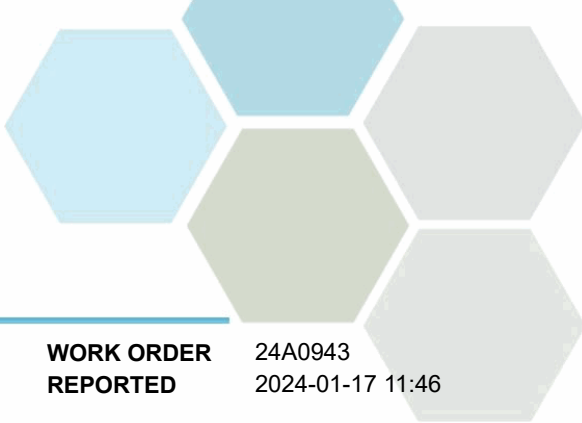
*The value displayed is based on incomplete data

M = Missing Data

Data compiled from Environment Canada

APPENDIX F

Analytical Reports (OC 5.2.2, 5.3.2, 5.5.3, 5.6.2, 7.2.4.2,
7.2.4.3, 7.2.4.6, 7.2.4.7)



TEST RESULTS

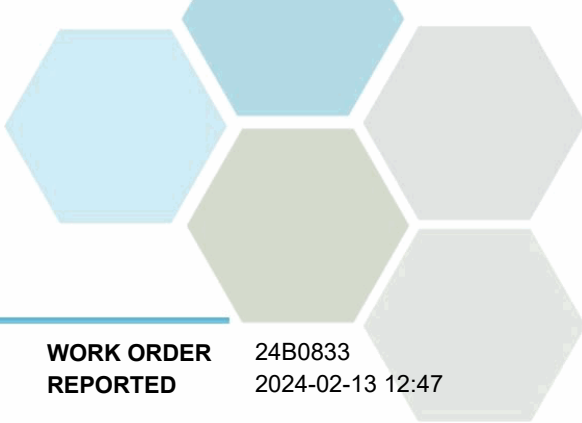
REPORTED TO PROJECT	Osoyoos, Town of Wastewater- PE12214	WORK ORDER REPORTED	24A0943 2024-01-17 11:46
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Analyte	Result	RL	Units	Analyzed	Qualifier
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E105001 Sewer Site (24A0943-01) | Matrix: Water | Sampled: 2024-01-09 07:50

General Parameters

BOD, 5-day Carbonaceous	14.6	2.0	mg/L	2024-01-17	
Solids, Total Suspended	29.0	2.0	mg/L	2024-01-11	



TEST RESULTS

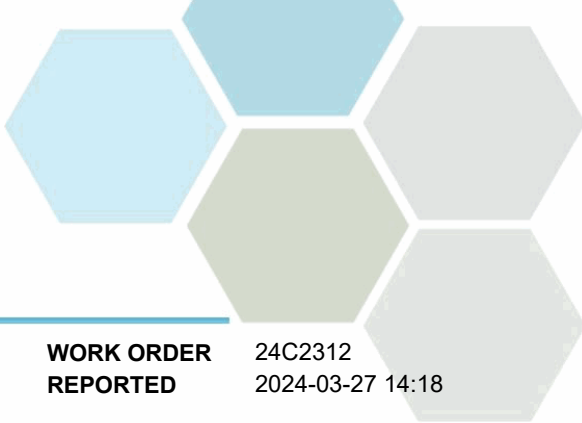
REPORTED TO PROJECT	Osoyoos, Town of Wastewater- PE12214	WORK ORDER REPORTED	24B0833 2024-02-13 12:47
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Analyte	Result	RL	Units	Analyzed	Qualifier
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E105001 Sewer Site (24B0833-01) | Matrix: Water | Sampled: 2024-02-06 08:50

General Parameters

BOD, 5-day Carbonaceous	14.9	2.0	mg/L	2024-02-13	
Solids, Total Suspended	21.7	2.0	mg/L	2024-02-09	



TEST RESULTS

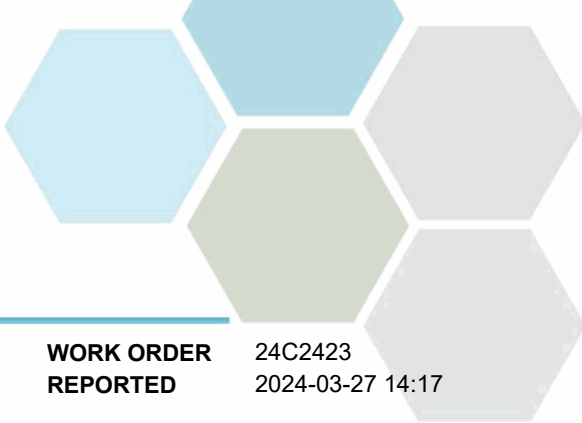
REPORTED TO PROJECT	Osoyoos, Town of Wastewater- PE12214	WORK ORDER REPORTED	24C2312 2024-03-27 14:18
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Analyte	Result	RL	Units	Analyzed	Qualifier
E207444 (24C2312-01) Matrix: Water Sampled: 2024-03-19 07:50					
Anions					
Nitrate (as N)	7.53	0.010	mg/L	2024-03-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2024-03-21	
Sulfate	65.4	1.0	mg/L	2024-03-21	
Calculated Parameters					
Nitrate+Nitrite (as N)	7.53	0.0100	mg/L	N/A	
Nitrogen, Total	24.7	0.500	mg/L	N/A	
General Parameters					
BOD, 5-day Carbonaceous	< 6.0	2.0	mg/L	2024-03-27	
Nitrogen, Total Kjeldahl	17.2	0.050	mg/L	2024-03-26	
Phosphorus, Total (as P)	6.13	0.0050	mg/L	2024-03-22	
Solids, Total Suspended	11.4	2.0	mg/L	2024-03-21	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	< 1	1	MPN/100 mL	2024-03-20	HT1
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-03-20	HT1
Total Metals					
Sodium, total	166	0.10	mg/L	2024-03-23	

