City of Portage la Prairie



2023 Residual Biosolids Land Application Program

As per Environment Licence 1907





2023 Residual Biosolids Land Application Program

City of Portage la Prairie, Water Pollution Control Facility

Report to Manitoba Sustainable Development

Introduction

The City of Portage la Prairie (the City) owns and operates a wastewater treatment system known as the Water Pollution Control Facility (WPCF). Flows from the McMillan Industrial Park as well as Poplar Bluff Industrial Park are received into and pre-treated in the Low-Rate Anaerobic Reactor (LRAR). This pre-treated wastewater is combined with municipal flows and conveyed to the Sequencing Batch Reactors (SBRs) that provide secondary treatment. Waste Activated Sludge (WAS) is the residual solids that are generated through this process and required to be removed from the SBRs to ensure ongoing treatment. WAS is thickened through the addition of polymer and dewatered by a gravity belt. The material is then stabilized in the anaerobic digester to produce biosolid material that is suitable for land application as a fertilizer. Biosolids are stored throughout the year in the Bulk Volume Fermenter (BVF) or the Biosolids Storage Tanks (BSTs). Solids also accumulate within the LRAR and require removal to ensure adequate capacity and sludge depth within the Reactor. The process of removing the material to inject on agricultural land as a soil enhancement product begins once weather and harvest conditions allow. Injection of material helps to reduce runoff, prevent vector attraction, and minimize odours.

The removal, hauling, analyses and injection of this stored material constitutes the Biosolids Land Application program and is regulated under Environment Act License (EAL) #1907. During the fall of 2023, the City conducted its annual Residual Biosolids Land Application program and applied 728 dry tonnes of material to farmland.

Field Selection Process

After calculating how much land would be needed based on the quantity of biosolids to be removed, the City of Portage la Prairie administration contacted owners of land located in the Rural Municipality of Portage la Prairie. Initial screening consisted of reviewing the proposed land application area and determining the subsurface geological formation. This was obtained from a

map of the Rural Municipality of Portage la Prairie which was superimposed areas that had met the requirements under EAL 1907. The criteria can be listed as follows:

- i) Depth of clay or clay till of less than 1.5 metres between the soil surface and the water table;
- ii) Within 100 metres of an identifiable boundary of an aquifer which is exposed to the ground surface;
- iii) Where, prior to the application of biosolids, the soil pH is less than 6.0;
- iv) Where the surface slope of the land is greater than 5 percent;
- v) where, prior to application of biosolids, the level of nitrate-nitrogen exceeds 100 kilograms per hectare in the upper 60 cm of the soil; or
- vi) Where, prior to the application of biosolids, the concentration of sodium bicarbonate extractable phosphorous, as P, exceeds 60 micrograms per gram in the upper 15 centimetres of the soil.

Sites that met the above criteria were considered for biosolids application. Potential fields for use were advertised in the local newspaper as well as on the City of Portage la Prairie website and in the Citizen's Info flyer that is distributed to homes. Letters of notification were also sent to Manitoba Conservation and Climate and the Rural Municipality of Portage la Prairie. Copies of the ad and letters are included in this report. Areas selected were then subject to soil testing processes and final selection.

Nutrient Testing

Soil testing was carried out on all usable fields to determine the pH, sodium bicarbonate extractable phosphorous, as P, and nitrate nitrogen according to the following criteria as specified in EAL #1907.

Parameter	Depth of Analysis (cm)
Phosphorous	15
pH	15
Potassium	15
Nitrate-Nitrite	60
Total Nitrogen	60

Core samples were obtained from the selected application sites, as per license requirements. One core sample was collected for each 2-hectare area and combined to form a composite sample for analysis. A separate sample for clay analyses and verification of the water table was also taken. The City of Portage la Prairie contracted an external laboratory for soil testing.

Heavy Metals

Soil samples were collected and analyzed for background heavy metal concentrations. Heavy metal application was limited to one-third of the initial maximum addition of each heavy metal to be applied in any single application period per the environment license. All heavy metal analysis was conducted by an external laboratory. See Appendix B for background heavy metal concentration results. Background heavy metal concentrations in the soil not exceeding the following:

Metal	Background Concentration (kg/h)
Cadmium	2.88
Copper	90
Nickel	90
Lead	90
Zinc	270
Mercury	0.9
Chromium	216
Mercury	0.9

For 2023, land sections **NE 1-13-7, NW 4-13-6, SE 16-12-6**, were sampled, analyzed, and approved for use. Once a field has been tested and selected for application, before application, landowners are required to sign a contract which outlines the process and indicates their agreement to receive biosolids, as well as information on growing restrictions. Copies of these agreements are also included in this report.

Biosolids Sampling and Testing

It is necessary to sample and analyze the residual solids material to determine nutrient and metal levels. This is used to firstly- confirm the material contains levels lower than the maximum allowable concentration before applying and secondly- to determine the application rate that the material can be applied to ensure the cumulative amounts are below license limits.

The BSTs and LRAR biosolids were sampled and analyzed per Clause 1, Appendix A of EAL 1907, for the following components:

a.	conductivity	j.	lead
b.	pH	k.	mercury
c.	total solids	I.	nickel
d.	volatile solids	m.	potassium
e.	nitrate nitrogen	n.	cadmium
f.	total Kjeldahl nitrogen	о.	copper
g.	ammonia nitrogen	p.	zinc
h.	organic nitrogen	q.	chromium
i.	total phosphorous		

Based on the reported results, the materials contained in the BSTs, and LRAR met the required criteria and were available for land application.

Sludge Handling

Biosolids Storage Facility

No concerns were noted from the Biosolids Storage Facility. Any spillage observed was attributed to material dripping from the hose after a truck was filled. All material that drips from the overhead filling hose is collected on the concrete spill pad that is washed down into a pit that conveys all material back to the Biosolids Storage Tanks.

Low-Rate Anaerobic Reactor

Sludge was withdrawn from the LRAR using internal lateral sludge lines that are normally used for sludge recirculation within the LRAR. Sludge was pumped directly to the trucks through a sludge transfer port and an overhead fill pipe. City staff continuously monitored the entire filling process and operation of the sludge pumps. Communication was maintained utilizing two-way radios.

Any spillage observed was attributed to material dripping from the hose after a truck was filled. All spillage that occurred was contained on a concrete spill pad that was washed after each load was hauled. The spilled material and wash water were conveyed to the headworks of the LRAR by a pumping station located at the fill site.

Bulk Volume Fermenter

For 2023, no biosolids were removed from the BVF. This material was sampled but due to the volume within the other two storage areas, it was not necessary to remove any from the BVF. It is not anticipated that this will have any consequences on the operations of the WPCF in 2024.

Biosolids Transportation and Transfer Station

Application began on September 11, 2023. Biosolids were removed from the BSTs as well as LRAR. Separate trucks were dedicated to each storage location and the contractor at the field recorded information to determine where the material was being injected. Composite samples from each storage location were also analyzed separately.

The biosolids were hauled via tanker truck to the field. Transportation routes were determined before application and Manitoba Conservation and Climate, and the RM of Portage la Prairie were notified of the intended routes. Copies of these notification letters are included with this report.

Biosolids were transferred from the tanks via a sludge transfer pump to the nurse tank. The nurse tank can hold approximately four tank loads. Cam-lock connections were used for all hose

connections mitigating any spillage, which may have occurred during the sludge transfer stage. The nurse tank directly feeds the Drag-Line injection system.

Injection

All biosolids injection was conducted by a Drag-Line injection system which had been modified to allow for injection and to allow for a furrow spacing of 0.50 metres (20 inches). A total of 6 furrows were created with each pass.

The injection rate was based on the ground speed of the Dragline and the solids and ammonia information of the sludge. The concentration of percent solids and ammonia data was transferred to the field utilizing two-way radio. This data was used by the operator of the Drag-Line equipment to estimate the speed of the unit using an injection rate chart. Approximately 100 kg/ha of plant-available nitrogen was applied to each application area as based on the following formula:

$$S = \frac{N_p}{(NO_3-N + NH_3-N + F \times Org-N)}$$

Where:

S= sludge application rate (dry kg/ha)

 N_p = plant available nitrogen requirement (kg/ha) = 100 kg/ha

NO₃-N= nitrate nitrogen content of sludge (kg/kg sludge)

NH₃-N= ammonia nitrogen content of sludge (kg/kg sludge)

F= organic nitrogen mineralization factor (0.2 dimensionless)

Org-N= organic nitrogen content of sludge (kg/kg sludge)

Biosolids Testing During Land Application

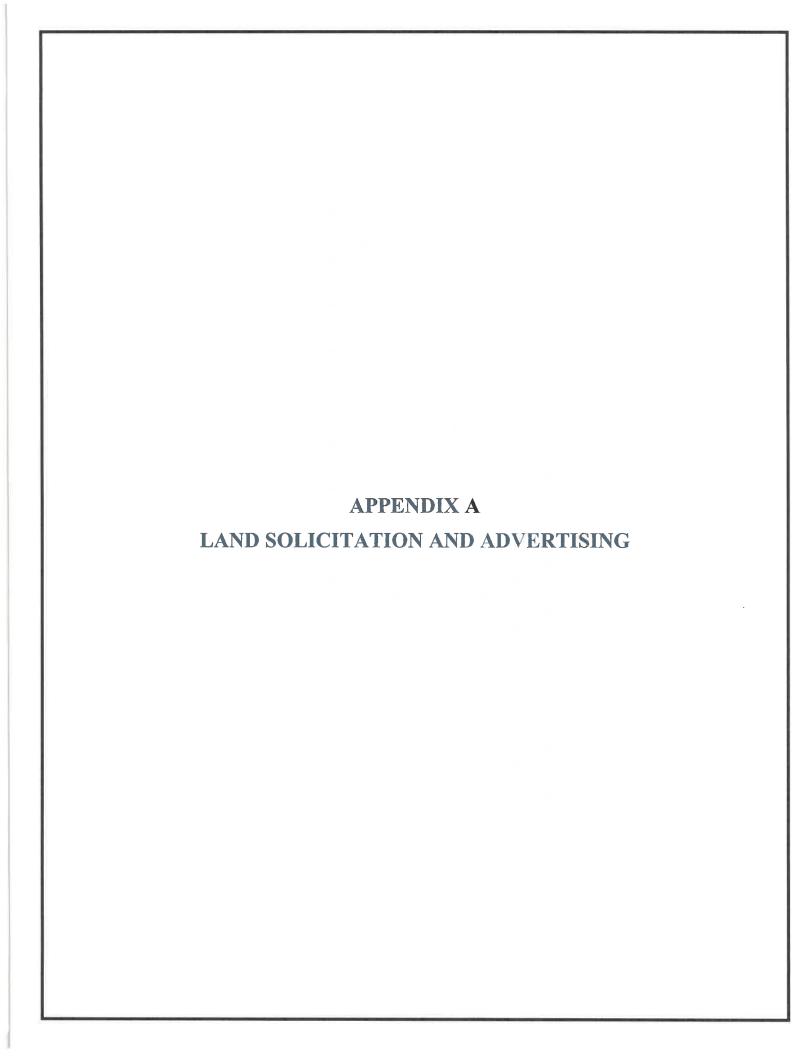
During the land application program, ongoing testing of samples from the BSTs, and LRAR are conducted. One grab sample is collected from every tanker to form a composite sample of five tankers. Each composite is analyzed for solids and ammonia content.

The ammonia and solids testing that occurs during the biosolids hauling process are analyzed inhouse by City of Portage lab techs. Solids are determined using a moisture balance and ammonia is determined via Flow Injection Analysis following APHA Standard Methods for the Examination of Water and Wastewater 20th Ed, 1998 Method 4500-NH₃ H. Flow Injection Analysis.

The ongoing testing of ammonia and solids for each composite sample ensures that the application rate is being adjusted accordingly as the program proceeds. The spreadsheets used to determine rates also calculate the applied quantity of metals, phosphorus, and Nitrogen along with the background soil composition to ensure the cumulative values do not exceed license requirements. This information is documented in the Biosolids Application Recording sheets which are included in this report. A copy of this report is also given to each landowner.

Summary

Residual solids were removed and transported for land application between September 11, 2023, and October 18, 2023. In total, 728 dry tonnes were removed and injected including 426 tonnes from the LRAR and 302 dry tonnes from the Biosolids Storage Tanks. There was an overapplication of Nitrogen from the material from the BST on one day, however, the overall average for the field was only slightly above the PA-N application limit. There were no incidents or spills that occurred during the land application process. Follow-up with the landowner indicated they were content with the application process and are willing to have residual solids applied in future years.







September 11, 2023

Mr. Tyler Kneeshaw Regional Supervisor Manitoba Environment, Climate and Parks 25 Tupper Street North Portage la Prairie, MB R1N 3K1

Re: 2023 Residual Biosolids Application Program

Dear Mr. Kneeshaw,

The City of Portage la Prairie intends to conduct land application of residual biosolids in the fall of 2023. The following land areas that have been identified as potential application sites and pending soil analysis, biosolids **may** be applied to the following agricultural lands:

LEGAL LAND DESCRIPTIONS

Watson- SE 16-12-6

Vanstone- SE 1-13-7

McDonald- NW 4-13-6, NE 1-13-7

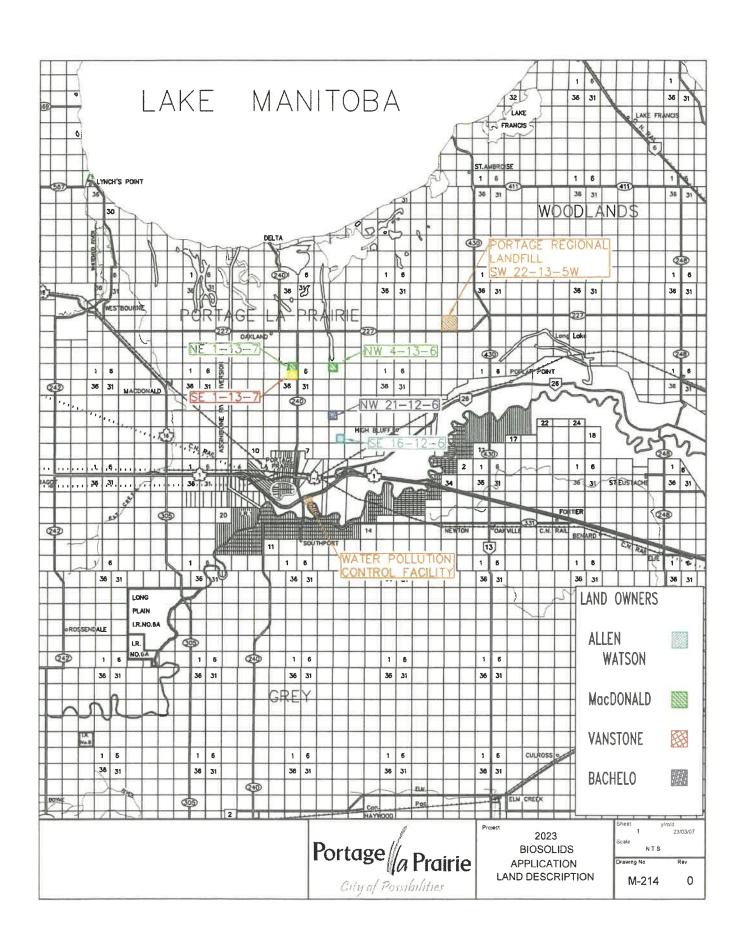
Bachalo- NW 21-12-6

As previously communicated, notice of intent to land apply to the above-noted sites was printed in the Portage Daily Graphic March 16th edition. The notice was also posted to the City website and included in the April Citizen's info page. A copy of the intended routes of transport as well as a confirmation of the start date will be sent once they are confirmed by the contractor. Please contact me at 204-239-8359 if you have or receive any concerns regarding the above sites.

A map of the Portage la Prairie region with fields identified has been included with this letter.

Sincerely,

Karly Friesen Director of Utility







September 11, 2023

Mr. Kyle Hamilton Chief Administrative Officer Rural Municipality of Portage la Prairie 35 Tupper Street South Portage la Prairie, MB R1N 1W7

Re: 2023 Residual Biosolids Application Program

Dear Mr. Hamilton,

The City of Portage la Prairie intends to conduct land application of residual biosolids in the fall of 2023. The following land areas that have been identified as potential application sites and pending soil analysis, biosolids **may** be applied to the following agricultural lands:

LEGAL LAND DESCRIPTIONS

Watson- SE 16-12-6

Vanstone- SE 1-13-7

McDonald- NW 4-13-6, NE 1-13-7

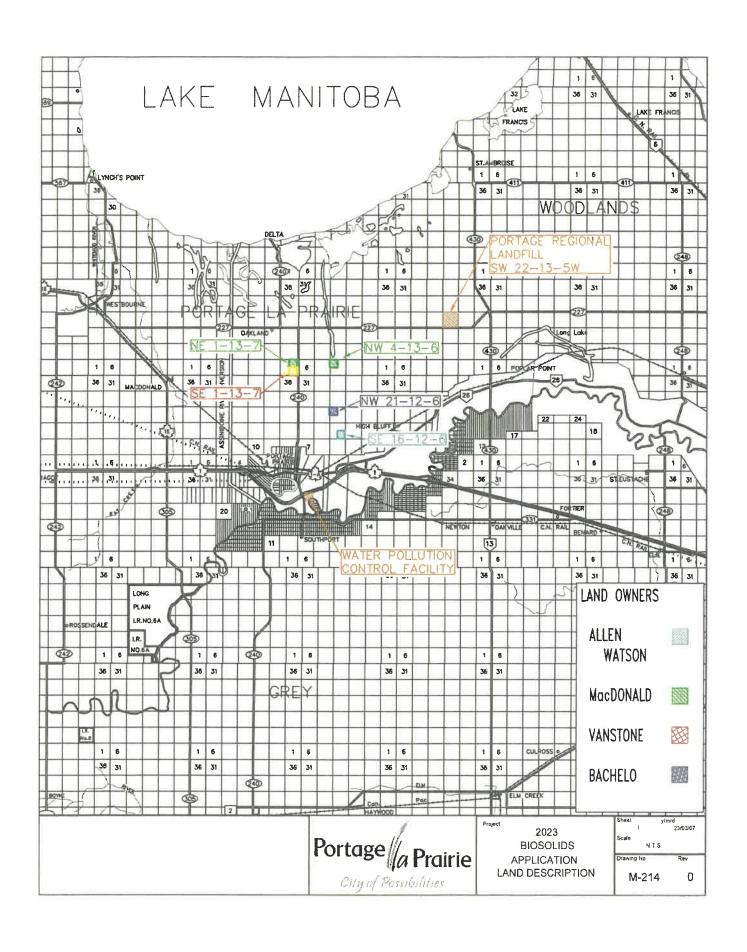
Bachalo- NW 21-12-6

As required by Environment Act License 1907, Clause 17, notice of intent to land apply to the above-noted sites was printed in the Portage Daily Graphic March 16th edition. The notice was also posted to the City website and included in the April Citizen's info page. A copy of the intended routes of transport as well as a confirmation of the start date will be sent once they are confirmed by the contractor. Please contact me at 204-239-8359 if you have or receive any concerns regarding the above sites.

A map of the Portage la Prairie region with fields identified has been included with this letter

Sincerely,

Karly Friesen
Director of Utility



The City of Portage la Prairie intends to conduct the Residual Biosolids Land Application Program commencing in the fall of 2023.

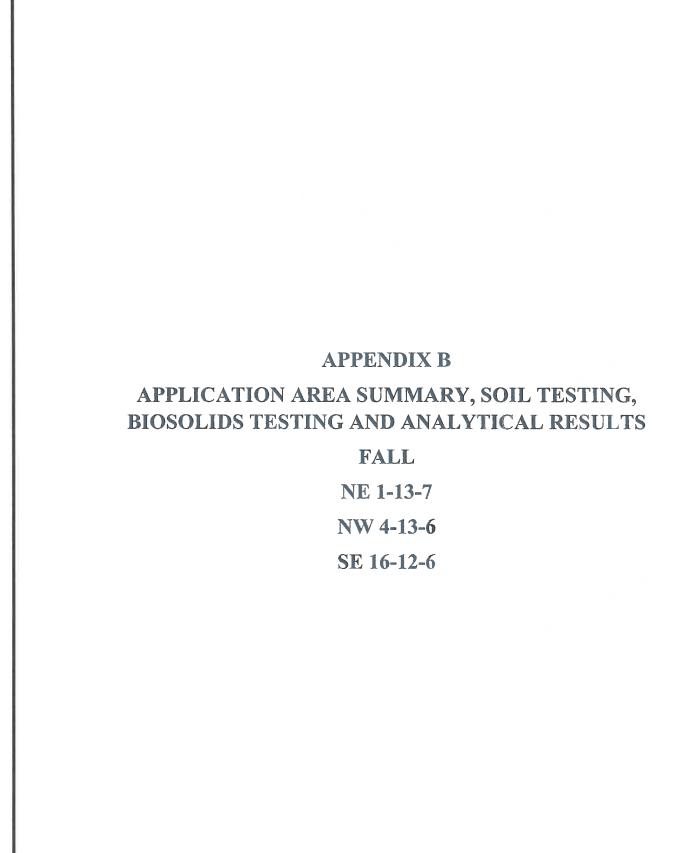
Pending soil analysis, biosolids **may** be applied to the following agricultural lands:

LEGAL DESCRIPTION

NE 1-13-7, SE 1-13-7, NW 4-13-6, SE 16-12-6, NW 21-12-06

A map of land locations can be found at www.city-plap.com

Please contact Karly Friesen, Manager, Director of Utility at 204-239-8359 if you have or receive any concerns regarding the above sites.





