

2024 ANNUAL REPORT FOR THE MUNICIPALITY OF GRISE FIORD

YEAR BEING REPORTED: 2024

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence No. **3BM-GRI2025** issued to the **Municipality of Grise Fiord**.

I – III. Tabular summaries of all data generated under the “Monitoring Program”; monthly and annual quantities in cubic metres of freshwater obtained from all sources; monthly and annual quantities in cubic metres of each and all wastes discharged;

The volume of water pumped from all sources (Airport River) for the annual water reservoir refill is provided below:

Grise Fiord 2024 Resupply Volumes									
<u>Reservoir #</u>	<u>Pump Start Date</u>	<u>Reservoir Level (m)</u>	<u>Pump End Date</u>	<u># of Days Filling</u>	<u>Reservoir Level (m)</u>	<u>Level Differential</u>	<u>Total Volume Pumped m3</u>	<u>Reservoir Capacity</u>	<u>Volume /m</u>
Tank #1	07/16/2024	8.607	07/18/2024	2	9.663	1.056	152.23	1393	144.16
Tank #2	07/15/2025	2.11	07/24/2024	10	10.59	8.48	3090.92	3860	364.49
Tank #3	07/21/2024	5.129	08/01/2024	10	9.672	4.543	1836.55	3910	404.26
Total Resupply Volume (m³):						5079.70			
Water Average Withdrawal Rate (m³):						230.895402			

The volume is calculated based on the water tank levels. Graphs showing the water tank levels over the year are provided in **Appendix C**.

Attached are the quantities of water withdrawn and the estimated discharge of waste. The water withdrawn from Water Sources is assumed equal to the sewage discharge volume because there is no meter at the end of the discharge pipe.

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Month Reported	Quantity of Water Obtained from all sources (m³)	Quantity of Sewage Waste Discharged (m³)	Hazardous Waste Accepted (m³)	Non-Hazardous Waste Accepted (m³)
January	0	423.3083	0.17	155.49
February	0	423.3083	0.17	155.49
March	0	423.3083	0.17	155.49
April	0	423.3083	0.17	155.49
May	0	423.3083	0.17	155.49
June	0	423.3083	0.17	155.49
July	5079.70	423.3083	0.17	155.49
August	0	423.3083	0.17	155.49
September	0	423.3083	0.17	155.49
October	0	423.3083	0.17	155.49
November	0	423.3083	0.17	155.49
December	0	423.3083	0.17	155.49
ANNUAL TOTAL	5079.70	5079.70	2.06	1,865.86

Note: The volumes of the sewage discharged are assumed to be equal each month and annual sewage volumes are assumed as equal to the amount of water added to the water reservoir during the annual refill. The population of Grise Fiord is relatively stable year to year.

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IV. A summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities:

No modifications or major maintenance work carried out in 2024.

V. A list of unauthorized discharges and summary of follow-up action taken:

There were no spills associated with licensed infrastructure in 2024.

VI. A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year:

There was no abandonment and restoration work completed during 2024. There is no abandonment and restoration work anticipated for 2025.

VII. A summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned:

Water

The design for the new WTP is complete and is currently out to tender. An application for amendment will be submitted to NWB once the NIRB process is complete. The construction contract was awarded March 2025 and construction to begin on site spring 2026.

Solid Waste

The initial planning study was completed in 2020/21. The cost estimates have indicated that the current funding cannot support the construction of a new state-of-the-art 20-year landfill. The focus of the project has shifted to making improvements to the current site. A second planning contract to assess and prioritize the improvements to the current site is expected to be complete in 2025.

VIII. Any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and

No other details on water use or waste disposal requested by the Board by November 1st of 2024.

IX. Updates or revisions to the approved Operation and Maintenance Plans:

Updated Operation and Maintenance Plans for the Sewage Disposal Facility and Solid Waste Disposal Facility, and updated Environmental Emergency Spill Contingency and

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Environmental Monitoring and QA/QC Plans will be provided within the 2025 Application for Amendment and Renewal of the Water Licence for approval.