E230037 (24C2312-02) | Matrix: Water | Sampled: 2024-03-19 08:20

General Parameters					
Chemical Oxygen Demand	62	20	mg/L	2024-03-22	
Phosphorus, Total (as P)	4.23	0.0050	mg/L	2024-03-22	

Sample Qualifiers:					
HT1	The sample was prepared and/or analyzed past the recommended holding time.				



TEST RESULTS

REPORTED TO PROJECT	Osoyoos, Town of Wastewater- PE12214	WORK ORDER REPORTED	24C2423 2024-03-27 14:17
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Analyte	Result	RL	Units	Analyzed	Qualifier
E105001 Sewer Site (24C2423-01) Matrix: Water Sampled: 2024-03-19 08:05					FILT, PRES

Anions

Nitrate (as N)	1.84	0.010	mg/L	2024-03-22	
Nitrite (as N)	0.439	0.010	mg/L	2024-03-22	
Phosphate (as P)	3.69	0.0050	mg/L	2024-03-22	

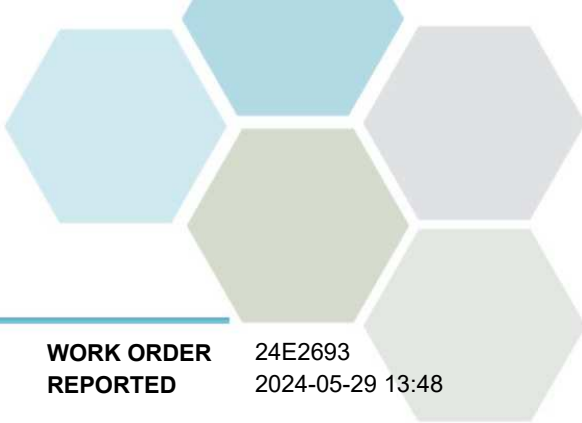
Calculated Parameters

Nitrate+Nitrite (as N)	2.28	0.0100	mg/L	N/A	
Nitrogen, Total	36.1	1.00	mg/L	N/A	
Nitrogen, Organic	< 1.00	1.00	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	35.5	0.050	mg/L	2024-03-25	
BOD, 5-day Carbonaceous	9.5	2.0	mg/L	2024-03-27	
Chemical Oxygen Demand	101	20	mg/L	2024-03-22	
Nitrogen, Total Kjeldahl	33.8	0.050	mg/L	2024-03-26	
Phosphorus, Total (as P)	4.72	0.0050	mg/L	2024-03-22	
Phosphorus, Total Dissolved	4.33	0.0050	mg/L	2024-03-22	
Solids, Total Suspended	25.4	2.0	mg/L	2024-03-21	

Sample Qualifiers:					
FILT	The sample has been filtered for diss persulfate in the laboratory. Results may not reflect conditions at the time of sampling.				
PRES	Sample has been preserved for diss persulfate in the laboratory and the holding time has been extended.				



TEST RESULTS

REPORTED TO PROJECT	Osoyoos, Town of Lagoons	WORK ORDER REPORTED	24E2693 2024-05-29 13:48
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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E105001 (24E2693-01) | Matrix: Water | Sampled: 2024-05-21 08:20

General Parameters

BOD, 5-day	14.5	N/A	2.0	mg/L	2024-05-28	
Solids, Total Suspended	14.5	N/A	2.0	mg/L	2024-05-28	

E207444 (24E2693-02) | Matrix: Water | Sampled: 2024-05-21 08:40

General Parameters

Nitrogen, Total Kjeldahl	24.2	N/A	0.050	mg/L	2024-05-28	
Phosphorus, Total (as P)	5.83	N/A	0.0050	mg/L	2024-05-25	

Microbiological Parameters

Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2024-05-22	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2024-05-22	

Total Metals

Sodium, total	161	AO ≤ 200	0.10	mg/L	2024-05-28	
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Pilot Plant (24E2693-03) | Matrix: Water | Sampled: 2024-05-21 09:15

General Parameters

BOD, 5-day	16.0	N/A	2.0	mg/L	2024-05-28	
Solids, Total Suspended	< 2.0	N/A	2.0	mg/L	2024-05-28	