97 Saskatchewan Avenue East Portage la Prairie, MB R1N 0L8 www.city-plap.com

September 11, 2023

Mr. Tyler Kneeshaw Regional Supervisor – Environment Officer Manitoba Conservation and Climate 309 – 25 Tupper Street North Portage la Prairie, MB R1N 3K1

Re: Truck Routes for 2022 Residual Biosolids Application Program

Dr. Kneeshaw,

Please find the enclosed route maps for the fall Residual Biosolids Land application for review and comment. Transport and application of biosolids is scheduled to begin on Monday, September 11, 2023. The contractor will apply to fields NE 1-13-7 and will begin NW 4-13-6 shortly after. Should there be any concerns with the routes provided or throughout the hauling process with traffic and/or dust, please contact me as the contractor is responsible for both items. I can be reached via phone at 204-239-8359 or email at kfriesen@city-plap.com.

There are two remaining fields, however, it is uncertain if they will be needed. Routes for those fields will be provided if required.

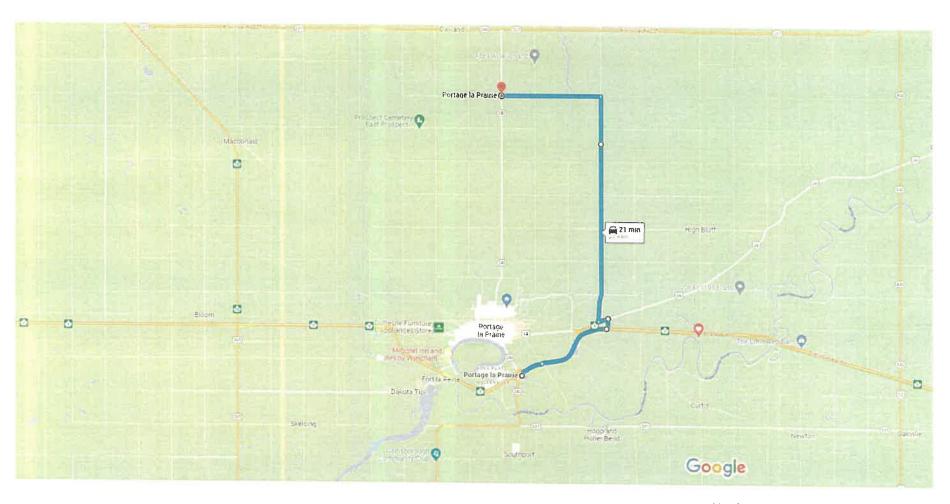
Sincerely,

Karly Friesen

Director of Utility

City of Portage la Prairie

Loaded trucks- to fields NE 1-13-7 and NW 4-13-6 from WPCF



Map data @2023 Google 2 km ___

via Rd 33W23 min without traffic

21 min 22.4 km Unloaded- from fields to WPCF



Map data @2023 Google 2 km

via MB-240 \$
18 min without traffic

18 min 19.5 km



97 Saskatchewan Avenue East Portage la Prairie, MB R1N 0L8 www.city-plap.com

September 11, 2023

Mr. Kyle Hamilton Chief Administrative Officer Rural Municipality of Portage la Prairie 35 Tupper Street South Portage la Prairie, MB R1N 1W7

Re: Truck Routes for 2023 Residual Biosolids Application Program

Dear Mr. Hamilton

Please find the enclosed route maps for the fall Residual Biosolids Land application for review and comment. Transport and application of biosolids is scheduled to begin on Monday, September 11, 2023. The contractor will apply to fields NE 1-13-7 and will begin NW 4-13-6 shortly after. Should there be any concerns with the routes provided or throughout the hauling process with traffic and/or dust, please contact me as the contractor is responsible for both items. I can be reached via phone at 204-239-8359 or email at kfriesen@city-plap.com.

There are two remaining fields, however, it is uncertain if they will be needed. Routes for those fields will be provided if required.

Sincerely,

Karly Friesen
Director of Utility

City of Portage la Prairie



Loaded trucks- to fields NE 1-13-7 and NW 4-13-6 from WPCF



Map data ©2023 Google 2 km

via Rd 33W23 min without traffic

21 min 22.4 km



Unloaded- from fields to WPCF



Map data ©2023 Google 2 km

via MB-240 \$
18 min without traffic

18 min 19.5 km

LETTER OF AGREEMENT

Ms. Karly Friesen
Director of Utility
City of Portage la Prairie
97 Saskatchewan Ave. E.
Portage la Prairie, MB
R1N OL8



Dear Land Owner:

I hereby agree to permit the City of Portage la Prairie to apply wastewater treatment residual biosolids to the land, which I own as described below, on the understanding that:

- 1. The biosolids will be injected approximately 15 cm below the surface.
- 2. The biosolids will be injected to a maximum rate of 10 dry tonnes per hectare. [Maximum allowable over a 4-year period.]
- 3. Application will occur in the 2023 crop year, or as otherwise indicated.
- 4. Biosolids application will not be closer than 300 meters to a dwelling not belonging to the owner or lessee of the land on which biosolids are applied.
- 5. Biosolids will not be applied within 15 meters of a ditch draining less than one section and 30 meters from drains serving a larger watershed.
- All roadways, access roads, and ditches will be repaired to the original condition upon completion of the application program, to the satisfaction of the City, municipality and the landowner.
- 7. The City makes no warranties or representations as to the fertilizer content nor any soil conditioning effect of the biosolids.
- 8. The City will determine background levels of nutrients, heavy metals, pH, and clay depth prior to the application of biosolids. This information will be provided to the landowner.
- 9. The City will assess the biosolids quality prior to the application program and will monitor it throughout the program. Test results will be provided to the landowner.
- 10. Temporary halting of the application due to wet field conditions will occur upon mutual agreement between representatives of the City, contractor and landowner.
- 11. Biosolids may be injected at a maximum rate of addition of plant-available nitrogen of 100 kilograms per hectare.
- 12. The cumulative mass per hectare of each heavy metal in the soil does not exceed the respective value stipulated in the City's Environment Act License, and that not more than one-third of the initial maximum addition of each heavy metal will be applied in this year's program.
- 13. The City will restore the field to a condition similar that as found prior to the application program.

LETTER OF AGREEMENT

I, on my part, agree to:

- a) Plant a cereal, oilseed, forage, field pea, or lentil crop at the beginning of the next growing season. Only these listed crops will be grown for three growing seasons following biosolids application. A crop will not be grown that is a vegetable or a fruit and livestock will not be allowed to graze for three growing seasons after biosolids application on the land.
- b) Provide crop information to the City on an annual basis.
- c) Consider the soil and biosolids test results prior to applying nitrogen fertilizer in the growing season following biosolids application and restrict the addition of plant-available nitrogen to a maximum of 100 kg/ha, including that derived from the application of biosolids. Fertilizer, including that derived from biosolids, will be applied at the recommended agronomic rates.
- d) Release and discharge the City of Portage la Prairie of and from all claims, demands, actions or causes of actions which I have or may have as the result of the application of wastewater biosolids to my land.
- e) Provide the City with a letter of acceptance upon completion of the biosolids application indicating my acceptance of field conditions.
- f) Notify the lessee of the land (if applicable) of this agreement.

DARROW MACDONALA	KARLY FRIESON
Land Owner Name	City Representative Name
Land Owner Signature	City Representative Signature
Date	14/3/2023 Date

Land Location(s): /VE /F/3 #____

NW4-136

	2023 Bio-Solid App	lication Re	cording She	et				
						RM 1646a/SRM27	09	
				Section for Infe	ormation			
	Name of Land Own	er	D. McDonald					
	Legal Description Land Owner Author	rization	NE 1-13-7 Yes					
	Dist. >300m from re							
	Map Enclosed Year Field previous	slv Used	Yes					
		Lat				Long		
		Date	Date	Date	Date	Date	Date	
		BST 14/09/2023	BST 14/09/2023 Ibs/ac	LRAR	LRAR 14/09/2023	Duto	Duto	
	Cadmium	0.458	IDS/AC	14/09/2023 0.458	lbs/ac			Comments
		0.430		0.436				
<u>.</u>	Calcium	26.3		26.3				
Field	Chromium	21.5		21.5	-	-	-	
<u>ŏ.</u>	Copper			+	1	-		
nal	Lead	11.2	-	11.2		-		
Soil Analaysis ma/ka	Mercury	0.0357		0.0357				
ma	Nickel	28.0		28.0				
	рН	8.00		8.00				
0 <u>-1</u> 5	Phosphorus < 60 ug/g	677		677				
<u>S</u>	Potassium	3160		3160				
	60cm<100kg/ha	10.4		10.4				
	Zinc	92.4		92.4				
	Ammonia Nitrogen	678	et .	154				1
	Cadmium	0.00264		0.000427				
	Chromium	0.180		0.00773				1
	Conductivity	5620	†	3420				
		1.71						
	Copper	0.0797	 	0.0219	+	1		
Bio-	Lead	0.0000250		0.00248				
Solid Olid	Mercury	0.207		0.0000250	-			
Bio-Solids Analysis	Nickel			0.0203				
nalys	Nitrate Nitrogen	0.400		0.400				
Sis T	Organic Nitrogen	432		34.2				
mg/kg	pН	7.17		7.32				
(2	Potassium	262		246				
	Total Nitrogen	1110		187				
	Total Phosphorus	173		33.8				
	Total Solids	19200		7700				
	Volatile Solids	11500		194				
	Zinc	1.33		0.119				
	Cadmium < 2.88	0.824	0.736	0.824	0.736			
င္မ	Chromium < 216	47.340	42.24	47.342	42.24	7	†	
Cummulative Results	Copper < 90	38.704	34.53	38.716	34.54			
ılativ	Lead < 90	20.160				+		
e Re	THE RESERVE OF THE PERSON NAMED IN		17.99	20.161	17.99	+	 	
sults	Mercury < 0.9	0.064	0.06	0.064	0.06	+	 	
	Nickel < 90 Nutrient Appl. Rate PA-	50.400	44.97	50.402	44.97	-		
Kg/Hectare	N<100/kg	99.461	88.74	27.139	24.21			63.30 field average
are	Solids <10	2.156	1.92	9.109	8.13			5.6325 field average
	Zinc < 270	166.321	148.39	166.323	148.39			
	Phosphorus	1218.973	1087.54	1220.18	1088.62			
	Comments						-	

ASSINIBOINE INJECTIONS LTD

BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB ROG 1M0 PH: 204-248-2559 FAX: 204-248-2799 DAILY SLUDGE APPLICATION PLAN DATE: FARMERS NAME: FIELD: SEC. ___TWP ____RGE APPLICATION TYPE: INJECTION CM3: DEPTH : __6"____ HA: _ N SEPT 14 LRAR 190,075 GAL 13.00 ACRES SEPT 14 BST 5EPT 13-951,171 BALLONS, 316,070 CAL. FRAR 15.54 ALRES. 93.99 ACRES. 1891 18. BST 593 GNUNK 994 446 GALLONS.

SEPT 19 993. 38 PORK 97. 8 ACRES 149, 836, ALTES.

ALS Canada Ltd.

NE 1-13-7 WP in metals

: 08-Sep-2023 07:22



CERTIFICATE OF ANALYSIS

Work Order : WP2321296 Page :1 of 4

Amendment : 1

Client : City of Portage la Prairie Laboratory : ALS Environmental - Winnipeg

Contact : Aaron Stechesen Account Manager : Judy Dalmaijer

Address : 97 Saskatchewan Avenue East Address : 1329 Niakwa Road East, Unit 12

Portage la Prairie MB Canada R1N 0L8 Winnipeg MB Canada R2J 3T4

 Telephone
 : 204 239 8361
 Telephone
 : +1 204 255 9720

 Project
 : Wastewater
 Date Samples Received
 : 29-Aug-2023 14:21

 Project
 : Wastewater
 Date Samples Received
 : 29-Aug-2023 14:27

 PO
 : w23017
 Date Analysis Commenced
 : 30-Aug-2023

C-O-C number | ssue Date

Site : Wastewater

Quote number ; Wastewater

No. of samples received : 3
No. of samples analysed : 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

Sampler

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department	
Colby Bingham	Laboratory Supervisor	Sask Soils, Saskatoon, Saskatchewan	
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan	
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan	
Jeremy Greuel	Laboratory Assistant	Sask Soils, Saskatoon, Saskatchewan	
Milad Khani	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan	
Milad Khani	Laboratory Analyst	Sask Soils, Saskatoon, Saskatchewan	
Nancy Cruse	Laboratory Assistant	Inorganics, Saskatoon, Saskatchewan	
Neha Kamran		Organics, Winnipeg, Manitoba	
Rocio SeguradoRodezno	Laboratory Assistant	Organics, Saskatoon, Saskatchewan	
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario	

2 of 4

Work Order Client WP2321296 Amendment 1 City of Portage la Prairie

Project

Wastewater



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key:

CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit Description	
% percent	
°C degrees celsius	2
mg/kg milligrams per kilogram	1
pH units pH units	

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (08-Sep-23): This report has been amended and re-released to allow the reporting of additional analytical data. Phosphorus reporting

Work Order Client

3 of 4 WP2321296 Amendment 1 City of Portage la Prairie

Project

Wastewater



Analytical Results

Sub-Matrix: Soil/Solid			Cli	ent sample ID	23-08-47	23-08-48	23-08-49		****
(Matrix: Soil/Solid)									
			Client samp	ling date / time	29-Aug-2023 12:00	29-Aug-2023 12:00	29-Aug-2023 12:00		Modelium; ma
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2321296-001	WP2321296-002	WP2321296-003	maranish dang pangar salama	Annah asi salah Annah asi
	W-21 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	100000000000000000000000000000000000000			Result	Result	Result	N - 4 / MA	Antonia
Sample Preparation	IFO.	P441/SK	1 1	°C		<38			
Temperature, oven	Er	P44 1/5K		-0	www.	<38			us us user
Physical Tests		00/01/	10						
Atterberg plastic limit [PL] (moisture)	E1		1.0	%	****	******	24.9	wan	Me tornamen
Moisture	E1		0.25	%	20.3			****	No. Director
Moisture	E1		0.25	%	4.270.0	17.7		m recover	****
pH (1:2 soil:water)	E1		0.10	pH units	8.00			ue-sement	
Atterberg liquid limit [LL] (moisture)	E1	99/SK	1.0	%	******		45.9	AND THE PROPERTY.	en activistic
Atterberg plasticity index [PI]	E1	99/SK	1.0	%	*****	*********	21.0		water
Anions and Nutrients									
Nitrogen, total	7727-37-9 E3	66/SK	200	mg/kg		2300			
Plant Available Nutrients									
Ammonium, available (as N)	14798-03-9 E3	12A/SK	1.0	mg/kg		11.1			
Nitrate + Nitrite, available (as N)	E2	69.N+N/SK	1.0	mg/kg	an core or	11.1		#1 M CT TO	Mithelite
Nitrate + Nitrite, available (as N)	E2 K	69A.N+N/S	2.0	mg/kg	No. of State State	10.4		to Marie.	#****
Nitrate, available (as N)	14797-55-8 EC		2.0	mg/kg	*****	11.1		10 W PA	No turbones
Nitrite, available (as N)	14797-65-0 E2	69.NO2/SK	0.40	mg/kg		<0.40			MO TOT PROME
Nitrogen, total available	7727-37-9 EC		2.2	mg/kg		21.5		W #730 M	nia salvalitiar
Phosphate, available (as P)	14265-44-2 E3	85/SK	1.0	mg/kg	10.5			****	****
Nitrate, available (as N)	14797-55-8 EC		2.0	mg/kg		10.4		*******	
Metals				VIII TO					
Cadmium	7440-43-9 E4	40/WT	0.020	mg/kg	0.458		1		10 To 10 CT/RE
Chromium	7440-47-3 E4	40/WT	0.50	mg/kg	26.3				
Copper	7440-50-8 E4	40/WT	0.50	mg/kg	21.5			40 10 40 40	
Lead	7439-92-1 E4		0.50	mg/kg	11.2	_			
Mercury	7439-97-6 E5		0.0050	mg/kg	0.0357			***	
Nickel	7440-02-0 E4		, 0.50	mg/kg	28.0			****	*****
Phosphorus	7723-14-0 E4		50	mg/kg	677				

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Work Order Client

WP2321296 Amendment 1 City of Portage la Prairie

Project

Wastewater



Analytical Results

Sub-Matrix: Soil/Solid			Cli	ent sample ID	23-08-47	23-08-48	23-08-49	****	*****
(Matrix; Soil/Solid)									
			Client samp	ling date / time	29-Aug-2023 12:00	29-Aug-2023 12:00	29-Aug-2023 12:00		
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2321296-001	WP2321296-002	WP2321296-003	An aug Anthrodoxin garan	Ward of Street Walter
					Result	Result	Result		
Metals									
Potassium	7440-09-7	E440/WT	100	mg/kg	3160	Barrera			******
Zinc	7440-66-6	E440/WT	2.0	mg/kg	92.4	16170-15-16			48 EE 67-94

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL INTERPRETIVE REPORT

: 1 of 8 Work Order :WP2321296 Page

:1 Amendment

Client City of Portage la Prairie Laboratory : ALS Environmental - Winnipeg

Account Manager Contact : Aaron Stechesen Judy Dalmaijer

Address Address 97 Saskatchewan Avenue East : 1329 Niakwa Road East, Unit 12

> Portage la Prairie MB Canada R1N 0L8 Winnipeg, Manitoba Canada R2J 3T4

Telephone :204 239 8361 Telephone : +1 204 255 9720 Project **Date Samples Received** :Wastewater : 29-Aug-2023 14:27

: w23017 Issue Date : 08-Sep-2023 07:22 C-O-C number

Sampler Site :Wastewater

:Wastewater No. of samples received :3 No. of samples analysed :3

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Quote number

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances,

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

No Reference Material (RM) Sample outliers occur.

outliers : Analysis Holding Time Compliance (Breaches)

• No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

No Quality Control Sample Frequency Outliers occur.

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Work Order

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City of Portage la Prairie

Project

Wastewater



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

atrix: Soil/Solid		0 " " "					T		= Within	
Analyte Group	Method	Sampling Date	Extraction / Preparation					Analysis		
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date	Holding		Eval
			Date	Rec	Actual			Rec	Actual	
nions and Nutrients : Total Nitrogen by Combustion										
LDPE bag							2			
23-08-48	E366	29-Aug-2023	01-Sep-2023	28	3 days	✓	01-Sep-2023	28 days	3 days	1
				days						
etals : Mercury in Soil/Solid by CVAAS	THE RESERVE OF THE PERSON NAMED IN									
DPE bag										
23-08-47	E510	29-Aug-2023	01-Sep-2023	28	3 days	1	01-Sep-2023	28 days	3 days	✓
				days						
etals : Metals in Soil/Solid by CRC ICPMS					N/P					
.DPE bag			The man although a disease and							
23-08-47	E440	29-Aug-2023	01-Sep-2023	180	3 days	✓	01-Sep-2023	180	3 days	1
				days				days		
hysical Tests : Atterberg Limits	VI STILL THE REAL PROPERTY.	1154		NEW YORK					-	
LDPE bag		1					1			
23-08-49	E199	29-Aug-2023	***				31-Aug-2023	180	2 days	1
								days		
hysical Tests : Moisture Content by Gravimetry				T STATE	1211-1		1			
DPE bag										
23-08-48	E144	29-Aug-2023		-			30-Aug-2023		1 days	
hysical Tests : Moisture Content by Gravimetry				100	11, 4					
LDPE bag										
23-08-47	E144	29-Aug-2023			***************************************		31-Aug-2023		2 days	
hysical Tests : pH by Meter (1:2 Soil:Water Extraction)										
LDPE bag	1									
23-08-47	E108	29-Aug-2023	01-Sep-2023	30	3 days	1	01-Sep-2023	30 days	3 days	✓
	1			days						

Work Order :

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City of Portage la Prairie

Project

Wastewater



nalyte Group	Method	Sampling Date	Extraction / Preparation					Analys	ils	
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date	Holding Times		Eval
			Date	Rec	Actual			Rec	Actual	
lant Available Nutrients: Available Ammonium by Colourimetry (2N Potassiu	m Chloride Ext.)									
LDPE bag 23-08-48	E312A	29-Aug-2023	01-Sep-2023	-			01-Sep-2023	0 days	0 days	1
lant Avallable Nutrients : Avallable Nitrate and Nitrite by Colourimetry (0.01M	Calcium Chloride			Hist						
LDPE bag 23-08-48	E269.N+N	29-Aug-2023	01-Sep-2023	180 days	3 days	1	01-Sep-2023	3 days	0 days	1
lant Available Nutrients : Available Nitrate and Nitrite by Colourimetry (2N Po	tassium Chloride				illus .			-		
LDPE bag 23-08-48	E269A.N+N	29-Aug-2023	01-Sep-2023	180 days	3 days	4	01-Sep-2023	3 days	0 days	1
lant Available Nutrients: Available Nitrite by Colourimetry (0.01M Calcium Cl	hloride Ext.)									
LDPE bag 23-08-48	E269.NO2	29-Aug-2023	01-Sep-2023	180 days	3 days	4	01-Sep-2023	3 days	0 days	1
lant Available Nutrients : Available Phosphorus by Colourimetry (Olsen)										
LDPE bag 23-08-47	E385	29-Aug-2023	01-Sep-2023	W-07-00	4-77-7438		01-Sep-2023	0 days	0 days	✓
ample Preparation : Dry and Grind in Soil/Solid <38°C										
LDPE bag 23-08-48	EPP441	29-Aug-2023	31-Aug-2023					3 days	2 days	1

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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Work Order :

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Client Project City of Portage la Prairie Wastewater