The changes to the Plans ensure that all information is up to date for the infrastructure, personnel, and procedures for handling regulatory requirements.

X. ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

Annual decanting of the wastewater lagoon started on September 4. Decanting paused on September 12 due to winds causing waves within the lagoon breaking the suction of the decanting intake hose as well as gravel and silt uplift plugging the intake hose. Decanting resumed on September 26 and completed October 1.

- No sludge has been removed from the Wastewater Treatment Facility
- No modifications to the Monitoring Program

XI. FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

The 2024 Inspection Report has not been received.

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APPENDICES:

Appendix A: Summary of Monitoring Data

Appendix B: Certificate of Analyses

Appendix C: Water Tank Levels

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Appendix A

Tabular Summary of Monitoring Data

Parameter	Maximum Concentration of any Grab Sample for <i>GRI-4</i>	Units	July 17, 2024 <i>GRI-4</i> Start of Open Water Season	Oct. 8, 2024 <i>GRI-4</i> Once Beginning of Decant
BOD ₅	120	mg/L	35	36
Total Suspended Solids	180	mg/L	166	74
Fecal Coliform	1x10 ⁶	CFU/100 mL	1,620	3x10 ⁵
Oil and Grease	No visible sheen	N/A	10.4 mg/L	12.7 mg/L
pH	Between 6 and 9	N/A	7.49	7.79

Based on the results, compliance with the effluent quality limits at GRI-4 is achieved.

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Appendix B

C.O.C.: G107628

REPORT No: 24-024449 - Rev. 0

Report To:

Hamlet of Grise Fiord
 P.O. Box 77 Grise Fiord
 Grise Fiord, NU X0X 0J0

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: Marty Kuluguqtuk

DATE RECEIVED: 2024-Aug-12
 DATE REPORTED: 2024-Aug-19
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	LMACGREGOR	2024-Aug-12	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	DCASSIDY	2024-Aug-14	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	VKASYAN	2024-Aug-14	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2024-Aug-12	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2024-Aug-14	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2024-Aug-13	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2024-Aug-13	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	JYEARWOOD	2024-Aug-14	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	DCHAUDHARI	2024-Aug-13	O&G-001	SM 5520
Phenols (Liquid)	1	KINGSTON	EHINCH	2024-Aug-15	PHEN-01	MECP E3179
Total Organic Carbon (TOC)	1	OTTAWA	VKASYAN	2024-Aug-13	C-OC-01	EPA 415.2
TSS (Liquid)	1	KINGSTON	DCASSIDY	2024-Aug-13	TSS-001	SM 2540D

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *



Michelle Dubien
Data Specialist

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 24-024449 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			Lagoon Sample
			Sample I.D.
			24-024449-1
			Date Collected
			2024-07-17
			-
Fecal Coliform	CFU/100mL	1	1620
Alkalinity(CaCO3) to pH4.5	mg/L	5	179
Conductivity @25°C	uS/cm	1	515
pH @25°C	pH units	-	7.49
Chloride	mg/L	0.5	23.4
Nitrate (N)	mg/L	0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	15
BOD5	mg/L	3	35
Total Suspended Solids	mg/L	3	166
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	38.3
Total Organic Carbon	mg/L	0.2	45.6
Phenolics	mg/L	0.001	0.300
Hardness (as CaCO3)	mg/L	0.02	85.5
Aluminum (Total)	mg/L	0.01	0.83
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	25.3
Chromium (Total)	mg/L	0.002	0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	0.034
Iron (Total)	mg/L	0.005	1.87



Michelle Dubien
Data Specialist

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.
			Lagoon Sample
			Sample I.D.
			24-024449-1
			Date Collected
			2024-07-17
Parameter	Units	R.L.	-
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	5.41
Manganese (Total)	mg/L	0.001	0.087
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	10.1
Sodium (Total)	mg/L	0.2	18.4
Zinc (Total)	mg/L	0.005	0.048
Arsenic (Total)	mg/L	0.0005	0.0006
Mercury	mg/L	0.00002	0.00006

			Client I.D.
			Lagoon Sample
			Sample I.D.
			24-024449-1
			Date Collected
			2024-07-17
Parameter	Units	R.L.	-
Oil & Grease (Total)	mg/L	1.0	10.4

Bacteria passed holding time.