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of Lagoons

WORK ORDER REPORTED 24F2377
2024-06-25 11:46

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
E207444 (24F2377-01) Matrix: Water Sampled: 2024-06-18 10:35						
<i>Microbiological Parameters</i>						
Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2024-06-19	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2024-06-19	
E105001 (24F2377-02) Matrix: Water Sampled: 2024-06-18 10:45						
<i>General Parameters</i>						
BOD, 5-day Carbonaceous	7.0	N/A	2.0	mg/L	2024-06-24	
E207444 (24F2377-03) Matrix: Water Sampled: 2024-06-18 10:35						
<i>General Parameters</i>						
Phosphorus, Total (as P)	5.71	N/A	0.0050	mg/L	2024-06-20	
E207444 (24F2377-04) Matrix: Water Sampled: 2024-06-18 10:35						
<i>Total Metals</i>						
Sodium, total	172	AO ≤ 200	0.10	mg/L	2024-06-22	
E207444 (24F2377-05) Matrix: Water Sampled: 2024-06-18 10:40						PRES
<i>Anions</i>						
Nitrate (as N)	4.14	MAC = 10	0.010	mg/L	2024-06-19	
Nitrite (as N)	< 0.250	MAC = 1	0.010	mg/L	2024-06-19	RA1
Sulfate	66.5	AO ≤ 500	1.0	mg/L	2024-06-19	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	4.14	N/A	0.250	mg/L	N/A	
Nitrogen, Total	27.8	N/A	0.500	mg/L	N/A	
<i>General Parameters</i>						
Chemical Oxygen Demand	58	N/A	20	mg/L	2024-06-23	
Nitrogen, Total Kjeldahl	23.7	N/A	0.050	mg/L	2024-06-24	
Phosphorus, Total (as P)	5.64	N/A	0.0050	mg/L	2024-06-21	
Solids, Total Suspended	2.6	N/A	2.0	mg/L	2024-06-24	

Sample Qualifiers:

PRES Sample has been preserved for Sulphate in the laboratory and the holding time has been extended.
RA1 The Reporting Limit for this sample has been raised due to matrix interference.

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of Lagoons

WORK ORDER REPORTED 24G3008
2024-07-31 11:21

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
E105001 (24G3008-01) Matrix: Water Sampled: 2024-07-23						PRES

General Parameters

Chemical Oxygen Demand	89	N/A	20	mg/L	2024-07-27	
Solids, Total Suspended	10.5	N/A	2.0	mg/L	2024-07-25	

E207444 (24G3008-02) | Matrix: Water | Sampled: 2024-07-23 07:55

Anions

Nitrate (as N)	0.992	MAC = 10	0.010	mg/L	2024-07-24	
Nitrite (as N)	0.669	MAC = 1	0.010	mg/L	2024-07-24	

Calculated Parameters

Nitrate+Nitrite (as N)	1.66	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	24.6	N/A	0.500	mg/L	N/A	

General Parameters

Chemical Oxygen Demand	51	N/A	20	mg/L	2024-07-25	
Nitrogen, Total Kjeldahl	23.0	N/A	0.050	mg/L	2024-07-26	
Phosphorus, Total (as P)	4.24	N/A	0.0050	mg/L	2024-07-25	
Solids, Total Suspended	5.2	N/A	2.0	mg/L	2024-07-25	

Microbiological Parameters

Coliforms, Total (Q-Tray)	> 2420	MAC = 0	1	MPN/100 mL	2024-07-24	
Coliforms, Fecal (Q-Tray)	150	N/A	1	MPN/100 mL	2024-07-24	

Total Metals

Sodium, total	177	AO ≤ 200	0.10	mg/L	2024-07-25	
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Pilot Plant (24G3008-03) | Matrix: Water | Sampled: 2024-07-23 08:10

Anions

Nitrate (as N)	0.974	MAC = 10	0.010	mg/L	2024-07-24	
Nitrite (as N)	0.661	MAC = 1	0.010	mg/L	2024-07-24	

Calculated Parameters

Nitrate+Nitrite (as N)	1.63	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	22.2	N/A	0.500	mg/L	N/A	

General Parameters

Chemical Oxygen Demand	49	N/A	20	mg/L	2024-07-25	
Nitrogen, Total Kjeldahl	20.5	N/A	0.050	mg/L	2024-07-26	
Phosphorus, Total (as P)	4.10	N/A	0.0050	mg/L	2024-07-25	
Solids, Total Suspended	5.2	N/A	2.0	mg/L	2024-07-25	

Microbiological Parameters

Coliforms, Total (Q-Tray)	> 2420	MAC = 0	1	MPN/100 mL	2024-07-24	
Coliforms, Fecal (Q-Tray)	54	N/A	1	MPN/100 mL	2024-07-24	



TEST RESULTS

REPORTED TO PROJECT	Osoyoos, Town of Lagoons	WORK ORDER REPORTED	24G3008 2024-07-31 11:21
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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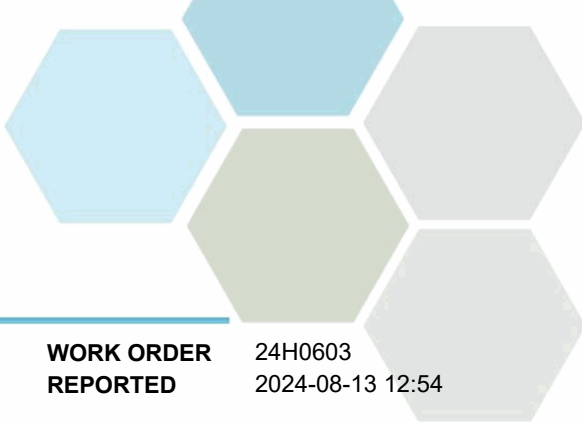
Pilot Plant (24G3008-03) | Matrix: Water | Sampled: 2024-07-23 08:10, Continued

Total Metals

Sodium, total	177	AO ≤ 200	0.10	mg/L	2024-07-25	
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Sample Qualifiers:

PRES Sample has been preserved for COD in the laboratory and the holding time has been extended.



TEST RESULTS

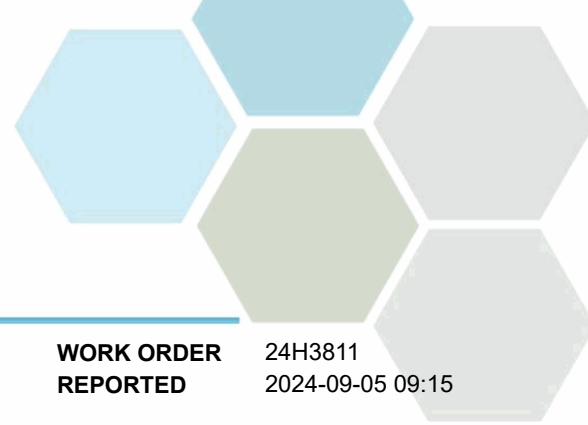
REPORTED TO PROJECT	Osoyoos, Town of Wastewater- PE12214	WORK ORDER REPORTED	24H0603 2024-08-13 12:54
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Analyte	Result	RL	Units	Analyzed	Qualifier
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Sewersite E207444 (24H0603-01) | Matrix: Water | Sampled: 2024-08-06 11:00

Microbiological Parameters

Coliforms, Total (Q-Tray)	133	1	MPN/100 mL	2024-08-07	
Coliforms, Fecal (Q-Tray)	1	1	MPN/100 mL	2024-08-07	



TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
Wastewater- PE12214

WORK ORDER REPORTED 24H3811
2024-09-05 09:15

Analyte	Result	RL	Units	Analyzed	Qualifier
E105001 (24H3811-01) Matrix: Water Sampled: 2024-08-28 10:20					PRES

General Parameters

Chemical Oxygen Demand	64	20	mg/L	2024-08-31	
Solids, Total Suspended	11.4	2.0	mg/L	2024-09-05	

E207444 (24H3811-02) | Matrix: Water | Sampled: 2024-08-28 10:25

Anions

Nitrate (as N)	0.944	0.010	mg/L	2024-08-29	
Nitrite (as N)	1.66	0.010	mg/L	2024-08-29	
Sulfate	61.5	1.0	mg/L	2024-08-29	

Calculated Parameters

Nitrate+Nitrite (as N)	2.60	0.0100	mg/L	N/A	
Nitrogen, Total	17.8	0.250	mg/L	N/A	

General Parameters

Chemical Oxygen Demand	54	20	mg/L	2024-08-31	
Nitrogen, Total Kjeldahl	15.2	0.050	mg/L	2024-09-03	
Phosphorus, Total (as P)	5.28	0.0050	mg/L	2024-08-30	
Solids, Total Suspended	8.6	2.0	mg/L	2024-09-05	

Microbiological Parameters

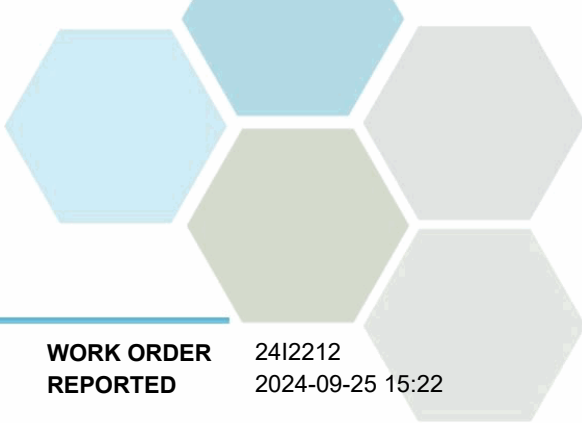
Coliforms, Total (Q-Tray)	1550	1	MPN/100 mL	2024-08-29	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-08-29	

Total Metals

Sodium, total	171	0.10	mg/L	2024-09-03	
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Sample Qualifiers:

PRES Sample has been preserved for COD in the laboratory and the holding time has been extended.



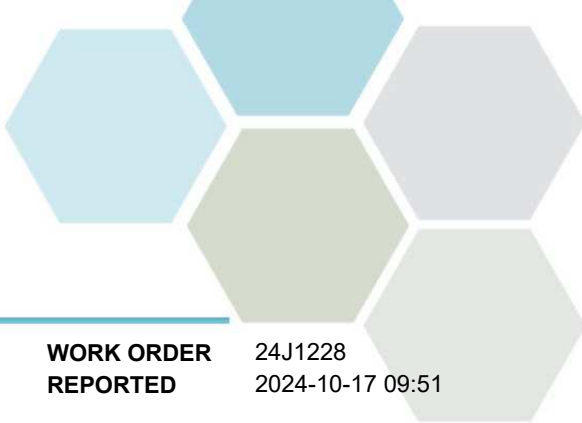
TEST RESULTS

REPORTED TO PROJECT	Osoyoos, Town of Wastewater- PE12214	WORK ORDER REPORTED	2412212 2024-09-25 15:22
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Analyte	Result	RL	Units	Analyzed	Qualifier
E105001 (24I2212-01) Matrix: Water Sampled: 2024-09-17 08:40					
<i>Anions</i>					
Nitrate (as N)	1.68	0.010	mg/L	2024-09-19	
Nitrite (as N)	0.626	0.010	mg/L	2024-09-19	
<i>Calculated Parameters</i>					
Nitrate+Nitrite (as N)	2.31	0.0100	mg/L	N/A	
Nitrogen, Total	15.6	0.500	mg/L	N/A	
<i>General Parameters</i>					
Ammonia, Total (as N)	9.66	0.050	mg/L	2024-09-20	
Chemical Oxygen Demand	33	20	mg/L	2024-09-24	
Nitrogen, Total Kjeldahl	13.3	0.050	mg/L	2024-09-23	
Phosphorus, Dissolved Reactive	5.40	0.0050	mg/L	2024-09-19	
Solids, Total Suspended	14.0	2.0	mg/L	2024-09-23	

E207444 (24I2212-02) Matrix: Water Sampled: 2024-09-17 08:20					
<i>Anions</i>					
Nitrate (as N)	0.427	0.010	mg/L	2024-09-19	
Nitrite (as N)	0.060	0.010	mg/L	2024-09-19	
Sulfate	61.4	1.0	mg/L	2024-09-19	
<i>Calculated Parameters</i>					
Nitrate+Nitrite (as N)	0.487	0.100	mg/L	N/A	
Nitrogen, Total	18.1	0.500	mg/L	N/A	
<i>General Parameters</i>					
Chemical Oxygen Demand	39	20	mg/L	2024-09-24	
Nitrogen, Total Kjeldahl	17.6	0.050	mg/L	2024-09-24	
Phosphorus, Total (as P)	6.43	0.0050	mg/L	2024-09-19	
Solids, Total Suspended	7.0	2.0	mg/L	2024-09-23	
<i>Microbiological Parameters</i>					
Coliforms, Total (Q-Tray)	6	1	MPN/100 mL	2024-09-18	HT1
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2024-09-18	HT1
<i>Total Metals</i>					
Sodium, total	168	0.10	mg/L	2024-09-20	

Sample Qualifiers:					
HT1	The sample was prepared and/or analyzed past the recommended holding time.				



TEST RESULTS

REPORTED TO PROJECT	Osoyoos, Town of Lagoons	WORK ORDER REPORTED	24J1228 2024-10-17 09:51
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
E105001 (24J1228-01) Matrix: Water Sampled: 2024-10-08 11:10						PRES

General Parameters

BOD, 5-day	14.5	N/A	2.0	mg/L	2024-10-14
Chemical Oxygen Demand	52	N/A	20	mg/L	2024-10-15
Solids, Total Suspended	12.0	N/A	2.0	mg/L	2024-10-15

E207444 (24J1228-02) | Matrix: Water | Sampled: 2024-10-08 11:00

Anions

Nitrate (as N)	0.802	MAC = 10	0.010	mg/L	2024-10-10
Nitrite (as N)	0.602	MAC = 1	0.010	mg/L	2024-10-10

Calculated Parameters

Nitrate+Nitrite (as N)	1.40	N/A	0.0100	mg/L	N/A
Nitrogen, Total	14.5	N/A	0.500	mg/L	N/A

General Parameters

BOD, 5-day	< 6.6	N/A	2.0	mg/L	2024-10-15
Chemical Oxygen Demand	39	N/A	20	mg/L	2024-10-11
Nitrogen, Total Kjeldahl	13.1	N/A	0.050	mg/L	2024-10-15
Phosphorus, Total (as P)	6.51	N/A	0.0050	mg/L	2024-10-11
Solids, Total Suspended	3.4	N/A	2.0	mg/L	2024-10-15

Microbiological Parameters

Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2024-10-09
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2024-10-09

Total Metals

Sodium, total	165	AO ≤ 200	0.10	mg/L	2024-10-11
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Sample Qualifiers:					
PRES	Sample has been preserved for COD in the laboratory and the holding time has been extended.				

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of Lagoons

WORK ORDER REPORTED 24J1229
2024-10-17 14:28

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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E230278 (24J1229-01) | Matrix: Solid | Sampled: 2024-10-08 11:20

General Parameters

Moisture	88.2	N/A	1.0	% wet	2024-10-15	
Nitrogen, Total Kjeldahl	1.35	N/A	0.0004	% dry	2024-10-11	
Solids, Total	7.9	N/A	0.1	% wet	2024-10-17	
Solids, Volatile	54.9	N/A	0.1	% dry	2024-10-17	

Strong Acid Leachable Metals

Aluminum	4170	N/A	40	mg/kg dry	2024-10-17	
Antimony	2.19	N/A	0.10	mg/kg dry	2024-10-17	
Arsenic	9.20	N/A	0.30	mg/kg dry	2024-10-17	
Barium	189	N/A	1.0	mg/kg dry	2024-10-17	
Beryllium	< 0.10	N/A	0.10	mg/kg dry	2024-10-17	
Bismuth	30.0	N/A	0.10	mg/kg dry	2024-10-17	
Boron	16.6	N/A	2.0	mg/kg dry	2024-10-17	
Cadmium	1.02	N/A	0.040	mg/kg dry	2024-10-17	
Calcium	37400	N/A	100	mg/kg dry	2024-10-17	
Chromium	49.8	N/A	1.0	mg/kg dry	2024-10-17	
Cobalt	3.26	N/A	0.10	mg/kg dry	2024-10-17	
Copper	1160	N/A	0.40	mg/kg dry	2024-10-17	
Iron	13300	N/A	20.0	mg/kg dry	2024-10-17	
Lead	38.6	N/A	0.20	mg/kg dry	2024-10-17	
Lithium	2.91	N/A	0.10	mg/kg dry	2024-10-17	
Magnesium	2880	N/A	10	mg/kg dry	2024-10-17	
Manganese	198	N/A	0.40	mg/kg dry	2024-10-17	
Mercury	2.00	N/A	0.040	mg/kg dry	2024-10-17	
Molybdenum	32.6	N/A	0.10	mg/kg dry	2024-10-17	
Nickel	37.3	N/A	0.60	mg/kg dry	2024-10-17	
Phosphorus	10600	N/A	10	mg/kg dry	2024-10-17	
Potassium	739	N/A	40	mg/kg dry	2024-10-17	
Selenium	3.62	N/A	0.20	mg/kg dry	2024-10-17	
Silver	2.54	N/A	0.10	mg/kg dry	2024-10-17	
Sodium	1630	N/A	50	mg/kg dry	2024-10-17	
Strontium	193	N/A	0.20	mg/kg dry	2024-10-17	
Sulfur	9630	N/A	1000	mg/kg dry	2024-10-17	
Tellurium	< 0.10	N/A	0.10	mg/kg dry	2024-10-17	
Thallium	< 0.10	N/A	0.10	mg/kg dry	2024-10-17	
Thorium	< 0.50	N/A	0.50	mg/kg dry	2024-10-17	
Tin	26.4	N/A	0.20	mg/kg dry	2024-10-17	
Titanium	59.7	N/A	1.0	mg/kg dry	2024-10-17	
Tungsten	0.78	N/A	0.20	mg/kg dry	2024-10-17	
Uranium	16.7	N/A	0.050	mg/kg dry	2024-10-17	
Vanadium	16.7	N/A	1.0	mg/kg dry	2024-10-17	
Zinc	1260	N/A	2.0	mg/kg dry	2024-10-17	
Zirconium	< 2.0	N/A	2.0	mg/kg dry	2024-10-17	

APPENDIX G

Groundwater Monitoring Well Analytical Reports and
Depth Sampling (OC 7.2.4.9)

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW-8-10 GW Comp (2413435-01) Matrix: Water Sampled: 2024-09-25 07:50						FILT, PRES

Anions

Chloride	32.9	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	6.14	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	1380	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	6.14	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0229	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	713	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	442	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	66.1	None Required	0.010	mg/L	2024-10-01	
Sodium, total	41.1	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-9-10 GW Comp (2413435-02) | Matrix: Water | Sampled: 2024-09-25 08:15

FILT,
PRES

Anions

Chloride	2.80	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	0.395	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	150	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.395	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0607	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	122	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	43.0	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	10.2	None Required	0.010	mg/L	2024-10-01	
Sodium, total	15.9	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-1-01 GW Comp (2413435-03) | Matrix: Water | Sampled: 2024-09-25 08:25

FILT,
PRES

Anions

Chloride	18.1	AO ≤ 250	0.10	mg/L	2024-09-27	
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TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW-1-01 GW Comp (2413435-03) Matrix: Water Sampled: 2024-09-25 08:25, Continued						FILT, PRES

Anions, Continued

Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	572	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0117	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	87.2	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	136	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	55.9	None Required	0.010	mg/L	2024-10-01	
Sodium, total	38.5	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-7-10 GW Comp (2413435-04) | Matrix: Water | Sampled: 2024-09-25 08:40

FILT,
PRES

Anions

Chloride	5.01	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	0.032	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	225	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0320	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0163	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	402	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	57.3	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	19.7	None Required	0.010	mg/L	2024-10-01	
Sodium, total	12.3	AO ≤ 200	0.10	mg/L	2024-10-01	

MW-5-10 GW Comp (2413435-05) | Matrix: Water | Sampled: 2024-09-25 09:05

FILT,
PRES

Anions

Chloride	301	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	11.5	MAC = 10	0.010	mg/L	2024-09-27	

TEST RESULTS

REPORTED TO PROJECT Osoyoos, Town of
WB Groundwater (Comp)

WORK ORDER REPORTED 2413435
2024-10-03 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
MW-5-10 GW Comp (2413435-05) Matrix: Water Sampled: 2024-09-25 09:05, Continued						FILT, PRES

Anions, Continued

Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	
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Calculated Parameters

Hardness, Total (as CaCO ₃)	644	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	11.5	N/A	0.250	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0194	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	37.8	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	180	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	47.4	None Required	0.010	mg/L	2024-10-01	
Sodium, total	139	AO ≤ 200	0.10	mg/L	2024-10-01	

LFMW-4-10 GW Comp (2413435-06) | Matrix: Water | Sampled: 2024-09-25 09:40

FILT,
PRES

Anions

Chloride	37.1	AO ≤ 250	0.10	mg/L	2024-09-27	
Nitrate (as N)	0.014	MAC = 10	0.010	mg/L	2024-09-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2024-09-27	

Calculated Parameters

Hardness, Total (as CaCO ₃)	754	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0145	N/A	0.0100	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	0.102	None Required	0.050	mg/L	2024-10-02	
Phosphorus, Total Dissolved	0.0099	N/A	0.0050	mg/L	2024-10-02	
Solids, Total Suspended	4290	N/A	2.0	mg/L	2024-10-03	

Total Metals

Calcium, total	192	None Required	0.20	mg/L	2024-10-01	
Magnesium, total	66.4	None Required	0.010	mg/L	2024-10-01	
Sodium, total	35.9	AO ≤ 200	0.10	mg/L	2024-10-01	

Sample Qualifiers:

FILT The sample has been filtered for TDP in the laboratory. Results may not reflect conditions at the time of sampling.
PRES Sample has been preserved for TDP in the laboratory and the holding time has been extended.

Ground Monitoring Wells Lagoon 2024

January

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.30	6.97	Jan23	DH	14:35
MW-2-01	10.3	7.72	2.58	Jan23	DH	14:45
MW-5-10	14.8	8.80	6.0	Jan23	DH	14:55
MW-6-10	8.93	dry	-	Jan23	DH	15:10
MW-7-10	16.1	12.57	3.53	Jan23	DH	15:15
MW-8-10	10.5	7.52	2.98	Jan23	DH	15:28
MW-9-10	25.3	14.76	10.54	Jan23	DH	15:45
MW-DP 10-21	8.5	7.42	1.08	Jan23	DH	16:00
GC-12	No access					

February

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.11			DH	10:00
MW-2-01	10.3	7.90			DH	09:30
MW-5-10	14.8	8.80			DH	09:15
MW-6-10	8.93	dry		FEB 15	DH / MATT	10:20
MW-7-10	16.1	12.88			DH	10:30
MW-8-10	10.5	7.2			DH	11:00
MW-9-10	25.3	14.81			DH	10:52
MW-DP 10-21	8.5	7.55				09:02
GC-12						

March 11-21

dry

10:42

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	8.37		MAR 25	DH	10:42
MW-2-01	10.3	8.58				10:26
MW-5-10	14.8	8.70				
MW-6-10	8.93	8.88	dry			
MW-7-10	16.1	12.57				
MW-8-10	10.5	7.42				10:33
MW-9-10	25.3	14.80				10:48
MW-DP 10-21	8.5	7.71				10:15
GC-12		4.3				

Ground Monitoring Wells Lagoon 2024

April

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	8.96				
MW-2-01	10.3	8.86				11:59
MW-5-10	14.8	8.97				
MW-6-10	8.93	dry				
MW-7-10	16.1	12.62				
MW-8-10	10.5	7.55				
MW-9-10	25.3	14.87				
MW-DP 10-21	8.5	7.91		Apr 30	DH	11:50
GC-12		4.35				

May

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.43		22	DS	10:55AM
MW-2-01	10.3	8.95		22	DS	11:00AM
MW-5-10	14.8	8.98		22	DS	11:40AM
MW-6-10	8.93	Dry		22	DS	11:25AM
MW-7-10	16.1	12.88		22	DS	11:20AM
MW-8-10	10.5	7.27		22	DS	10:30AM
MW-9-10	25.3	14.63		22	DS	10:40AM
MW-DP 10-21	8.5	8.25		22	DS	10:50AM
GC-12	5.97	4.46		22	DS	12:50PM
MW-DP-11-21	8.1	Dry		22	DS	11:10AM

June

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.72		19	DS	11:15AM
MW-2-01	10.3	9.11		19	DS	11:10AM
MW-5-10	14.8	8.99		19	DS	11:50AM
MW-6-10	8.93	Dry		19	DS	11:35AM
MW-7-10	16.1	12.73		19	DS	11:30AM
MW-8-10	10.5	6.83		19	DS	10:40AM
MW-9-10	25.3	14.43		19	DS	10:50AM
MW-DP 10-21	8.5	8.4		19	DS	11:00AM
GC-12	5.97	4.52		19	DS	12:50PM
MW-DP-11-21	8.1	Dry		19	DS	11:20AM

Ground Monitoring Wells Lagoon 2024

July

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	10.1		22	KF/GW	9:45am
MW-2-01	10.3	9.23		22	KF/GW	11:15am
MW-5-10	14.8	8.99		22	KF/GW	11:50am
MW-6-10	8.93	Dry		22	KF/GW	11:40am
MW-7-10	16.1	12.82		22	KF/GW	11:05am
MW-8-10	10.5	6.55		22	KF/GW	9:25am
MW-9-10	25.3	14.3		22	KF/GW	9:35am
MW-DP 10-21	8.5	Dry		22	KF/GW	9:50am
GC-12		4.6		22	KF/GW	10:50am
MW-DP-10-21	8.1	8.1		22	KF/GW	11:30am

August

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	10.0		30	DS/MM	1:35PM
MW-2-01	10.3	9.38		30	DS/MM	1:20PM
MW-5-10	14.8	8.84		30	DS/MM	2:00PM
MW-6-10	8.93	Dry		30	DS/MM	1:50PM
MW-7-10	16.1	12.69		30	DS/MM	1:45PM
MW-8-10	10.5	6.84		30	DS/MM	1:00PM
MW-9-10	25.3	14.37		30	DS/MM	1:30PM
MW-DP 10-21	8.5	8.37		30	DS/MM	1:10PM
GC-12		5.74		30	DS/MM	11:55AM
MW-DP-11-21		Dry		30	DS/MM	1:40PM

September

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	10.1		24	KF/MM	9:15am
MW-2-01	10.3	9.49		24	KF/MM	8:55am
MW-5-10	14.8	8.78		24	KF/MM	10:45am
MW-6-10	8.93	Dry		24	KF/MM	9:55am
MW-7-10	16.1	12.61		24	KF/MM	9:30am
MW-8-10	10.5	6.85		24	KF/MM	8:30am
(G9) MW-9-10	25.3	14.5		24	KF/MM	9:05am
MW-DP 10-21	8.5	8.46		24	KF/MM	8:45am
GC-12		5.94		24	KF/MM	9:45am
MW-DP-11-21	8.1	8.1		24	KF/MM	9:25am

Ground Monitoring Wells Lagoon 2024

October

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.65		Oct 21	KF/KC	9:05am
MW-2-01	10.3	9.53		Oct 21	KF/KC	8:55am
MW-5-10	14.8	8.7		Oct 21	KF/KC	9:00am
MW-6-10	8.93	Dry		Oct 21	KF/KC	9:30am
MW-7-10	16.1	12.55		Oct 21	KF/KC	9:10am
MW-8-10	10.5	6.97		Oct 21	KF/KC	8:35am
MW-9-10	25.3	14.54		Oct 21	KF/KC	9:00am
MW-DP 10-21	8.5	8.42		Oct 21	KF/KC	8:45am
GC-12		5.92		Oct 21	KF/KC	9:20am

MW-DP-11-21
November

8.1

8.1

Oct 21

KF/KC

9:10am

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.32		Nov 27	M.M.	1:37pm
MW-2-01	10.3	9.63		Nov 27	M.M.	1:15pm
MW-5-10	14.8	8.75		Nov 27	M.M.	1:30pm
MW-6-10	8.93	Dry		Nov 27	M.M.	2:00pm
MW-7-10	16.1	12.54		Nov 27	M.M.	2:15pm
MW-8-10	10.5	6.53		Nov 27	M.M.	11:15AM
MW-9-10	25.3	14.60		Nov 27	M.M.	
MW-DP 10-21	8.5	8.43		Nov 27	M.M.	12:55AM
GC-12		5.65		Nov 27	M.M.	10:55AM

MW-DP-11-21
December

8.1

Dry

Nov 27

M.M.

1:40pm

Ground Monitoring Wells Lagoon Area						
Well ID	Well Depth (M)	Water Level	Water Depth	Date	Operator	Time
MW-1-01	16.27	9.11		DEC 20	MM/KC	2:10 PM
MW-2-01	10.3	9.45		DEC 20	MM/KC	1:45 PM
MW-5-10	14.8	8.75		DEC 20	MM/KC	2:35
MW-6-10	8.93	Dry		DEC 20	MM/KC	2:25 PM
MW-7-10	16.1	12.50		DEC 20	MM/KC	2:18
MW-8-10	10.5	6.50		DEC 20	MM/KC	1:20pm
MW-9-10	25.3	14.70		DEC 20	MM/KC	2:00 PM
MW-DP 10-21	8.5	8.50		DEC 20	MM/KC	1:30 PM
GC-12		4.76		DEC 20	MM/KC	2:15 PM

MW-DP-11-21

8.1

Dry

DEC 20

MM/KC

2:15 PM