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Quality Control Sample Type			Co	ount		Frequency (%)	K(
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
aboratory Duplicates (DUP)							
Atterberg Limits	E199	1114234	1	1	100.0	5.0	1
wailable Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1114302	1	3	33.3	5.0	1
vailable Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1114259	1	17	5.8	5.0	1
vailable Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1114301	1	1	100.0	5.0	1
vailable Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1114260	1	17	5.8	5.0	1
vailable Phosphorus by Colourimetry (Olsen)	E385	1114306	1	1	100.0	5.0	1
fercury in Soil/Solid by CVAAS	E510	1114682	1	1	100.0	5.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1114683	1	1	100.0	5.0	1
Noisture Content by Gravimetry	E144	1111538	1	20	5.0	5.0	1
H by Meter (1:2 Soil:Water Extraction)	E108	1114276	1	20	5.0	5.0	1
Total Nitrogen by Combustion	E366	1115580	1	1	100.0	5.0	1
aboratory Control Samples (LCS)					***************************************		
tterberg Limits	E199	1114234	1	1	100.0	5.0	1
vailable Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1114302	2	3	66.6	10.0	1
vailable Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1114259	2	17	11.7	10.0	1
vailable Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1114301	2	1	200.0	10.0	1
vailable Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1114260	2	17	11.7	10.0	1
vailable Phosphorus by Colourimetry (Olsen)	E385	1114306	2	1	200.0	10.0	1
Mercury in Soil/Solid by CVAAS	E510	1114682	2	1	200.0	10.0	1
Netals in Soil/Solid by CRC ICPMS	E440	1114683	2	1	200.0	10.0	-
floisture Content by Gravimetry	E144	1111538	1	20	5.0	5.0	1
H by Meter (1:2 Soil:Water Extraction)	E108	1114276	2	20	10.0	10.0	1
otal Nitrogen by Combustion	E366	1115580	2	1	200.0	10.0	1
Method Blanks (MB)							
vailable Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1114302	1	3	33.3	5.0	1
vailable Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1114259	1	17	5.8	5.0	1
vailable Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1114301	1	1	100.0	5.0	1
vailable Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1114260	1	17	5.8	5.0	1
vailable Phosphorus by Colourimetry (Olsen)	E385	1114306	1	1	100.0	5.0	1
Mercury in Sail/Salid by CVAAS	E510	1114682	1	1	100.0	5.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1114683	1	1	100.0	5.0	1
Moisture Content by Gravimetry	E144	1111538	1	20	5.0	5.0	1
Total Nitrogen by Combustion	E366	1115580	1	1	100.0	5.0	1

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City of Portage la Prairie

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Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Melhod Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Saskatoon	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 °C) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Saskatoon	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Atterberg Limits	E199 ALS Environmental - Saskatoon	Soil/Solid	CSSS Ch. 58 (mod)	Atterberg Limits are measures of physical properties of fine grained soils. Liquid Limit (LL) is the water content where soil behaviour changes from plastic to liquid, and is determined by Casagrande cup. Plastic Limit (PL) is the water content where soil begins to exhibit plastic behaviour, and is measured as the moisture content of a 3 mm diameter thread of soil which begins to crumble when rolled. Plasticity Index (PI) is equal to LL - PL.
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite are analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO2 B (mod)	Plant available nitrite is analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite is analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 2N potassium chloride, then shaken well and filtered prior to analysis.
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/Comm Soil Sci 19(6) (mod)	Plant available ammonium is analyzed by colourimetry on a soil sample extract that has been extracted using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Total Nitrogen by Combustion	E366 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 22.4	The sample is ignited in a combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.
Available Phosphorus by Colourimetry (Olsen)	E385 ALS Environmental - Saskatoon	Soil/Solid	Carter CSSS (2008) 8.3	Plant available phosphorus is extracted from air dried soil using a fixed ratio bicarbonate extraction. Phosphorus is determined by colorimetry.

Work Order :

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Client

City of Portage la Prairie

Project

Wastewater



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Ti, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Available Nitrate by Difference (0.01M Calcium Chloride Ext.)	EC269.NO3 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Total Available Nitrogen (Calculation)	EC269A.N ALS Environmental - Saskatoon	Soil/Solid	Calculation	Total available nitrogen is calculated as the sum of NO2-N+NO3-N and NH3-N extracted from soil using 2N potassium chloride solution.
Available Nitrate by Difference (2N Potassium Chloride Ext.)	EC269A.NO3 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Preparation Methods	Method / Lab	Mətrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Saskatoon	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Fixed ratio 0.01M Calcium Chloride extraction for plant available nutrients	EP269 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture	Plant available nutrients (N&S) extracted using 0.01M calcium chloride, then shaken well and filtered prior to analysis.
2N Potassium Chloride extraction for available nutrients	EP269A ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2	A soil sample extract is generated by fixed ratio extraction using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Bicarbonate extraction for soil	EP385 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 8.2	Plant available phosphorus is extracted using fixed ratio sodium bicarbonate solution (Olsen method).

Work Order

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Client Project City of Portage la Prairie Wastewater



Preparation Methods	Method / Lab	Matrix	Method Reference	Mathod Deschators
Digestion for Metals and Mercury	EP440	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI. This method is intended to liberate metals that may be environmentally available.
	ALS Environmental - Waterloo		Soil Sampling and A Methods of Analysis, d Carter 2008 a	
Dry and Grind in Soil/Solid <38°C	EPP441	Soil/Solid	, ,	After removal of coarse fragments a portion of homogenized sample is set in a tray and dried at less than 38°C until dry. The sample is then particle size reduced with an
	ALS Environmental - Saskatoon		Carter 2008	automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.
Dry and Grind in Soil/Solid <60°C	EPP442	Soil/Solid	Soil Sampling and	After removal of any coarse fragments and reservation of wet subsamples a portion of
			Methods of Analysis,	homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is
	ALS Environmental -		Carter 2008	then particle size reduced with an automated crusher or mortar and pestle, typically to
	Saskatoon			<2 mm. Further size reduction may be needed for particular tests.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : WP2321296 Page : 1 of 7

Amendment :1

Address

Client : City of Portage la Prairie Laboratory : ALS Environmental - Winnipeg

Contact Aaron Stechesen Account Manager Judy Dalmaijer

Portage la Prairie MB Canada R1N 0L8 Winnipeg, Manitoba Canada R2J 3T4

Address

: 1329 Niakwa Road East, Unit 12

Telephone : +1 204 255 9720

 Project
 :Wastewater
 Date Samples Received
 :29-Aug-2023 14:27

 PO
 :w23017
 Date Analysis Commenced
 :30-Aug-2023

C-O-C number :--- Issue Date :08-Sep-2023 07:23

Sampler :--- 204 239 8361

Site : Wastewater
Quote number : Wastewater

No. of samples received :3
No. of samples analysed :3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full. This Quality Control Report contains the following information:

:97 Saskatchewan Avenue East

Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives

Reference Material (RM) Report; Recovery and Data Quality Objectives

Method Blank (MB) Report; Recovery and Data Quality Objectives

Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories		Position	Laboratory Department
Colby Bingham		Laboratory Supervisor	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Hedy Lai		Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai		Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Jeremy Greuel		Laboratory Assistant	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Milad Khani		Laboratory Analyst	Saskatoon Inorganics, Saskatoon, Saskatchewan
Milad Khani		Laboratory Analyst	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Nancy Cruse		Laboratory Assistant	Saskatoon Inorganics, Saskatoon, Saskatchewan
Neha Kamran			Winnipeg Organics, Winnipeg, Manitoba
Rocio SeguradoRodezno		Laboratory Assistant	Saskatoon Organics, Saskatoon, Saskatchewan
Walt Kippenhuck		Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

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Work Order

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Client

City of Portage la Prairie

Project

Wastewater



The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "--" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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Work Order: Client:

WP2321296 Amendment 1 City of Portage la Prairie

Project

Wastewater

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

ub-Matrix: Soil/Solid							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC	Lot: 1111538)										
WP2320982-009	Anonymous	Moisture		E144	0.25	%	22.5	22.7	0.776%	20%	
Physical Tests (QC	Lot: 1114234)										
WP2321296-003	23-08-49	Atterberg liquid limit [LL] (moisture)		E199	1.0	%	45.9	46.8	1.85%	20%	
		Atterberg plastic limit [PL] (moisture)	*****	E199	1.0	%	24.9	24.7	0.978%	20%	
Physical Tests (QC	Lot: 1114276)						o saled III				
WP2320803-005	Anonymous	pH (1:2 soil:water)		E108	0.10	pH units	6.53	6.53	0.00%	10%	
Physical Tests (QC	Lot: 1114562)										
RG2301364-001	Anonymous	Moisture		E144	0.25	%	25.2	24.4	3.41%	20%	
Anions and Nutrien	ts (QC Lot: 1115580)				R SILVE	Q 27 E T			1		
WP2321296-002	23-08-48	Nitrogen, total	7727-37-9	E366	0.020	%	2300 mg/kg	0.229	0.362%	20%	
Plant Available Nut	rients (QC Lot: 1114259										
WP2321091-019	Anonymous	Nitrate + Nitrite, available (as N)		E269.N+N	1.0	mg/kg	<1.0	<1.0	0.0007	Diff <2x LOR	
Plant Available Nut	rients (QC Lot: 1114260					ST-R					
WP2321091-019	Anonymous	Nitrite, available (as N)	14797-65-0	E269.NO2	0.40	mg/kg	<0.40	<0.40	0.0003	Diff <2x LOR	*****
Plant Available Nut	rients (QC Lot: 1114301				New York Control	Mary Land	2111				
WP2321296-002	23-08-48	Nitrate + Nitrite, available (as N)	T	E269A.N+N	2.0	mg/kg	10.4	10.4	0.08	Diff <2x LOR	
Plant Available Nut	rients (QC Lot: 1114302				Maria Control				.1		
WP2321296-002	23-08-48	Ammonium, available (as N)	14798-03-9	E312A	1.0	mg/kg	11.1	11.3	2.35%	20%	
Plant Available Nut	rients (QC Lot: 1114306						Relia		1		
WP2321296-001	23-08-47	Phosphate, available (as P)	14265-44-2	E385	1.0	mg/kg	10.5	11.0	4.07%	30%	
Metals (QC Lot: 11	14682)	THE RESIDENCE OF THE PARTY OF T				N 2			.1		
WP2321296-001	23-08-47	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0357	0.0374	4.51%	40%	
Metals (QC Lot: 11	14683)			N. C. C. C. C.							
WP2321296-001	23-08-47	Cadmium	7440-43-9	E440	0.020	mg/kg	0.458	0.456	0.458%	30%	
		Chromium	7440-47-3	E440	0.50	mg/kg	26.3	26.3	0.200%	30%	******
		Copper	7440-50-8	E440	0.50	mg/kg	21.5	21.5	0.281%	30%	
		Lead	7439-92-1	E440	0.50	mg/kg	11.2	11.1	0.998%	40%	
		Nickel	7440-02-0	E440	0.50	mg/kg	28.0	29.0	3.33%	30%	
		Phosphorus	7723-14-0	E440	50	mg/kg	677	623	8.29%	30%	
		Potassium	7440-09-7	E440	100	mg/kg	3160	3200	1.30%	40%	

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Work Order:

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Project

Wastewater



Sub-Matrix: Soil/Solid	Sub-Matrix: Soil/Solid						Laboratory Dupilcate (DUP) Report									
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier					
Metals (QC Lot: 111	4683) - continued					Left and Its										
WP2321296-001	23-08-47	Zinc	7440-66-6	E440	2.0	mg/kg	92.4	94.0	1.71%	30%						

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

Analyte	CAS Number Meti	hod	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1111538)				DO .		
Moisture	E144	4	0.25	%	<0.25	-
Physical Tests (QCLot: 1114562)			IN SECTION AND INCOME.			
Moisture	E14	4	0.25	%	<0.25	
Anions and Nutrients (QCLot: 1115580)	and the same of th					
Nitrogen, total	7727-37-9 E36	6	0.02	%	<0.020	property.
Plant Available Nutrients (QCLot: 1114259)					
Nitrate + Nitrite, available (as N)	E26	9.N+N	1	mg/kg	<1.0	
Plant Available Nutrients (QCLot: 1114260						
Nitrite, available (as N)	14797-65-0 E26	9.NO2	0.4	mg/kg	<0.40	
Plant Available Nutrients (QCLot: 1114301) Francisco de la companya della companya della companya de la companya della com		THE RESERVE OF THE PARTY OF THE	y-	\$	
Nitrate + Nitrite, available (as N)	E26	9A.N+N	2	mg/kg	<2.0	
Plant Available Nutrients (QCLot: 1114302					1	
Ammonium, available (as N)	14798-03-9 E31	2A	1	mg/kg	<1.0	Brillishoo
Plant Available Nutrients (QCLot: 1114306					1	
Phosphate, available (as P)	14265-44-2 E38	5	1	mg/kg	<1.0	***************************************
Metals (QCLot: 1114682)	THE RESERVE OF THE PERSON NAMED IN			ş-	1	
Mercury	7439-97-6 E51	0	0.005	mg/kg	<0.0050	
Metals (QCLot: 1114683)	Marie Communication of the Com		THE PROPERTY OF THE PERSON NAMED IN		1	
Cadmium	7440-43-9 E44	10	0.02	mg/kg	<0.020	
Chromium	7440-47-3 E44	10	0.5	mg/kg	<0.50	
Copper	7440-50-8 E44	10	0.5	mg/kg	<0.50	as etimes
Lead	7439-92-1 E44	10	0.5	mg/kg	<0.50	
Nickel	7440-02-0 E44	10	0.5	mg/kg	<0.50	24-15 Mvda
Phosphorus	7723-14-0 E44	10	50	mg/kg	<50	-
Potassium	7440-09-7 E44	10	100	mg/kg	<100	
Zinc	7440-66-6 E44	10	2	mg/kg	<2.0	Note to the

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Work Order : Client :

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Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

ub-Matrix: Soil/Solid						Laboratory Con	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
<i>Inalyte</i>	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
hysical Tests (QCLot: 1111538)					Miller St.	18			
oisture		E144	0.25	%	50 %	102	90.0	110	
hysical Tests (QCLot: 1114276)									
1 (1:2 soil:water)	_	E108	411114	pH units	7 pH units	101	97.0	103	
hysical Tests (QCLot: 1114562)				CAMPINE N		·	·		
pisture	LATER DAY	E144	0.25	%	50 %	95.3	90.0	110	
nions and Nutrients (QCLot: 1115580)									
trogen, total	7727-37-9	E366	0.02	%	22.37 %	99.1	90.0	110	*****
									ļ
lant Available Nutrients (QCLot: 1114259)									r.
trate + Nitrite, available (as N)		E269.N+N	1	mg/kg	40 mg/kg	103	70.0	130	
ant Available Nutrients (QCLot: 1114260)									
trite, available (as N)	14797-65-0	E269.NO2	0.4	mg/kg	20 mg/kg	98.6	70.0	130	
ant Available Nutrients (QCLot: 1114301)									
Itrate + Nitrite, available (as N)		E269A.N+N	2	mg/kg	40 mg/kg	108	70.0	130	
lant Available Nutrients (QCLot: 1114302)									
mmonium, available (as N)	14798-03-9	E312A	1	mg/kg	10 mg/kg	99.5	80.0	120	_
lant Available Nutrients (QCLot: 1114306)									
nosphate, available (as P)	14265-44-2	E385	1	mg/kg	20 mg/kg	107	0.08	120	
						LANCAU CONTRACTOR CONT			
letals (QCLot: 1114682)	مستقليه			- M		W			
ercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	111	0.08	120	-
etals (QCLot: 1114683)									
admium	7440-43-9		0.02	mg/kg	10 mg/kg	100	80.0	120	
nromium	7440-47-3		0.5	mg/kg	25 mg/kg	102	80.0	120	
opper	7440-50-8		0.5	mg/kg	25 mg/kg	100.0	80.0	120	
ead	7439-92-1		0.5	mg/kg	50 mg/kg	98.7	80.0	120	
ickel	7440-02-0		0.5	mg/kg	50 mg/kg	101	80.0	120	*****
hosphorus	7723-14-0		50	mg/kg	1000 mg/kg	110	80.0	120	p-su-s
otassium	7440-09-7		100	mg/kg	5000 mg/kg	107	80.0	120	
inc	7440-66-6	E440	2	mg/kg	50 mg/kg	100	0.08	120	

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Work Order :

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Wastewater



Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:					Reference Material (RM) Report						
					RM Target	Recovery (%)	Recovery	Limits (%)			
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifler		
Physical Tests	(QCLot: 1114234)							r.			
	RM	Atterberg liquid limit [LL] (moisture)		E199	33.68 %	100	0.08	120			
	RM	Atterberg plastic limit [PL] (moisture)	*****	E199	20 %	105	80.0	120			
Physical Tests	(QCLot: 1114276)								¥		
	RM	pH (1:2 soil:water)	*******	E108	8.13 pH units	100	96.0	104	num v		
Anions and Nu	utrients (QCLot: 111558)										
	RM	Nitrogen, total	7727-37-9	E366	0.11 %	90.5	80.0	120	****		
Plant Available	e Nutrients (QCLot: 111	4259)						i	T.		
	RM	Nitrate + Nitrite, available (as N)		E269,N+N	11.3 mg/kg	106	70.0	130			
Plant Available	e Nutrients (QCLot: 111	4260)						4			
	RM	Nitrite, available (as N)	14797-65-0	E269.NO2	0.1 mg/kg	21.3	0	570			
Plant Available	Nutrients (QCLot: 111	4301)									
	RM	Nitrate + Nitrite, available (as N)		E269A.N+N	11.1 mg/kg	109	70.0	130			
Plant Available	e Nutrients (QCLot: 111	4302)						4	6		
	RM	Ammonium, available (as N)	14798-03-9	E312A	70.1 mg/kg	106	0.08	120			
Plant Available	e Nutrients (QCLot: 111	4306)									
	RM	Phosphate, available (as P)	14265-44-2	E385	15.3 mg/kg	104	80.0	120			
Metals (QCLot	: 1114682)										
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	110	70.0	130	****		
Metals (QCLot	t: 1114683)					Tall Hall		a1	14		
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	111	70.0	130			
	RM	Chromium	7440-47-3	E440	101 mg/kg	103	70.0	130			
1	RM	Copper	7440-50-8	E440	123 mg/kg	114	70.0	130			
	RM	Lead	7439-92-1	E440	267 mg/kg	105	70.0	130			
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	103	70.0	130			
	RM	Phosphorus	7723-14-0	E440	752 mg/kg	105	70.0	130	********		
	RM	Potassium	7440-09-7	E440 *	1587 mg/kg	107	70.0	130			
	RM	Zinc	7440-66-6	E440	297 mg/kg	104	70.0	130			

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Work Order:

WP2321296 Amendment 1

Client

City of Portage la Prairie

Project

Wastewater



Chain of Custody (COC) allytical Request Form

COC Number: 22 -

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Environmental Division Winnipeg Work Order Reference

Canada Toll Free: 1 800 668 9878

(ALS)	www.alsglobal.com														1	,	W	P2;	32	120	16		1
Report To	Contact and company name below will app	ear on the final report	T · · · · ·	Reports /	Recipients			-	Tu	marou	nd Tit	ne (T/	AT) Re	quest	ad						,0		
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Contact:	Aaron Stecheson		Merge QC/QCI	Reports with COA	YES N	O N/A	ľ					^	OUT AIR	h sund	arç				5 8	Ş	11	3	AE.
Phone:	1-204-239-8361		Compare Resul	ltsto Criteria on Repor	t - provide details bel	ow if box checked	ļ'								,		Ш			9 11	1	V	1
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City/Province:	Portage La Prairie		Email 2	astechesen@city	y-plap.com			سس				/	/		1	i elepi	ione :	+ 1 204 2	:55 972()		ĺ	
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Contact:			Email 2] 🖳 [-										쯭	Š
	Project Information		A	and Gas Require	7100	use) y	CONTAINER					2		NO2								REQUIRED	(see notes)
ALS Account #	# / Quote #: GMPP100 / WP20	22GMPP1000002	AFE/Cast Center.		PO#	W23017	15				1	E269A.N+N		0 d	- 1		- 1		-1			2	5
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ALS Lab Wor	k Order # (ALS use only):		ALS Contact:	×	Sampler:		NUMBER					EC269A.NO3,		EC269 NO3, EZ	X	PREP-DRY/GRIND-SK					<u>က</u>	EXTENDED	SUSPECTED HAZARD
ALS Sample #	Sample Identification	and/or Coordinates	-	Date	Time	Sample Type	1₹	_e	0	و ا	10	E312A,	12	269	MOIST-SK	2	g			10.3	SAMPLE	里	100
(ALS use only)	(This description will a	ppear on the report)		(dd-mmm-yy)	(hh:mm)	Sample Type	Įź	E108	E510	E440	E385	E 3	E365		8	g	E199				S	ă	S
14	23-08-47			29-Aug-23	12:00	Soil	2	P4	P4	P4	P4				P4	P4							
	23-08-48			29-Aug-23	12:00	Soil	2					P4	P4	P4	P4	P4							
	23-08-49			29-Aug-23	12:00	Soil	3									P4	P4						Г
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Drinking	g Water (DW) Samples¹ (client use)	Hotes / Opcon		xcel COC only)	and thom crop as		Cool	ing Me	:borte		NONE		tce		CE PAC	KS [FRO	ZEN		COOLING	INITE	ATED	
Are samples tal	ken from a Regulated DW System?					(a)	Subr	nissic	'ı Con	nment	s iden	tified	on Sa	mple	Rece	ipt No	tificati	on:	YES		NO		
	YES NO			1			Corl	er Cu					YE		N/A	Sam		stody S			YES		N/A
Are samples for	r human consumption/ use?			A	The second secon	ĮS.	F(-			COOLE	RTEN	PERA	TURES	°C			F	INAL COC	LER TE	MPERAT	URES	č	_
	YES NO				8],/-	1	3	5.3													
	SHIPMENT RELEASE (client use			INITIAL SHIPMEN	NT RECEPTION	(ALS use raiyi)	T=		-			F	INAL	SHIP			EPTIC	ON (ALS	use o	nly)			1
Release v:	Araron Stechesen Date:	29-Aug-23 Time:		SB AU	8 5.8 SM	4	Time	7	Rec	eived	DY:		-)		Date	e:					Time	10	
REFER TO ME	MPAGE FOR ALS LOCATIONS AND SAMPLIN	IG INFORMATION			HITE - LABORATO		LLOW -							==		$\overline{}$					30		
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1. If any water samples are taken from aRegulated Drinking Water (DW). Systemplease submit using an Authorized DW COC form

Delta Ag Services City of Portage MacDonald NE 1-13 -07



McDonald NE 1-13-07 - 144.9 Ac Portage Soils-Clip - 144.9 Ac

Clay Test Sites; 1,2&3 Had no detectable water table at the 1.5 M depth

Delta Ag

	2023 Bio-Solid App	lication Re	cording Shee	t				
	•		Reference San	nple Soil Mater		RM 1646a/SRM2	709	
			See Appendix	Section for Infe	ormation			
	Name of Land Own	ner	D. McDonald					
-	Legal Description Land Owner Author	rization	NE 4-13-6 Yes					
	Dist. >300m from r							
	Map Enclosed Year Field previou	slv Used	Yes					
		Lat				Long		
_		Date	Date	Date	Date	Date	Date	
		BST 20/09/2023	BST 20/09/2023 lbs/ac	LRAR 20/09/2023	LRAR 20/09/2023 lbs/ac	Date	Date	Comments
	Cadmium	0.690		0.690				
	Calcium							
Ī	Chromium	30.40		30.40				1
00	Copper	24.8		24.8				
Field Soil Analaysis malka	Lead	13.0		13.0				
2	Mercury	0.0315		0.0315				
5	Nickel	32.4		32.4				
3	pH	7.64		7.64				
2	Phosphorus < 60 ug/g	1070		1070				
	Potassium	3700		3700				+
3	60cm<100kg/ha	4.7		4.7				
	Zinc	114		114				
		678			-			
	Ammonia Nitrogen	0.00264		154				
	Cadmium	0.180		0.000427				1
	Chromium	5620	 	0.00773				-
	Conductivity	1.71	ļ	3420		 		
	Copper	0.0797	1	0.0219				-
Rio-Solide Analysis	Lead		 	0.00248		-	-	-
2	Mercury	0.0000250	ļ	0.0000250				
0 D	Nickel	0.207	<u> </u>	0.0203				
	Nitrate Nitrogen	0.400	-	0.400				-
	Organic Nitrogen	432	-	34.2				
ma/ka	рН	7.17	-	7.32				
1	Potassium	262	ļ	246				
	Total Nitrogen	1110		187				
	Total Phosphorus	173		33.8				
	Total Solids	19200		7700				
	Volatile Solids	11500		194				
	Zinc	1.33		0.119				
	Cadmium < 2.88	1.242	1.108	1.242	1.108			
	Chromium < 216	54.721	48.82	54.722	48.82			
1	Copper < 90	44.647	39.83	44.657	39.84			
-	Lead < 90	23.400	20.88	23.401	20.88			
Cummulative Deculte	Mercury < 0.9	0.057	0.05	0.057	0.05			
	Nickel < 90	58.321	52.03	58.322	52.03			
O/Her	Nutrient Appl. Rate PA N<100/kg	106.520	95.04	33.097	20.52			69.8085 field average
Ka/Hectare	Solids <10	3.881	3.46	10.030	29.53 8.95	 		
	Zinc < 270	205.200	183.08	205.200	183.08			6.9555 field average
	Phosphorus	1926.671	1718.94	1927.735		1		
_	Comments	1920.071	1710.84	1821.135	1719.89			

DARREN MODONALD 2093 FIELD J

NOT FARMED. SEPT A BST SEPT 18 SEPT 18 289,132 GALLINS LRAR BST 28. 34 ALRES. 207.7016AL 966,117 GAL 13.7 AURES SEM 90 34.8 ACRES 1361,367 GALLONS. Ja i ACRES. BST SEPT 19 LRAR LRAR 915, 168 GAL 7-9 ACRES 11.25 ACRES 130,473 GALLONS . 1

NW H-13-6 phosphorus in metals

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : WP2321890 Page : 1 of 4

Amendment : 1

Client : City of Portage la Prairie Laboratory : ALS Environmental - Winnipeg

Contact : Aaron Stechesen Account Manager : Judy Dalmaijer

: 97 Saskatchewan Avenue East Address : 1329 Niakwa Road East, Unit 12

Portage la Prairie MB Canada R1N 0L8 Winnipeg MB Canada R2J 3T4

 Telephone
 : 204 239 8361
 Telephone
 : +1 204 255 9720

 Project
 : Wastewater
 Date Samples Received
 : 01-Sep-2023 11:50

 Project
 : Wastewater
 Date Samples Received
 : 01-Sep-2023 11:50

 PO
 : W23017
 Date Analysis Commenced
 : 05-Sep-2023

C-O-C number : ---- Issue Date : 15-Sep-2023 16:26

Sampler ---

Site : Wastewater
Quote number : Wastewater

No. of samples received : 3
No. of samples analysed : 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

Address

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Colby Bingham	Laboratory Supervisor	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Laboratory Supervisor	Sask Soils, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Maria Painchaud	Laboratory Assistant	Inorganics, Saskatoon, Saskatchewan
Maria Painchaud	Laboratory Assistant	Sask Soils, Saskatoon, Saskatchewan
Nancy Cruse	Laboratory Assistant	Sask Soils, Saskatoon, Saskatchewan
Neha Kamran		Organics, Winnipeg, Manitoba
Niral Patel		Centralized Prep, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario

Page Client 2 of 4

Work Order

WP2321890 Amendment 1 City of Portage la Prairie

Project

Wastewater



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key:

CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	Description
%	percent
°C	degrees celsius
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (15-Sep-23): This report has been amended and re-released to allow the reporting of additional analytical data.

Work Order Client

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Project



Analytical Results

Sub-Matrix: Soil/Solid			CI	ient sample ID	23-08-50	23-08-51	23-08-52		****
(Matrix: Soil/Solid)									
			Client samp	ling date / time	31-Aug-2023 10:15	31-Aug-2023 10:15	31-Aug-2023 10:15	Ministra	W. A. P.
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2321890-001	WP2321890-002	WP2321890-003	-	*******
					Result	Result	Result		
Sample Preparation									
Temperature, oven	****	EPP441/SK	1	°C	ANNO TABLES	<38		****	MINISTER SALES
Physical Tests			7			EBLY		19	
Atterberg plastic limit [PL] (moisture)		E199/SK	1.0	%	Ar links to	*****	25.6	****	WE SH 997-99
Moisture		E144/WP	0.25	%		20.1			
Moisture		E144/WT	0.25	%	17.3				
pH (1:2 soil:water)		E108/SK	0.10	pH units	7.64		B 100000	*********	MICROST CA.
Atterberg liquid limit [LL] (moisture)	•	E199/SK	1.0	%		****	40.0		total de
Atterberg plasticity index [PI]	******	E199/SK	1.0	%	and administ the		14.3		ME SNIFF-AA
Anions and Nutrients									
Nitrogen, total	7727-37-9	E366/SK	200	mg/kg	Market Co.	1680			801 FRE FRE - GA
Plant Available Nutrients									
Ammonium, available (as N)	14798-03-9	E312A/SK	1.0	mg/kg	Water to	4.0		40.00 60.00	Barton Sa.
Nitrate + Nitrite, available (as N)		E269.N+N/SK	1.0	mg/kg	P#44	8.5	PER PER PER PER		
Nitrate + Nitrite, available (as N)		E269A.N+N/S	2.0	mg/kg	Sale Sile Nor-All.	4.7	No ma secon		PE 1912 09-09-
N		K							
Nitrate, available (as N)	14797-55-8	EC269.NO3/S	2.0	mg/kg	20 8040 HB	8.5	*****	B11 10 10 10	NO TOWNS MIC
Nitrite, available (as N)	14797-65-0	E269.NO2/SK	0.40	mg/kg	www	<0.40			44.444.44
Nitrogen, total available		EC269A.N/SK	2.2	mg/kg		8.7			
Phosphate, available (as P)	14265-44-2		1.0	mg/kg	17.9		*****		40044444
Nitrate, available (as N)		EC269A.NO3/	2.0	mg/kg		4.7			*******
,,	17797-00-0	SK	1 2.0	9/109		7.1			
Metals	St. Contract	- Indiana		-158 M		Material I		'	
Cadmium	7440-43-9	E440/WT	0.020	mg/kg	0.690		and the same of th		****
Chromium	7440-47-3	E440/WT	0.50	mg/kg	30.4		21 30000	****	
Copper	7440-50-8	E440/WT	0.50	mg/kg	24.8		MA AT ROOM		
Lead	7439-92-1	E440/WT	0.50	mg/kg	13.0				armar er
Mercury	7439-97-6	E510/WT	0.0050	mg/kg	0.0315			*****	MANAGE
Nickel	7440-02-0	E440/WT	0.50	mg/kg	32.4			eres mon	207 107 mil 344
Phosphorus	7723-14-0		50	mg/kg	1070				M 100 400 100

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Client

City of Portage la Prairie

Project

Wastewater

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Analytical Results

Sub-Matrix: Soil/Solid			Cli	ient sample ID	23-08-50	23-08-51	23-08-52	No tel dio An	
(Matrix: Soil/Solid)									
			Client samp	ling date / time	31-Aug-2023 10:15	31-Aug-2023 10:15	31-Aug-2023 10:15		
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2321890-001	WP2321890-002	WP2321890-003	AN TO THE MODEL AND ANY AND	**************************************
					Result	Result	Result		
Metals									
Potassium	7440-09-7 E	440/WT	100	mg/kg	3700	brownin	we ard solding		
Zinc	7440-66-6	440/WT	2.0	mg/kg	114	Attrake to	****		

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : WP2321890 Page : 1 of 8

Amendment :

Client : City of Portage la Prairie Laboratory : ALS Environmental - Winnipeg

Contact : Aaron Stechesen Account Manager : Judy Dalmaijer

Address : 97 Saskatchewan Avenue East Address : 1329 Niakwa Road East, Unit 12

Portage la Prairie MB Canada R1N 0L8 Winnipeg, Manitoba Canada R2J 3T4

 Telephone
 : 204 239 8361
 Telephone
 : +1 204 255 9720

 Project
 : Wastewater
 Date Samples Received
 : 01-Sep-2023 11:50

PO : W23017 | Issue Date : 15-Sep-2023 16:37

C-O-C number :----

Sampler :--Site :Wastewater

No. of samples received :3
No. of samples analysed :3

:Wastewater

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Quote number

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers: Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

• No Reference Material (RM) Sample outliers occur.

Ouglers: Analysis Holding Time Compliance (Breaches)

• Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

• No Quality Control Sample Frequency Outliers occur.

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Work Order Client WP2321890 Amendment 1 City of Portage la Prairie

Project

Wastewater



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

nalyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)	1		Preparation	Holding Times		Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual		1	Rec	Actual	
nions and Nutrients : Total Nitrogen by Combustion				-	74.					
DPE bag										
23-08-51	E366	31-Aug-2023	08-Sep-2023	28	8 days	1	08-Sep-2023	28 days	8 days	1
				days						
etals : Mercury in Soil/Solid by CVAAS										
DPE bag										
23-08-50	E510	31-Aug-2023	07-Sep-2023	28	7 days	1	07-Sep-2023	28 days	7 days	1
				days						
etals : Metals in Soil/Solid by CRC ICPMS										
DPE bag										
23-08-50	E440	31-Aug-2023	07-Sep-2023	180	7 days	✓	07-Sep-2023	180	7 days	1
				days				days		
nysical Tests : Atterberg Limits										
DPE bag										
23-08-52	E199	31-Aug-2023					07-Sep-2023	180	7 days	1
								days		
nysical Tests : Moisture Content by Gravimetry										
DPE bag	Λ.									
23-08-51	E144	31-Aug-2023			~~~		05-Sep-2023		5 days	
nysical Tests : Moisture Content by Gravimetry										
DPE bag	m									
23-08-50	E144	31-Aug-2023	****		4888		06-Sep-2023	****	6 days	
hysical Tests : pH by Meter (1:2 Soil:Water Extraction)		(10 15 S) (10 15 S)								
DPE bag	E400	24 Aug 2000	07.0 0000		7.4	,	07.00000	00.4	7.4	1
23-08-50	E108	31-Aug-2023	07-Sep-2023	30	7 days	1	07-Sep-2023	30 days	/ days	4

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Work Order

WP2321890 Amendment 1

Client Project

City of Portage la Prairie Wastewater ALS

Matrix: Soil/Solid Evaluation: × = Holding time exceedance; ✓ = Within Holding Time Extraction / Preparation Analysis Analyte Group Method Sampling Date Container / Client Sample ID(s) Preparation Holding Times Eval Analysis Date Holding Times Eval Rec Actual Rec Actual Date Plant Available Nutrients : Available Ammonium by Colourimetry (2N Potassium Chloride Ext.) LDPE bag 1 23-08-51 E312A 31-Aug-2023 08-Sep-2023 08-Sep-2023 0 days 0 days Plant Available Nutrients: Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride LDPE bag E269.N+N 31-Aug-2023 08-Sep-2023 08-Sep-2023 1 23-08-51 180 8 days 3 days 0 days days Plant Available Nutrients: Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride LDPE bag E269A.N+N 31-Aug-2023 08-Sep-2023 8 days 08-Sep-2023 3 days 0 days 23-08-51 180 days Plant Available Nutrients: Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.) LDPE bag E269.NO2 1 1 23-08-51 31-Aug-2023 08-Sep-2023 180 8 days 08-Sep-2023 3 days 0 days days Plant Available Nutrients: Available Phosphorus by Colourimetry (Olsen) LDPE bag E385 1 23-08-50 31-Aug-2023 07-Sep-2023 07-Sep-2023 0 days 0 days Sample Preparation : Dry and Grind in Soil/Solid <38°C LDPE bag EPP441 31-Aug-2023 06-Sep-2023 23-08-51 3 days 6 days JC EHT

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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Work Order

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Client Project

City of Portage la Prairie

Wastewater



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Quality Control Sample Type			C	ount		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
aboratory Duplicates (DUP)							
Atterberg Limits	E199	1122759	1	1 1	100.0	5.0	
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1124536	1	15	6.6	5.0	1
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1124680	1	11	9.0	5.0	1
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1124537	1	1	100.0	5.0	1
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1124681	1	9	11.1	5.0	1
Available Phosphorus by Colourimetry (Olsen)	E385	1122791	1	4	25.0	5.0	1
Mercury in Soil/Solid by CVAAS	E510	1121800	1	1	100.0	5.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1121801	1	1	100.0	5.0	1
Moisture Content by Gravimetry	E144	1118742	1	16	6.2	5.0	1
oH by Meter (1:2 Soil:Water Extraction)	E108	1122273	1	20	5.0	5.0	1
Total Nitrogen by Combustion	E366	1125282	1	16	6.2	5.0	1
aboratory Control Samples (LCS)			No.				
Atterberg Limits	E199	1122759	1 1	1	100.0	5.0	1
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1124536	2	15	13.3	10.0	1
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1124680	2	11	18.1	10.0	1
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1124537	2	1	200.0	10.0	1
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1124681	2	9	22.2	10.0	
Available Phosphorus by Colourimetry (Olsen)	E385	1122791	2	4	50.0	10,0	1
Mercury in Soil/Solid by CVAAS	E510	1121800	2	1	200.0	10.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1121801	2	1	200.0	10.0	
Moisture Content by Gravimetry	E144	1118742	1	16	6.2	5.0	
H by Meter (1:2 Soil:Water Extraction)	E108	1122273	2	20	10.0	10.0	
otal Nitrogen by Combustion	E366	1125282	2	16	12.5	10.0	1
Method Blanks (MB)							
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1124536	1 1	15	6.6	5.0	1
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1124680	1	11	9.0	5.0	
vailable Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1124537	1	1	100.0	5.0	1
vailable Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1124681	1	9	11.1	5,0	
vailable Phosphorus by Colourimetry (Olsen)	E385	1122791	1	4	25.0	5.0	1
Mercury in Soil/Solid by CVAAS	E510	1121800	1	1	100.0	5.0	1
fletals in Soil/Solid by CRC ICPMS	E440	1121801	1	1	100.0	5.0	1
Noisture Content by Gravimetry	E144	1118742	1	16	6.2	5.0	1
Total Nitrogen by Combustion	E366	1125282	1	16	6.2	5.0	1

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Work Order

WP2321890 Amendment 1

Client

City of Portage la Prairie

Project

Wastewater



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Dasurphons
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Saskatoon	Sail/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 °C) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Atterberg Limits	E199 ALS Environmental - Saskatoon	Soil/Solid	CSSS Ch. 58 (mod)	Atterberg Limits are measures of physical properties of fine grained soils. Liquid Limit (LL) is the water content where soil behaviour changes from plastic to liquid, and is determined by Casagrande cup. Plastic Limit (PL) is the water content where soil begins to exhibit plastic behaviour, and is measured as the moisture content of a 3 mm diameter thread of soil which begins to crumble when rolled. Plasticity Index (PI) is equal to LL - PL.
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite are analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2 - ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO2 B (mod)	Plant available nitrite is analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite is analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 2N potassium chloride, then shaken well and filtered prior to analysis.
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/Comm Soil Sci 19(6) (mod)	Plant available ammonium is analyzed by colourimetry on a soil sample extract that has been extracted using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Total Nitrogen by Combustion	E366 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 22.4	The sample is ignited in a combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.
Available Phosphorus by Colourimetry (Olsen)	E385 ALS Environmental - Saskatoon	Soil/Solid	Carter CSSS (2008) 8.3	Plant available phosphorus is extracted from air dried soil using a fixed ratio bicarbonate extraction. Phosphorus is determined by colorimetry.

Work Order

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Client

City of Portage la Prairie

Project

Wastewater



Analytical Methods	Method / Lab	Matrix	Method Reference	Mathod Descriptions
Metals in Soil/Solid by CRC ICPMS	E440	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI.
	ALS Environmental - Waterloo			Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Ti, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Available Nitrate by Difference (0.01M Calcium Chloride Ext.)	EC269.NO3 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Total Available Nitrogen (Calculation)	EC269A.N ALS Environmental - Saskatoon	Sail/Salid	Calculation	Total available nitrogen is calculated as the sum of NO2-N+NO3-N and NH3-N extracted from soil using 2N potassium chloride solution.
Available Nitrate by Difference (2N Potassium Chloride Ext.)	EC269A.NO3 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Saskatoon	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Fixed ratio 0.01M Calcium Chloride extraction for plant available nutrients	EP269 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture	Plant available nutrients (N&S) extracted using 0.01M calcium chloride, then shaken well and filtered prior to analysis.
2N Potassium Chloride extraction for available nutrients	EP269A ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2	A soil sample extract is generated by fixed ratio extraction using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Bicarbonate extraction for soil	EP385 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 8.2	Plant available phosphorus is extracted using fixed ratio sodium bicarbonate solution (Olsen method).

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Client

City of Portage la Prairie

Project

Wastewater



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440	Soll/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI. This method is intended to liberate metals that may be environmentally available.
	ALS Environmental - Waterloo			
Dry and Grind in Soil/Solid <38°C	EPP441	Soil/Solid	Soil Sampling and Methods of Analysis,	After removal of coarse fragments a portion of homogenized sample is set in a tray and dried at less than 38°C until dry. The sample is then particle size reduced with an
	ALS Environmental - Saskatoon		Carter 2008	automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.
Dry and Grind in Soil/Solid <60°C	EPP442	Soil/Solid	Soil Sampling and Methods of Analysis,	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is
	ALS Environmental - Saskatoon		Carter 2008	then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : WP2321890 Page : 1 of 7

Amendment :1

Client : City of Portage la Prairie Laboratory : ALS Environmental - Winnipeg

Contact : Aaron Stechesen : Judy Dalmaijer

Address :97 Saskatchewan Avenue East Address :1329 Niakwa Road East, Unit 12
Portage la Prairie MB Canada R1N 0L8 Winnipeg, Manitoba Canada R2J 3T4

Telephone : 1 204 255 9720

Project : Wastewater Date Samples Received : 01-Sep-2023 11:50

C-O-C number :— Issue Date : 15-Sep-2023 16:29
Sampler :— 204 239 8361

Site : Wastewater

Quote number ; Wastewater No. of samples received ; 3

No. of samples analysed ; 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives

- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Laboratory Department		Signatories
Saskatoon Inorganics, Saskatoon, Saskatchewan	Supervisor	Colby Bingham
Saskatoon Sask Soils, Saskatoon, Saskatchewan	Supervisor	Colby Bingham
Saskatoon Inorganics, Saskatoon, Saskatchewan	der - Inorganics	Hedy Lai
Saskatoon Sask Soils, Saskatoon, Saskatchewan	der - Inorganics	Hedy Lai
Saskatoon Inorganics, Saskatoon, Saskatchewan	Assistant	Maria Painchaud
Saskatoon Sask Soils, Saskatoon, Saskatchewan	Assistant	Maria Painchaud
Saskatoon Sask Soils, Saskatoon, Saskatchewan	Assistant	Nancy Cruse
Winnipeg Organics, Winnipeg, Manitoba		Neha Kamran
Waterloo Centralized Prep, Waterloo, Ontario		Niral Patel
Waterloo Metals, Waterloo, Ontario	- Inorganic	Walt Kippenhuck
Saskatoon Inorganics, Saskatoon, Saskatchewan Saskatoon Sask Soils, Saskatoon, Saskatchewan Saskatoon Sask Soils, Saskatoon, Saskatchewan Winnipeg Organics, Winnipeg, Manitoba Waterloo Centralized Prep, Waterloo, Ontario	Assistant Assistant Assistant	Maria Painchaud Maria Painchaud Nancy Cruse Neha Kamran Niral Patel

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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

ub-Matrix: Soil/Solid							Labora	ntory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
hysical Tests (QC	Lot: 1118742)										
VP2321855-001	Anonymous	Moisture		E144	0,25	%	8.05	8.52	5.66%	20%	
hysical Tests (QC	Lot: 1121802)										
WP2321890-001	23-08-50	Moisture	-	E144	0.25	%	17.3	18.1	4.79%	20%	
Physical Tests (QC	Lot: 1122273)	AND PERSONAL PROPERTY.	in the latest								
CG2312122-008	Anonymous	pH (1:2 soil:water)		E108	0.10	pH units	6.95	6.97	0.287%	10%	renderen sik
hysical Tests (QC	Lot: 1122759)		- W 7 9 14				184				
WP2321890-003	23-08-52	Atterberg liquid limit [LL] (moisture)		E199	1.0	%	40.0	39.8	0.494%	20%	
		Atterberg plastic limit [PL] (moisture)		E199	1.0	%	25.6	25.5	0.445%	20%	
Anions and Nutrien	ts (QC Lot: 1125282)				100000		i e				
TY2308696-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.020	%	1.32	1.32	0.553%	20%	
Plant Available Nuti	rients (QC Lot: 1122791		THE STATE OF	The state of the s							
NP2321659-001	Anonymous	Phosphate, available (as P)	14265-44-2	E385	5.0	mg/kg	52.8	54.2	2.74%	30%	
Plant Available Nuti	rients (QC Lot: 1124536								1		
WP2321890-002	23-08-51	Ammonium, available (as N)	14798-03-9	E312A	1.0	mg/kg	4.0	4.8	8.0	Diff <2x LOR	
Plant Available Nut	rients (QC Lot: 1124537					188					
WP2321890-002	23-08-51	Nitrate + Nitrite, available (as N)		E269A.N+N	2.0	mg/kg	4.7	4.4	0.3	Diff <2x LOR	
Plant Available Nut	rients (QC Lot: 1124680		The same			THE UNI	THE REAL PROPERTY.				
FC2302453-001	Anonymous	Nitrate + Nitrite, available (as N)	-	E269.N+N	1.0	mg/kg	<1.0	<1.0	0	Diff <2x LOR	
Plant Available Nut	rients (QC Lot: 1124681				005/201			_			
WP2321659-001	Anonymous	Nitrite, available (as N)	14797-65-0	E269.NO2	0.40	mg/kg	<0.40	0.49	0.09	Diff <2x LOR	
Metals (QC Lot: 11)	24800)			- PURSEAR PROPERTY.							
WP2321890-001	23-08-50	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0315	0.0339	7.22%	40%	
Metals (QC Lot: 11	21801)										
WP2321890-001	23-08-50	Cadmium	7440-43-9	E440	0.020	mg/kg	0.690	0.632	8.80%	30%	
		Chromium	7440-47-3	E440	0.50	mg/kg	30.4	28.3	7.13%	30%	
		Copper	7440-50-8	E440	0.50	mg/kg	24.8	23.3	6.30%	30%	
		Lead	7439-92-1	E440	0.50	mg/kg	13.0	12.0	8.32%	40%	
		Nickel	7440-02-0	E440	0.50	mg/kg	32.4	30.7	5.36%	30%	
		Phosphorus	7723-14-0	E440	50	mg/kg	1070	992	7.42%	30%	
		Potassium	7440-09-7	E440	100	mg/kg	3700	3360	9,64%	40%	

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Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report											
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier					
Metals (QC Lot: 1121801) - continued																
WP2321890-001	23-08-50	Zinc	7440-66-6	E440	2.0	mg/kg	114	107	6.69%	30%						

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

nalyte	CAS Number	Method	LOR	Unit	Result	Qualifier
hysical Tests (QCLot: 1118742)						
Moisture		E144	0.25	%	<0.25	40/09/478
hysical Tests (QCLot: 1121802)			MATERIAL STREET		,	
Moisture	NAME AND DESCRIPTION OF THE PROPERTY OF THE PR	E144	0.25	%	<0.25	ps 42 to - 44
nions and Nutrients (QCLot: 11252	82)	THE RESERVE TO SERVE THE PARTY OF THE PARTY	Market Street, and the same			
Nitrogen, total	7727-37-9	E366	0.02	%	<0.020	nor election risk
ant Available Nutrients (QCLot: 11	22791)					
Phosphate, available (as P)	14265-44-2	E385	1	mg/kg	<1.0	and resource was
ant Available Nutrients (QCLot: 11	24536)		ESTIMATE VALUE		1	
Ammonium, available (as N)	14798-03-9	E312A	1	mg/kg	<1.0	THE PARTY NAMED IN
lant Available Nutrients (QCLot: 11	24537)	TO SHARE THE STREET			1	
Nitrate + Nitrite, available (as N)	Minhbran.	E269A.N+N	2	mg/kg	<2.0	
ant Available Nutrients (QCLot: 11	24680)		AND DESCRIPTION OF THE PARTY OF		1	
Nitrate + Nitrite, available (as N)		E269.N+N	1	mg/kg	<1.0	
lant Available Nutrients (QCLot: 11	24681)					
Nitrite, available (as N)	14797-65-0	E269,NO2	0.4	mg/kg	<0.40	***
etals (QCLot: 1121800)					,	
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	*****
letals (QCLot: 1121801)			NEW YORK BUILDING		1	
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	Marrier
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	10.000p.cm
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	*****
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	*****
Phosphorus	7723-14-0	E440	50	mg/kg	<50	9/19-0110
Potassium	7440-09-7	E440	100	mg/kg	<100	****
Zinc	7440-66-6	E440	2	mg/kg	<2.0	

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Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Soil/Solid					Laboratory Cor	troi Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1118742)				A CHARLES	HE TO THE REAL PROPERTY OF THE PERSON OF THE			
Moisture	E144	0.25	%	50 %	101	90.0	110	2000 W.M
Physical Tests (QCLot: 1121802)			127 324					`
Moisture	E144	0.25	%	50 %	100	90.0	110	
Physical Tests (QCLot: 1122273)								•
oH (1:2 soil:water)	E108		pH units	7 pH units	100	97.0	103	Name
Anions and Nutrients (QCLot: 1125282)	7707.07.01.500							F
Vitrogen, total	7727-37-9 E366	0.02	%	22.37 %	99.3	90.0	110	
Plant Available Nutrients (QCLot: 1122791)	THE PERSON NAMED IN	THE RESERVE AND DESCRIPTION OF THE PERSON OF						
Phosphate, available (as P)	14265-44-2 E385	1	mg/kg	20 mg/kg	102	80.0	120	
Plant Available Nutrients (QCLot: 1124536)		DOM: NEW BOOK		A SIEWALL				1
Ammonium, available (as N)	14798-03-9 E312A	1	mg/kg	10 mg/kg	105	80.0	120	марилини
Plant Available Nutrients (QCLot: 1124537)	The second							
Nitrate + Nitrite, available (as N)	E269A.N+N	2	mg/kg	40 mg/kg	112	70.0	130	
Plant Available Nutrients (QCLot: 1124680)								
Nitrate + Nitrite, available (as N)	E269.N+N	1	mg/kg	40 mg/kg	96.6	70.0	130	
Plant Available Nutrients (QCLot: 1124681)								
litrite, available (as N)	14797-65-0 E269.NO2	0.4	mg/kg	20 mg/kg	104	70.0	130	**********
Metals (QCLot: 1121800)	7400 07 0 5740	0.005						1
Mercury	7439-97-6 E510	0.005	mg/kg	0.1 mg/kg	116	0.08	120	
Metals (QCLot: 1121801)	7440 42 0 5440	0.00				20.0	100	Y.
admium	7440-43-9 E440 7440-47-3 E440	0.02	mg/kg	10 mg/kg	102	80.0	120	
Chromium	7440-50-8 E440	0.5	mg/kg	25 mg/kg	99.8	0.08	120	
copper ead	7439-92-1 E440	0.5	mg/kg	25 mg/kg	98.7	80.0 80.0	120 120	
	7440-02-0 E440	0.5	mg/kg	50 mg/kg	102	80.0	120	
Nickel	7723-14-0 E440	50	mg/kg	50 mg/kg	98.2	80.0	120	
Phosphorus	7/23-14-0 E440 7440-09-7 E440	100	mg/kg	1000 mg/kg	101			
Potassium	1	100	mg/kg	5000 mg/kg	101	80.0	120	Metablase
Zinc	7440-66-6 E440	2	mg/kg	50 mg/kg	97.3	0.08	120	
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ALS

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Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:	-Matrix:					Referen			
					RM Target	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests	(QCLot: 1122273)			TOTAL STREET					0 000
	RM	pH (1:2 soil:water)		E108	8.13 pH units	98.5	96.0	104	N. 1980-10
Physical Tests	(QCLot: 1122759)								
	RM	Atterberg liquid limit [LL] (moisture)		E199	33.68 %	99.6	80.0	120	
	RM	Atterberg plastic limit [PL] (moisture)		E199	20 %	97.9	80.0	120	
Anions and Nu	trients (QCLot: 1125282								
	RM	Nitrogen, total	7727-37-9	E366	0.11 %	95.6	80.0	120	
lant Available	Nutrients (QCLot: 1122	2791)			ASID REPORTED				
	RM	Phosphate, available (as P)	14265-44-2	E385	15.3 mg/kg	106	0.08	120	
Plant Available	Nutrients (QCLot: 1124	1536)		THE RESERVE OF THE PERSON NAMED IN					
	RM	Ammonium, available (as N)	14798-03-9	E312A	70.1 mg/kg	108	80.0	120	
Plant Available	Nutrients (QCLot: 1124	(537)							
	RM	Nitrate + Nitrite, available (as N)		E269A.N+N	11.1 mg/kg	99.0	70.0	130	
Plant Available	Nutrients (QCLot: 1124	(680)	1 (1)	THE RESERVE					
	RM	Nitrate + Nitrite, available (as N)		E269.N+N	11.3 mg/kg	106	70.0	130	
Plant Available	Nutrients (QCLot: 1124	1681)							
	RM	Nitrite, available (as N)	14797-65-0	E269.NO2	0.1 mg/kg	153	0	570	107.000.00
Metals (QCLot:	: 1121800)								
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	126	70.0	130	
Metals (QCLot	: 1121801)	The second second second second							
(RM	Cadmium	7440-43-9	E440	0.91 mg/kg	101	70.0	130	
	RM	Chromium	7440-47-3	E440	101 mg/kg	102	70.0	130	
	RM	Copper	7440-50-8	E440	123 mg/kg	108	70.0	130	
	RM	Lead	7439-92-1	E440	267 mg/kg	101	70.0	130	Vesitiva
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	102	70.0	130	
	RM	Phosphorus	7723-14-0	E440	752 mg/kg	94.3	70.0	130	_
	RM	Potassium	7440-09-7	E440	1587 mg/kg	105	70.0	130	
	RM	Zinc	7440-66-6	E440	297 mg/kg	100	70.0	130	

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Wastewater



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 22 -

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Environmental Division
Winnipeg
Work Order Reference
WP2321890



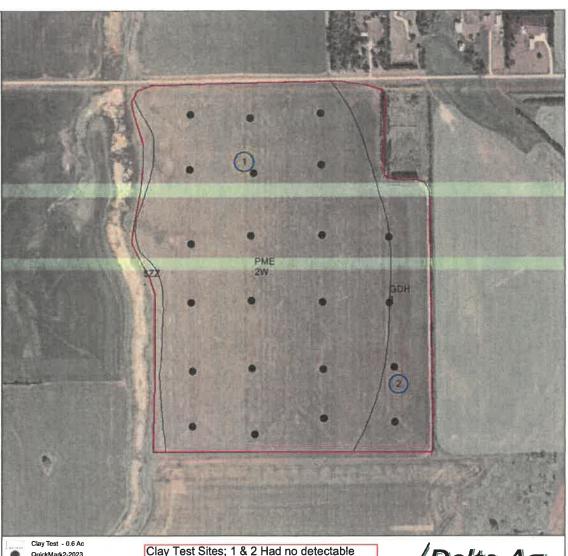
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WHITE - LABORATORY COPY YELLOW - CLIENT COPY
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from aRegulated Drinking Water (DW) Systemplease submit using an Authorized DW COC form

www.alsglobal.com

Delta Ag Services City of Portage MacDonald NW 4-13-6



Clay Test - 0.6 Ac
QuickMark2-2023
Boundary - 116.6 Ac
Portage Soils-Clip - 116.6 Ac

Clay Test Sites; 1 & 2 Had no detectable water table at the 1.5 M depth

/Delta Ag

LETTER OF AGREEMENT

Ms. Karly Friesen
Director of Utility
City of Portage la Prairie
97 Saskatchewan Ave. E.
Portage la Prairie, MB
R1N OL8



Dear Land Owner:

I hereby agree to permit the City of Portage la Prairie to apply wastewater treatment residual biosolids to the land, which I own as described below, on the understanding that:

- 1. The biosolids will be injected approximately 15 cm below the surface.
- 2. The biosolids will be injected to a maximum rate of 10 dry tonnes per hectare. (Maximum allowable over a 4-year period.)
- 3. Application will occur in the 2023 crop year, or as otherwise indicated.
- 4. Biosolids application will not be closer than 300 meters to a dwelling not belonging to the owner or lessee of the land on which biosolids are applied.
- 5. Biosolids will not be applied within 15 meters of a ditch draining less than one section and 30 meters from drains serving a larger watershed.
- All roadways, access roads, and ditches will be repaired to the original condition upon completion of the application program, to the satisfaction of the City, municipality and the landowner.
- 7. The City makes no warranties or representations as to the fertilizer content nor any soil conditioning effect of the biosolids.
- 8. The City will determine background levels of nutrients, heavy metals, pH, and clay depth prior to the application of biosolids. This information will be provided to the landowner.
- 9. The City will assess the biosolids quality prior to the application program and will monitor it throughout the program. Test results will be provided to the landowner.
- 10. Temporary halting of the application due to wet field conditions will occur upon mutual agreement between representatives of the City, contractor and landowner.
- 11. Biosolids may be injected at a maximum rate of addition of plant-available nitrogen of 100 kilograms per hectare.
- 12. The cumulative mass per hectare of each heavy metal in the soil does not exceed the respective value stipulated in the City's Environment Act License, and that not more than one-third of the initial maximum addition of each heavy metal will be applied in this year's program.
- 13. The City will restore the field to a condition similar that as found prior to the application program.

LETTER OF AGREEMENT

i, on my part, agree to:

- a) Plant a cereal, oilseed, forage, field pea, or lentil crop at the beginning of the next growing season. Only these listed crops will be grown for three growing seasons following biosolids application. A crop will not be grown that is a vegetable or a fruit and livestock will not be allowed to graze for three growing seasons after biosolids application on the land.
- b) Provide crop information to the City on an annual basis.
- c) Consider the soil and biosolids test results prior to applying nitrogen fertilizer in the growing season following biosolids application and restrict the addition of plant-available nitrogen to a maximum of 100 kg/ha, including that derived from the application of biosolids. Fertilizer, including that derived from biosolids, will be applied at the recommended agronomic rates.
- d) Release and discharge the City of Portage la Prairie of and from all claims, demands, actions or causes of actions which I have or may have as the result of the application of wastewater biosolids to my land.
- e) Provide the City with a letter of acceptance upon completion of the biosolids application indicating my acceptance of field conditions.
- f) Notify the lessee of the land (if applicable) of this agreement.

Als AN WATSON	KARLY FRIESEN				
Land Owner Name	City Representative Name				
Land Owner Signature	City Representative Signature				
14/3/23	14/3/2023				
Date	Date				

Land Location(s): 56 /6 /2 €

		2023	Bio-Solid App	plication Red	ording Shee	t			
						RM 1646a/SRM2	709		
			See Appendix	Section for Info	ormation				
	Name of Land Owner	Watson							
	Legal Description		SE 16-12-6						
	Land Owner Authorization		Yes						
	Dist. >300m from residences		Yes						
	Map Enclosed		Yes						
	Year Field previously Used		2017- Started f	ield in 2022, cor	npleted in 2023				
	GPS	Lat				Long			
		_							
		Date BST 18/10/2023	BST 18/10/2023	LRAR	Date LRAR 18/10/2023	Date	Date		
	Codesium		lbs/ac	18/10/2023	lbs/ac	-		Comments	
	Calcium	0.503	†	0.503		-		+	
2	Chromium	22.5	 	22.5			-	-	
	Chromium	19.2		19.2				+	
	Copper	10.0		10.0					
	Lead		1			 		1	
Field Seil Andlewsie malke	Mercury	0.0319	!	0.0319		-		+	
	Nickel	24.4	†	24,4					
5	pH Phoenhous < 60 up/s	7.58 755	-	7.58 755	-	-			
h	Phosphorus < 60 ug/g		 	-			_		
}	Potassium	2730		2730	-	<u> </u>	 		
	Soil Nitrate Nitrogen 0-60cm<100kg/ha	9.8		9.8	-	ļ			
_	Zinc	94.6		95.0					
	Ammonia Nitrogen	678		154		ļ			
	Cadmium	0.00264		0.000427					
	Chromium	0.180		0.00773					
	Conductivity	5620	-	3420	4				
	Copper	1.71		0.0219					
<u>.</u>	Lead	0.0797		0.00248					
2	Mercury	0.0000250		0.0000250					
9	Nickel	0.207		0.0203					
Bio-Solids Analysis mg/kg	Nitrate Nitrogen	0.400		0.400					
	Organic Nitrogen	432		34.2					
	рН	7.17		7.32					
3	Potassium	262		246					
Cummulative Results Kg/Hectare	Total Nitrogen	1110		187					
	Total Phosphorus	173		33.8					
	Total Solids	19200		7700					
	Volatile Solids	11500		194					
	Zinc	1.33		0.119					
	Cadmium < 2.88	0.905	0.807	0.905	0.807				
	Chromium < 216	40.501	36.13	40.502	36.14				
1	Copper < 90	34.568	30.84	34.577	30.85				
Š	Lead < 90	18.000	16.06	18.001	16.06				
	Mercury < 0.9	0.057	0.05	0.057	0.05				
₹ 5	Nickel < 90	43.921	39.19	43.922	39.19				
- A	Nutrient Appl. Rate PA-N<100/kg	101.55	90.60	32.57	29.06			67.06 Field Average	
i and	Solids <10	4.080	3.64	9.812	8.75			6.946 Field Average	
	Zinc < 270	170.280	151.92	170.280	151.92				
	Phosphorus	1359.706	1213.10	1360.697	1213.99				
	Comments								

ALLAN WATSON ASSINIBOINE INJECTIONS LTD

FAX: 204-248-2799 BOX 160 177 NOTRE DAME AVE NOTRE DAME, MB ROG 1M0 PH: 204-248-2559

DAILY SLUDGE APPLICATION PLAN DATE: FARMERS NAME: FIELD: SEC. ____TWP ____RGE ____ APPLICATION TYPE: INJECTION CM3: DEPTH: 6"____ HA: LRAR 3092 BST 3092 10 424 GAL OCTUBER 13 OCT 17, 2083 BST 153,026 GALLONG 9. MRES 293, 308 GAL /BST OSTUBER 19 13.08 AIRES. 29. - AIRES/OCT 16, 9093 159,853 GAL BST 16.3 ACRES \$16,310 caus 29 68 ACRES DE GOOD LRAR OET 16,93 IRAR 106:598 6.7 ALRES 93,151 GAL 7.76 Acces 81 TOO BST OCT 17 152 319 GALLONS 147 ACRES LRAR 211,451 GAL LRAR 8 13.46 ACRES BUFFER 11,777 YARD GALLONS. 7.0 ACRES

WUT501 E 16-12-6

ALS Canada Ltd.

Client



CERTIFICATE OF ANALYSIS

Work Order : WP2323097

City of Portage la Prairie

Contact : Aaron Stechesen

Address 97 Saskatchewan Avenue East

Portage la Prairie MB Canada R1N 0L8

Telephone : 204 239 8361

Project : Wastewater

PO : w23017

C-O-C number ; ----

Sampler : ---

Site : Wastewater
Quote number : Wastewater

No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 4

Laboratory : ALS Environmental - Winnipeg

Account Manager : Judy Dalmaijer

Address : 1329 Niakwa Road East, Unit 12

Winnipeg MB Canada R2J 3T4

Telephone : +1 204 255 9720

Date Samples Received : 13-Sep-2023 14:30

Date Analysis Commenced : 15-Sep-2023

Issue Date : 19-Sep-2023 12:00

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department	
Colby Bingham	Laboratory Supervisor	Sask Soils, Saskatoon, Saskatchewan	
Greg Pokocky	Manager - Inorganics	Centralized Prep, Waterloo, Ontario	
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario	
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan	
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan	
Jeremy Greuel	Laboratory Assistant	Inorganics, Saskatoon, Saskatchewan	
Maria Painchaud	Laboratory Assistant	Sask Soils, Saskatoon, Saskatchewan	
Milad Khani	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan	
Milad Khani	Laboratory Analyst	Sask Soils, Saskatoon, Saskatchewan	
Simrankaur Kaur		Organics, Winnipeg, Manitoba	

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Work Order

WP2323097

Client

City of Portage la Prairie

Project

Wastewater



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key:

CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	Description
%	percent
°C	degrees celsius
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Work Order

3 of 4 WP2323097

Client

City of Portage la Prairie Wastewater

Project



Analytical Results

Sub-Matrix: Soil/Solid			Cli	ent sample ID	23-09-43	23-09-44	23-09-45	1100114	An Variation
Matrix: Soil/Solid)									
			Client sampling date / time		13-Sep-2023 10:30	13-Sep-2023 10:30	13-Sep-2023 10:30		
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2323097-001	WP2323097-002	WP2323097-003	*******	Was about W W 60 M
					Result	Result	Result		
Sample Preparation									
Temperature, oven		EPP441/SK	1	°C		<38		*******	APPRIL 10
Physical Tests	Name and Address of the Owner, where the Person of the Owner, where the Person of the Owner, where the Owner,					- W W			
Atterberg plastic limit [PL] (moisture)	****	E199/SK	1.0	%			20.4	We the sales of	ANCHOL ANG ANG
Moisture		E144/WP	0.25	%	har benda. 44	19.2	*****	do the planted	Material Mirela
Moisture	warm	E144/WT	0.25	%	19.1			***	and the second
pH (1:2 soil:water)	***	E108/SK	0.10	pH units	7.58	n.una	#W##		
Atterberg liquid limit [LL] (moisture)		E199/SK	1.0	%			38.4	NATIONAL AND ADDRESS OF THE PARTY OF THE PAR	
Atterberg plasticity index [PI]	ad 40-A00M	E199/SK	1.0	%			18.0		
Anions and Nutrients		1 1 2 1 1 1 1							
Nitrogen, total	7727-37-9	E366/SK	200	mg/kg	****	1390	MILES MILES		
Plant Available Nutrients									
Ammonium, available (as N)	14798-03-9	E312A/SK	1.0	mg/kg		7.1		*****	80 M St. 40
Nitrate + Nitrite, available (as N)	an or sever	E269.N+N/SK	1.0	mg/kg	****	9.8	****		
Nitrate + Nitrite, available (as N)	****	E269A.N+N/S	2.0	mg/kg		9.8	*****	******	
		K							
Nitrate, available (as N)	14797-55-8	EC269.NO3/S	2.0	mg/kg		9.8		98 TO 100-101	**************************************
Nitrito available (as N)	44707.05.0	K E269.NO2/SK	0.40	malka		<0.40			
Nitrite, available (as N)				mg/kg				***************************************	
Phosphate, available (as P)	14265-44-2		1.0 2.0	mg/kg	24.0	9.8			
Nitrate, available (as N)		EC269A.NO3/ SK	2.0	mg/kg		9.0			S. S
Metals	The second second	OIL	ALC: UNKNOWN	1			1:		
Cadmium	7440-43-9	E440/WT	0.020	mg/kg	0.503		1	***************************************	MATE
Chromium	7440-47-3		0.50	mg/kg	22.5		No FESTAL OF	44 64-04-02	NC No. of No.
Copper	7440-50-8		0.50	mg/kg	19.2			****	
Lead	7439-92-1		0.50	mg/kg	10.0				****
Mercury	7439-97-6		0.0050	mg/kg	0.0319				зенеем
Nickel	7440-02-0		0.50	mg/kg	24.4				
Phosphorus	7723-14-0		50	mg/kg	755			-4	
Potassium	7440-09-7		100	mg/kg	2730				
- was well the same of the sam	1440-05-1	F	1	1aa	2,00	ļ	I I		

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Work Order

WP2323097

Client

City of Portage la Prairie

Project

Wastewater



Analytical Results

Sub-Matrix: Soil/Solid	Client sample ID					23-09-44	23-09-45		
(Matrix; Soil/Solid)									
			Client samp	ling date / time	13-Sep-2023 10:30	13-Sep-2023 10:30	13-Sep-2023 10:30	was-	Millerin
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2323097-001	WP2323097-002	WP2323097-003	********	***************************************
						Result	Result	present	20000
Metals									1
Zinc	7440-66-6 E4	7440-66-6 E440/WT		mg/kg	94.6				WATCH AND

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order :WP2323097

City of Portage la Prairie

: Aaron Stechesen

Contact Address

:97 Saskatchewan Avenue East

Portage la Prairie MB Canada R1N 0L8

Telephone :204 239 8361

Project : Wastewater PO : w23017

C-O-C number

Client

Sampler :----

Site :Wastewater

Quote number :Wastewater

:3

No. of samples received

No. of samples analysed :3

Page

Laboratory : ALS Environmental - Winnipeg

: 1 of 8

Account Manager : Judy Dalmaijer

Address : 1329 Niakwa Road East, Unit 12

Winnipeg, Manitoba Canada R2J 3T4

Telephone : +1 204 255 9720

Date Samples Received : 13-Sep-2023 14:30

Issue Date : 19-Sep-2023 12:00

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Kev

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

• No Analysis Holding Time Outliers exist.

outliers : Frequency of Quality Control Samples

No Quality Control Sample Frequency Outliers occur.

3 of 8

Work Order -

WP2323097

Client

City of Portage la Prairie

Project

Matrix: Soil/Solid

23-09-43

Wastewater



Evaluation: ≠ = Holding time exceedance; ✓ = Within Holding Time

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Extraction / Preparation Analysis Analyte Group Method Sampling Date Container / Client Sample ID(s) Preparation Holding Times Eval Analysis Date Holding Times Eval Rec Actual Rec Actual Date Anions and Nutrients: Total Nitrogen by Combustion LDPE bag 23-09-44 E366 13-Sep-2023 16-Sep-2023 3 days 16-Sep-2023 28 days 3 days 1 28 days Metals: Mercury in Soil/Solid by CVAAS LDPE bag 23-09-43 E510 13-Sep-2023 16-Sep-2023 3 days 18-Sep-2023 28 days 5 days 28 days Metals : Metals in Soil/Solid by CRC ICPMS LDPE bag 23-09-43 E440 13-Sep-2023 16-Sep-2023 1 3 days 18-Sep-2023 180 180 5 days days days Physical Tests: Atterberg Limits LDPE bag 23-09-45 E199 13-Sep-2023 18-Sep-2023 180 5 days ---days Physical Tests: Moisture Content by Gravimetry LDPE bag 23-09-44 E144 13-Sep-2023 15-Sep-2023 2 days Physical Tests: Moisture Content by Gravimetry LDPE bag E144 13-Sep-2023 16-Sep-2023 3 days 23-09-43 Physical Tests: pH by Meter (1:2 Soil:Water Extraction) LDPE bag

13-Sep-2023

16-Sep-2023

30

days

3 days

1

18-Sep-2023

30 days

E108

1

5 days

Page Work Order

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Client

City of Portage la Prairie

Project

Wastewater



nalyte Group	Method	Sampling Date	Ext	traction / Pr	reparation		Analysis			
Container / Client Sample ID(s)			Preparation Holding Date Rec		g Times Eval		Analysis Date	Holding Times Rec Actual		Eval
lant Available Nutrients: Available Ammonium by Colourimetry (2N Pota	assium Chloride Ext.)									
LDPE bag 23-09-44	E312A	13-Sep-2023	18-Sep-2023				18-Sep-2023	0 days	0 days	4
lant Available Nutrients : Available Nitrate and Nitrite by Colourimetry (0	.01M Calcium Chloride			HE	hal-		1			
LDPE bag 23-09-44	E269.N+N	13-Sep-2023	18-Sep-2023	180 days	5 days	4	18-Sep-2023	3 days	0 days	1
lant Available Nutrients : Available Nitrate and Nitrite by Colourimetry (2	N Potassium Chloride								,	
LDPE bag 23-09-44	E269A.N+N	13-Sep-2023	18-Sep-2023	180 days	5 days	4	18-Sep-2023	3 days	0 days	1
lant Available Nutrients : Available Nitrite by Colourimetry (0.01M Calciu	m Chloride Ext.)									
LDPE bag 23-09-44	E269.NO2	13-Sep-2023	18-Sep-2023	180 days	5 days	✓	18-Sep-2023	3 days	0 days	1
Plant Available Nutrients : Available Phosphorus by Colourimetry (Olsen										
LDPE bag 23-09-43	E385	13-Sep-2023	18-Sep-2023				18-Sep-2023	0 days	0 days	1
ample Preparation : Dry and Grind in Soil/Solid <38°C		7826		0.8						
					1					

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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Work Order

WP2323097

Client

Project

City of Portage la Prairie Wastewater



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Quality Control Sample Type			C	ount		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)		the file of the last	a tone				
Atterberg Limits	E199	1139391	1	1	100.0	5.0	1
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1138119	1	14	7.1	5.0	1
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1138110	1	12	8.3	5.0	1
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1138120	1	2	50.0	5.0	1
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1138111	1	11	9.0	5.0	1
Available Phosphorus by Colourimetry (Olsen)	E385	1138122	1	12	8.3	5.0	1
Mercury in Soil/Solid by CVAAS	E510	1136709	1	1	100.0	5.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1136710	111	2	50.0	5.0	1
Moisture Content by Gravimetry	E144	1136230	1	8	12.5	5.0	1
pH by Meter (1:2 Soil:Water Extraction)	E108	1137819	1	20	5.0	5.0	1
Total Nitrogen by Combustion	E366	1138202	1	11	9.0	5.0	1
Laboratory Control Samples (LCS)			THE REAL PROPERTY.				
Atterberg Limits	E199	1139391	1	1	100.0	5.0	1
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1138119	2	14	14.2	10.0	1
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1138110	2	12	16.6	10.0	1
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1138120	2	2	100.0	10.0	1
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1138111	2	11	18.1	10.0	1
Available Phosphorus by Colourimetry (Olsen)	E385	1138122	2	12	16.6	10.0	1
Mercury in Soil/Solid by CVAAS	E510	1136709	2	1	200.0	10.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1136710	2	2	100.0	10.0	1
Moisture Content by Gravimetry	E144	1136230	1	8	12.5	5.0	1
pH by Meter (1:2 Soil:Water Extraction)	E108	1137819	2	20	10.0	10.0	1
Total Nitrogen by Combustion	E366	1138202	2	11	18.1	10.0	1
Method Blanks (MB)					200	-24	101
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A	1138119	1	14	7.1	5.0	/
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	1138110	1	12	8.3	5.0	1
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N	1138120	1	2	50.0	5.0	1
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	1138111	1	11	9.0	5.0	1
Available Phosphorus by Colourimetry (Olsen)	E385	1138122	1	12	8.3	5.0	1
Mercury in Soil/Solid by CVAAS	E510	1136709	1	1	100.0	5.0	1
Metals in Soil/Solid by CRC ICPMS	E440	1136710	1	2	50.0	5.0	
Moisture Content by Gravimetry	E144	1136230	1	8	12.5	5.0	1
Total Nitrogen by Combustion	E366	1138202	1	11	9.0	5.0	1

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Work Order :

WP2323097

Client Project City of Portage la Prairie Wastewater



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Saskatoon	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally $20\pm5^{\circ}\text{C}$), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 °C) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Atterberg Limits	E199 ALS Environmental - Saskatoon	Sail/Salid	CSSS Ch. 58 (mod)	Atterberg Limits are measures of physical properties of fine grained soils. Liquid Limit (LL) is the water content where soil behaviour changes from plastic to liquid, and is determined by Casagrande cup. Plastic Limit (PL) is the water content where soil begins to exhibit plastic behaviour, and is measured as the moisture content of a 3 mm diameter thread of soil which begins to crumble when rolled. Plasticity Index (PI) is equal to LL - PL.
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite are analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2 ALS Environmental - Saskatoon	Sail/Salid	Alberta Agriculture/APHA 4500-NO2 B (mod)	Plant available nitrite is analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrate and Nitrite by Colourimetry (2N Potassium Chloride Ext.)	E269A.N+N ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite is analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 2N potassium chloride, then shaken well and filtered prior to analysis.
Available Ammonium by Colourimetry (2N Potassium Chloride Ext.)	E312A ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/Comm Soil Sci 19(6) (mod)	Plant available ammonium is analyzed by colourimetry on a soil sample extract that has been extracted using 2N Potassium Chloride, then shaken well and filtered prior to analysis.
Total Nitrogen by Combustion	E366 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 22.4	The sample is ignited in a combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.
Available Phosphorus by Colourimetry (Olsen)	E385 ALS Environmental - Saskatoon	Soil/Solid	Carter CSSS (2008) 8.3	Plant available phosphorus is extracted from air dried soil using a fixed ratio bicarbonate extraction. Phosphorus is determined by colorimetry.

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI. Dependent on sample matrix, some metals may be only partially recovered, including AI,
				Ba, Be, Cr, Sr, Ti, Ti, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI, followed by CVAAS analysis.
Available Nitrate by Difference (0.01M Calcium Chloride Ext.)	EC269.NO3 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrate by Difference (2N Potassium Chloride Ext.)	EC269A.NO3 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 2N Potassium Chloride, then shaker well and filtered prior to analysis.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Dead vens
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Saskatoon	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Fixed ratio 0.01M Calcium Chloride extraction for plant available nutrients	EP269 ALS Environmental - Saskatoon	Soil/Solid	Alberta Agriculture	Plant available nutrients (N&S) extracted using 0.01M calcium chloride, then shaken well and filtered prior to analysis.
2N Potassium Chloride extraction for available nutrients	EP269A ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 6.2	A soil sample extract is generated by fixed ratio extraction using 2N Potassium Chloride then shaken well and filtered prior to analysis.
Bicarbonate extraction for soil	EP385 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 8.2	Plant available phosphorus is extracted using fixed ratio sodium bicarbonate solution (Olsen method).
Digestion for Metals and Mercury	EP440 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCI This method is intended to liberate metals that may be environmentally available.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dry and Grind in Soil/Solid <38°C	EPP441	Soit/Solid	Soil Sampling and	After removal of coarse fragments a portion of homogenized sample is set in a tray and
			Methods of Analysis,	dried at less than 38°C until dry. The sample is then particle size reduced with an
	ALS Environmental -		Carter 2008	automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may
	Saskatoon			be needed for particular tests.
Dry and Grind in Soil/Solid <60°C	EPP442	Soil/Solid	Soil Sampling and	After removal of any coarse fragments and reservation of wet subsamples a portion of
			Methods of Analysis,	homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is
	ALS Environmental -	ľ	Carter 2008	then particle size reduced with an automated crusher or mortar and pestle, typically to
	Saskatoon			<2 mm. Further size reduction may be needed for particular tests.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : WP2323097

; City of Portage la Prairie

Contact : Aaron Stechesen

Address : 97 Saskatchewan Avenue East

Portage la Prairie MB Canada R1N 0L8

Telephone

Client

Project : Wastewater
PO : w23017

C-O-C number :-

Sampler :-- 204 239 8361

Site : Wastewater
Quote number : Wastewater

No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 7

Laboratory : ALS Environmental - Winnipeg

Account Manager : Judy Dalmaijer

Address : 1329 Niakwa Road East, Unit 12

Winnipeg, Manitoba Canada R2J 3T4

Telephone :+1 204 255 9720

Date Samples Received :13-Sep-2023 14:30

Date Analysis Commenced : 15-Sep-2023

Issue Date : 19-Sep-2023 12:02

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full. This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Position	Laboratory Department
Laboratory Supervisor	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Manager - Inorganics	Waterloo Centralized Prep, Waterloo, Ontario
Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Laboratory Assistant	Saskatoon Inorganics, Saskatoon, Saskatchewan
Laboratory Assistant	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Laboratory Analyst	Saskatoon Inorganics, Saskatoon, Saskatchewan
Laboratory Analyst	Saskatoon Sask Soils, Saskatoon, Saskatchewan
	Winnipeg Organics, Winnipeg, Manitoba
	Laboratory Supervisor Manager - Inorganics Manager - Inorganics Team Leader - Inorganics Team Leader - Inorganics Laboratory Assistant Laboratory Analyst

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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

b-Matrix: Soil/Solid						Laboratory Duplicate (DUP) Report							
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie		
hysical Tests (QC	C Lot: 1136230)												
VP2323024-001	Anonymous	Moisture	66-1806-ye	E144	0.25	%	22,2	23.3	4.79%	20%	******		
hysical Tests (Q0	C Lot: 1137819)					ELE.							
CG2312654-013	Anonymous	pH (1:2 soil:water)		E108	0.10	pH units	8.00	7.98	0.250%	10%			
Physical Tests (QC	C Lot: 1138008)						1121						
VA23C1475-006	Anonymous	Moisture		E144	0.25	%	8.53	9.59	11.7%	20%			
hysical Tests (Q0	C Lot: 1139391)												
WP2323097-003	23-09-45	Atterberg liquid limit [LL] (moisture)		E199	1.0	%	38.4	38.2	0.258%	20%			
		Atterberg plastic limit [PL] (moisture)		E199	1.0	%	20.4	20,4	0.197%	20%			
Anions and Nutrier	nts (QC Lot: 1138202)		-					1					
VA23C1307-003	Anonymous	Nitrogen, total	7727-37-9	E366	0.020	%	0.106	0.104	0.002	Diff <2x LOR			
Plant Available Nut	rients (QC Lot: 11381	10)						li.	-				
WP2322619-001	Anonymous	Nitrate + Nitrite, available (as N)		E269.N+N	2.5	mg/kg	<2.5	<2.5	2.5	Diff <2x LOR			
Plant Available Nut	trients (QC Lot: 11381	11)		The same of the same of									
WP2322619-001	Anonymous	Nitrite, available (as N)	14797-65-0	E269.NO2	1.00	mg/kg	<1.00	<1.00	1.00	Diff <2x LOR			
Plant Available Nut	trients (QC Lot: 11381	19)		The second second	Ten Mark		DEC.						
WP2323097-002	23-09-44	Ammonium, available (as N)	14798-03-9	E312A	1.0	mg/kg	7.1	7.7	0.6	Diff <2x LOR			
Plant Available Nu	trients (QC Lot: 11381	20)											
WP2323097-002	23-09-44	Nitrate + Nitrite, available (as N)		E269A.N+N	2.0	mg/kg	9.8	10.7	1.0	Diff <2x LOR			
Plant Available Nu	trients (QC Lot: 11381	22)			DEFENDENCE OF THE PERSON OF TH						I		
VA23C1652-001	Anonymous	Phosphate, available (as P)	14265-44-2	E385	1.0	mg/kg	6.0	6.0	0.005	Diff <2x LOR			
Wetals (QC Lot: 11	36709)			10000					-k				
WP2323097-001	23-09-43	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0319	0.0307	3.99%	40%			
Metals (QC Lot: 11	36710)	E CONTRACTOR DE LA CONT						-	-				
WP2323097-001	23-09-43	Cadmium	7440-43-9	E440	0.020	mg/kg	0.503	0.486	3.44%	30%			
		Chromium	7440-47-3	E440	0.50	mg/kg	22.5	22.0	2.42%	30%			
		Copper	7440-50-8	E440	0.50	mg/kg	19.2	18.6	3.40%	30%			
		Lead	7439-92-1	E440	0.50	mg/kg	10.0	9.89	1.14%	40%			
		Nickel	7440-02-0	E440	0.50	mg/kg	24.4	23.8	2.85%	30%			
		Phosphorus	7723-14-0	E440	50	mg/kg	755	714	5.67%	30%			
		Potassium	7440-09-7	E440	100	mg/kg	2730	2670	2.27%	40%			

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Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 113	6710) - continued				1000	Marie					
WP2323097-001	23-09-43	Zinc	7440-66-6	E440	2.0	mg/kg	94.6	91.9	2.87%	30%	

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

nalyte	CAS Number	Method	LOR	Unit	Result	Qualifier
nysical Tests (QCLot: 1136230)		E LE			311	
Moisture	Servición del	E144	0.25	%	<0.25	403447300
ysical Tests (QCLot: 1138008)						
Moisture	ulipp-doub.	E144	0.25	%	<0.25	91-MAR-01
ions and Nutrients (QCLot: 113820	2)				,	
Nitrogen, total	7727-37-9	E366	0.02	%	<0.020	*****
int Available Nutrients (QCLot: 113	8110)	1 - 5 1 - 5 1	MATERIAL PROPERTY.		, , , , , , , , , , , , , , , , , , ,	
Nitrate + Nitrite, available (as N)		E269.N+N	1	mg/kg	<1.0	B-war w
ant Available Nutrients (QCLot: 113	8111)	i i i i i i i i i i i i i i i i i i i	THE WAR THE PARTY OF THE PARTY			
Nitrite, available (as N)	14797-65-0	E269.NO2	0.4	mg/kg	<0.40	
ant Available Nutrients (QCLot: 113	8119)				'	
Ammonium, available (as N)	14798-03-9	E312A	1	mg/kg	<1.0	of defenda
ant Available Nutrients (QCLot: 113	8120)	THE RESIDENCE OF THE SECOND SE			1	
Nitrate + Nitrite, available (as N)	useu	E269A.N+N	2	mg/kg	<2.0	100 Trial 107
ant Available Nutrients (QCLot: 113	8122)					
Phosphate, available (as P)	14265-44-2	E385	1	mg/kg	<1.0	
otals (QCLot: 1136709)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	Name of
etals (QCLot: 1136710)						
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	*****
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	on mayo pp
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	****
Phosphorus	7723-14-0	E440	50	mg/kg	<50	******
Potassium	7440-09-7	E440	100	mg/kg	<100	
Zinc	7440-66-6	E440	2	mg/kg	<2.0	

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Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

ub-Matrix: Soil/Solid						Laboratory Cont	troi Sample (LCS) F	leport	
					Spike	Recovery (%)	Recovery	imits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
hysical Tests (QCLot: 1136230)				REALS /S					
oisture	-	E144	0.25	%	50 %	100	90.0	110	
hysical Tests (QCLot: 1137819)	100	-			BY LESS BY				
H (1-2 soil; water)		E108		pH units	7 pH units	100	97.0	103	
hysical Tests (QCLot: 1138008)		-	-1-1-1-1			-1.			•
oisture	-	E144	0.25	%	50 %	99.6	90.0	110	
nions and Nutrients (QCLot: 1138202)			5 5 100		ENGLISH NA		,		•
itrogen, total	7727-37-9	E366	0.02	%	22.37 %	101	90.0	110	
lant Available Nutrients (QCLot: 1138110)			To Lawrence 1		WELLS I TO A				•
itrate + Nitrite, available (as N)		E269.N+N	1	mg/kg	40 mg/kg	102	70.0	130	
lant Available Nutrients (QCLot: 1138111)									1
trite, available (as N)	14797-65-0	E269.NO2	0.4	mg/kg	20 mg/kg	95.9	70.0	130	
lant Available Nutrients (QCLot: 1138119)				1000			1		ı
mmonium, available (as N)	14798-03-9	E312A	1	mg/kg	10 mg/kg	93.2	80.0	120	
New Available Nutrients (OCI at 4420420)							- 1		1
lant Available Nutrients (QCLot: 1138120)	7.00	E269A.N+N	2	mg/kg	40 mg/kg	114	70.0	130	
A Company of the Company of the Company of the Company							1		1
lant Available Nutrients (QCLot: 1138122)	14265-44-2	E385	1	mg/kg	20 mg/kg	105	80.0	120	
riospirate, available (as i)				mana	25 mg/kg	100	=	.25	
				WE					
letals (QCLot: 1136709) lercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	105	80.0	120	
	-								1
letals (QCLot: 1136710)	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	
hromium	7440-47-3		0.5	mg/kg	25 mg/kg	101	80.0	120	
opper	7440-50-8		0.5	mg/kg	25 mg/kg	99.4	80.0	120	
ead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	98.7	80.0	120	
ickel	7440-02-0		0.5	mg/kg	50 mg/kg	100	80.0	120	
Phosphorus	7723-14-0		50	mg/kg	1000 mg/kg	102	80.0	120	
otassium	7440-09-7		100	mg/kg	5000 mg/kg	102	80.0	120	
inc	7440-66-6		2	mg/kg	50 mg/kg	98.5	80.0	120	
,arc	7-7-0-00-0	[1	mgag	50 mg/kg	90.0	00.0	120	

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Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:						Reference Material (RM) Report						
					RM Target	Recovery (%)	Recovery	Limits (%)				
aboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier			
Physical Tests	(QCLot: 1137819)											
-	RM	pH (1:2 soil:water)	me no	E108	8.13 pH units	98.9	96.0	104				
Physical Tests	(QCLot: 1139391)							N.				
	RM	Atterberg liquid limit [LL] (moisture)		E199	33.68 %	97.3	80.0	120				
	RM	Atterberg plastic limit [PL] (moisture)		E199	20 %	98.8	80.0	120	4444			
Anions and Nu	trients (QCLot: 113820)											
	RM	Nitrogen, total	7727-37-9	E366	0.11 %	102	80.0	120				
Plant Available	Nutrients (QCLot: 113	3110)							8			
	RM	Nitrate + Nitrite, available (as N)		E269.N+N	11.3 mg/kg	97.7	70.0	130				
Plant Available	Nutrients (QCLot: 113	3111)							24			
	RM	Nitrite, available (as N)	14797-65-0	E269.NO2	0.1 mg/kg	23.0	0	570	to vistors			
Plant Available	Nutrients (QCLot: 113	8119)		X I STATE OF THE REAL PROPERTY OF THE PROPERTY OF THE REAL PROPERTY OF THE PROPERTY OF THE PR								
	RM	Ammonium, available (as N)	14798-03-9	E312A	70.1 mg/kg	102	0.08	120	******			
Plant Available	Nutrients (QCLot: 113	8120)						12)				
	RM	Nitrate + Nitrite, available (as N)	ar-dustrals	E269A.N+N	11.1 mg/kg	97.6	70.0	130	*****			
Plant Available	Nutrients (QCLot: 113	8122)										
	RM	Phosphate, available (as P)	14265-44-2	E385	15.3 mg/kg	117	0.08	120				
Metals (QCLot	: 1136709)											
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	112	70.0	130	****			
Metals (QCLot	: 1136710)							19	1			
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	113	70.0	130				
	RM	Chromium	7440-47-3	E440	101 mg/kg	107	70.0	130	****			
	RM	Copper	7440-50-8	E440	123 mg/kg	117	70.0	130				
	RM	Lead	7439-92-1	E440	267 mg/kg	104	70.0	130	****			
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	108	70.0	130	****			
	RM	Phosphorus	7723-14-0	E440	752 mg/kg	101	70.0	130				
	RM	Potassium	7440-09-7	E440	1587 mg/kg	100	70.0	130				
	RM	Zinc	7440-66-6	E440	297 mg/kg	107	70.0	130				

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City of Portage la Prairie

Project



Chain of Custody (COC) / Analytical Request Form



Canada Toll Free: 1 800 668 9878

COC Number: 22/

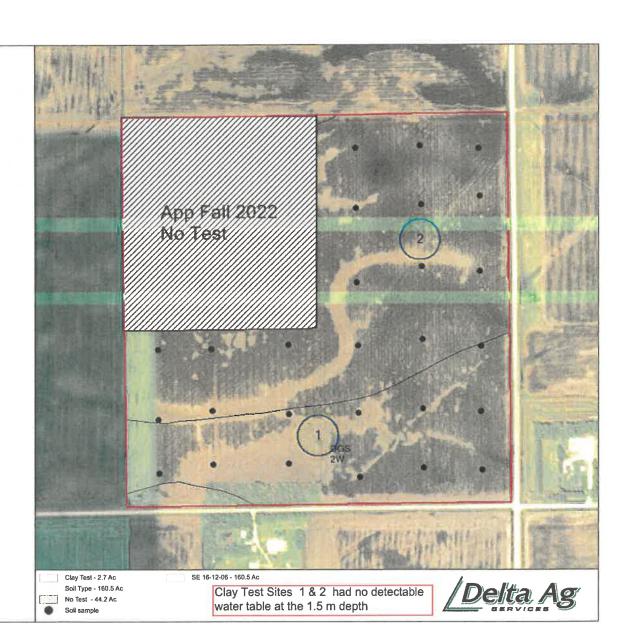
Environmental Division Winnipeg
Work Order Reference
WP2323097

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Report To	Contact and compan	y name below will appe	ar on the final report			Reports / R	ecipients				Tu	marou	nd Ti	ne (T/	AT) Re	que				0000002			ñ	F		
Company:	City of Portage La Prairi	9		_	-	rmat: 🔽 PDF [Taller State of	1000		outine (F										W	111		11	1		- 1
Contact:	Aaron Stecheson			Me	erge QC/QCI I	Reports with COA	YES NO	D. D. NA	- Topon	day (P4)	-	-				-	, ž.,		1.5	1		4 1	-	-, 30	HER	Ē
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Street:	97 Saskatchewan Aveni	re East		Em	nail 1 or Fax	astechesen@city	plap.com		☐ Sa	ame day	[Ē 2] i	f receiv	ed by 1	0am №	-5 - 20	00% ri				METERN	nee 1171	en.			_	
City/Province:	Portage La Prairie			Em	nail 2	astechesen@city	plap.com			A	ddition	al fees	may ap	ply to r	ush rec	uests	Te	elepho	ne:+	1 204	255 972	.0)_	
Postal Code:	R1N 0L8			Em	nail 3				. 3	Date an	d Turre	Requi	red for	AFER	PTATS						~,-,111	arun 8	mypm			
Invoice To	Same as Report To	✓ YES 🗌	NO			Invoice R	ecipients					For a	li tests	with rus	th TATs	reques	ted, ple	ise con	tact you	r AM to	confirm	ay ail abil	ity.			
	Copy of Invoice with Re	port TYES [NO	Se	lect Invoice Di	istribution: 🕡 EN	IAIL 🗌 MAIL 🛭	FAX							0.3(1)	Ana	alysis	Requ	est							
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ALS Account #	// Quote#:	GMPP100 / WP202	2GMPP1000002	AFE	E/Cost Center:		PO#	W23017] =	1				E269A.N+N		E269.NO2,		72		- 1	- 1		١.	. 13	2	S
Job #:				Maj	jor/Minor Code:		Routing Code:		ð	1			1	697		E36					- 1		15	3 8		2
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LSD:			7 7	Lo	cation:	22.41			12	1				NO.		E269.N+N,		Š			- 1		8	₹ }	STORAGE REQUIRED	Ì
ALS Lab Worl	k Order# (ALS use onl	у):	7 7	AL	_S Contact:		Sampler:		NUMBER					EC269A.NO3,			×	PREP-DRY/GRIND-SK							EXTENDED 8	SUSPECTED HAZARD (see notes)
ALS Sample #	Sam	ple Identification	and/or Coordinate			Date	Time		1 2	l		_			4	EC269.NO3,	MOIST-SK	Ö	_				19			E
(ALS use only)		is description will ap			# 1	(dd-mmm-yy)	(hh:mm)	Sample Type	13	E108	E510	E440	E385	E312A,	E366A	CZ	ğ	E SE	E199				-13	₹	X	3
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Drinking	Water (DW) Samples ¹	(client use)	Notes / Spe	ecify Lim		valuation by select	ing from drop-do	wn below							_	_				_	only)					
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	ken from a Regulated DW	System?							-	missio	_		_					<u> </u>	_				□ NK		-	
1	YES NO								Coc	oler Cu		Seals				s 🗌	N/A	Sam			Seals			YES		/A
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy. 1. If any water sampler haken from aRegulated Drinking Water (DW) Systemplease submit using anAuthorized DW COC form

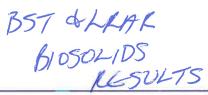
Delta Ag Services City of Portage Watson SE 16-12-6



ALS Canada Ltd.

Client

Contact





CERTIFICATE OF ANALYSIS

Work Order : WP2319027

: City of Portage la Prairie

: Aaron Stechesen

Address : 97 Saskatchewan Avenue East

Portage la Prairie MB Canada R1N 0L8

Telephone : 204 239 8361

Project ; Wastewater PO : W23017

C-O-C number ; --

Sampler : ---

Site : Wastewater
Quote number : Wastewater

No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 4

Laboratory : ALS Environmental - Winnipeg

Account Manager : Judy Dalmaijer

Address : 1329 Niakwa Road East, Unit 12

Winnipeg MB Canada R2J 3T4

Telephone : +1 204 255 9720

Date Samples Received : 11-Aug-2023 11:31

Date Analysis Commenced : 11-Aug-2023

Issue Date : 18-Aug-2023 13:35

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories Position Laboratory Department

Rhovee Guevarra

Rhovee Guevarra

Walt Kippenhuck

Supervisor - Inorganic

Inorganics, Winnipeg, Manitoba

Metals, Winnipeg, Manitoba

Inorganics, Waterloo, Ontario

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Work Order

WP2319027

Client

City of Portage la Prairie

Project

Wastewater

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key:

CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	Description
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Sample(s) -001 & 2: Sample Received Unpreserved. Results may be biased low for indicated parameter(s).

Sample Comments

Sample	Client Id	Comment
WP2319027-001	23-08-32	Sample(s) 001-002: Sample Received Unpreserved. Results may be biased low for indicated parameter(s).

Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference,
	colour, turbidity).

Work Order

3 of 4 WP2319027

Client

City of Portage la Prairie

Project



5 5 5 6 6 6 5 5 5 6 7 6 7 6 7 6 7 6 7 6		ā .	n.			. 4-0	4-		
Analytical Results					351	LAAR			
Sub-Matrix; Water			Cli	ent sample ID	23-08-32	23-08-33	23-08-34FE		THEA
(Matrix: Water)				_ '					
(WIGHTAL PROCEST)									
			Client sampl	ling date / time	11-Aug-2023	11-Aug-2023	11-Aug-2023		
					00:00	00:00	00:00		
Analyte	CAS Number	Method/Lab	LOR	Unit	WP2319027-001	WP2319027-002	WP2319027-003	INTERPRETATION CONTRACTOR AND	
					Result	Result	Result	re-magnin.	anne se
Physical Tests									
Conductivity		E100/WP	2.0	μS/cm	5620	3420			
рН		E108/WP	0.10	pH units	7.17	7.32			
Solids, fixed suspended [FSS]		E170/WP	3.0	mg/L	5320	220		****	WE HARD THE SERVICE AND THE SE
Solids, total [TS]		E157/WP	10	mg/L	19200	7700	81 M 100 M		
Solids, total suspended [TSS]		E160/WP	3.0	mg/L	16800	414			
Solids, volatile suspended [VSS]	******	EC167/WP	3.0	mg/L	11500	194	www.e	dt wi 20140	Milestream
Anions and Nutrients				(h) =4 (2)					
Ammonia, total (as N)	7664-41-7	E303/WP	0.010	mg/L	678	154			l
Kjeldahl nitrogen, total [TKN]		E319/WP	0.15	mg/L	1110	187			
Nitrate (as N)	14797-55-8	E235.NO3/WP	0.020	mg/L	<0.400 DLM	<0.400 DLM			
Nitrate + Nitrite (as N)		EC235.N+N/W	0.0050	mg/L	<0.447	<0.447			
		Р							
Nitrite (as N)	14797-65-0	E235.NO2/WP	0.010	mg/L	<0.200 DLM	<0.200 DLM			
Nitrogen, total organic		EC363/WP	0.050	mg/L	432	<34.2			
Phosphorus, total	7723-14-0	E372/WP	0.020	mg/L	173	33.8		*****	*****
Total Metals		Transfer of the same				E Hall			71
Cadmium, total	7440-43-9	E420/WP	0.0000050	mg/L	0.00264	0.000427		444	
Chromium, total	7440-47-3	E420/WP	0.00050	mg/L	0.180	0.00773	****		
Cobalt, total	7440-48-4	E420/WP	0.00010	mg/L	0.0380	0.00571		an an-morae	
Copper, total	7440-50-8	E420/WP	0.00050	mg/L	1.71	0.0219		***	
Lead, total	7439-92-1	E420/WP	0.000050	mg/L	0.0797	0.00248		****	
Mercury, total	7439-97-6	E508/WP	0.0000050	mg/L	<0.0000250 DLM	<0.0000250 DLM			
Nickel, total	7440-02-0	E420/WP	0.00050	mg/L	0.207	0.0203	*****		
Potassium, total	7440-09-7	E420/WP	0.050	mg/L	262	246	*****		
Zinc, total	7440-66-6	E420/WP	0.0030	mg/L	1.33	0.119	********	****	
Aggregate Organics	100		JARA E	THE REAL PROPERTY.					
Phenois, total (4AAP)		E562/WT	0.0010	mg/L		(P)	<0.0010	****	

Work Order

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Client

City of Portage la Prairie

Project

Wastewater



Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : WP2319027

City of Portage la Prairie

Contact : Aaron Stechesen

Address :97 Saskatchewan Avenue East

Portage la Prairie MB Canada R1N 0L8

Telephone :204 239 8361

Project : Wastewater
PO : W23017

C-O-C number :----

Sampler :---- :Wastewater

Quote number :Wastewater

No. of samples received :3
No. of samples analysed :3

Page : 1 of 11

Laboratory : ALS Environmental - Winnipeg

Account Manager : Judy Dalmaijer

Address : 1329 Niakwa Road East, Unit 12

Winnipeg, Manitoba Canada R2J 3T4

Telephone : +1 204 255 9720

Date Samples Received : 11-Aug-2023 11:31 issue Date : 18-Aug-2023 13:34

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Client

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers: Quality Control Samples

- No Method Blank value outliers occur.
- · No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

• No Reference Material (RM) Sample outliers occur.

G. Jers : Analysis Holding Time Compliance (Breaches)

• Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

• Quality Control Sample Frequency Outliers occur - please see following pages for full details.

3 of 11

Work Order

WP2319027

Client Project City of Portage la Prairie

Wastewater



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and/or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

nalyte Crays	Method	Committee Date	Est	traction / Pr	onoration			Analys	in	
nalyte Group	Method	Sampling Date	EXC					· · · ·		
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
ggregate Organics : Phenols (4AAP) in Water by Colorime	try									
Amber glass total (sulfuric acid)										
23-08-34FE	E562	11-Aug-2023	16-Aug-2023	28	6 days	1	16-Aug-2023	28 days	6 days	1
				days						
nions and Nutrients : Ammonia in Water by Colour	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.				-			-		
IDPE							1	1		
23-08-32	E303	11-Aug-2023	14-Aug-2023	3 daye	3 days	1	14-Aug-2023	28 days	O dovo	1
23-00-32	2505	11-Aug-2025	14-Aug-2025	Juays	Juays	•	14-Aug-2023	20 days	0 days	
nions and Nutrients : Ammonia in Water by Colour			Market Co.							
HDPE										
23-08-33	E303	11-Aug-2023	14-Aug-2023	3 days	3 days	1	14-Aug-2023	28 days	0 days	✓
								_		
nions and Nutrients : Nitrate in Water by IC		18864	V2							
HDPE										
23-08-32	E235.NO3	11-Aug-2023	11-Aug-2023	3 days	1 days	1	11-Aug-2023	3 days	1 days	✓
									-	
nions and Nutrients : Nitrate in Water by IC			V Inches	-/E-21					1	
HDPE				T						
23-08-33	E235.NO3	11-Aug-2023	11-Aug-2023	3 days	1 days	1	11-Aug-2023	3 days	1 days	1
		ı ı					J	,-	,	
nions and Nutrients : Nitrite in Water by IC										
HDPE							1			
23-08-32	E235.NO2	11-Aug-2023	11-Aug-2023	3 days	1 days	1	11-Aug-2023	3 dave	1 days	/
20-00-02		11-Aug-2020	11-Aug-2023	Juays	1 days	,	11-Aug-2023	Juays	1 days	
		1000								
nions and Nutrients : Nitrite in Water by IC				-						
HDPE	F005.1105	44.4 0000								
23-08-33	E235.NO2	11-Aug-2023	11-Aug-2023	3 days	1 days	1	11-Aug-2023	3 days	1 days	✓

Work Order :

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Client

City of Portage la Prairie

Project

Analyte Group	Method	Sampling Date	Ex	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)		1 ' '	Preparation	1	Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Colourimetry		12.1	3/4/	UER	A					
HDPE										
23-08-32	E319	11-Aug-2023	15-Aug-2023	3 days	4 days	# EHT	16-Aug-2023	28 days	1 days	4
Anlons and Nutrients : Total Kjeldahl Nitrogen by Colourimetry										
HDPE 23-08-33	E319	11-Aug-2023	15-Aug-2023	3 days	4 days	# EHT	16-Aug-2023	28 days	1 days	4
Anions and Nutrients : Total Phosphorus by Colourimetry (0.02 mg/L)				HEE						
HDPE 23-08-32	E372	11-Aug-2023	14-Aug-2023	3 days	3 days	1	15-Aug-2023	28 days	1 days	4
Anions and Nutrients : Total Phosphorus by Colourimetry (0.92 mg/L)										
HDPE 23-08-33	E372	11-Aug-2023	14-Aug-2023	3 days	3 days	4	15-Aug-2023	28 days	1 days	4
Physical Tests : Conductivity in Water		ZODE HE								
HDPE 23-08-32	E100	11-Aug-2023	14-Aug-2023	28 days	3 days	4	14-Aug-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE 23-08-33	E100	11-Aug-2023	14-Aug-2023	28 days	3 days	4	14-Aug-2023	28 days	3 days	4
Physical Tests : FSS by Gravimetry										
HDPE 23-08-32	E170	11-Aug-2023	orsanalnus				15-Aug-2023	7 days	4 days	✓
Physical Tests : FSS by Gravimetry				9				-		
HDPE 23-08-33	E170	11-Aug-2023	*****				15-Aug-2023	7 days	4 days	4
Physical Tests : pH by Meter										
HDPE 23-08-32	E108	11-Aug-2023	14-Aug-2023	0.25 hrs	82 hrs	# EHTR-FM	14-Aug-2023	0.25 hrs	82 hrs	# EHTR-FM

Work Order :

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Client

City of Portage la Prairie

Project



Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Physical Tests : pH by Meter										
HDPE 23-08-33	E108	11-Aug-2023	14-Aug-2023	0.25 hrs	82 hrs	# EHTR-FM	14-Aug-2023	0.25 hrs	82 hrs	# EHTR-F
Physical Tests : TS by Gravimetry				-1981						
HDPE 23-08-32	E157	11-Aug-2023		No Michaelle	m===		16-Aug-2023	7 days	6 days	1
Physical Tests : TS by Gravimetry										
HDPE 23-08-33	E157	11-Aug-2023	restern.				16-Aug-2023	7 days	6 days	4
Physical Tests : TSS by Gravimetry										
HDPE 23-08-32	E160	11-Aug-2023			WASH		14-Aug-2023	7 days	3 days	4
Physical Tests : TSS by Gravimetry		PART N	and Thinks	3723						
HDPE 23-08-33	E160	11-Aug-2023	No for All rad				14-Aug-2023	7 days	3 days	4
Total Metals : Total Mercury in Water by CVAAS								L		
Glass vial total (hydrochloric acid) 23-08-32	E508	11-Aug-2023	15-Aug-2023	28 days	4 days	1	15-Aug-2023	28 days	4 days	1
Total Metals : Total Mercury in Water by CVAAS				AMB.						
Glass vial total (hydrochloric acid) 23-08-33	E508	11-Aug-2023	15-Aug-2023	28 days	4 days	4	15-Aug-2023	28 days	4 days	4
Total Metals : Total metals in Water by CRC ICPMS										
HDPE 23-08-32	E420	11-Aug-2023	15-Aug-2023	0 hrs	106 hrs	# UCP	15-Aug-2023	0 hrs	108 hrs	# UCP
Total Metals : Total metals in Water by CRC ICPMS					DE L					
HDPE 23-08-33	E420	11-Aug-2023	15-Aug-2023	0 hrs	106 hrs	# UCP	15-Aug-2023	0 hrs	108 hrs	ucp

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Work Order :

WP2319027

Client

City of Portage la Prairie

Project

Wastewater



EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

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Work Order :

WP2319027

Client Project City of Portage la Prairie

Wastewater



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Quality Control Sample Type			C	ount		Frequency (%)	in the second
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
aboratory Duplicates (DUP)			150				
Ammonia in Water by Colour	E303	1083903	1	20	5.0	5.0	√
Conductivity in Water	E100	1083601	1	15	6.6	5.0	1
SS by Gravimetry	E170	1085519	1	4	25.0	5.0	1
litrate in Water by IC	E235.NO3	1083529	1	11	9.0	5.0	1
Nitrite in Water by IC	E235.NO2	1083528	0	4	0.0	5.0	Je .
H by Meter	E108	1083602	1	15	6.6	5.0	1
Phenols (4AAP) in Water by Colorimetry	E562	1088075	1	20	5.0	5.0	1
otal Kjeldahl Nitrogen by Colourimetry	E319	1085313	1	20	5.0	5.0	1
Total Mercury in Water by CVAAS	E508	1085518	1	20	5.0	5.0	1
Total metals in Water by CRC ICPMS	E420	1085288	1	20	5.0	5.0	1
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1084449	0	19	0.0	5.0	3c
TS by Gravimetry	E157	1087708	1	8	12.5	5.0	1
TSS by Gravimetry	E160	1083896	1	5	20.0	5.0	1
aboratory Control Samples (LCS)			BELL US				
Ammonia in Water by Colour	E303	1083903	1	20	5.0	5.0	1
Conductivity in Water	E100	1083601	1	15	6.6	5.0	1
Nitrate in Water by IC	E235,NO3	1083529	1	11	9.0	5.0	1
Nitrite in Water by IC	E235.NO2	1083528	1	4	25.0	5.0	1
oH by Meter	E108	1083602	1	15	6.6	5.0	1
Phenols (4AAP) in Water by Colorimetry	E562	1088075	1	20	5.0	5.0	1
Total Kjeldahl Nitrogen by Colourimetry	E319	1085313	1	20	5.0	5.0	1
Total Mercury in Water by CVAAS	E508	1085518	1	20	5.0	5.0	1
Total metals in Water by CRC ICPMS	E420	1085288	1	20	5.0	5.0	1
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1084449	1	19	5.2	5.0	1
S by Gravimetry	E157	1087708	1	8	12.5	5.0	1
SS by Gravimetry	E160	1083896	1	5	20.0	5.0	1
Method Blanks (MB)							
Ammonia in Water by Colour	E303	1083903	1	20	5.0	5.0	1
Conductivity in Water	E100	1083601	1	15	6.6	5.0	1
SS by Gravimetry	E170	1085519	1	4	25.0	5.0	1
Nitrate in Water by IC	E235.NO3	1083529	. 1	11	9.0	5.0	1
Nitrite in Water by IC	E235.NO2	1083528	1	4	25.0	5.0	1
Phenols (4AAP) in Water by Colorimetry	E562	1088075	11	20	5.0	5.0	1
Total Kjeldahl Nitrogen by Colourimetry	E319	1085313	111	20	5.0	5.0	1
Total Mercury in Water by CVAAS	E508	1085518	1	20	5.0	5.0	1

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Matrix: Water	Evaluation	Evaluation: * = QC frequency outside specification; ✓ = QC frequency within specification									
Quality Control Sample Type			C	ount		Frequency (%)					
Analytical Methods	Method	QC Lot#	QC	Regular	Actual	Expected	Evaluation				
Method Blanks (MB) - Continued											
Total metals in Water by CRC ICPMS	E420	1085288	1	20	5.0	5.0	1				
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1084449	1	19	5.2	5.0	1				
TS by Gravimetry	E157	1087708	1	8	12.5	5.0					
TSS by Gravimetry	E160	1083896	1	5	20.0	5.0	1				
Matrix Spikes (MS)											
Ammonia in Water by Colour	E303	1083903	1	20	5.0	5.0	✓				
Nitrate in Water by IC	E235.NO3	1083529	1	11	9.0	5.0	1				
Nitrite in Water by IC	E235.NO2	1083528	0	4	0.0	5.0	.se				
Phenols (4AAP) in Water by Colorimetry	E562	1088075	1	20	5.0	5.0	1				
Total Kjeldahl Nitrogen by Colourimetry	E319	1085313	1	20	5.0	5.0	1				
Total Mercury in Water by CVAAS	E508	1085518	1	20	5.0	5.0	1				
Total metals in Water by CRC ICPMS	E420	1085288	1	20	5.0	5.0	1				
Total Phosphorus by Colourimetry (0.02 mg/L)	E372	1084449	1	19	5.2	5.0	1				

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Wastewater

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Mathod Description
Conductivity in Water	E100 ALS Environmental - Winnipeg	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Winnipeg	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20\pm5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TS by Gravimetry	E157 ALS Environmental - Winnipeg	Water	APHA 2540 B (mod)	Total Solids (TS) are determined by drying an aliquot of a well-mixed sample in a pre-weighed dish to constant weight in an oven at 104 ± 1°C. The final weight minus the empty dish represents the total solids.
TSS by Gravimetry	E160 ALS Environmental - Winnipeg	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^{\circ}$ C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
FSS by Gravimetry	E170 ALS Environmental - Winnipeg	Water	APHA 2540 E (mod)	Fixed Suspended Solids (FSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. This residue is ignited to constant weight at 550°C. The remaining solids represent the Fixed Suspended Solids (FSS), while the weight lost on ignition represents the Volatile Suspended Solids (VSS). Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
Ammonia in Water by Colour	E303 ALS Environmental - Winnipeg	Water	APHA 4500 NH3-NITROGEN (AMMONIA)	This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.
Total Kjeldahl Nitrogen by Colourimetry	E319 ALS Environmental - Winnipeg	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by colourimetric analysis.

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Analytical Methods	Method / Lab	Matrix	Method Reference	Mathod Descriptions
Total Phosphorus by Colourimetry (0.02 mg/L)	E372 ALS Environmental - Winnipeg	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total metals in Water by CRC ICPMS	E420 ALS Environmental - Winnipeg	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Winnipeg	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Waterloo	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
VSS by Gravimetry	EC167 ALS Environmental - Winnipeg	Water	APHA 2540 E (mod)	Volatile Suspended Solids (VSS) are determined by filtering a well-mixed sample through a weighed standard glass-fiber filter and the residue retained on the filter is dried to a constant weight at 104 ± 1°C. This residue is ignited to constant weight at 550°C. The remaining solids represent the fixed suspended solids while the weight lost on ignition is the volatile suspended solids.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Winnipeg	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Total Organic Nitrogen (Calculation)	EC363 ALS Environmental - Winnipeg	Water	APHA 4500-NORG (TKN)/NH3-NITROGEN (NH3)	Total Organic Nitrogen is a calculated parameter. Total Organic Nitrogen = Total Kjeldahl Nitrogen - Ammonia.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Dose (Marins)
Preparation for Ammonia	EP298 ALS Environmental - Winnipeg	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Winnipeg	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Winnipeg	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.

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ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : WP2319027

Client : City of Portage la Prairie

Contact : Aaron Stechesen

Address : 97 Saskatchewan Avenue East

Portage la Prairie MB Canada R1N 0L8

Telephone

Project : Wastewater
PO : W23017

C-O-C number :----

Sampler :---

204 239 8361

Site : Wastewater
Quote number : Wastewater

No. of samples received ; 3 No. of samples analysed ; 3 Page : 1 of 8

Laboratory : ALS Environmental - Winnipeg

Account Manager : Judy Dalmaijer

Address : 1329 Niakwa Road East, Unit 12

Winnipeg, Manitoba Canada R2J 3T4

Telephone :+1 204 255 9720

Date Samples Received 11-Aug-2023 11:31

Date Analysis Commenced : 11-Aug-2023

Issue Date : 18-Aug-2023 13:35

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories Position Laboratory Department

Rhovee Guevarra

Rhovee Guevarra

Walt Kippenhuck Supervisor - Inorganic

Winnipeg Inorganics, Winnipeg, Manitoba

Winnipeg Metals, Winnipeg, Manitoba

Waterloo Inorganics, Waterloo, Ontario

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Work Order :

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Client

City of Portage la Prairie

Project

Wastewater

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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Work Order :

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City of Portage la Prairie

Project : Wastewater

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

ub-Matrix: Water				Laboratory Duplicate (DUP) Report										
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier			
hysical Tests (QC	Lot: 1083601)					BIK k	n Wenn .							
VP2318988-010	Anonymous	Conductivity		E100	2.0	µS/cm	1100	1080	2.01%	10%				
hysical Tests (QC	Lot: 1083602)													
VP2318988-010	Anonymous	pH	_	E108	0.10	pH units	7.15	7.16	0.140%	4%	****			
hysical Tests (QC	Lot: 1083896)								A	11	,			
VP2319101-001	Anonymous	Solids, total suspended [TSS]		E160	3.0	mg/L	23.1	20.5	2.6	Diff <2x LOR	*****			
hysical Tests (QC	Lot: 1085519)					N-E								
WP2318961-001	Anonymous	Solids, fixed suspended [FSS]		E170	3.0	mg/L	15.8	18.6	2.8	Diff <2x LOR				
hysical Tests (QC	Lot: 1087708)						19			11				
VP2319066-001	Anonymous	Solids, total [TS]		E157	10	mg/L	1300	1320	1.83%	20%	VB-000			
inions and Nutrient	ts (QC Lot: 1083529)			white and										
VP2319069-006	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR				
nions and Nutrien	ts (QC Lot: 1083903)				A STATE									
VP2319103-014	Anonymous	Ammonia, total (as N)	7664-41-7	E303	0.010	mg/L	0.011	0.026	0.015	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 1085313)					11.8								
WP2319025-001	Anonymous	Kjeldahl nitrogen, total [TKN]		E319	0.15	mg/L	0.37	0.38	0.007	Diff <2x LOR				
otal Metals (QC Lo	ot: 1085288)				75 75		RT							
WP2319007-001	Anonymous	Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000136	0.0000139	0.0000003	Diff <2x LOR				
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR				
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00017	0.00016	0.000003	Diff <2x LOR				
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00944	0.00948	0.422%	20%				
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000397	0.000383	0.000013	Diff <2x LOR				
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00189	0.00186	0.00002	Diff <2x LOR				
		Potassium, total	7440-09-7	E420	0.050	mg/L	4.86	4.89	0.688%	20%				
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0143	0.0145	0.0001	Diff <2x LOR				
otal Metals (QC Lo	ot: 1085518)						7-11							
WP2318907-004	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR				
ggregate Organic:	s (QC Lot: 1088075)						61		76	v .				
TY2307861-009	Anonymous	Phenols, total (4AAP)		E562	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR				

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Project

Wastewater

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

nalyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1083601)						
Conductivity		E100	1	μS/cm	<1.0	
hysical Tests (QCLot: 1083896)						
Solids, total suspended [TSS]		E160	3	mg/L	<3.0	
nysical Tests (QCLot: 1085519)						
Solids, fixed suspended [FSS]		E170	3	mg/L	<3.0	and stable
nysical Tests (QCLot: 1087708)	A CONTRACTOR OF THE PARTY OF TH		The state of the s			
Solids, total [TS]	wat 10 to	E157	10	mg/L	<10	mor secie
nions and Nutrients (QCLot: 1083528						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	All all Made
nions and Nutrients (QCLot: 1083529		Transfer of the latest				
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	
nions and Nutrients (QCLot: 1083903						
Ammonia, total (as N)	7664-41-7	E303	0.01	mg/L	<0.010	
nions and Nutrients (QCLot: 1084449						
Phosphorus, total	7723-14-0	E372	0.02	mg/L	<0.020	***
nions and Nutrients (QCLot: 1085313	3)		No. of the last of			
Kjeldahl nitrogen, total [TKN]		E319	0.15	mg/L	<0.20	an recommend
tal Metals (QCLot: 1085288)						
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.000050	Madisher
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	-
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	station.
otal Metals (QCLot: 1085518)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.000050	
ggregate Organics (QCLot: 1088075)						
Phenols, total (4AAP)		E562	0.001	mg/L	<0.0010	

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Wastewater



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

CAS Number Method LOR Unit	Spike Concentration 1412 µS/cm 7 pH units 150 mg/L	Recovery (%) LGS 101 100 107 94.8	90.0 98.0 85.0	Limits (%) High 110	Qualifier
Productivity	1412 μS/cm 7 pH units 150 mg/L 1150 mg/L	101 100 107	90.0	110	1
Page	7 pH units 150 mg/L 1150 mg/L	100	98.0		
Page	7 pH units 150 mg/L 1150 mg/L	100	98.0		
	150 mg/L 1150 mg/L	107		102	
Injustical Tests (QCLot: 1083896)	150 mg/L 1150 mg/L	107		102	
Ids, total suspended [TSS]	1150 mg/L		85.0		
Section Property Property	1150 mg/L		85.0		
E157 10 mg/L		94.8		115	
nions and Nutrients (QCLot: 1083528) rite (as N) 14797-65-0 E235.NO2 0.01 mg/L nions and Nutrients (QCLot: 1083529) rate (as N) 14797-55-8 E235.NO3 0.02 mg/L nions and Nutrients (QCLot: 1083903)		94.8			
rite (as N) 14797-65-0 E235.NO2 0.01 mg/L nions and Nutrients (QCLot: 1083529) rate (as N) 14797-55-8 E235.NO3 0.02 mg/L nions and Nutrients (QCLot: 1083903)			85.0	115	
rite (as N) 14797-65-0 E235.NO2 0.01 mg/L nions and Nutrients (QCLot: 1083529) rate (as N) 14797-55-8 E235.NO3 0.02 mg/L nions and Nutrients (QCLot: 1083903)					
nions and Nutrients (QCLot: 1083529) rate (as N) 14797-55-8 E235.NO3 0.02 mg/L nions and Nutrients (QCLot: 1083903)					
rate (as N) 14797-55-8 E235.NO3 0.02 mg/L nions and Nutrients (QCLot: 1083903)	0.5 mg/L	101	90.0	110	
nions and Nutrients (QCLot: 1083903)					
	2.5 mg/L	102	90.0	110	_
monia, total (as N) 7664-41-7 E303 0.01 mg/L					
	0.25 mg/L	97.8	85.0	115	*****
nions and Nutrients (QCLot: 1084449)				2)	`
osphorus, Iotal 7723-14-0 E372 0.02 mg/L	0.5 mg/L	91.9	0.08	120	
nions and Nutrients (QCLot: 1085313)					•
eldahl nitrogen, total [TKN] E319 0.15 mg/L	4 mg/L	98.4	75.0	125	
otal Metals (QCLot: 1085288)					
dmium, total 7440-43-9 E420 0.000005 mg/L	0.1 mg/L	101	80.0	120	
romium, total 7440-47-3 E420 0.0005 mg/L	0.25 mg/L	100	80.0	120	
balt, total 7440-48-4 E420 0.0001 mg/L	0.25 mg/L	102	0.08	120	
pper, total 7440-50-8 E420 0.0005 mg/L	0,25 mg/L	101	80.0	120	
ad, total 7439-92-1 E420 0.00005 mg/L	0.5 mg/L	107	80.0	120	
ckel, total 7440-02-0 E420 0.0005 mg/L	0.5 mg/L	101	80.0	120	
tassium, total 7440-09-7 E420 0.05 mg/L	50 mg/L	99.8	80.0	120	
nc, total 7440-66-6 E420 0.003 mg/L	0.5 mg/L	102	80.0	120	
otal Metals (QCLot: 1085518)		*			
ercury, total 7439-97-6 E508 0.000005 mg/L	0.0001 mg/L	100	0.08	120	

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Client

City of Portage la Prairie

Project

Wastewater



Sub-Matrix: Water			Report						
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Aggregate Organics (QCLot: 1088075) -	continued				PIER CONTRACTOR				
Phenols, total (4AAP)	E	562	0.001	mg/L	0.02 mg/L	104	85.0	115	

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water						Matrix Spike (MS) Report										
					Spi	ke	Recovery (%)	Recovery	Limits (%)							
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier						
Inions and Nutr	ients (QCLot: 1083529				Mary Market											
WP2319069-006	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.59 mg/L	2.5 mg/L	104	75.0	125							
Anions and Nutr	ients (QCLot: 1083903				XIII KANDON IN SANDAN				-							
WP2319103-014	Anonymous	Ammonia, total (as N)	7664-41-7	E303	0,312 mg/L	0.25 mg/L	125	75.0	125	I						
Anions and Nutr	ients (QCLot: 1084449															
WP2319001-002	Anonymous	Phosphorus, total	7723-14-0	E372	0.245 mg/L	0.25 mg/L	97.9	70.0	130							
Anions and Nutr	ients (QCLot: 1085313				MATERIAL PROPERTY.	A STATE OF THE PARTY OF THE PAR										
WP2319025-001	Anonymous	Kjeldahl nitrogen, total [TKN]		E319	5.51 mg/L	5 mg/L	110	70.0	130							
Total Metals (QC	CLot: 1085288)					W part of										
WP2319007-001	Anonymous	Cadmium, total	7440-43-9	E420	0.00370 mg/L	0.004 mg/L	92.6	70.0	130							
		Chromium, total	7440-47-3	E420	0.0377 mg/L	0.04 mg/L	94.4	70.0	130							
		Cobalt, total	7440-48-4	E420	0.0188 mg/L	0.02 mg/L	93.9	70.0	130							
		Copper, total	7440-50-8	E420	0.0174 mg/L	0.02 mg/L	87.0	70.0	130							
		Lead, total	7439-92-1	E420	0.0191 mg/L	0.02 mg/L	95.7	70.0	130							
		Nickel, total	7440-02-0	E420	0.0361 mg/L	0.04 mg/L	90.3	70.0	130							
		Potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130							
		Zinc, total	7440-66-6	E420	0.358 mg/L	0.4 mg/L	89.4	70.0	130							
Total Metais (Q	CLot: 1085518)	CONTRACTOR OF STREET					-		,							
WP2318907-005	Anonymous	Mercury, total	7439-97-6	E508	0.0000993 mg/L	0.0001 mg/L	99.3	70.0	130							
Aggregate Orga	nics (QCLot: 1088075)		THE PERSON NAMED IN						1							
TY2307861-009	Anonymous	Phenois, total (4AAP)	warene	E562	0.101 mg/L	0.1 mg/L	101	75.0	125	T						

Page Work Order:

8 of 8 WP2319027

Client

City of Portage la Prairie

Project



Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 1 of 1



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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report		Reports / Recipients				Turnaround Time (TAT) Requested													-	_		
Company:	City of Portage La Prairie	Select Report Fo	ormat: 🕢 PDF [J EXCEL 🗌 E	DD (DIGITAL)		utine (R																
Contact:	Aaron Stecheson	Merge QC/QCI	Reports with COA	YES N	O N/A	1=	day [P4]		_					-			AF	FIX AL	S BA	RCODE	LABI	EL HE	RE
Phone:	1-204-239-8361	Compare Resul	ts to Criteria on Report	- provide details bel	ow if box checked		Say [P3]							_					(ALS	S use o	nly)		
	Company address below will eppear on the final report	Select Distribution	on: EMAIL	MAIL [FAX		day [P2] day [E]																1
Street:	97 Saskatchewan Avenue East	Email 1 or Fax	astechesen@city-	plap.com		Same day [52] if received by 10am M-S - 200% rush surcharge.																	
City/Province:	Portage La Prairie	Email 2	astechesen@city-	plap.com			Ad	ditional	fees ma	ay app	ly to nu	ıstı req	uests (on wee	kends,	statuto	ry holl	lays an	d for no	on-noutin	e lesis	3.	
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Contact:		Email 2				AINERS																REQUIRED	8
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ALS Account a	#/ Quote #: GMPP100 / WP2022GMPP1000002	AFE/Cost Center.		PO#	W23017] 🗦	1 1		- 1	۔ ا		e					Solids					2	8
Job #:		Major/Minor Code:		Routing Code:		CONT	ΙI	1	- 1	60	1	oße				Solids	g S	重	in Water	1 1	HOLD	병	5
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ALS Lab Wor	ib Work Order# (ALS use only): ALS Contact:			Sampler:		NUMBER	E100 Conductivity		7	E319 Total Kjehldahi Nitrogen	E303 Ammonia	EC363 Total Organic Nilrogen	E372 Total Phosphorus	E170 FSS by G	Total Solids	E160 Total Suspended	Volatile	E420 Total Metals in Water	ESC8 Total Mercury	Phenols 4AAP	SAMPLES	EXTENDED	SUSPECTED HAZARD (see notes)
ALS Sample #	Sample Identification and/or Coordina	Date	Time	Cample Tone	15	ő	#d B	S235.N+N	9 To	3 A	53	2 To	2. S	15	100	EC167 \	10	12	Sp		单	SP	
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,	en from a Regulated DW System?					Sub	missio	n Com	ments	iden	tified	on S		2		III.	WA	M/C		П			
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Are samples for	human consumption/ use?					-	- 18	HTIAL C	COOLER	TEM	PERA	TURE		- 1		100	W.	IAC.		``	ES	3 %	_
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Dalans As by	SHIPMENT RELEASE (client use)		INITIAL SHIPMEN	TRECEPTION	(ALS use only)						II 🖳	CAREA HOLE MILLION											
Released by:	parop Stechesen Date: 11-Aug-23 T	9:30				Time: Received by: Telephone: +1 204 ELLOW-CLIENT COPY							2	Telep	hone :	+12	04 25	9720			me		3 2022 FRON

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from aRegulated Drinking Water (DW). Systemplease submit using an Authorized DW COC form.