Michelle Dubien
Data Specialist

C.O.C.: G111387

REPORT No: 24-024453 - Rev. 0

Report To:

Hamlet of Grise Fiord
 P.O. Box 77 Grise Fiord
 Grise Fiord, NU X0X 0J0

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: Marty Kuluguqtuk

DATE RECEIVED: 2024-Aug-12
 DATE REPORTED: 2024-Aug-19
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	LMACGREGOR	2024-Aug-12	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	DCASSIDY	2024-Aug-14	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	VKASYAN	2024-Aug-15	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2024-Aug-12	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2024-Aug-14	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2024-Aug-13	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2024-Aug-13	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	JYEARWOOD	2024-Aug-14	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	DCHAUDHARI	2024-Aug-13	O&G-001	SM 5520
Phenols (Liquid)	1	KINGSTON	EHINCH	2024-Aug-15	PHEN-01	MECP E3179
Total Organic Carbon (TOC)	1	OTTAWA	VKASYAN	2024-Aug-13	C-OC-01	EPA 415.2
TSS (Liquid)	1	KINGSTON	DCASSIDY	2024-Aug-13	TSS-001	SM 2540D

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *



Michelle Dubien
Data Specialist

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 24-024453 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			GR1-2
			Sample I.D.
			24-024453-1
			Date Collected
			2024-07-18
			-
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	197
Conductivity @25°C	uS/cm	1	688
pH @25°C	pH units	-	8.10
Chloride	mg/L	0.5	46.1
Nitrate (N)	mg/L	0.05	1.42
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	85
BOD5	mg/L	3	<3
Total Suspended Solids	mg/L	3	<3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.14
Total Organic Carbon	mg/L	0.2	8.1
Phenolics	mg/L	0.001	0.002
Hardness (as CaCO3)	mg/L	0.02	263
Aluminum (Total)	mg/L	0.01	0.06
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	83.8
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	0.011
Iron (Total)	mg/L	0.005	0.139



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			Client I.D.
			GR1-2
			Sample I.D.
			24-024453-1
			Date Collected
			2024-07-18
Parameter	Units	R.L.	-
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	13.1
Manganese (Total)	mg/L	0.001	0.091
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	6.4
Sodium (Total)	mg/L	0.2	31.0
Zinc (Total)	mg/L	0.005	0.057
Arsenic (Total)	mg/L	0.0005	<0.0005
Mercury	mg/L	0.00002	<0.00002

			Client I.D.
			GR1-2
			Sample I.D.
			24-024453-1
			Date Collected
			2024-07-18
Parameter	Units	R.L.	-
Oil & Grease (Total)	mg/L	1.0	1.1

Various parameters (including bacteria), received and analyzed past recommended holding times



Michelle Dubien
Data Specialist

C.O.C.: G 111323

REPORT No: 24-032491 - Rev. 0

Report To:

Hamlet of Grise Fiord
 P.O. Box 77 Grise Fiord
 Grise Fiord, NU X0X 0J0

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: David General

DATE RECEIVED: 2024-Oct-17
 DATE REPORTED: 2024-Oct-29
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	LMACGREGOR	2024-Oct-17	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JWOLFE2	2024-Oct-18	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2024-Oct-21	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2024-Oct-17	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2024-Oct-22	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	APRUDYVUS	2024-Oct-21	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2024-Oct-18	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	JYEARWOOD	2024-Oct-24	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	DCHAUDHARI	2024-Oct-21	O&G-001	SM 5520
Phenols (Liquid)	1	KINGSTON	EHINCH	2024-Oct-18	PHEN-01	MECP E3179
Total Organic Carbon (TOC)	1	OTTAWA	SLOZO	2024-Oct-28	C-OC-01	EPA 415.2
TSS (Liquid)	1	KINGSTON	MCLOSS	2024-Oct-18	TSS-001	SM 2540D

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *



Michelle Dubien
Data Specialist

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 24-032491 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			#1 Decanting Sewage Lagoon (just after starting to decant)
			Sample I.D.
			24-032491-1
			Date Collected
			2024-10-08
			-
Fecal Coliform	CFU/100mL	1	300000
Alkalinity(CaCO3) to pH4.5	mg/L	5	289
Conductivity @25°C	uS/cm	1	756
pH @25°C	pH units	-	7.79
Chloride	mg/L	0.5	35.9
Nitrate (N)	mg/L	0.05	0.05
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	7
BOD5	mg/L	3	36
Total Suspended Solids	mg/L	3	74
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	69.2
Total Organic Carbon	mg/L	0.2	52.2
Phenolics	mg/L	0.001	0.051
Hardness (as CaCO3)	mg/L	0.02	110
Aluminum (Total)	mg/L	0.01	0.24
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	33.1
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	0.030
Iron (Total)	mg/L	0.005	1.07



Michelle Dubien
Data Specialist

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Parameter	Units	R.L.	Client I.D.
			#1 Decanting Sewage Lagoon (just after starting to decant)
			Sample I.D.
			24-032491-1
			Date Collected
			2024-10-08
Parameter	Units	R.L.	
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	6.54
Manganese (Total)	mg/L	0.001	0.082
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	18.7
Sodium (Total)	mg/L	0.2	36.0
Zinc (Total)	mg/L	0.005	0.032
Arsenic (Total)	mg/L	0.0005	0.0006
Mercury	mg/L	0.00002	<0.00002

Parameter	Units	R.L.	Client I.D.
			#1 Decanting Sewage Lagoon (just after starting to decant)
			Sample I.D.
			24-032491-1
			Date Collected
			2024-10-08
Parameter	Units	R.L.	
Oil & Grease (Total)	mg/L	1.0	12.7

Bacteria passed holding time



Michelle Dubien
 Data Specialist

2024 ANNUAL REPORT FOR THE MUNICIPALITY OF GRISE FIORD

Appendix C

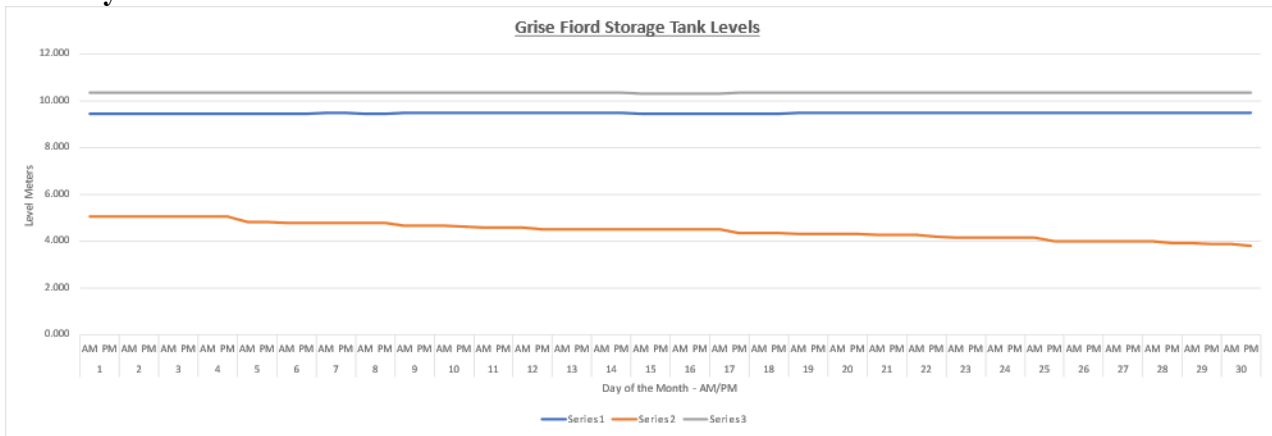
Chart Legend

“Series 1” – Tank 1

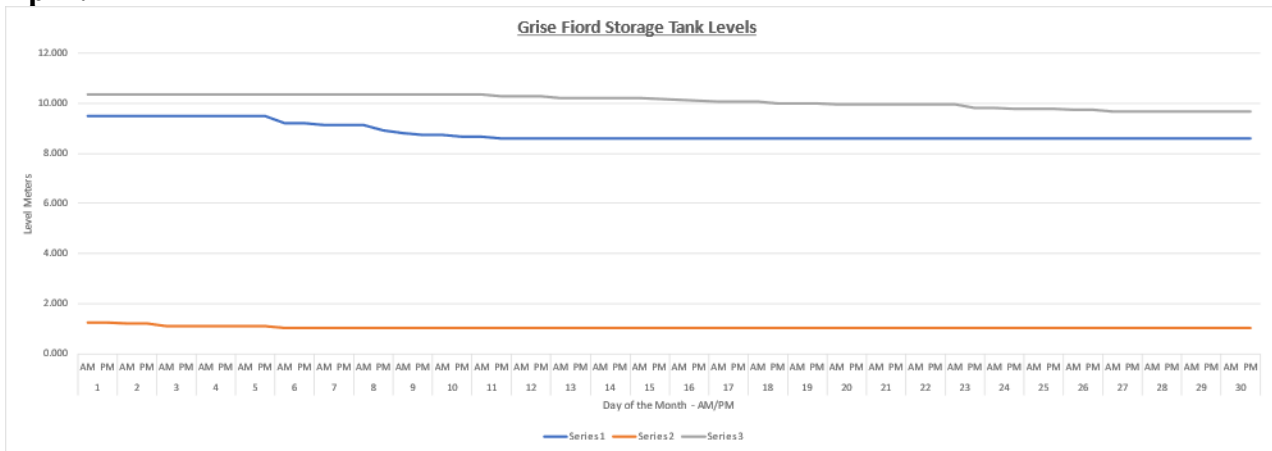
“Series 2” – Tank 2

“Series 3” – Tank 3

January:

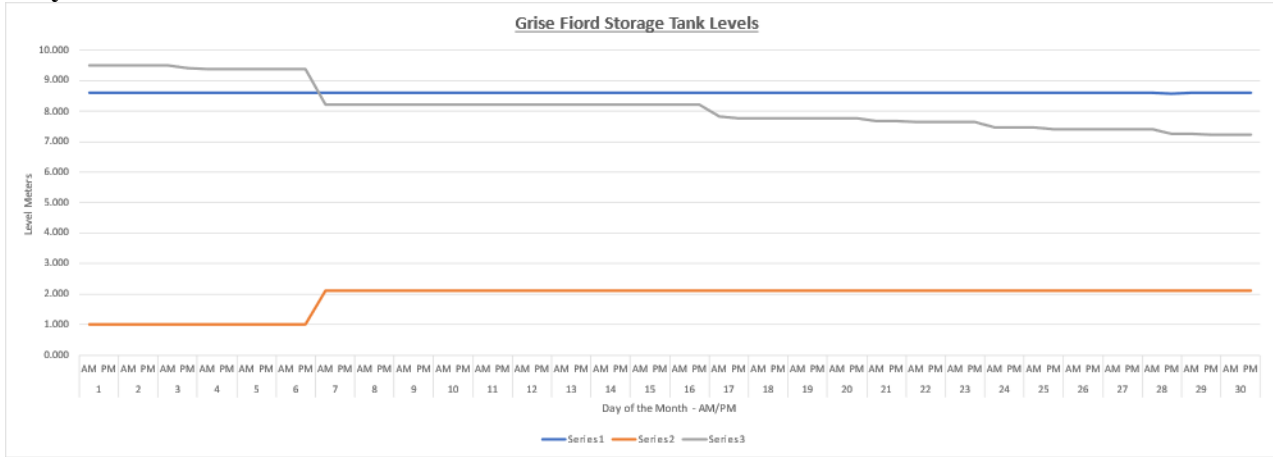


April:

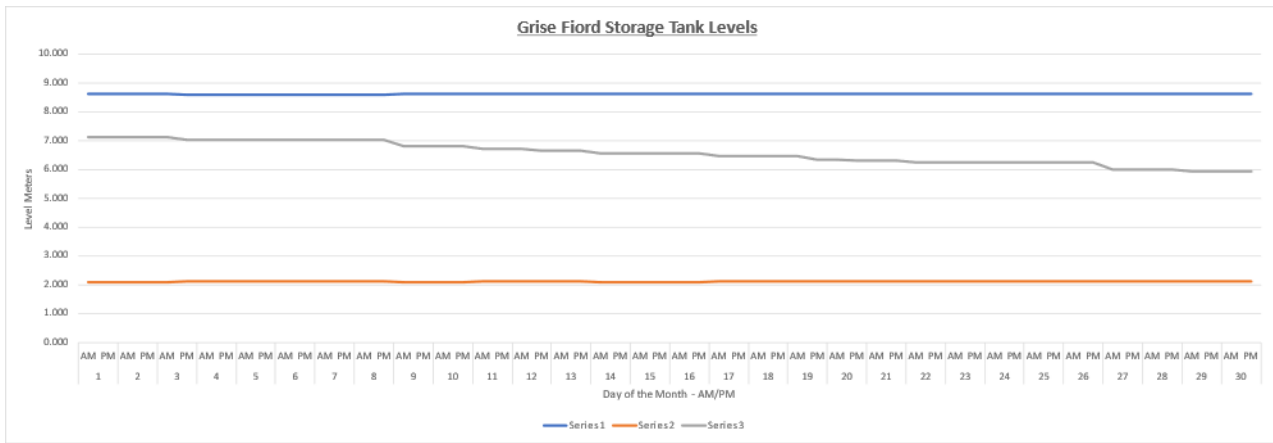


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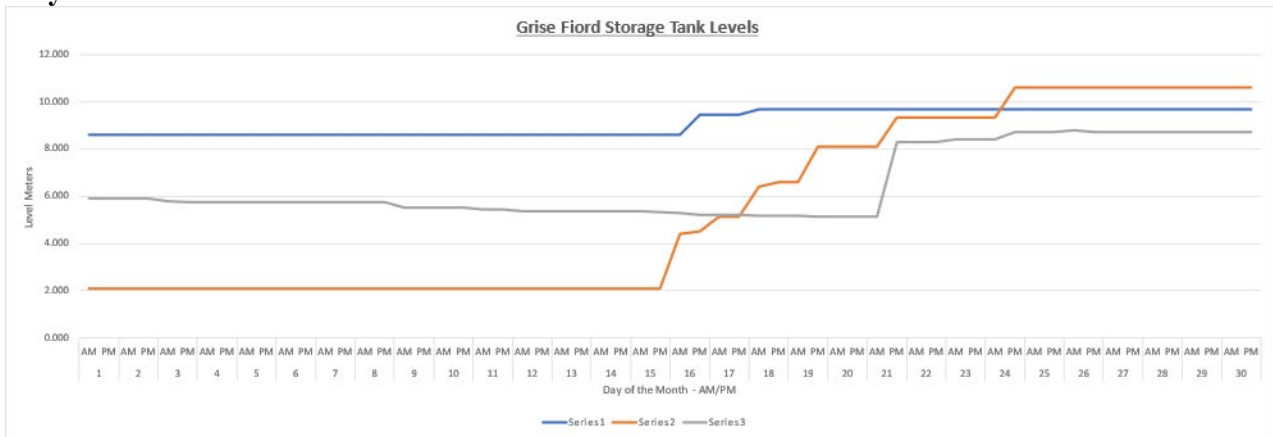
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June:

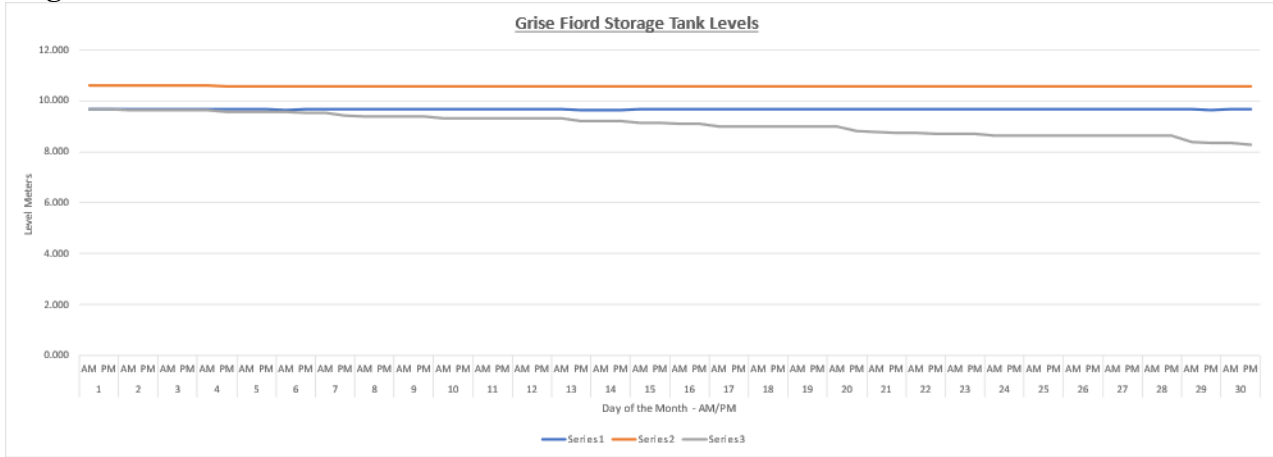


July:

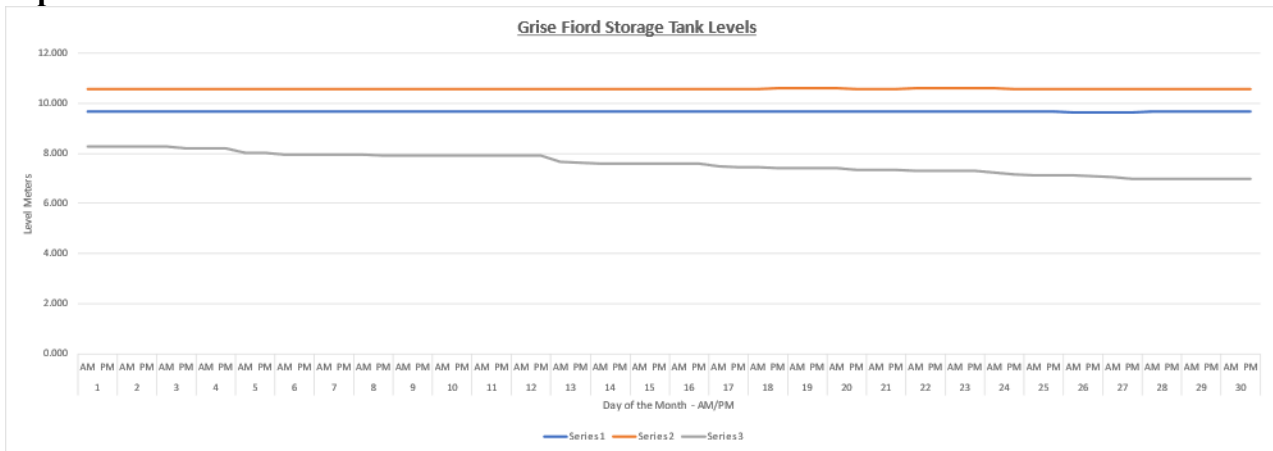


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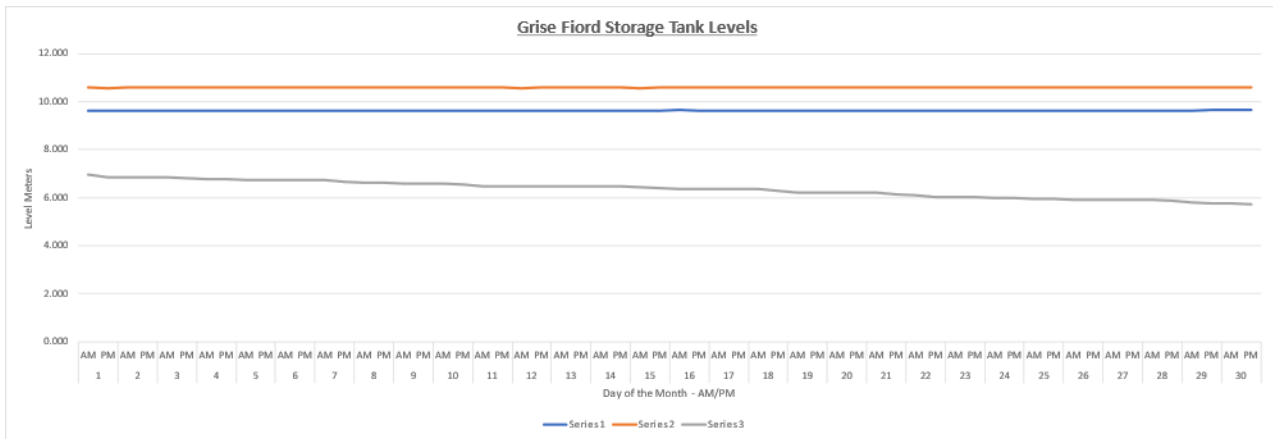
August:



September:

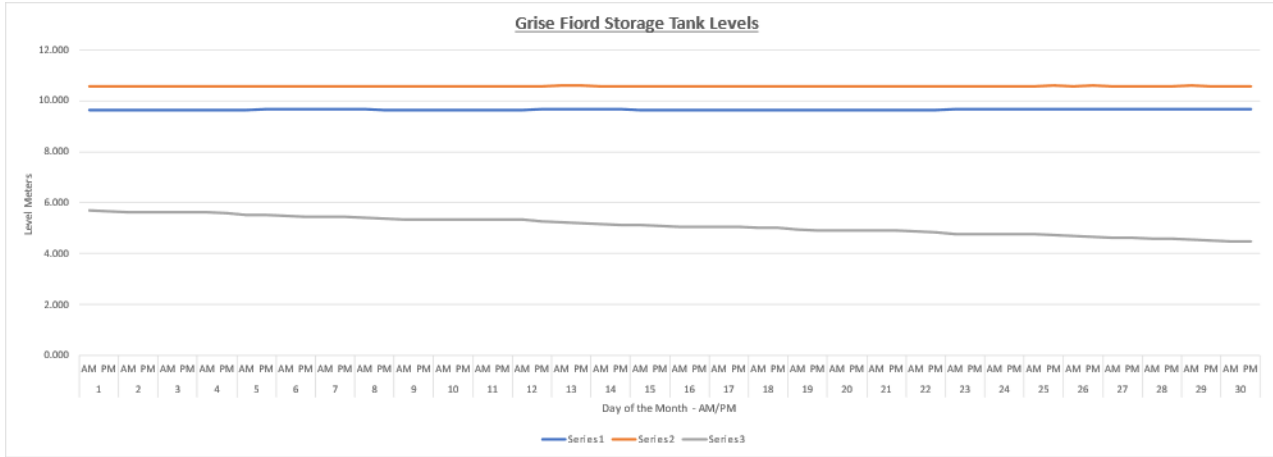


October:



2024 ANNUAL REPORT FOR THE MUNICIPALITY OF GRISE FIORD

November:



December:

