

F2 Well Certificate of Analysis





TOWNSHIP OF CENTRE WELLINGTON
ATTN: Matthew Alexander c/o Centre
Wellington
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Date Received: 17-NOV-21
Report Date: 24-NOV-21 10:54 (MT)
Version: FINAL

Client Phone: 226-821-4906

Certificate of Analysis

Lab Work Order #: L2663747
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 20-953714
Legal Site Desc:

Candice Hunter
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
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L2663747 CONTD....

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24-NOV-21 10:54 (MT)

* Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020) #2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
SOLIDS-TSS-ONT-DW-WT	Water	Suspended solids	APHA 2540 D-Gravimetric
A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.			
TC,EC-QT51-DW-WT	Water	Total Coliform and E. Coli	APHA 9223B
This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.			
TURBIDITY-ONT-DW-WT	Water	Turbidity	APHA 2130 B
Sample result is based on a comparison of the intensity of the light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. Sample readings are obtained from a Nephelometer.			

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

20-953714

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

Workorder: L2663747

Report Date: 24-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TSS-ONT-DW-WT Water								
Batch	R5656397							
WG3661544-6 DUP		WG3661544-7						
Total Suspended Solids		13000	13200		mg/L	1.8	25	22-NOV-21
WG3661544-5 LCS								
Total Suspended Solids			98.3		%		70-130	22-NOV-21
WG3661544-4 MB								
Total Suspended Solids			<3.0		mg/L		3	22-NOV-21
TC,EC-QT51-DW-WT Water								
Batch	R5654443							
WG3660667-2 DUP		L2663695-1						
Total Coliforms		0	0		MPN/100mL	0.0	65	18-NOV-21
Escherichia Coli		0	0		MPN/100mL	0.0	65	18-NOV-21
WG3660667-1 MB								
Total Coliforms			0		MPN/100mL		1	18-NOV-21
Escherichia Coli			0		MPN/100mL		1	18-NOV-21
TURBIDITY-ONT-DW-WT Water								
Batch	R5654796							
WG3660714-3 DUP		L2663774-2						
Turbidity		<0.10	<0.10	RPD-NA	NTU	N/A	15	18-NOV-21
WG3660714-2 LCS								
Turbidity			94.0		%		85-115	18-NOV-21
WG3660714-1 MB								
Turbidity			<0.10		NTU		0.1	18-NOV-21

Quality Control Report

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Page 2 of 2

Contact: Matthew Alexander c/o Centre Wellington

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

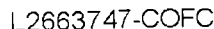
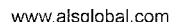
Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



COC Number: 20 - 953714

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2023 EDITION

Failure to complete all portions of this form may delay analysis. Please fill in this form [EGBI] Y. 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 a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.



TOWNSHIP OF CENTRE WELLINGTON
ATTN: Matthew Alexander c/o Centre
Wellington
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Date Received: 22-NOV-21
Report Date: 30-NOV-21 09:28 (MT)
Version: FINAL

Client Phone: 226-821-4906

Certificate of Analysis

Lab Work Order #: L2665028
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Candice Hunter
Account Manager

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ANALYTICAL GUIDELINE REPORT

L2665028 CONTD....

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30-NOV-21 09:28 (MT)

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2665028-1	535 ORANGEVILLE RD									
Sampled By:	CLIENT on 22-NOV-21 @ 10:40									
Matrix:	WATER									
Physical Tests										
Colour, Apparent		7.6		2.0	CU	23-NOV-21				
Conductivity		1720		3.0	umhos/cm	24-NOV-21				
pH		8.35		0.10	pH units	24-NOV-21				
Total Dissolved Solids		1030	DLDS	20	mg/L	27-NOV-21				
Turbidity		1.04		0.10	NTU	23-NOV-21				
Anions and Nutrients										
Alkalinity, Bicarbonate (as CaCO3)		398		1.0	mg/L	24-NOV-21				
Alkalinity, Carbonate (as CaCO3)		11.8		1.0	mg/L	24-NOV-21				
Alkalinity, Hydroxide (as CaCO3)		<1.0		1.0	mg/L	24-NOV-21				
Alkalinity, Total (as CaCO3)		410		1.0	mg/L	24-NOV-21				
Ammonia, Total (as N)		0.090		0.010	mg/L	23-NOV-21				
Bromide (Br)		<0.50	DLDS	0.50	mg/L	24-NOV-21				
Chloride (Cl)		320	DLDS	2.5	mg/L	24-NOV-21				
Computed Conductivity		1550			uS/cm	29-NOV-21				
Conductivity % Difference		-10			%	29-NOV-21				
Fluoride (F)		<0.50	DLDS	0.50	mg/L	24-NOV-21	1.5			
Hardness (as CaCO3)		468			mg/L	29-NOV-21				
Ion Balance		102			%	29-NOV-21				
Langelier Index		2			No Unit	29-NOV-21				
Nitrate (as N)		14.2	DLDS	0.10	mg/L	24-NOV-21				
Nitrite (as N)		<0.050	DLDS	0.050	mg/L	24-NOV-21	1			
Saturation pH		6.79			pH	29-NOV-21				
Orthophosphate-Dissolved (as P)		0.157	DLHC	0.030	mg/L	23-NOV-21				
TDS (Calculated)		1010			mg/L	29-NOV-21				
Sulfate (SO4)		18.8	DLDS	1.5	mg/L	24-NOV-21				
Anion Sum		17.3			me/L	29-NOV-21				
Cation Sum		17.6			me/L	29-NOV-21				
Cation - Anion Balance		1			%	29-NOV-21				
Inorganic Parameters										
Silica		7500		2100	mg/L	22-NOV-21				
Bacteriological Tests										
E. Coli		0		0	CFU/100m L	23-NOV-21	0			
Total Coliform Background		23		0	CFU/100m L	23-NOV-21				
Total Coliforms		96		0	CFU/100m L	23-NOV-21				
Metals										
Sodium Adsorption Ratio		3.74		0.10	SAR	26-NOV-21				
Total Metals										
Aluminum (Al)		17		10	ug/L	26-NOV-21				
Antimony (Sb)		<0.60		0.60	ug/L	26-NOV-21	6			
Arsenic (As)		<1.0		1.0	ug/L	26-NOV-21	10.0			
Barium (Ba)		50		10	ug/L	26-NOV-21	1000			
Beryllium (Be)		<0.50		0.50	ug/L	26-NOV-21				
Bismuth (Bi)		<1.0		1.0	ug/L	26-NOV-21				
Boron (B)		83		50	ug/L	26-NOV-21	5000			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)



ANALYTICAL GUIDELINE REPORT

L2665028 CONTD....

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30-NOV-21 09:28 (MT)

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2665028-1	535 ORANGEVILLE RD									
Sampled By:	CLIENT on 22-NOV-21 @ 10:40									
Matrix:	WATER						#1	#2		
Total Metals										
	Cadmium (Cd)	0.13		0.10	ug/L	26-NOV-21	5			
	Calcium (Ca)	137		0.50	mg/L	26-NOV-21				
	Cesium (Cs)	<0.10		0.10	ug/L	26-NOV-21				
	Chromium (Cr)	<1.0		1.0	ug/L	26-NOV-21	50			
	Cobalt (Co)	<0.50		0.50	ug/L	26-NOV-21				
	Copper (Cu)	60.5		1.0	ug/L	26-NOV-21		1000		
	Iron (Fe)	<50		50	ug/L	26-NOV-21		300		
	Lead (Pb)	2.7		1.0	ug/L	26-NOV-21	10			
	Lithium (Li)	<100		100	ug/L	26-NOV-21				
	Magnesium (Mg)	30.3		0.50	mg/L	26-NOV-21				
	Manganese (Mn)	6.6		1.0	ug/L	26-NOV-21		50		
	Molybdenum (Mo)	<0.50		0.50	ug/L	26-NOV-21				
	Nickel (Ni)	5.6		1.0	ug/L	26-NOV-21				
	Phosphorus (P)	0.184		0.050	mg/L	26-NOV-21				
	Potassium (K)	6.2		1.0	mg/L	26-NOV-21				
	Rubidium (Rb)	<2.0		2.0	ug/L	26-NOV-21				
	Selenium (Se)	<1.0		1.0	ug/L	26-NOV-21	50			
	Silicon (Si)	3500		1000	ug/L	26-NOV-21				
	Silver (Ag)	<0.050		0.050	ug/L	26-NOV-21				
	Sodium (Na)	186	DLHC	5.0	mg/L	26-NOV-21	*20	200		
	Strontium (Sr)	249		1.0	ug/L	26-NOV-21				
	Sulfur (S)	6900		500	ug/L	26-NOV-21				
	Tellurium (Te)	<2.0		2.0	ug/L	26-NOV-21				
	Thallium (Tl)	<0.060		0.060	ug/L	26-NOV-21				
	Thorium (Th)	<1.0		1.0	ug/L	26-NOV-21				
	Tin (Sn)	<1.0		1.0	ug/L	26-NOV-21				
	Titanium (Ti)	<2.0		2.0	ug/L	26-NOV-21				
	Tungsten (W)	<6.0		6.0	ug/L	26-NOV-21				
	Uranium (U)	<2.0		2.0	ug/L	26-NOV-21	20			
	Vanadium (V)	<0.50		0.50	ug/L	26-NOV-21				
	Zinc (Zn)	9.7		3.0	ug/L	26-NOV-21		5000		
	Zirconium (Zr)	<0.80		0.80	ug/L	26-NOV-21				
Volatile Organic Compounds										
	Benzene	<0.50		0.50	ug/L	23-NOV-21	1			
	Carbon tetrachloride	<0.20		0.20	ug/L	23-NOV-21	2			
	Monochlorobenzene	<0.50		0.50	ug/L	23-NOV-21	80	30		
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	23-NOV-21	200	3		
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	23-NOV-21	5	1		
	1,2-Dichloroethane	<0.50		0.50	ug/L	23-NOV-21	5			
	1,1-dichloroethylene (vinylidene chlorid	<0.50		0.50	ug/L	23-NOV-21	14			
	Dichloromethane	<5.0		5.0	ug/L	23-NOV-21	50			
	Ethylbenzene	<0.50		0.50	ug/L	23-NOV-21	140	2.4		
	Tetrachloroethylene (perchloroethylene)	<0.50		0.50	ug/L	23-NOV-21	10			
	Toluene	<0.50		0.50	ug/L	23-NOV-21	60	24		
	Trichloroethylene	<0.50		0.50	ug/L	23-NOV-21	5			
	Vinyl chloride	<0.20		0.20	ug/L	23-NOV-21	1			
	o-xylene	<0.50		0.50	ug/L	23-NOV-21				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)



ANALYTICAL GUIDELINE REPORT

L2665028 CONTD....

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30-NOV-21 09:28 (MT)

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2665028-1	535 ORANGEVILLE RD									
Sampled By:	CLIENT on 22-NOV-21 @ 10:40									
Matrix:	WATER									
Volatile Organic Compounds										
m/p-xylene		<1.0		1.0	ug/L	23-NOV-21				
Xylenes (Total)		<1.5		1.5	ug/L	23-NOV-21	90	300		
Surrogate: 4-Bromofluorobenzene		94.1		70-130	%	23-NOV-21				
Surrogate: 1,4-Difluorobenzene		101.0		70-130	%	23-NOV-21				
L2665028-2	F2 PT									
Sampled By:	CLIENT on 22-NOV-21 @ 16:00									
Matrix:	WATER									
Physical Tests										
Total Suspended Solids		3.7		3.0	mg/L	27-NOV-21				
Turbidity		3.09		0.10	NTU	24-NOV-21		5		
Bacteriological Tests										
Escherichia Coli		0		0	MPN/100m L	23-NOV-21	0			
Total Coliforms		1		0	MPN/100m L	23-NOV-21	*0			
Volatile Organic Compounds										
Benzene		<0.50		0.50	ug/L	23-NOV-21	1			
Carbon tetrachloride		<0.20		0.20	ug/L	23-NOV-21	2			
Monochlorobenzene		<0.50		0.50	ug/L	23-NOV-21	80	30		
1,2-Dichlorobenzene		<0.50		0.50	ug/L	23-NOV-21	200	3		
1,4-Dichlorobenzene		<0.50		0.50	ug/L	23-NOV-21	5	1		
1,2-Dichloroethane		<0.50		0.50	ug/L	23-NOV-21	5			
1,1-dichloroethylene (vinylidene chlorid		<0.50		0.50	ug/L	23-NOV-21	14			
Dichloromethane		<5.0		5.0	ug/L	23-NOV-21	50			
Ethylbenzene		<0.50		0.50	ug/L	23-NOV-21	140	2.4		
Tetrachloroethylene (perchloroethylene)		<0.50		0.50	ug/L	23-NOV-21	10			
Toluene		<0.50		0.50	ug/L	23-NOV-21	60	24		
Trichloroethylene		<0.50		0.50	ug/L	23-NOV-21	5			
Vinyl chloride		<0.20		0.20	ug/L	23-NOV-21	1			
o-xylene		<0.50		0.50	ug/L	23-NOV-21				
m/p-xylene		<1.0		1.0	ug/L	23-NOV-21				
Xylenes (Total)		<1.5		1.5	ug/L	23-NOV-21	90	300		
Surrogate: 4-Bromofluorobenzene		94.3		70-130	%	23-NOV-21				
Surrogate: 1,4-Difluorobenzene		101.0		70-130	%	23-NOV-21				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

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#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
ALK-SPEC-PCT-WT	Water	Automated Speciated Alkalinity	APHA 2320B

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BR-IC-N-ONT-DW-WT	Water	Bromide in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CL-IC-N-ONT-DW-WT	Water	Chloride by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COLOUR-APP-DW-WT	Water	Colour	APHA 2120
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Apparent Colour is measured spectrophotometrically by comparison to platinum-cobalt standards using the single wavelength method after sample decanting. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.

EC-MF-DW-WT	Water	E. coli	SM 9222D
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A 100 mL volume of sample is filtered through a membrane, the membrane is placed on mFC-BCIG agar and incubated at 44.5 –0 .2 °C for 24 – 2 h. Method ID: WT-TM-1200

EC-ONT-DW-WT	Water	Conductivity	APHA 2510 B
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Water samples can be measured directly by immersing the conductivity cell into the sample.

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
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Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

ETL-SAR-CALC-WT	Water	Sodium Adsorption Ratio	Calculation
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ETL-SILICA-CALC-WT	Water	Calculate from SI-TOT-WT	EPA 200.8
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F-DW-IC-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

IONBALANCE-OP03-WT	Water	Detailed Ion Balance Calculation	APHA 1030E, 2330B, 2510A
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MET-ONT-DW-WT	Water	Drinking Water Metals	EPA 6020A
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NH3-F-ONT-DW-WT	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
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This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.

NO2-DW-IC-WT	Water	Nitrite in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-DW-IC-WT	Water	Nitrate in Water by IC	EPA 300.1 (mod)
--------------	-------	------------------------	-----------------

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH-ONT-DW-WT	Water	pH	APHA 4500 H-Electrode
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Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PO4-DO-COL-DW-WT	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
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This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-IC-N-ONT-DW-WT	Water	Sulfate in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Reference Information

SOLIDS-TDS-ONT-DW-WT Water Total Dissolved Solids APHA 2540C

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

SOLIDS-TSS-ONT-DW-WT Water Suspended solids APHA 2540 D-Gravimetric

A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

TC,EC-QT51-DW-WT Water Total Coliform and E. Coli APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.

TC-MF-DW-WT Water Total Coliforms SM 9222B

A 100mL volume of sample is filtered through a membrane, the membrane is placed on mENDO LES agar and incubated at 35–0.5°C for 24–2h. Method ID: WT-TM-1200

TCB-MF-DW-WT Water Total Coliform Background SM 9222B

A 100mL volume of sample is filtered through a membrane, the membrane is placed on mENDO LES agar and incubated at 35–0.5°C for 24–2h. Method ID: WT-TM-1200.

TURB-MET-WT Water Turbidity on preserved metals sample APHA 2130 B

Sample result is based on a comparison of the intensity of the light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. Sample readings are obtained from a Nephelometer.

TURBIDITY-ONT-DW-WT Water Turbidity APHA 2130 B

Sample result is based on a comparison of the intensity of the light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. Sample readings are obtained from a Nephelometer.

VOC-ONT-DW-WT Water Volatile Organics (O.Reg 170/03) SW846 8260

Liquid samples are analyzed by headspace GC/MSD.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COLOUR-APP-DW-WT	Water							
Batch R5656146								
WG3663775-1 MB								
Colour, Apparent			<2.0		CU		2	23-NOV-21
EC-MF-DW-WT	Water							
Batch R5656455								
WG3663232-1 MB								
E. Coli			0		CFU/100mL		1	23-NOV-21
EC-ONT-DW-WT	Water							
Batch R5657086								
WG3664329-4 DUP		WG3664329-3						
Conductivity		599	601		umhos/cm	0.3	25	24-NOV-21
WG3664329-2 LCS								
Conductivity			97.9		%		70-130	24-NOV-21
WG3664329-1 MB								
Conductivity			<6.0		umhos/cm		6	24-NOV-21
F-DW-IC-WT	Water							
Batch R5657011								
WG3664404-9 DUP		WG3664404-8						
Fluoride (F)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	24-NOV-21
WG3664404-7 LCS								
Fluoride (F)			102.5		%		90-110	24-NOV-21
WG3664404-6 MB								
Fluoride (F)			<0.10		mg/L		0.1	24-NOV-21
WG3664404-10 MS		WG3664404-8						
Fluoride (F)			99.2		%		75-125	24-NOV-21
MET-ONT-DW-WT	Water							
Batch R5657787								
WG3665048-4 DUP		WG3665048-3						
Aluminum (Al)		25	27		ug/L	6.5	25	26-NOV-21
Antimony (Sb)		<0.60	<0.60	RPD-NA	ug/L	N/A	25	26-NOV-21
Arsenic (As)		<1.0	<1.0	RPD-NA	ug/L	N/A	25	26-NOV-21
Barium (Ba)		23	24		ug/L	2.2	25	26-NOV-21
Beryllium (Be)		<0.50	<0.50	RPD-NA	ug/L	N/A	25	26-NOV-21
Bismuth (Bi)		<1.0	<1.0	RPD-NA	ug/L	N/A	25	26-NOV-21
Boron (B)		<50	<50	RPD-NA	ug/L	N/A	25	26-NOV-21



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Client:

TOWNSHIP OF CENTRE WELLINGTON

50 Sportsworld Crossing Rd

Kitchener ON N2P 0A4

Contact:

Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-WT		Water						
Batch	R5657787							
WG3665048-2	LCS							
Aluminum (Al)			104.3		%		70-130	26-NOV-21
Antimony (Sb)			104.8		%		70-130	26-NOV-21
Arsenic (As)			103.6		%		70-130	26-NOV-21
Barium (Ba)			98.3		%		70-130	26-NOV-21
Beryllium (Be)			101.2		%		70-130	26-NOV-21
Bismuth (Bi)			103.2		%		70-130	26-NOV-21
Boron (B)			96.5		%		70-130	26-NOV-21
Cadmium (Cd)			102.7		%		70-130	26-NOV-21
Calcium (Ca)			100.1		%		70-130	26-NOV-21
Cesium (Cs)			104.2		%		70-130	26-NOV-21
Chromium (Cr)			99.6		%		70-130	26-NOV-21
Cobalt (Co)			102.6		%		70-130	26-NOV-21
Copper (Cu)			101.3		%		70-130	26-NOV-21
Iron (Fe)			101.1		%		70-130	26-NOV-21
Lead (Pb)			102.7		%		70-130	26-NOV-21
Lithium (Li)			95.8		%		70-130	26-NOV-21
Magnesium (Mg)			103.5		%		70-130	26-NOV-21
Manganese (Mn)			100.9		%		70-130	26-NOV-21
Molybdenum (Mo)			103.5		%		70-130	26-NOV-21
Nickel (Ni)			101.1		%		70-130	26-NOV-21
Phosphorus (P)			108.7		%		70-130	26-NOV-21
Potassium (K)			99.6		%		70-130	26-NOV-21
Rubidium (Rb)			104.2		%		70-130	26-NOV-21
Selenium (Se)			101.9		%		70-130	26-NOV-21
Silicon (Si)			102.9		%		70-130	26-NOV-21
Silver (Ag)			102.5		%		70-130	26-NOV-21
Sodium (Na)			100.7		%		70-130	26-NOV-21
Strontium (Sr)			103.6		%		70-130	26-NOV-21
Sulfur (S)			97.1		%		70-130	26-NOV-21
Tellurium (Te)			103.7		%		70-130	26-NOV-21
Thallium (Tl)			103.6		%		70-130	26-NOV-21
Thorium (Th)			102.7		%		70-130	26-NOV-21
Tin (Sn)			102.5		%		70-130	26-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-WT		Water						
Batch	R5657787							
WG3665048-2	LCS							
Titanium (Ti)			101.2		%		70-130	26-NOV-21
Tungsten (W)			99.1		%		70-130	26-NOV-21
Uranium (U)			103.4		%		70-130	26-NOV-21
Vanadium (V)			102.7		%		70-130	26-NOV-21
Zinc (Zn)			100.9		%		70-130	26-NOV-21
Zirconium (Zr)			99.8		%		70-130	26-NOV-21
WG3665048-1	MB							
Aluminum (Al)			<10		ug/L		10	26-NOV-21
Antimony (Sb)			<0.60		ug/L		0.6	26-NOV-21
Arsenic (As)			<1.0		ug/L		1	26-NOV-21
Barium (Ba)			<10		ug/L		10	26-NOV-21
Beryllium (Be)			<0.50		ug/L		0.5	26-NOV-21
Bismuth (Bi)			<1.0		ug/L		1	26-NOV-21
Boron (B)			<50		ug/L		50	26-NOV-21
Cadmium (Cd)			<0.10		ug/L		0.1	26-NOV-21
Calcium (Ca)			<0.50		mg/L		0.5	26-NOV-21
Cesium (Cs)			<0.10		ug/L		0.1	26-NOV-21
Chromium (Cr)			<1.0		ug/L		1	26-NOV-21
Cobalt (Co)			<0.50		ug/L		0.5	26-NOV-21
Copper (Cu)			<1.0		ug/L		1	26-NOV-21
Iron (Fe)			<50		ug/L		50	26-NOV-21
Lead (Pb)			<1.0		ug/L		1	26-NOV-21
Lithium (Li)			<100		ug/L		100	26-NOV-21
Magnesium (Mg)			<0.50		mg/L		0.5	26-NOV-21
Manganese (Mn)			<1.0		ug/L		1	26-NOV-21
Molybdenum (Mo)			<0.50		ug/L		0.5	26-NOV-21
Nickel (Ni)			<1.0		ug/L		1	26-NOV-21
Phosphorus (P)			<0.050		mg/L		0.05	26-NOV-21
Potassium (K)			<1.0		mg/L		1	26-NOV-21
Rubidium (Rb)			<2.0		ug/L		2	26-NOV-21
Selenium (Se)			<1.0		ug/L		1	26-NOV-21
Silicon (Si)			<1000		ug/L		1000	26-NOV-21
Silver (Ag)			<0.050		ug/L		0.05	26-NOV-21
Sodium (Na)			<0.50		mg/L		0.5	26-NOV-21



Environmental

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-WT		Water						
Batch	R5657787							
WG3665048-1	MB							
Strontium (Sr)			<1.0		ug/L		1	26-NOV-21
Sulfur (S)			<500		ug/L		500	26-NOV-21
Tellurium (Te)			<2.0		ug/L		2	26-NOV-21
Thallium (Tl)			<0.060		ug/L		0.06	26-NOV-21
Thorium (Th)			<1.0		ug/L		1	26-NOV-21
Tin (Sn)			<1.0		ug/L		1	26-NOV-21
Titanium (Ti)			<2.0		ug/L		2	26-NOV-21
Tungsten (W)			<6.0		ug/L		6	26-NOV-21
Uranium (U)			<2.0		ug/L		2	26-NOV-21
Vanadium (V)			<0.50		ug/L		0.5	26-NOV-21
Zinc (Zn)			<3.0		ug/L		3	26-NOV-21
Zirconium (Zr)			<0.80		ug/L		0.8	26-NOV-21
WG3665048-5	MS	WG3665048-3						
Aluminum (Al)			99.6		%		70-130	26-NOV-21
Antimony (Sb)			107.7		%		70-130	26-NOV-21
Arsenic (As)			105.8		%		70-130	26-NOV-21
Barium (Ba)			N/A	MS-B	%		-	26-NOV-21
Beryllium (Be)			101.7		%		70-130	26-NOV-21
Bismuth (Bi)			99.0		%		70-130	26-NOV-21
Boron (B)			89.5		%		70-130	26-NOV-21
Cadmium (Cd)			102.1		%		70-130	26-NOV-21
Calcium (Ca)			N/A	MS-B	%		-	26-NOV-21
Cesium (Cs)			105.4		%		70-130	26-NOV-21
Chromium (Cr)			99.1		%		70-130	26-NOV-21
Cobalt (Co)			99.4		%		70-130	26-NOV-21
Copper (Cu)			N/A	MS-B	%		-	26-NOV-21
Iron (Fe)			98.0		%		70-130	26-NOV-21
Lead (Pb)			100.2		%		70-130	26-NOV-21
Lithium (Li)			93.2		%		70-130	26-NOV-21
Magnesium (Mg)			N/A	MS-B	%		-	26-NOV-21
Manganese (Mn)			98.4		%		70-130	26-NOV-21
Molybdenum (Mo)			105.8		%		70-130	26-NOV-21
Nickel (Ni)			96.8		%		70-130	26-NOV-21
Phosphorus (P)			114.8		%		70-130	26-NOV-21

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-WT		Water						
Batch	R5657787							
WG3665048-5	MS	WG3665048-3						
Potassium (K)			100.4		%		70-130	26-NOV-21
Rubidium (Rb)			100.2		%		70-130	26-NOV-21
Selenium (Se)			111.4		%		70-130	26-NOV-21
Silicon (Si)			N/A	MS-B	%		-	26-NOV-21
Silver (Ag)			102.6		%		70-130	26-NOV-21
Sodium (Na)			N/A	MS-B	%		-	26-NOV-21
Strontium (Sr)			N/A	MS-B	%		-	26-NOV-21
Sulfur (S)			N/A	MS-B	%		-	26-NOV-21
Tellurium (Te)			107.2		%		70-130	26-NOV-21
Thallium (Tl)			102.7		%		70-130	26-NOV-21
Thorium (Th)			99.7		%		70-130	26-NOV-21
Tin (Sn)			100.7		%		70-130	26-NOV-21
Titanium (Ti)			99.2		%		70-130	26-NOV-21
Tungsten (W)			98.5		%		70-130	26-NOV-21
Uranium (U)			N/A	MS-B	%		-	26-NOV-21
Vanadium (V)			103.2		%		70-130	26-NOV-21
Zinc (Zn)			96.6		%		70-130	26-NOV-21
Zirconium (Zr)			102.0		%		70-130	26-NOV-21
NH3-F-ONT-DW-WT		Water						
Batch	R5656343							
WG3663516-3	DUP	WG3663516-5						
Ammonia, Total (as N)		0.092	0.091		mg/L	0.4	20	23-NOV-21
WG3663516-2	LCS							
Ammonia, Total (as N)			108.3		%		85-115	23-NOV-21
WG3663516-1	MB							
Ammonia, Total (as N)			<0.010		mg/L		0.01	23-NOV-21
WG3663516-4	MS	WG3663516-5						
Ammonia, Total (as N)			105.6		%		75-125	24-NOV-21
NO2-DW-IC-WT		Water						
Batch	R5657011							
WG3664404-9	DUP	WG3664404-8						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	24-NOV-21
WG3664404-7	LCS							
Nitrite (as N)			102.3		%		90-110	24-NOV-21
WG3664404-6	MB							

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-DW-IC-WT		Water						
Batch	R5657011							
WG3664404-6	MB							
Nitrite (as N)			<0.010		mg/L		0.01	24-NOV-21
WG3664404-10	MS	WG3664404-8						
Nitrite (as N)			102.6		%		75-125	24-NOV-21
NO3-DW-IC-WT		Water						
Batch	R5657011							
WG3664404-9	DUP	WG3664404-8						
Nitrate (as N)		2.86	2.86		mg/L	0.2	20	24-NOV-21
WG3664404-7	LCS							
Nitrate (as N)			101.3		%		90-110	24-NOV-21
WG3664404-6	MB							
Nitrate (as N)			<0.020		mg/L		0.02	24-NOV-21
WG3664404-10	MS	WG3664404-8						
Nitrate (as N)			N/A	MS-B	%		-	24-NOV-21
PH-ONT-DW-WT		Water						
Batch	R5657086							
WG3664329-4	DUP	WG3664329-3						
pH		7.66	7.70	J	pH units	0.04	0.2	24-NOV-21
WG3664329-2	LCS							
pH			7.00		pH units		6.9-7.1	24-NOV-21
PO4-DO-COL-DW-WT		Water						
Batch	R5655808							
WG3663374-3	DUP	WG3663374-5						
Orthophosphate-Dissolved (as P)		0.0051	0.0053		mg/L	3.4	20	23-NOV-21
WG3663374-2	LCS							
Orthophosphate-Dissolved (as P)			103.0		%		80-120	23-NOV-21
WG3663374-1	MB							
Orthophosphate-Dissolved (as P)			<0.0030		mg/L		0.003	23-NOV-21
WG3663374-4	MS	WG3663374-5						
Orthophosphate-Dissolved (as P)			96.1		%		70-130	23-NOV-21
SO4-IC-N-ONT-DW-WT		Water						
Batch	R5657011							
WG3664404-9	DUP	WG3664404-8						
Sulfate (SO4)		7.38	7.38		mg/L	0.0	20	24-NOV-21
WG3664404-7	LCS							
Sulfate (SO4)			103.7		%		90-110	24-NOV-21
WG3664404-6	MB							

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC-MF-DW-WT		Water						
Batch	R5656459							
WG3663241-1 MB								
Total Coliforms			0		CFU/100mL		1	23-NOV-21
TCB-MF-DW-WT		Water						
Batch	R5656459							
WG3663241-1 MB								
Total Coliform Background			0		CFU/100mL		1	23-NOV-21
TURBIDITY-ONT-DW-WT		Water						
Batch	R5655930							
WG3663278-2 LCS								
Turbidity			94.5		%		85-115	23-NOV-21
WG3663278-1 MB								
Turbidity			<0.10		NTU		0.1	23-NOV-21
Batch	R5657937							
WG3664038-2 LCS								
Turbidity			94.5		%		85-115	24-NOV-21
WG3664038-1 MB								
Turbidity			<0.10		NTU		0.1	24-NOV-21
VOC-ONT-DW-WT		Water						
Batch	R5655712							
WG3662873-4 DUP		WG3662873-3						
1,1-dichloroethylene (vinylidene chlorid		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	23-NOV-21
Dichloromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	23-NOV-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
Monochlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
Tetrachloroethylene (perchloroethylene)		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
Toluene		0.86	0.80		ug/L	7.2	30	23-NOV-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21
m/p-xylene		1.6	1.5		ug/L	7.9	30	23-NOV-21
o-xylene		0.51	<0.50	RPD-NA	ug/L	N/A	30	23-NOV-21

Quality Control Report

Workorder: L2665028

Report Date: 30-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ONT-DW-WT		Water						
Batch	R5655712							
WG3662873-4	DUP	WG3662873-3						
Vinyl chloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	23-NOV-21
WG3662873-1	LCS							
1,1-dichloroethylene (vinylidene chlorid			95.3		%		70-130	23-NOV-21
1,2-Dichlorobenzene			93.5		%		70-130	23-NOV-21
1,2-Dichloroethane			85.6		%		70-130	23-NOV-21
1,4-Dichlorobenzene			95.8		%		70-130	23-NOV-21
Benzene			89.1		%		70-130	23-NOV-21
Carbon tetrachloride			95.0		%		70-130	23-NOV-21
Dichloromethane			87.4		%		70-130	23-NOV-21
Ethylbenzene			95.9		%		70-130	23-NOV-21
Monochlorobenzene			91.2		%		70-130	23-NOV-21
Tetrachloroethylene (perchloroethylene)			97.2		%		70-130	23-NOV-21
Toluene			93.3		%		70-130	23-NOV-21
Trichloroethylene			93.5		%		70-130	23-NOV-21
m/p-xylene			96.6		%		70-130	23-NOV-21
o-xylene			94.1		%		70-130	23-NOV-21
Vinyl chloride			86.7		%		60-140	23-NOV-21
WG3662873-2	MB							
1,1-dichloroethylene (vinylidene chlorid			<0.50		ug/L		0.5	23-NOV-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	23-NOV-21
1,2-Dichloroethane			<0.50		ug/L		0.5	23-NOV-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	23-NOV-21
Surrogate: 1,4-Difluorobenzene			100.7		%		70-130	23-NOV-21
Benzene			<0.50		ug/L		0.5	23-NOV-21
Carbon tetrachloride			<0.20		ug/L		0.2	23-NOV-21
Dichloromethane			<5.0		ug/L		5	23-NOV-21
Ethylbenzene			<0.50		ug/L		0.5	23-NOV-21
Monochlorobenzene			<0.50		ug/L		0.5	23-NOV-21
Tetrachloroethylene (perchloroethylene)			<0.50		ug/L		0.5	23-NOV-21
Toluene			<0.50		ug/L		0.5	23-NOV-21
Trichloroethylene			<0.50		ug/L		0.5	23-NOV-21
m/p-xylene			<1.0		ug/L		1	23-NOV-21
o-xylene			<0.50		ug/L		0.5	23-NOV-21
Vinyl chloride			<0.20		ug/L		0.2	23-NOV-21



Environmental

Quality Control Report

Workorder: L2665028

Report Date: 30-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ONT-DW-WT		Water						
Batch	R5655712							
WG3662873-2	MB							
Surrogate: 4-Bromofluorobenzene			96.8		%		70-130	23-NOV-21
WG3662873-5	MS	WG3662873-3						
1,1-dichloroethylene (vinylidene chlorid			97.0		%		70-130	23-NOV-21
1,2-Dichlorobenzene			95.6		%		70-130	23-NOV-21
1,2-Dichloroethane			90.9		%		70-130	23-NOV-21
1,4-Dichlorobenzene			96.5		%		70-130	23-NOV-21
Benzene			92.7		%		70-130	23-NOV-21
Carbon tetrachloride			97.5		%		70-130	23-NOV-21
Dichloromethane			89.9		%		70-130	23-NOV-21
Ethylbenzene			98.0		%		70-130	23-NOV-21
Monochlorobenzene			94.0		%		70-130	23-NOV-21
Tetrachloroethylene (perchloroethylene)			97.7		%		70-130	23-NOV-21
Toluene			95.5		%		50-150	23-NOV-21
Trichloroethylene			96.0		%		70-130	23-NOV-21
m/p-xylene			98.5		%		70-130	23-NOV-21
o-xylene			96.8		%		50-150	23-NOV-21
Vinyl chloride			91.0		%		70-130	23-NOV-21

Quality Control Report

Workorder: L2665028

Report Date: 30-NOV-21

Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

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Contact: Matthew Alexander c/o Centre Wellington

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

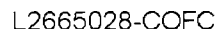
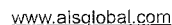
Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



COC Number: 20-896760

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[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 20 1980

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 a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

F5-T Well Certificate of Analysis





TOWNSHIP OF CENTRE WELLINGTON
ATTN: Matthew Alexander c/o Centre
Wellington
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Date Received: 19-NOV-21
Report Date: 25-NOV-21 13:31 (MT)
Version: FINAL

Client Phone: 226-821-4906

Certificate of Analysis

Lab Work Order #: L2664502
Project P.O. #: NOT SUBMITTED
Job Reference: 60664299
C of C Numbers:
Legal Site Desc:

Candice Hunter
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
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ANALYTICAL GUIDELINE REPORT

L2664502 CONTD....

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60664299

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2664502-1	FS-T									
Sampled By:	CLIENT on 19-NOV-21 @ 12:05									
Matrix:	WATER									
Physical Tests										
pH		8.38		0.10	pH units	20-NOV-21				
Total Suspended Solids		<3.0		3.0	mg/L	25-NOV-21			6.5-8.5	
Bacteriological Tests										
E. Coli		0		0	CFU/100m L	20-NOV-21	0			
Fecal Coliforms		0		0	CFU/100m L	20-NOV-21	0			
Total Metals										
Aluminum (Al)-Total		0.0064		0.0050	mg/L	22-NOV-21			0.1	
Antimony (Sb)-Total		<0.00010		0.00010	mg/L	22-NOV-21	0.006			
Arsenic (As)-Total		0.00089		0.00010	mg/L	22-NOV-21	0.0100			
Barium (Ba)-Total		0.0654		0.00010	mg/L	22-NOV-21	1			
Beryllium (Be)-Total		<0.00010		0.00010	mg/L	22-NOV-21				
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L	22-NOV-21				
Boron (B)-Total		0.028		0.010	mg/L	22-NOV-21	5			
Cadmium (Cd)-Total		0.0000058		0.000005	mg/L	22-NOV-21	0.005			
Calcium (Ca)-Total		69.5		0.050	mg/L	22-NOV-21				
Cesium (Cs)-Total		<0.000010		0.000010	mg/L	22-NOV-21				
Chromium (Cr)-Total		<0.00050		0.00050	mg/L	22-NOV-21	0.05			
Cobalt (Co)-Total		0.00011		0.00010	mg/L	22-NOV-21				
Copper (Cu)-Total		<0.00050		0.00050	mg/L	22-NOV-21			1	
Iron (Fe)-Total		0.341		0.010	mg/L	23-NOV-21			*0.3	
Lead (Pb)-Total		0.000249		0.000050	mg/L	22-NOV-21	0.01			
Lithium (Li)-Total		0.0044		0.0010	mg/L	22-NOV-21				
Magnesium (Mg)-Total		33.4		0.0050	mg/L	22-NOV-21				
Manganese (Mn)-Total		0.0225		0.00050	mg/L	22-NOV-21			0.05	
Molybdenum (Mo)-Total		0.00589		0.000050	mg/L	22-NOV-21				
Nickel (Ni)-Total		0.00054		0.00050	mg/L	22-NOV-21				
Phosphorus (P)-Total		<0.050		0.050	mg/L	22-NOV-21				
Potassium (K)-Total		1.55		0.050	mg/L	22-NOV-21				
Rubidium (Rb)-Total		0.00104		0.00020	mg/L	22-NOV-21				
Selenium (Se)-Total		0.000101		0.000050	mg/L	22-NOV-21	0.05			
Silicon (Si)-Total		5.18		0.10	mg/L	22-NOV-21				
Silver (Ag)-Total		<0.000050		0.000050	mg/L	22-NOV-21				
Sodium (Na)-Total		24.4		0.050	mg/L	22-NOV-21	*20		200	
Strontium (Sr)-Total		0.877		0.0010	mg/L	22-NOV-21				
Sulfur (S)-Total		38.6		0.50	mg/L	22-NOV-21				
Tellurium (Te)-Total		<0.00020		0.00020	mg/L	22-NOV-21				
Thallium (Tl)-Total		0.000045		0.000010	mg/L	22-NOV-21				
Thorium (Th)-Total		<0.00010		0.00010	mg/L	22-NOV-21				
Tin (Sn)-Total		<0.00010		0.00010	mg/L	22-NOV-21				
Titanium (Ti)-Total		<0.00030		0.00030	mg/L	22-NOV-21				
Tungsten (W)-Total		0.00142		0.00010	mg/L	22-NOV-21				
Uranium (U)-Total		0.000793		0.000010	mg/L	22-NOV-21	0.02			
Vanadium (V)-Total		<0.00050		0.00050	mg/L	22-NOV-21				
Zinc (Zn)-Total		0.0080		0.0030	mg/L	22-NOV-21			5	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)



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60664299

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020) **#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)**

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
EC-MF-WT	Water	E. coli	SM 9222D
A 100 mL volume of sample is filtered through a membrane, the membrane is placed on mFC-BCIG agar and incubated at 44.5 –0 .2 °C for 24 – 2 h. Method ID: WT-TM-1200			
EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
FC-MF-WT	Water	Fecal Coliforms	SM 9222D
A 100mL volume of sample is filtered through a membrane, the membrane is placed on mFC agar and incubated at 24–2h@44.5–0.2°C. Method ID: WT-TM-1200			
MET-T-CCMS-WT	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
PH-WT	Water	pH	APHA 4500 H-Electrode
Water samples are analyzed directly by a calibrated pH meter.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days			
SOLIDS-TSS-WT	Water	Suspended solids	APHA 2540 D-Gravimetric
A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.			

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-MF-WT	Water							
Batch R5654910								
WG3662085-1 MB								
E. Coli			0		CFU/100mL		1	20-NOV-21
FC-MF-WT	Water							
Batch R5654912								
WG3662087-1 MB								
Fecal Coliforms			0		CFU/100mL		1	20-NOV-21
MET-T-CCMS-WT	Water							
Batch R5655361								
WG3662500-4 DUP		WG3662500-3						
Aluminum (Al)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-NOV-21
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-NOV-21
Arsenic (As)-Total		0.00023	0.00023		mg/L	3.4	20	22-NOV-21
Barium (Ba)-Total		0.0449	0.0436		mg/L	2.9	20	22-NOV-21
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-NOV-21
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-NOV-21
Boron (B)-Total		0.024	0.025		mg/L	2.7	20	22-NOV-21
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	22-NOV-21
Calcium (Ca)-Total		59.0	58.4		mg/L	0.9	20	22-NOV-21
Chromium (Cr)-Total		0.00143	0.00134		mg/L	6.4	20	22-NOV-21
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-NOV-21
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-NOV-21
Copper (Cu)-Total		0.00206	0.00202		mg/L	1.9	20	22-NOV-21
Iron (Fe)-Total		0.141	0.145		mg/L	2.8	20	22-NOV-21
Lead (Pb)-Total		0.000346	0.000354		mg/L	2.5	20	22-NOV-21
Lithium (Li)-Total		0.0028	0.0029		mg/L	3.0	20	22-NOV-21
Magnesium (Mg)-Total		14.5	14.8		mg/L	1.7	20	22-NOV-21
Manganese (Mn)-Total		0.00437	0.00438		mg/L	0.2	20	22-NOV-21
Molybdenum (Mo)-Total		0.000529	0.000526		mg/L	0.6	20	22-NOV-21
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-NOV-21
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	22-NOV-21
Potassium (K)-Total		1.52	1.50		mg/L	1.5	20	22-NOV-21
Rubidium (Rb)-Total		0.00032	0.00032		mg/L	1.9	20	22-NOV-21
Selenium (Se)-Total		0.000201	0.000194		mg/L	3.5	20	22-NOV-21



Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R5655361							
WG3662500-4	DUP	WG3662500-3						
Silicon (Si)-Total		5.69	5.45		mg/L	4.3	20	22-NOV-21
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-NOV-21
Sodium (Na)-Total		15.7	15.1		mg/L	3.9	20	22-NOV-21
Strontium (Sr)-Total		0.239	0.235		mg/L	1.8	20	22-NOV-21
Sulfur (S)-Total		3.87	3.88		mg/L	0.1	20	22-NOV-21
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-NOV-21
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	22-NOV-21
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-NOV-21
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-NOV-21
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-NOV-21
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-NOV-21
Uranium (U)-Total		0.00125	0.00126		mg/L	0.6	20	22-NOV-21
Vanadium (V)-Total		0.00234	0.00228		mg/L	2.6	20	22-NOV-21
Zinc (Zn)-Total		0.0076	0.0076		mg/L	0.9	20	22-NOV-21
Zirconium (Zr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	22-NOV-21
WG3662500-2	LCS							
Aluminum (Al)-Total			100.2		%		80-120	22-NOV-21
Antimony (Sb)-Total			103.3		%		80-120	22-NOV-21
Arsenic (As)-Total			101.3		%		80-120	22-NOV-21
Barium (Ba)-Total			98.7		%		80-120	22-NOV-21
Beryllium (Be)-Total			102.9		%		80-120	22-NOV-21
Bismuth (Bi)-Total			103.6		%		80-120	22-NOV-21
Boron (B)-Total			98.6		%		80-120	22-NOV-21
Cadmium (Cd)-Total			101.4		%		80-120	22-NOV-21
Calcium (Ca)-Total			100.0		%		80-120	22-NOV-21
Chromium (Cr)-Total			98.1		%		80-120	22-NOV-21
Cesium (Cs)-Total			99.99		%		80-120	22-NOV-21
Cobalt (Co)-Total			99.9		%		80-120	22-NOV-21
Copper (Cu)-Total			100.6		%		80-120	22-NOV-21
Iron (Fe)-Total			97.7		%		80-120	22-NOV-21
Lead (Pb)-Total			101.6		%		80-120	22-NOV-21
Lithium (Li)-Total			103.5		%		80-120	22-NOV-21
Magnesium (Mg)-Total			105.3		%		80-120	22-NOV-21



Environmental

Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R5655361							
WG3662500-2	LCS							
Manganese (Mn)-Total			98.0		%		80-120	22-NOV-21
Molybdenum (Mo)-Total			102.8		%		80-120	22-NOV-21
Nickel (Ni)-Total			99.6		%		80-120	22-NOV-21
Phosphorus (P)-Total			102.6		%		70-130	22-NOV-21
Potassium (K)-Total			98.3		%		80-120	22-NOV-21
Rubidium (Rb)-Total			101.7		%		80-120	22-NOV-21
Selenium (Se)-Total			99.95		%		80-120	22-NOV-21
Silicon (Si)-Total			96.9		%		60-140	22-NOV-21
Silver (Ag)-Total			101.5		%		80-120	22-NOV-21
Sodium (Na)-Total			100.1		%		80-120	22-NOV-21
Strontium (Sr)-Total			98.9		%		80-120	22-NOV-21
Sulfur (S)-Total			103.5		%		80-120	22-NOV-21
Thallium (Tl)-Total			102.0		%		80-120	22-NOV-21
Tellurium (Te)-Total			96.4		%		80-120	22-NOV-21
Thorium (Th)-Total			101.8		%		80-120	22-NOV-21
Tin (Sn)-Total			97.7		%		80-120	22-NOV-21
Titanium (Ti)-Total			96.7		%		80-120	22-NOV-21
Tungsten (W)-Total			97.2		%		80-120	22-NOV-21
Uranium (U)-Total			100.5		%		80-120	22-NOV-21
Vanadium (V)-Total			100.9		%		80-120	22-NOV-21
Zinc (Zn)-Total			96.2		%		80-120	22-NOV-21
Zirconium (Zr)-Total			99.7		%		80-120	22-NOV-21
WG3662500-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	22-NOV-21
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Arsenic (As)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Barium (Ba)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	22-NOV-21
Boron (B)-Total			<0.010		mg/L		0.01	22-NOV-21
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	22-NOV-21
Calcium (Ca)-Total			<0.050		mg/L		0.05	22-NOV-21
Chromium (Cr)-Total			<0.00050		mg/L		0.0005	22-NOV-21
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	22-NOV-21

Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R5655361							
WG3662500-1 MB								
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Copper (Cu)-Total			<0.00050		mg/L		0.0005	22-NOV-21
Iron (Fe)-Total			<0.010		mg/L		0.01	23-NOV-21
Lead (Pb)-Total			<0.000050		mg/L		0.00005	22-NOV-21
Lithium (Li)-Total			<0.0010		mg/L		0.001	22-NOV-21
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	22-NOV-21
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	22-NOV-21
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	22-NOV-21
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	22-NOV-21
Phosphorus (P)-Total			<0.050		mg/L		0.05	22-NOV-21
Potassium (K)-Total			<0.050		mg/L		0.05	22-NOV-21
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	22-NOV-21
Selenium (Se)-Total			<0.000050		mg/L		0.00005	22-NOV-21
Silicon (Si)-Total			<0.10		mg/L		0.1	22-NOV-21
Silver (Ag)-Total			<0.000050		mg/L		0.00005	22-NOV-21
Sodium (Na)-Total			<0.050		mg/L		0.05	22-NOV-21
Strontium (Sr)-Total			<0.0010		mg/L		0.001	22-NOV-21
Sulfur (S)-Total			<0.50		mg/L		0.5	22-NOV-21
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	22-NOV-21
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	22-NOV-21
Thorium (Th)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Tin (Sn)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	22-NOV-21
Tungsten (W)-Total			<0.00010		mg/L		0.0001	22-NOV-21
Uranium (U)-Total			<0.000010		mg/L		0.00001	22-NOV-21
Vanadium (V)-Total			<0.00050		mg/L		0.0005	22-NOV-21
Zinc (Zn)-Total			<0.0030		mg/L		0.003	22-NOV-21
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	22-NOV-21
WG3662500-5 MS		WG3662500-3						
Aluminum (Al)-Total			100.7		%		70-130	22-NOV-21
Antimony (Sb)-Total			104.5		%		70-130	22-NOV-21
Arsenic (As)-Total			102.5		%		70-130	22-NOV-21
Barium (Ba)-Total			N/A	MS-B	%		-	22-NOV-21
Beryllium (Be)-Total			101.7		%		70-130	22-NOV-21



Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

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Client:

TOWNSHIP OF CENTRE WELLINGTON

50 Sportsworld Crossing Rd

Kitchener ON N2P 0A4

Contact:

Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R5655361							
WG3662500-5	MS	WG3662500-3						
Bismuth (Bi)-Total			101.7		%		70-130	22-NOV-21
Boron (B)-Total			96.2		%		70-130	22-NOV-21
Cadmium (Cd)-Total			100.9		%		70-130	22-NOV-21
Calcium (Ca)-Total			N/A	MS-B	%		-	22-NOV-21
Chromium (Cr)-Total			99.7		%		70-130	22-NOV-21
Cesium (Cs)-Total			101.0		%		70-130	22-NOV-21
Cobalt (Co)-Total			100.2		%		70-130	22-NOV-21
Copper (Cu)-Total			100.2		%		70-130	22-NOV-21
Iron (Fe)-Total			N/A	MS-B	%		-	22-NOV-21
Lead (Pb)-Total			99.7		%		70-130	22-NOV-21
Lithium (Li)-Total			101.7		%		70-130	22-NOV-21
Magnesium (Mg)-Total			N/A	MS-B	%		-	22-NOV-21
Manganese (Mn)-Total			100.0		%		70-130	22-NOV-21
Molybdenum (Mo)-Total			104.4		%		70-130	22-NOV-21
Nickel (Ni)-Total			100.2		%		70-130	22-NOV-21
Phosphorus (P)-Total			107.3		%		70-130	22-NOV-21
Potassium (K)-Total			98.2		%		70-130	22-NOV-21
Rubidium (Rb)-Total			103.3		%		70-130	22-NOV-21
Selenium (Se)-Total			100.7		%		70-130	22-NOV-21
Silicon (Si)-Total			N/A	MS-B	%		-	22-NOV-21
Silver (Ag)-Total			97.9		%		70-130	22-NOV-21
Sodium (Na)-Total			N/A	MS-B	%		-	22-NOV-21
Strontium (Sr)-Total			N/A	MS-B	%		-	22-NOV-21
Sulfur (S)-Total			N/A	MS-B	%		-	22-NOV-21
Thallium (Tl)-Total			100.8		%		70-130	22-NOV-21
Tellurium (Te)-Total			96.1		%		70-130	22-NOV-21
Thorium (Th)-Total			102.2		%		70-130	22-NOV-21
Tin (Sn)-Total			98.0		%		70-130	22-NOV-21
Titanium (Ti)-Total			99.4		%		70-130	22-NOV-21
Tungsten (W)-Total			98.2		%		70-130	22-NOV-21
Uranium (U)-Total			N/A	MS-B	%		-	22-NOV-21
Vanadium (V)-Total			102.9		%		70-130	22-NOV-21
Zinc (Zn)-Total			96.5		%		70-130	22-NOV-21



Environmental

Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R5655361							
WG3662500-5 MS		WG3662500-3						
Zirconium (Zr)-Total			98.7		%		70-130	22-NOV-21
PH-WT		Water						
Batch	R5656563							
WG3662022-4 DUP		WG3662022-3						
pH		8.24	8.24	J	pH units	0.00	0.2	20-NOV-21
WG3662022-2 LCS								
pH			7.03		pH units		6.9-7.1	20-NOV-21
SOLIDS-TSS-WT		Water						
Batch	R5657105							
WG3664122-6 DUP		WG3664122-7						
Total Suspended Solids		10400	10400		mg/L	0.0	20	25-NOV-21
WG3664122-5 LCS								
Total Suspended Solids			101.3		%		85-115	25-NOV-21
WG3664122-4 MB								
Total Suspended Solids			<3.0		mg/L		3	25-NOV-21

Quality Control Report

Workorder: L2664502

Report Date: 25-NOV-21

Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

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Contact: Matthew Alexander c/o Centre Wellington

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

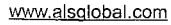
Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



COC Number: 20 - 947661

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[illegible]

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 samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT



TOWNSHIP OF CENTRE WELLINGTON
ATTN: Matthew Alexander c/o Centre
Wellington
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Date Received: 01-DEC-21
Report Date: 23-DEC-21 14:42 (MT)
Version: FINAL

Client Phone: 226-821-4906

Certificate of Analysis

Lab Work Order #: L2668348
Project P.O. #: NOT SUBMITTED
Job Reference: 60669299
C of C Numbers: 20-945121
Legal Site Desc:

Candice Hunter
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
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ANALYTICAL GUIDELINE REPORT

L2668348 CONTD....

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23-DEC-21 14:42 (MT)

60669299

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2668348-1	FS-T									
Sampled By:	CLIENT on 01-DEC-21 @ 12:00									
Matrix:	WATER									
Anions and Nutrients										
Chlorate		<0.010		0.010	mg/L	07-DEC-21	1.0			
Chlorite		<0.010		0.010	mg/L	07-DEC-21	1.0			
Fluoride (F)		0.13		0.10	mg/L	02-DEC-21	1.5			
Nitrate (as N)		0.238		0.020	mg/L	02-DEC-21	10			
Nitrite (as N)		<0.010		0.010	mg/L	02-DEC-21	1			
Cyanides										
Cyanide, Total		<0.0020		0.0020	mg/L	02-DEC-21				
Bacteriological Tests										
Escherichia Coli		0		0	MPN/100m L	02-DEC-21	0			
Total Coliforms		0		0	MPN/100m L	02-DEC-21	0			
Total Metals										
Antimony (Sb)		<0.60		0.60	ug/L	07-DEC-21	6			
Arsenic (As)		1.3		1.0	ug/L	07-DEC-21	10.0			
Barium (Ba)		53		10	ug/L	07-DEC-21	1000			
Boron (B)		<50		50	ug/L	07-DEC-21	5000			
Cadmium (Cd)		<0.10		0.10	ug/L	07-DEC-21	5			
Chromium (Cr)		<1.0		1.0	ug/L	07-DEC-21	50			
Lead (Pb)		<1.0		1.0	ug/L	07-DEC-21	10			
Selenium (Se)		<5.0		5.0	ug/L	07-DEC-21	50			
Sodium (Na)		15.5		0.50	mg/L	07-DEC-21	20	200		
Uranium (U)		<5.0		5.0	ug/L	07-DEC-21	20			
Extractable Metals										
Mercury		<0.10		0.10	ug/L	02-DEC-21	1			
Volatile Organic Compounds										
Benzene		<0.50		0.50	ug/L	09-DEC-21	1			
Carbon tetrachloride		<0.20		0.20	ug/L	09-DEC-21	2			
Monochlorobenzene		<0.50		0.50	ug/L	09-DEC-21	80	30		
1,2-Dichlorobenzene		<0.50		0.50	ug/L	09-DEC-21	200	3		
1,4-Dichlorobenzene		<0.50		0.50	ug/L	09-DEC-21	5	1		
1,2-Dichloroethane		<0.50		0.50	ug/L	09-DEC-21	5			
1,1-dichloroethylene (vinylidene chlorid		<0.50		0.50	ug/L	09-DEC-21	14			
Dichloromethane		<5.0		5.0	ug/L	09-DEC-21	50			
Ethylbenzene		<0.50		0.50	ug/L	09-DEC-21	140	2.4		
Tetrachloroethylene (perchloroethylene)		<0.50		0.50	ug/L	09-DEC-21	10			
Toluene		<0.50		0.50	ug/L	09-DEC-21	60	24		
Trichloroethylene		<0.50		0.50	ug/L	09-DEC-21	5			
Vinyl chloride		<0.20		0.20	ug/L	09-DEC-21	1			
o-xylene		<0.50		0.50	ug/L	09-DEC-21				
m/p-xylene		<1.0		1.0	ug/L	09-DEC-21				
Xylenes (Total)		<1.5		1.5	ug/L	09-DEC-21	90	300		
Surrogate: 4-Bromofluorobenzene		92.3		70-130	%	09-DEC-21				
Surrogate: 1,4-Difluorobenzene		98.3		50-150	%	09-DEC-21				
Surrogate: 1,4-Difluorobenzene		98.3		70-130	%	09-DEC-21				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)



ANALYTICAL GUIDELINE REPORT

L2668348 CONTD....

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Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2668348-1	FS-T									
Sampled By:	CLIENT on 01-DEC-21 @ 12:00									
Matrix:	WATER									
Volatile Organic Compounds										
Polycyclic Aromatic Hydrocarbons										
	Benzo(a)pyrene	<0.0050		0.0050	ug/L	03-DEC-21	0.01			
	Surrogate: Chrysene d12	66.4		50-150	%	03-DEC-21				
Trihalomethanes										
	Bromodichloromethane	<2.0		2.0	ug/L	09-DEC-21				
	Bromoform	<2.0		2.0	ug/L	09-DEC-21				
	Dibromochloromethane	<2.0		2.0	ug/L	09-DEC-21				
	Chloroform	<2.0		2.0	ug/L	09-DEC-21				
	Total THMs	<4.0		4.0	ug/L	09-DEC-21	100			
Semi-Volatile Organics										
	N-Nitrosodimethylamine	<0.00090		0.00090	ug/L	07-DEC-21	0.009			
	Surrogate: N-Nitrosodimethylamine-d6	56.2		50-150	%	07-DEC-21				
Polychlorinated Biphenyls										
	Aroclor 1242	<0.020		0.020	ug/L	23-DEC-21				
	Aroclor 1254	<0.020		0.020	ug/L	23-DEC-21				
	Aroclor 1260	<0.020		0.020	ug/L	23-DEC-21				
	Surrogate: Decachlorobiphenyl	120.5		50-150	%	23-DEC-21				
	Total PCBs	<0.035		0.035	ug/L	23-DEC-21	3			
	Surrogate: Tetrachloro-m-xylene	73.8		50-150	%	23-DEC-21				
Organochlorine Pesticides										
	a-chlordane	<0.0080		0.0080	ug/L	03-DEC-21				
	g-chlordane	<0.0080		0.0080	ug/L	03-DEC-21				
	pp-DDD	<0.004		0.004	ug/L	03-DEC-21				
	pp-DDE	<0.004		0.004	ug/L	03-DEC-21				
	op-DDT	<0.0040		0.0040	ug/L	03-DEC-21				
	pp-DDT	<0.0040		0.0040	ug/L	03-DEC-21				
	Oxychlordane	<0.0080		0.0080	ug/L	03-DEC-21				
	Surrogate: Decachlorobiphenyl	143.5		50-150	%	03-DEC-21				
Herbicides										
	AMPA	<0.50		0.50	ug/L	08-DEC-21				
	Bromoxynil	<0.20		0.20	ug/L	08-DEC-21	5			
	2,4-D	<0.20		0.20	ug/L	08-DEC-21	100			
	Dicamba	<0.20		0.20	ug/L	08-DEC-21	120			
	Dinoseb	<0.20		0.20	ug/L	08-DEC-21	10			
	Glyphosate	<5.0		5.0	ug/L	08-DEC-21	280			
	MCPA	<0.20		0.20	ug/L	08-DEC-21	100			
	Picloram	<0.20		0.20	ug/L	08-DEC-21	190			
	2,4,5-TP	<0.20		0.20	ug/L	08-DEC-21				
	Surrogate: 2,4-Dichlorophenylacetic Acid	79.6		50-130	%	08-DEC-21				
Pesticides										
	Alachlor	<0.10		0.10	ug/L	07-DEC-21	5			
	Atrazine	<0.10		0.10	ug/L	07-DEC-21				
	Atrazine & Metabolites	<0.20		0.20	ug/L	07-DEC-21	5			
	Azinphos-methyl	<0.10		0.10	ug/L	07-DEC-21	20			
	Carbaryl	<0.20		0.20	ug/L	07-DEC-21	90			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)



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60669299

* Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
ACIDS-ONT-DW-WT	Water	O.Reg 170/03 Acids	SW846 8270
Pesticides are extracted from an aqueous sample using separate aliquots of solvent, extracts are concentrated down to a certain volume and analyzed on the GC/MSD.			
BAP-ONT-DW-WT	Water	Benzo(a)pyrene in Drinking Water	SW 846 8270
CHLORATE-IC-DW-WT	Water	Chlorate by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CHLORITE-IC-DW-WT	Water	Chlorite by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CN-TOT-ONT-DW-WT	Water	Cyanide, Total	ISO 14403-2
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference.			
Ontario Drinking Water samples are not filtered during analysis.			
DIQUAT-ONT-DW-WT	Water	Diquat in Water by LC/MS-MS	E3503
An aliquot of the sample is taken and internal standard is added. The sample is analyzed by LC/MS/MS.			
DIURON-ONT-DW-WT	Water	Diuron in Drinking Water	E3501
An aliquot of water sample is diluted 1:1 using acetonitrile and analyzed using LC/MS/MS			
EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
F-DW-IC-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
GLYPHOSATE-ONT-DW-WT	Water	Glyphosate in Drinking Water	MOE E3500
This analysis is carried out using procedures adapted from ON MOE E3500 "Glyphosate". Glyphosate is determined by direct injection by LC-MS/MS on a sample that has been derivatized.			
HG-T-ONT-DW-WT	Water	Mercury (Hg)	EPA 1631E (mod)
MET-ONT-DW-WT	Water	Drinking Water Metals	EPA 6020A
MICROCYSTIN-WP	Water	Microcystin	ENVIROLOGIX QUANTIPLATE KIT CAT. EP022HS
Total Microcystins (intracellular and extracellular) in aqueous matrices is determined by the Enzyme-Linked Immunosorbent Assay (ELISA) method.			
MISC-ONT-DW-WT	Water	O.Reg 170/03 Miscellaneous Pesticides	SW846 8270
Pesticides are extracted from an aqueous sample using separate aliquots of solvent, extracts are concentrated down to a certain volume and analyzed on the GC/MSD.			
NDMA-ONT-DW-WT	Water	NDMA to meet Ont Reg 170/03	QWI-ORG/WP239
An aliquot of sample is solid phase extracted followed by liquid chromatography tandem mass spectrometry instead of direct injection.			
NO2-DW-IC-WT	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-DW-IC-WT	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NTA-WT	Water	Nitrilotriacetic Acid (NTA)	EPA 430.1
NTA refers to the tri-sodium salt of nitrilotriacetic acid, N(CH ₂ COONa) ₃ . Zinc forms a blue-coloured complex with 2 carboxy-2-hydroxy-5-sulfoformazylbenzene (Zincon) in a solution buffered to pH 9.2. When NTA is added to the sample, the Zinc-Zincon complex is broken which reduces the absorbance in proportion to the amount of NTA present. Samples are filtered with a 0.45 um membrane before analysis.			
OCP-ROUTINE-DW-WT	Water	Pesticides, Organochlorine in Water	SW846 8270

Samples are extracted using a solvent mixture and the resulting extracts are analyzed on GC/MSD

Reference Information

PAHERB-ONT-DW-WT	Water	O.Reg 170/03 PA Herbicides	MOE E3552
Water samples are analyzed by direct injection without sample preparation using liquid chromatography tandem mass spectrometry (LC-MS/MS).			
PARAQUAT-ONT-DW-WT	Water	Paraquat in Water by LC/MS-MS	E3503
An aliquot of the sample is taken and internal standard is added. The sample is analyzed by LC/MS/MS.			
PCB-ONT-DW-WT	Water	O.Reg 170/03 PCBs	EPA 8270
PCBs are extracted from an aqueous sample at neutral pH with aliquots of dichloromethane using a modified separatory funnel technique. The extracts are analyzed by GC/MSD.			
TC,EC-QT51-DW-WT	Water	Total Coliform and E. Coli	APHA 9223B
This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.			
THM-ONT-DW-WT	Water	Trihalomethanes	SW846 8260
Liquid samples are analyzed by headspace GC/MSD.			
THM-SUM-DW-CALC-WT	Water	Total Trihalomethanes (THMs)	CALCULATION
Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
TURB-MET-WT	Water	Turbidity on preserved metals sample	APHA 2130 B
Sample result is based on a comparison of the intensity of the light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. Sample readings are obtained from a Nephelometer.			
VOC-ONT-DW-WT	Water	Volatile Organics (O.Reg 170/03)	SW846 8260
Liquid samples are analyzed by headspace GC/MSD.			

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:			
20-945121			
The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:			
Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA	WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACIDS-ONT-DW-WT		Water						
Batch	R5672481							
WG3671245-2	LCS							
2,4-Dichlorophenol			84.1		%		50-140	09-DEC-21
2,4,6-Trichlorophenol			87.8		%		50-140	09-DEC-21
2,3,4,6-Tetrachlorophenol			92.4		%		50-140	09-DEC-21
Pentachlorophenol			118.9		%		60-130	09-DEC-21
WG3671245-1	MB							
2,4-Dichlorophenol			<0.30		ug/L		0.3	09-DEC-21
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	09-DEC-21
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	09-DEC-21
Pentachlorophenol			<0.50		ug/L		0.5	09-DEC-21
Surrogate: 2,4,6-Tribromophenol			95.8		%		40-150	09-DEC-21
BAP-ONT-DW-WT		Water						
Batch	R5663248							
WG3669114-2	LCS							
Benzo(a)pyrene			80.9		%		60-130	03-DEC-21
WG3669114-1	MB							
Benzo(a)pyrene			<0.0050		ug/L		0.005	03-DEC-21
Surrogate: Chrysene d12			97.5		%		50-150	03-DEC-21
CHLORATE-IC-DW-WT		Water						
Batch	R5671178							
WG3671404-3	DUP	WG3671404-5						
Chlorate		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-DEC-21
WG3671404-2	LCS							
Chlorate			100.3		%		85-115	07-DEC-21
WG3671404-1	MB							
Chlorate			<0.010		mg/L		0.01	07-DEC-21
WG3671404-4	MS	WG3671404-5						
Chlorate			99.8		%		75-125	07-DEC-21
CHLORITE-IC-DW-WT		Water						
Batch	R5671178							
WG3671404-3	DUP	WG3671404-5						
Chlorite		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-DEC-21
WG3671404-2	LCS							
Chlorite			101.3		%		85-115	07-DEC-21
WG3671404-1	MB							
Chlorite			<0.010		mg/L		0.01	07-DEC-21
WG3671404-4	MS	WG3671404-5						

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50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CHLORITE-IC-DW-WT	Water							
Batch	R5671178							
WG3671404-4	MS	WG3671404-5						
Chlorite			98.8		%		75-125	07-DEC-21
CN-TOT-ONT-DW-WT	Water							
Batch	R5663116							
WG3668780-3	DUP	WG3668780-5						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	02-DEC-21
WG3668780-2	LCS							
Cyanide, Total			97.4		%		80-120	02-DEC-21
WG3668780-1	MB							
Cyanide, Total			<0.0020		mg/L		0.002	02-DEC-21
WG3668780-4	MS	WG3668780-5						
Cyanide, Total			96.8		%		70-130	02-DEC-21
DIQUAT-ONT-DW-WT	Water							
Batch	R5673652							
WG3672276-3	DUP	WG3672276-5						
Diquat		<1.0	<1.0	RPD-NA	ug/L	N/A	30	09-DEC-21
WG3672276-2	LCS							
Diquat			109.9		%		70-130	09-DEC-21
WG3672276-1	MB							
Diquat			<1.0		ug/L		1	09-DEC-21
WG3672276-4	MS	WG3672276-6						
Diquat			108.3		%		70-130	09-DEC-21
DIURON-ONT-DW-WT	Water							
Batch	R5673639							
WG3671922-3	DUP	WG3671922-5						
Diuron		<1.0	<1.0	RPD-NA	ug/L	N/A	30	09-DEC-21
WG3671922-2	LCS							
Diuron			109.6		%		70-130	09-DEC-21
WG3671922-1	MB							
Diuron			<1.0		ug/L		1	09-DEC-21
WG3671922-4	MS	WG3671922-5						
Diuron			108.5		%		70-130	09-DEC-21
F-DW-IC-WT	Water							

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50 Sportsworld Crossing Rd
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Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-DW-IC-WT		Water						
Batch	R5663265							
WG3669087-14	DUP	WG3669087-13						
Fluoride (F)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-DEC-21
WG3669087-12	LCS							
Fluoride (F)			101.6		%		90-110	02-DEC-21
WG3669087-11	MB							
Fluoride (F)			<0.10		mg/L		0.1	02-DEC-21
WG3669087-15	MS	WG3669087-13						
Fluoride (F)			102.9		%		75-125	02-DEC-21
GLYPHOSATE-ONT-DW-WT		Water						
Batch	R5672549							
WG3671193-3	DUP	L2666133-1						
Glyphosate		<5.0	<5.0	RPD-NA	ug/L	N/A	30	08-DEC-21
AMPA		<0.50	<0.50	RPD-NA	ug/L	N/A	40	08-DEC-21
WG3671193-2	LCS							
Glyphosate			113.9		%		70-130	08-DEC-21
AMPA			100.6		%		70-130	08-DEC-21
WG3671193-1	MB							
Glyphosate			<5.0		ug/L		5	08-DEC-21
AMPA			<0.50		ug/L		0.5	08-DEC-21
WG3671193-4	MS	L2666133-1						
Glyphosate			99.1		%		70-130	08-DEC-21
AMPA			95.8		%		70-130	08-DEC-21
HG-T-ONT-DW-WT		Water						
Batch	R5662140							
WG3668893-3	DUP	WG3668893-5						
Mercury		<0.10	<0.10	RPD-NA	ug/L	N/A	20	02-DEC-21
WG3668893-2	LCS							
Mercury			95.8		%		80-120	02-DEC-21
WG3668893-1	MB							
Mercury			<0.10		ug/L		0.1	02-DEC-21
WG3668893-4	MS	WG3668893-6						
Mercury			99.1		%		70-130	02-DEC-21
MET-ONT-DW-WT		Water						
Batch	R5669643							
WG3671334-4	DUP	WG3671334-3						
Antimony (Sb)		<0.60	<0.60	RPD-NA	ug/L	N/A	25	07-DEC-21
Arsenic (As)		1.3	1.3		ug/L	0.3	25	07-DEC-21

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Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-WT		Water						
Batch	R5669643							
WG3671334-4	DUP	WG3671334-3						
Barium (Ba)		53	53		ug/L	0.4	25	07-DEC-21
Boron (B)		<50	<50	RPD-NA	ug/L	N/A	25	07-DEC-21
Cadmium (Cd)		<0.10	<0.10	RPD-NA	ug/L	N/A	25	07-DEC-21
Chromium (Cr)		<1.0	<1.0	RPD-NA	ug/L	N/A	25	07-DEC-21
Lead (Pb)		<1.0	<1.0	RPD-NA	ug/L	N/A	25	07-DEC-21
Selenium (Se)		<1.0	<1.0	RPD-NA	ug/L	N/A	25	07-DEC-21
Sodium (Na)		15.5	14.7		mg/L	5.1	25	07-DEC-21
Uranium (U)		<2.0	<2.0	RPD-NA	ug/L	N/A	25	07-DEC-21
WG3671334-2	LCS							
Antimony (Sb)			102.2		%		70-130	07-DEC-21
Arsenic (As)			101.7		%		70-130	07-DEC-21
Barium (Ba)			99.1		%		70-130	07-DEC-21
Boron (B)			97.7		%		70-130	07-DEC-21
Cadmium (Cd)			101.4		%		70-130	07-DEC-21
Chromium (Cr)			100.8		%		70-130	07-DEC-21
Lead (Pb)			103.7		%		70-130	07-DEC-21
Selenium (Se)			101.8		%		70-130	07-DEC-21
Sodium (Na)			102.6		%		70-130	07-DEC-21
Uranium (U)			105.6		%		70-130	07-DEC-21
WG3671334-1	MB							
Antimony (Sb)			<0.60		ug/L		0.6	07-DEC-21
Arsenic (As)			<1.0		ug/L		1	07-DEC-21
Barium (Ba)			<10		ug/L		10	07-DEC-21
Boron (B)			<50		ug/L		50	07-DEC-21
Cadmium (Cd)			<0.10		ug/L		0.1	07-DEC-21
Chromium (Cr)			<1.0		ug/L		1	07-DEC-21
Lead (Pb)			<1.0		ug/L		1	07-DEC-21
Selenium (Se)			<1.0		ug/L		1	07-DEC-21
Sodium (Na)			<0.50		mg/L		0.5	07-DEC-21
Uranium (U)			<2.0		ug/L		2	07-DEC-21
WG3671334-5	MS	WG3671334-3						
Antimony (Sb)			101.7		%		70-130	07-DEC-21
Arsenic (As)			105.3		%		70-130	07-DEC-21
Barium (Ba)			N/A	MS-B	%		-	07-DEC-21

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50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-WT		Water						
Batch	R5669643							
WG3671334-5	MS	WG3671334-3						
Boron (B)			92.9		%		70-130	07-DEC-21
Cadmium (Cd)			101.3		%		70-130	07-DEC-21
Chromium (Cr)			96.9		%		70-130	07-DEC-21
Lead (Pb)			98.5		%		70-130	07-DEC-21
Selenium (Se)			113.5		%		70-130	07-DEC-21
Sodium (Na)			N/A	MS-B	%		-	07-DEC-21
Uranium (U)			N/A	MS-B	%		-	07-DEC-21
MICROCYSTIN-WP		Water						
Batch	R5668198							
WG3670520-4	DUP	L2668348-1						
Microcystin		<0.20	<0.20	RPD-NA	ug/L	N/A	30	07-DEC-21
WG3670520-2	LCS							
Microcystin			96.3		%		70-130	07-DEC-21
WG3670520-1	MB							
Microcystin			<0.20		ug/L		0.2	07-DEC-21
WG3670520-3	MS	L2668348-1						
Microcystin			111.4		%		50-150	07-DEC-21
MISC-ONT-DW-WT		Water						
Batch	R5668418							
WG3670344-2	LCS							
Alachlor			121.4		%		60-130	07-DEC-21
Atrazine			122.2		%		60-130	07-DEC-21
Atrazine-desethyl			72.5		%		50-130	07-DEC-21
Azinphos-methyl			162.3	LCS-H	%		60-140	07-DEC-21
Carbaryl			170.4	LCS-H	%		50-140	07-DEC-21
Carbofuran			143.7	LCS-H	%		60-140	07-DEC-21
Chlorpyriphos			114.3		%		60-130	07-DEC-21
Diazinon			113.1		%		60-130	07-DEC-21
Diclofop-methyl			110.5		%		60-140	07-DEC-21
Dimethoate			118.2		%		60-130	07-DEC-21
Malathion			130.9	LCS-H	%		60-130	07-DEC-21
Metribuzin			132.6	LCS-H	%		60-130	07-DEC-21
Metolachlor			129.0		%		60-130	07-DEC-21
Phorate			117.8		%		30-140	07-DEC-21



Environmental

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MISC-ONT-DW-WT		Water						
Batch	R5668418							
WG3670344-2	LCS							
Prometryne			126.4		%		60-130	07-DEC-21
Simazine			126.0		%		60-130	07-DEC-21
Terbufos			114.1		%		60-130	07-DEC-21
Triallate			106.4		%		60-130	07-DEC-21
Trifluralin			100.4		%		60-130	07-DEC-21
WG3670344-1	MB							
Alachlor			<0.10		ug/L		0.1	07-DEC-21
Atrazine			<0.10		ug/L		0.1	07-DEC-21
Atrazine-desethyl			<0.10		ug/L		0.1	07-DEC-21
Azinphos-methyl			<0.10		ug/L		0.1	07-DEC-21
Carbaryl			<0.20		ug/L		0.2	07-DEC-21
Carbofuran			<0.20		ug/L		0.2	07-DEC-21
Chlorpyrifos			<0.10		ug/L		0.1	07-DEC-21
Diazinon			<0.10		ug/L		0.1	07-DEC-21
Diclofop-methyl			<0.20		ug/L		0.2	07-DEC-21
Dimethoate			<0.10		ug/L		0.1	07-DEC-21
Malathion			<0.10		ug/L		0.1	07-DEC-21
Metribuzin			<0.10		ug/L		0.1	07-DEC-21
Metolachlor			<0.10		ug/L		0.1	07-DEC-21
Phorate			<0.10		ug/L		0.1	07-DEC-21
Prometryne			<0.10		ug/L		0.1	07-DEC-21
Simazine			<0.10		ug/L		0.1	07-DEC-21
Terbufos			<0.20		ug/L		0.2	07-DEC-21
Triallate			<0.10		ug/L		0.1	07-DEC-21
Trifluralin			<0.10		ug/L		0.1	07-DEC-21
Surrogate: 2-Fluorobiphenyl			72.4		%		40-130	07-DEC-21
NDMA-ONTDW-WT		Water						
Batch	R5668102							
WG3669352-7	DUP	WG3669352-9						
N-Nitrosodimethylamine		<0.00090	<0.00090	RPD-NA	ug/L	N/A	30	06-DEC-21
WG3669352-2	LCS							
N-Nitrosodimethylamine			114.5		%		50-150	06-DEC-21
WG3669352-1	MB							
N-Nitrosodimethylamine			0.00150	RRQC	ug/L		0.0009	06-DEC-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
OCP-ROUTINE-DW-WT		Water						
Batch	R5663790							
WG3668582-2	LCS							
a-chlordane			116.7		%		50-150	03-DEC-21
g-chlordane			122.4		%		50-150	03-DEC-21
op-DDT			130.5		%		50-150	03-DEC-21
pp-DDD			93.1		%		50-150	03-DEC-21
pp-DDE			115.7		%		50-150	03-DEC-21
pp-DDT			128.9		%		50-150	03-DEC-21
Oxychlordane			123.4		%		50-150	03-DEC-21
WG3668582-1	MB							
a-chlordane			<0.0080		ug/L		0.008	03-DEC-21
g-chlordane			<0.0080		ug/L		0.008	03-DEC-21
op-DDT			<0.0040		ug/L		0.004	03-DEC-21
pp-DDD			<0.004		ug/L		0.004	03-DEC-21
pp-DDE			<0.004		ug/L		0.004	03-DEC-21
pp-DDT			<0.0040		ug/L		0.004	03-DEC-21
Oxychlordane			<0.0080		ug/L		0.008	03-DEC-21
Surrogate: Decachlorobiphenyl			149.0		%		50-150	03-DEC-21
PAHERB-ONT-DW-WT		Water						
Batch	R5667241							
WG3670496-3	DUP	WG3670496-5						
Dicamba		<0.20	<0.20	RPD-NA	ug/L	N/A	30	06-DEC-21
Bromoxynil		<0.20	<0.20	RPD-NA	ug/L	N/A	30	06-DEC-21
2,4-D		<0.20	<0.20	RPD-NA	ug/L	N/A	30	06-DEC-21
2,4,5-TP		<0.20	<0.20	RPD-NA	ug/L	N/A	50	06-DEC-21
Dinoseb		<0.20	<0.20	RPD-NA	ug/L	N/A	50	06-DEC-21
Picloram		<0.20	<0.20	RPD-NA	ug/L	N/A	30	06-DEC-21
MCPA		<0.20	<0.20	RPD-NA	ug/L	N/A	30	06-DEC-21
WG3670496-2	LCS							
Dicamba			95.3		%		65-130	06-DEC-21
Bromoxynil			121.8		%		65-130	06-DEC-21
2,4-D			96.1		%		65-130	06-DEC-21
2,4,5-TP			100.4		%		50-150	06-DEC-21
Dinoseb			91.2		%		50-150	06-DEC-21
Picloram			110.0		%		50-150	06-DEC-21
MCPA			104.1		%		65-130	06-DEC-21



Environmental

Quality Control Report

Workorder: L2668348

Report Date: 23-DEC-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAHERB-ONT-DW-WT Water								
Batch	R5667241							
WG3670496-1 MB								
Dicamba			<0.20		ug/L		0.2	06-DEC-21
Bromoxynil			<0.20		ug/L		0.2	06-DEC-21
2,4-D			<0.20		ug/L		0.2	06-DEC-21
2,4,5-TP			<0.20		ug/L		0.2	06-DEC-21
Dinoseb			<0.20		ug/L		0.2	06-DEC-21
Picloram			<0.20		ug/L		0.2	06-DEC-21
MCPA			<0.20		ug/L		0.2	06-DEC-21
Surrogate: 2,4-Dichlorophenylacetic Acid			97.5		%		50-130	06-DEC-21
WG3670496-4 MS		WG3670496-5						
Dicamba			94.5		%		50-150	06-DEC-21
Bromoxynil			112.3		%		50-150	06-DEC-21
2,4-D			81.5		%		50-150	06-DEC-21
2,4,5-TP			106.4		%		50-150	06-DEC-21
Dinoseb			89.0		%		50-150	06-DEC-21
Picloram			108.8		%		50-150	06-DEC-21
MCPA			98.3		%		50-150	06-DEC-21
PARAQUAT-ONT-DW-WT Water								
Batch	R5673652							
WG3672276-3 DUP		WG3672276-5						
Paraquat		<1.0	<1.0	RPD-NA	ug/L	N/A	30	09-DEC-21
WG3672276-2 LCS			107.3		%		70-130	09-DEC-21
WG3672276-1 MB			<1.0		ug/L		1	09-DEC-21
WG3672276-4 MS		WG3672276-6						
Paraquat			82.0		%		70-130	09-DEC-21
PCB-ONT-DW-WT Water								
Batch	R5682879							
WG3668582-2 LCS								
Aroclor 1242			112.6		%		60-140	23-DEC-21
Aroclor 1254			107.2		%		60-140	23-DEC-21
Aroclor 1260			106.3		%		60-140	23-DEC-21
WG3668582-1 MB								
Aroclor 1242			<0.020		ug/L		0.02	23-DEC-21
Aroclor 1254			<0.020		ug/L		0.02	23-DEC-21

Quality Control Report

Workorder: L2668348

Report Date: 23-DEC-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-ONT-DW-WT Water								
Batch	R5682879							
WG3668582-1 MB								
Aroclor 1260			<0.020		ug/L		0.02	23-DEC-21
Surrogate: Decachlorobiphenyl			126.8		%		50-150	23-DEC-21
Surrogate: Tetrachloro-m-xylene			89.3		%		50-150	23-DEC-21
TC,EC-QT51-DW-WT Water								
Batch	R5663256							
WG3668782-2 DUP		L2668393-4						
Total Coliforms		0	0		MPN/100mL	0.0	65	02-DEC-21
Escherichia Coli		0	0		MPN/100mL	0.0	65	02-DEC-21
WG3668782-1 MB								
Total Coliforms			0		MPN/100mL		1	02-DEC-21
Escherichia Coli			0		MPN/100mL		1	02-DEC-21
THM-ONT-DW-WT Water								
Batch	R5671794							
WG3671587-4 DUP		WG3671587-3						
Chloroform		5.4	5.3		ug/L	1.3	30	09-DEC-21
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	09-DEC-21
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	09-DEC-21
Bromoform		<2.0	<2.0	RPD-NA	ug/L	N/A	30	09-DEC-21
WG3671587-1 LCS								
Chloroform			107.6		%		70-130	09-DEC-21
Bromodichloromethane			112.8		%		70-130	09-DEC-21
Dibromochloromethane			101.5		%		70-130	09-DEC-21
Bromoform			94.5		%		70-130	09-DEC-21
WG3671587-2 MB								
Chloroform			<2.0		ug/L		2	09-DEC-21
Bromodichloromethane			<2.0		ug/L		2	09-DEC-21
Dibromochloromethane			<2.0		ug/L		2	09-DEC-21
Bromoform			<2.0		ug/L		2	09-DEC-21
Surrogate: 1,4-Difluorobenzene			98.7		%		50-150	09-DEC-21
WG3671587-5 MS		WG3671587-3						
Chloroform			102.9		%		70-130	09-DEC-21
Bromodichloromethane			107.4		%		70-130	09-DEC-21
Dibromochloromethane			93.8		%		70-130	09-DEC-21
Bromoform			85.6		%		70-130	09-DEC-21

Quality Control Report

Workorder: L2668348

Report Date: 23-DEC-21

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ONT-DW-WT		Water						
Batch	R5671794							
WG3671587-2 MB								
1,2-Dichlorobenzene			<0.50		ug/L		0.5	09-DEC-21
1,2-Dichloroethane			<0.50		ug/L		0.5	09-DEC-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	09-DEC-21
Surrogate: 1,4-Difluorobenzene			98.7		%		70-130	09-DEC-21
Benzene			<0.50		ug/L		0.5	09-DEC-21
Carbon tetrachloride			<0.20		ug/L		0.2	09-DEC-21
Dichloromethane			<5.0		ug/L		5	09-DEC-21
Ethylbenzene			<0.50		ug/L		0.5	09-DEC-21
Monochlorobenzene			<0.50		ug/L		0.5	09-DEC-21
Tetrachloroethylene (perchloroethylene)			<0.50		ug/L		0.5	09-DEC-21
Toluene			<0.50		ug/L		0.5	09-DEC-21
Trichloroethylene			<0.50		ug/L		0.5	09-DEC-21
m/p-xylene			<1.0		ug/L		1	09-DEC-21
o-xylene			<0.50		ug/L		0.5	09-DEC-21
Vinyl chloride			<0.20		ug/L		0.2	09-DEC-21
Surrogate: 4-Bromofluorobenzene			91.9		%		70-130	09-DEC-21
WG3671587-5 MS		WG3671587-3						
1,1-dichloroethylene (vinylidene chlorid			107.8		%		70-130	09-DEC-21
1,2-Dichlorobenzene			99.7		%		70-130	09-DEC-21
1,2-Dichloroethane			99.4		%		70-130	09-DEC-21
1,4-Dichlorobenzene			100.5		%		70-130	09-DEC-21
Benzene			99.8		%		70-130	09-DEC-21
Carbon tetrachloride			100.3		%		70-130	09-DEC-21
Dichloromethane			100.6		%		70-130	09-DEC-21
Ethylbenzene			101.2		%		70-130	09-DEC-21
Monochlorobenzene			99.4		%		70-130	09-DEC-21
Tetrachloroethylene (perchloroethylene)			93.0		%		70-130	09-DEC-21
Toluene			95.0		%		50-150	09-DEC-21
Trichloroethylene			97.1		%		70-130	09-DEC-21
m/p-xylene			102.6		%		70-130	09-DEC-21
o-xylene			99.7		%		50-150	09-DEC-21
Vinyl chloride			92.4		%		70-130	09-DEC-21

Quality Control Report

Workorder: L2668348

Report Date: 23-DEC-21

Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

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Contact: Matthew Alexander c/o Centre Wellington

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

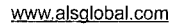
Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2668348-COFC

Page of

AUG 2023 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

SRC Group # 2021-15209

Dec 14, 2021

AGAT Labs
5835 Coopers Ave
Mississauga, ON L4Z 1Y2
Attn: Eva Janzen

Date Samples Received: Dec-03-2021

Client P.O.: 185010

All results have been reviewed and approved by a Qualified Person in accordance with the Saskatchewan Environmental Code, Corrective Action Plan Chapter, for the purposes of certifying a laboratory analysis

Results from Lab Section 3 approved by Moser, Pat

-
- * Test methods and data are validated by the laboratory's Quality Assurance Program.
 - * Routine methods follow recognized procedures from sources such as
 - * Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
 - * Environment Canada
 - * US EPA
 - * CANMET
 - * The results reported relate only to the test samples as provided by the client.
 - * Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.
 - * Additional information is available upon request.
 - * Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

This is a final report.

SRC Group # 2021-15209

Dec 14, 2021

AGAT Labs

5835 Coopers Ave

Mississauga, ON L4Z 1Y2

Attn: Eva Janzen

Date Samples Received: Dec-03-2021

Client P.O.: 185010

56561 12/01/2021 21T838364 3282837 *WATER*

Analyte	Units	56561
---------	-------	-------

Lab Section 3

Chloramines	mg/L	<0.01
-------------	------	-------

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

The temperature of the cooler was 11.3 °C upon receipt.

SRC Group # 2021-15209

Dec 14, 2021

AGAT Labs

Analyte Methods

Name	Units	Method
Chloramines	mg/L	CHM-340

Dec 14, 2021

This report was generated for samples included in SRC Group # 2021-15209

Quality Control Report

Eva Janzen
AGAT Labs
5835 Coopers Ave
Mississauga, ON L4Z 1Y2

Reference Materials and Standards:

A reference material of known concentration is used whenever possible as either a control sample or control standard and analyzed with each batch of samples. These "QC" results are used to assess the performance of the method and must be within clearly defined limits; otherwise corrective action is required.

QC Analysis	Units	Target Value	Obtained Value
Free chlorine	mg/L	25.0	29.5
Total residual chlorine	mg/L	1.13	1.02

Duplicates:

Duplicates are used to assess problems with precision and help ensure that samples within a given batch were processed appropriately. The difference between duplicates must be within strict limits, otherwise corrective action is required. Please note, the duplicate(s) in this report are duplicates analyzed within a given batch of test samples and may not be from this specific group of samples.

Duplicate Analysis	Units	Sample ID	First Result	Second Result
Chloramines	mg/L	56561	<0.01	<0.01

All quality control results were within the specified limits and considered acceptable.

Approved by Section Supervisor



Your P.O. #: 185144
Your Project #: 21T838364

Attention: Eva Janzen

AGAT Laboratories
5835 Coopers Ave
Mississauga, ON
CANADA L4Z 1Y2

Report Date: 2022/01/21
Report #: R6971709
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1Y7286

Received: 2021/12/07, 14:05

Sample Matrix: Water
Samples Received: 1

Analyses	Date		Date Analyzed	Laboratory Method	Analytical Method
	Quantity	Extracted			
DW Parameters by Alpha Spec.	1	N/A	2021/12/20	BQL SOP-00006	Alpha Spectrometry
Long-lived Gamma Emitters	1	N/A	2021/12/07	BQL SOP-00007	Gamma Spectrometry
Short-lived Gamma Emitters	1	N/A	2021/12/07		Gamma Spectroscopy
Iodine-125 & Iodine-129 in Water	1	N/A	2021/12/21		Gamma Spectroscopy
Drinking Water Parameters by LSC	1	N/A	2021/12/13		LSC
Lead 210	1	N/A	2021/12/22	BQL SOP-00008	GFPC
Polonium-210 by Alpha Spectrometry	1	N/A	2021/12/16	BQL SOP-00006	Alpha Spectrometry
Radium-228 & Thorium-234 in Water	1	N/A	2021/12/16		Gamma Spectroscopy
Radium Isotopes by Alpha Spectrometry (1)	1	N/A	2021/12/17	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry
Strontium-90 by Proportional Counting	1	N/A	2021/12/18	BQL SOP-00008	GFPC
Tritium & Carbon-14 by Liq. Sc. Counting	1	N/A	2021/12/16	BQL SOP-00009	LSC
Uranium Isotopes by Alpha Spectrometry	1	N/A	2021/12/20	BQL SOP-00006	Alpha Spectrometry

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.



Your P.O. #: 185144
Your Project #: 21T838364

Attention: Eva Janzen

AGAT Laboratories
5835 Coopers Ave
Mississauga, ON
CANADA L4Z 1Y2

Report Date: 2022/01/21
Report #: R6971709
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1Y7286

Received: 2021/12/07, 14:05

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) Radium-226 results have not been corrected for blanks.

Encryption Key



**AUTHORIZED REPORT
RAPPORT AUTORISÉ**

Bureau Veritas

21 Jan 2022 15:34:29

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Mayank Nigam, Project Manager

Email: Mayank.Nigam@bureauveritas.com

Phone# (905) 826-3080

=====

This report has been generated and distributed using a secure automated process.

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286
Report Date: 2022/01/21

AGAT Laboratories
Client Project #: 21T838364
Your P.O. #: 185144

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		RIE671		
Sampling Date		2021/12/01 12:00		
	UNITS	3282837	RDL	QC Batch
Americium-241	Bq/L	<0.01	0.01	7754425
Bismuth-210	Bq/L	<20	20	7761710
Calcium-45	Bq/L	<20	20	7761710
Cesium-131	Bq/L	<20	20	7761710
Iron-55	Bq/L	<20	20	7761710
Phosphorus-32	Bq/L	<20	20	7761710
Plutonium-238	Bq/L	<0.01	0.01	7754425
Plutonium-239	Bq/L	<0.01	0.01	7754425
Plutonium-240	Bq/L	<0.01	0.01	7754425
Plutonium-241	Bq/L	<5	5	7761710
Polonium-210	Bq/L	<0.010	0.010	7753020
Strontium-89	Bq/L	<20	20	7761710
Sulphur-35	Bq/L	<20	20	7761710
Technetium-99	Bq/L	<20	20	7761710
Thorium-228	Bq/L	<0.01	0.01	7754425
Thorium-230	Bq/L	<0.01	0.01	7754425
Thorium-232	Bq/L	<0.01	0.01	7754425
Uranium-234	Bq/L	<0.010	0.010	7754444
Uranium-235	Bq/L	<0.010	0.010	7754444
Uranium-238	Bq/L	<0.010	0.010	7754444
Yttrium-90	Bq/L	<20	20	7761710
Yttrium-91	Bq/L	<20	20	7761710
Bromine-82	Bq/L	<2	2	7760842
Carbon-14	Bq/L	<20	20	7761708
Cesium-137	Bq/L	<2	2	7760842
Gallium-67	Bq/L	<10	10	7760842
Iodine-125	Bq/L	<1	1	7747947
Iodine-129	Bq/L	<1	1	7747947
Lead-210	Bq/L	<0.10	0.10	7750963
Mercury-197	Bq/L	<5	5	7760842
Molybdenum-99	Bq/L	<3	3	7760842
Radium-224	Bq/L	<0.010	0.010	7753111
Radium-226	Bq/L	<0.010	0.010	7753111
Radium-228	Bq/L	<0.1	0.1	7760725
Rhodium-105	Bq/L	<10	10	7760842
Rubidium-81	Bq/L	<3	3	7760842
Strontium-90	Bq/L	<0.10	0.10	7754053
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286
Report Date: 2022/01/21

AGAT Laboratories
Client Project #: 21T838364
Your P.O. #: 185144

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		RIE671		
Sampling Date		2021/12/01 12:00		
	UNITS	3282837	RDL	QC Batch
Technetium-99m	Bq/L	<2	2	7760842
Tellurium-131m	Bq/L	<3	3	7760842
Thallium-201	Bq/L	<10	10	7760842
Thorium-234	Bq/L	<7	7	7760725
Tritium	Bq/L	<100	100	7761708
Antimony-122	Bq/L	<1	1	7760841
Antimony-124	Bq/L	<1	1	7760841
Antimony-125	Bq/L	<2	2	7760841
Barium-140	Bq/L	<3	3	7760841
Beryllium-7	Bq/L	<6	6	7760841
Calcium-47	Bq/L	<2	2	7760841
Cerium-141	Bq/L	<1	1	7760841
Cerium-144	Bq/L	<3	3	7760841
Cesium-134	Bq/L	<1	1	7760841
Cesium-136	Bq/L	<1	1	7760841
Chromium-51	Bq/L	<5	5	7760841
Cobalt-57	Bq/L	<1	1	7760841
Cobalt-58	Bq/L	<1	1	7760841
Cobalt-60	Bq/L	<1	1	7760841
Gold-198	Bq/L	<1	1	7760841
Indium-111	Bq/L	<1	1	7760841
Iodine-131	Bq/L	<1	1	7760841
Iron-59	Bq/L	<2	2	7760841
Manganese-54	Bq/L	<1	1	7760841
Mercury-203	Bq/L	<1	1	7760841
Neptunium-239	Bq/L	<3	3	7760841
Niobium-95	Bq/L	<1	1	7760841
Rubidium-86	Bq/L	<10	10	7760841
Ruthenium-103	Bq/L	<1	1	7760841
Ruthenium-106	Bq/L	<8	8	7760841
Selenium-75	Bq/L	<1	1	7760841
Silver-108m	Bq/L	<1	1	7760841
Silver-110m	Bq/L	<1	1	7760841
Silver-111	Bq/L	<8	8	7760841
Sodium-22	Bq/L	<1	1	7760841
Strontium-85	Bq/L	<10	10	7760841
Tellurium-129m	Bq/L	<9	9	7760841
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286

Report Date: 2022/01/21

AGAT Laboratories

Client Project #: 21T838364

Your P.O. #: 185144

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		RIE671		
Sampling Date		2021/12/01 12:00		
	UNITS	3282837	RDL	QC Batch
Tellurium-132	Bq/L	<1	1	7760841
Ytterbium-169	Bq/L	<1	1	7760841
Zinc-65	Bq/L	<2	2	7760841
Zirconium-95	Bq/L	<2	2	7760841
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



**BUREAU
VERITAS**

Bureau Veritas Job #: C1Y7286

Report Date: 2022/01/21

AGAT Laboratories

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GENERAL COMMENTS

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286

Report Date: 2022/01/21

AGAT Laboratories

Client Project #: 21T838364

Your P.O. #: 185144

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7747947	FK1	QC Standard	Iodine-129	2012/06/21		97	%	N/A
7747947	FK1	Method Blank	Iodine-125	2021/12/16	<1		Bq/L	
			Iodine-129	2021/12/16	<1		Bq/L	
7747947	FK1	RPD	Iodine-125	2021/12/20	NC		%	N/A
			Iodine-129	2021/12/20	NC		%	N/A
7750963	FK1	Spiked Blank	Lead-210	2021/12/22		102	%	80 - 120
7750963	FK1	Method Blank	Lead-210	2021/12/22	<0.10		Bq/L	
7750963	FK1	RPD	Lead-210	2021/12/22	NC		%	N/A
7753020	FK1	Spiked Blank	Polonium-210	2021/12/16		90	%	74 - 126
7753020	FK1	Method Blank	Polonium-210	2021/12/16	<0.010		Bq/L	
7753020	FK1	RPD	Polonium-210	2021/12/16	NC		%	N/A
7753111	FK1	QC Standard	Radium-224	2021/12/17		97	%	85 - 115
			Radium-226	2021/12/17		90	%	85 - 115
7753111	FK1	Spiked Blank	Radium-226	2021/12/17		97	%	85 - 115
7753111	FK1	Method Blank	Radium-224	2021/12/17	<0.010		Bq/L	
			Radium-226	2021/12/17	<0.010		Bq/L	
7753111	FK1	RPD [RIE671-01]	Radium-224	2021/12/17	NC		%	N/A
			Radium-226	2021/12/17	NC		%	N/A
7754053	JK2	Spiked Blank	Strontium-90	2021/12/18		95	%	75 - 125
7754053	JK2	Method Blank	Strontium-90	2021/12/18	<0.10		Bq/L	
7754053	JK2	RPD	Strontium-90	2021/12/18	NC		%	N/A
7754425	JK2	Spiked Blank	Thorium-228	2021/12/20		93	%	63 - 137
			Thorium-230	2021/12/20		105	%	63 - 137
			Thorium-232	2021/12/20		100	%	63 - 137
7754425	JK2	Method Blank	Americium-241	2021/12/20	<0.01		Bq/L	
			Plutonium-238	2021/12/20	<0.01		Bq/L	
			Plutonium-239	2021/12/20	<0.01		Bq/L	
			Plutonium-240	2021/12/20	<0.01		Bq/L	
			Thorium-228	2021/12/20	<0.01		Bq/L	
			Thorium-230	2021/12/20	<0.01		Bq/L	
			Thorium-232	2021/12/20	<0.01		Bq/L	
7754425	JK2	RPD	Americium-241	2021/12/20	NC		%	N/A
			Plutonium-238	2021/12/20	NC		%	N/A
			Plutonium-239	2021/12/20	NC		%	N/A
			Plutonium-240	2021/12/20	NC		%	N/A
			Thorium-228	2021/12/20	NC		%	N/A
			Thorium-230	2021/12/20	NC		%	N/A
			Thorium-232	2021/12/20	NC		%	N/A
7754444	JK2	Spiked Blank	Uranium-234	2021/12/20		100	%	N/A
			Uranium-235	2021/12/20		101	%	N/A
			Uranium-238	2021/12/20		103	%	N/A
7754444	JK2	Method Blank	Uranium-234	2021/12/20	<0.010		Bq/L	
			Uranium-235	2021/12/20	<0.010		Bq/L	
			Uranium-238	2021/12/20	<0.010		Bq/L	
7754444	JK2	RPD	Uranium-234	2021/12/20	NC		%	N/A
			Uranium-235	2021/12/20	NC		%	N/A
			Uranium-238	2021/12/20	NC		%	N/A
7760725	DS2	QC Standard	Radium-228	2021/12/15		102	%	N/A
			Thorium-234	2021/12/15		95	%	N/A
7760725	DS2	Method Blank	Radium-228	2021/12/14	<0.1		Bq/L	
			Thorium-234	2021/12/14	<7		Bq/L	
7760841	DS2	QC Standard	Cesium-134	2021/12/09		95	%	N/A
			Cobalt-60	2021/12/09		102	%	N/A
			Iodine-131	2021/12/09		98	%	N/A



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286
Report Date: 2022/01/21

AGAT Laboratories
Client Project #: 21T838364
Your P.O. #: 185144

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7760841	DS2	Method Blank	Antimony-122	2021/12/12	<1		Bq/L	
			Antimony-124	2021/12/12	<1		Bq/L	
			Antimony-125	2021/12/12	<2		Bq/L	
			Barium-140	2021/12/12	<3		Bq/L	
			Beryllium-7	2021/12/12	<6		Bq/L	
			Calcium-47	2021/12/12	<2		Bq/L	
			Cerium-141	2021/12/12	<1		Bq/L	
			Cerium-144	2021/12/12	<3		Bq/L	
			Cesium-134	2021/12/12	<1		Bq/L	
			Cesium-136	2021/12/12	<1		Bq/L	
			Chromium-51	2021/12/12	<5		Bq/L	
			Cobalt-57	2021/12/12	<1		Bq/L	
			Cobalt-58	2021/12/12	<1		Bq/L	
			Cobalt-60	2021/12/12	<1		Bq/L	
			Gold-198	2021/12/12	<1		Bq/L	
			Indium-111	2021/12/12	<1		Bq/L	
			Iodine-131	2021/12/12	<1		Bq/L	
			Iron-59	2021/12/12	<2		Bq/L	
			Manganese-54	2021/12/12	<1		Bq/L	
			Mercury-203	2021/12/12	<1		Bq/L	
			Neptunium-239	2021/12/12	<3		Bq/L	
			Niobium-95	2021/12/12	<1		Bq/L	
			Rubidium-86	2021/12/12	<10		Bq/L	
			Ruthenium-103	2021/12/12	<1		Bq/L	
			Ruthenium-106	2021/12/12	<8		Bq/L	
			Selenium-75	2021/12/12	<1		Bq/L	
			Silver-108m	2021/12/12	<1		Bq/L	
			Silver-110m	2021/12/12	<1		Bq/L	
			Silver-111	2021/12/12	<8		Bq/L	
			Sodium-22	2021/12/12	<1		Bq/L	
			Strontium-85	2021/12/12	<10		Bq/L	
			Tellurium-129m	2021/12/12	<9		Bq/L	
			Tellurium-132	2021/12/12	<1		Bq/L	
			Ytterbium-169	2021/12/12	<1		Bq/L	
			Zinc-65	2021/12/12	<2		Bq/L	
			Zirconium-95	2021/12/12	<2		Bq/L	
7760841	DS2	RPD [RIE671-01]	Antimony-122	2021/12/08	NC		%	N/A
			Antimony-124	2021/12/08	NC		%	N/A
			Antimony-125	2021/12/08	NC		%	N/A
			Barium-140	2021/12/08	NC		%	N/A
			Beryllium-7	2021/12/08	NC		%	N/A
			Calcium-47	2021/12/08	NC		%	N/A
			Cerium-141	2021/12/08	NC		%	N/A
			Cerium-144	2021/12/08	NC		%	N/A
			Cesium-134	2021/12/08	NC		%	N/A
			Cesium-136	2021/12/08	NC		%	N/A
			Chromium-51	2021/12/08	NC		%	N/A
			Cobalt-57	2021/12/08	NC		%	N/A
			Cobalt-58	2021/12/08	NC		%	N/A
			Cobalt-60	2021/12/08	NC		%	N/A
			Gold-198	2021/12/08	NC		%	N/A
			Indium-111	2021/12/08	NC		%	N/A
			Iodine-131	2021/12/08	NC		%	N/A
			Iron-59	2021/12/08	NC		%	N/A



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286
Report Date: 2022/01/21

AGAT Laboratories
Client Project #: 21T838364
Your P.O. #: 185144

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Manganese-54	2021/12/08	NC		%	N/A
			Mercury-203	2021/12/08	NC		%	N/A
			Neptunium-239	2021/12/08	NC		%	N/A
			Niobium-95	2021/12/08	NC		%	N/A
			Rubidium-86	2021/12/08	NC		%	N/A
			Ruthenium-103	2021/12/08	NC		%	N/A
			Ruthenium-106	2021/12/08	NC		%	N/A
			Selenium-75	2021/12/08	NC		%	N/A
			Silver-108m	2021/12/08	NC		%	N/A
			Silver-110m	2021/12/08	NC		%	N/A
			Silver-111	2021/12/08	NC		%	N/A
			Sodium-22	2021/12/08	NC		%	N/A
			Strontium-85	2021/12/08	NC		%	N/A
			Tellurium-129m	2021/12/08	NC		%	N/A
			Tellurium-132	2021/12/08	NC		%	N/A
			Ytterbium-169	2021/12/08	NC		%	N/A
			Zinc-65	2021/12/08	NC		%	N/A
			Zirconium-95	2021/12/08	NC		%	N/A
7760842	DS2	QC Standard	Cesium-137	2021/12/09		95	%	N/A
7760842	DS2	Method Blank	Bromine-82	2021/12/12	<2		Bq/L	
			Cesium-137	2021/12/12	<2		Bq/L	
			Gallium-67	2021/12/12	<10		Bq/L	
			Mercury-197	2021/12/12	<5		Bq/L	
			Molybdenum-99	2021/12/12	<3		Bq/L	
			Rhodium-105	2021/12/12	<10		Bq/L	
			Rubidium-81	2021/12/12	<3		Bq/L	
			Technetium-99m	2021/12/12	<2		Bq/L	
			Tellurium-131m	2021/12/12	<3		Bq/L	
			Thallium-201	2021/12/12	<10		Bq/L	
7761708	DS2	Spiked Blank	Carbon-14	2021/12/16		98	%	80 - 120
			Tritium	2021/12/16		101	%	N/A
7761708	DS2	Method Blank	Carbon-14	2021/12/16	<20		Bq/L	
			Tritium	2021/12/16	<100		Bq/L	
7761708	DS2	RPD	Carbon-14	2021/12/16	NC		%	N/A
			Tritium	2021/12/16	NC		%	N/A
7761710	DS2	Method Blank	Bismuth-210	2021/12/12	<20		Bq/L	
			Calcium-45	2021/12/12	<20		Bq/L	
			Cesium-131	2021/12/12	<20		Bq/L	
			Iron-55	2021/12/12	<20		Bq/L	
			Phosphorus-32	2021/12/12	<20		Bq/L	
			Plutonium-241	2021/12/12	<5		Bq/L	
			Strontium-89	2021/12/12	<20		Bq/L	
			Sulphur-35	2021/12/12	<20		Bq/L	
			Technetium-99	2021/12/12	<20		Bq/L	
			Yttrium-90	2021/12/12	<20		Bq/L	
			Yttrium-91	2021/12/12	<20		Bq/L	
7761710	DS2	RPD	Bismuth-210	2021/12/12	NC		%	N/A
			Calcium-45	2021/12/12	NC		%	N/A
			Cesium-131	2021/12/12	NC		%	N/A
			Iron-55	2021/12/12	NC		%	N/A
			Phosphorus-32	2021/12/12	NC		%	N/A
			Plutonium-241	2021/12/12	NC		%	N/A
			Strontium-89	2021/12/12	NC		%	N/A
			Sulphur-35	2021/12/12	NC		%	N/A



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286
Report Date: 2022/01/21

AGAT Laboratories
Client Project #: 21T838364
Your P.O. #: 185144

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Technetium-99	2021/12/12	NC		%	N/A
				Yttrium-90	2021/12/12	NC		%	N/A
				Yttrium-91	2021/12/12	NC		%	N/A
N/A = Not Applicable									
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.									
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.									
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.									
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.									
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).									



BUREAU
VERITAS

Bureau Veritas Job #: C1Y7286
Report Date: 2022/01/21

AGAT Laboratories
Client Project #: 21T838364
Your P.O. #: 185144

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

A handwritten signature in purple ink, appearing to read 'R. Allen', written over a horizontal line.

Robert Allen, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Request for Laboratory Services and CHAIN OF CUSTODY (specific SDWA/HPPA - 1st Party)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com

Laboratory Information Section

Received Date (mm/dd/yyyy): **DEC 03 2021**

LAB LIMS #: **dec 17680**

Received Time (After Hours Only):

Temperature Upon Receipt (°C): **8**

Billing & Reporting Information

Invoice/Receipt to: Company: Accounts Payable
Attention: AGAT Laboratories - Mississauga
Address: 5835 Coopers Avenue, Mississauga, ON, L4Z1Y2
Email: gough@agatlabs.com

Quote #: _____
Attached Parameter List: ☐ YES ☐ NO

Report to: (3) Attention: Eva Janzen, Nathan Berkely PO #: 185009
Email: janzen@agatlabs.com, berkeley@agatlabs.com Job #: 21T838364
Phone: 905-712-5100 Ext. 5096 Fax: _____

Turnaround Time
Is *Rush Turnaround Time Required? ☐ YES ☒ NO
Specify: _____
* Rush TA Requests Require Lab Approval

Drinking Water System Information (Exceedance Reporting Information)

Client Lab #:

System Name: _____ Waterworks/DWS #: _____
Physical Address: _____ Contact Phone Number: _____
Contact Name: _____ Contact Fax Number: _____
MOH Unit (Ministry of Health): _____ Day Care Licence # or SFIS #: _____

Please check the regulation that applies to your water samples:

O.Reg. 170/03 ☐

O.Reg 318/08 ☐
O.Reg 319/08 ☐

O.Reg 243/07 ☐

Certificate of Approval Requirement ☐

Samples NOT Regulated ☒

As per the Ontario Safe Drinking Water Act and Health Protection and Promotion Act, the water facility information and the sample information sections must be filled out prior to processing samples. Sample Source Codes * indicate whether samples are Reportable or Not Reportable. The laboratory will report all exceedances to the SDWA/HPPA as per sample the applicable regulation and source codes.

Sample Information

Bottle #	Sample Source Code*	Sample Location Name	Check if Re Sample From an Adverse Report	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Field Total Residual Chlorine	Field Free Residual Chlorine	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)			
									Bromate			
1	NR	3282837		Dec 01/21	12:00PM	1			x			
2												
3												
4												
5												
6												
7		*Non Reportable Drinking Water										
8												
9		bottle is not										
10		labelled w/ if										
11		sample is preserved.										
12		ne										

For NP/NPE work please report in mg/L

Sampled By (1): (Name) _____ (Signature) _____ Date: ____ / ____ / ____ (mm/dd/yy)
Relinquished by (2): Neal Gorospe _____ *Neal Gorospe* Date: 12 / 02 / 21 (mm/dd/yy)

* Sample Source Codes

DW-Distribution Water: Water in the DWS that is in the distribution system. These samples are reportable under applicable Ontario drinking water regulations
TW-Treated Water: Water in the DWS at the point of entry to the distribution system. These samples are reportable under applicable Ontario drinking water regulations
RW-Raw Water: Water source for a DWS that has a treatment system. These samples are not for consumption and not reportable under applicable Ontario drinking water regulations
RWFC-Raw Water For Consumption: Water source for a DWS that **does not** have a treatment system. These samples **are for consumption** and are reportable under applicable Ontario drinking water regulations

TAP-Tap Water: Water taken for the purposes of lead testing under O.Reg. 243/07

NR-Not Reportable: Water samples that are not reportable under applicable Ontario drinking water regulations

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request.

This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

PP # 333268896656
10:00 KC

**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - K0L 2H0
Phone: 705-652-2000 FAX: 705-652-6365

AGAT Laboratories - Mississauga

Attn : Eva Janzen / Nathan Berkeley

5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2, Canada

Phone: 905-712-5096
Fax:

09-December-2021

Date Rec. : 03 December 2021
LR Report: CA17680-DEC21
Reference: PO#: 185009 - AGAT Job #:
21T838364

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Temperature Upon Receipt °C	Bromate mg/L
1: Analysis Start Date		---	06-Dec-21
2: Analysis Start Time		---	14:04
3: Analysis Completed Date		---	08-Dec-21
4: Analysis Completed Time		---	14:59
5: QC - Blank		---	< 0.005
6: QC - STD % Recovery		---	100%
7: QC - DUP % RPD		---	ND
8: RL		---	0.005
9: NR 3282837	01-Dec-21 12:00	8.0	< 0.005

RL - SGS Reporting Limit

NR - Not regulated / reportable under applicable Provincial drinking water regulations as per client.

ND - Not Detected

Kimberley Didsbury
Project Specialist,
Environment, Health & Safety

F5-R Well Certificate of Analysis





TOWNSHIP OF CENTRE WELLINGTON
ATTN: Matthew Alexander c/o Centre
Wellington
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Date Received: 28-APR-22
Report Date: 15-JUN-22 09:02 (MT)
Version: FINAL

Client Phone: 226-821-4906

Certificate of Analysis

Lab Work Order #: L2702028
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 20-946007
Legal Site Desc:

Candice Hunter
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group An ALS Limited Company



ANALYTICAL GUIDELINE REPORT

L2702028 CONTD....

Page 2 of 7

15-JUN-22 09:02 (MT)

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2702028-1	FS-R									
Sampled By:	CLIENT on 28-APR-22 @ 10:25									
Matrix:	WATER									
Physical Tests							#1	#2		
Hardness (as CaCO ₃)		307	HTC	2.4	mg/L	12-MAY-22		*80-100		
pH		8.13		0.10	pH units	04-MAY-22		6.5-8.5		
Total Dissolved Solids		346	DLDS	20	mg/L	09-MAY-22		500		
Turbidity		3.30		0.10	NTU	29-APR-22		5		
Anions and Nutrients										
Alkalinity, Total (as CaCO ₃)		217		10	mg/L	04-MAY-22		30-500		
Ammonia, Total (as N)		0.049		0.010	mg/L	16-MAY-22				
Chlorate		<0.010		0.010	mg/L	13-MAY-22	1.0			
Chloride (Cl)		15.1		0.50	mg/L	05-MAY-22		250		
Chlorite		<0.010		0.010	mg/L	13-MAY-22	1.0			
Fluoride (F)		0.13		0.10	mg/L	05-MAY-22	1.5			
Nitrate (as N)		0.272		0.020	mg/L	05-MAY-22	10			
Nitrite (as N)		<0.010		0.010	mg/L	05-MAY-22	1			
Total Kjeldahl Nitrogen		<0.15		0.15	mg/L	17-MAY-22				
Total Organic Nitrogen		<0.15		0.15	mg/L	28-APR-22				
Orthophosphate-Dissolved (as P)		0.0042		0.0030	mg/L	29-APR-22				
Sulfate (SO ₄)		85.7		0.30	mg/L	05-MAY-22		500		
Sulphide (as S)		0.022		0.018	mg/L	02-MAY-22		0.05		
Cyanides										
Cyanide, Total		<0.0020		0.0020	mg/L	05-MAY-22				
Organic / Inorganic Carbon										
Dissolved Carbon Filtration Location		LAB			No Unit	29-APR-22				
Dissolved Organic Carbon		<0.50		0.50	mg/L	29-APR-22		5		
Bacteriological Tests										
Escherichia Coli		0		0	MPN/100mL	29-APR-22	0			
Heterotrophic Plate Count		204		0	CFU/mL	29-APR-22				
Total Coliforms		1		0	MPN/100mL	29-APR-22	*0			
Total Metals										
Aluminum (Al)-Total		148		10	ug/L	03-MAY-22		*100		
Antimony (Sb)-Total		<0.60		0.60	ug/L	03-MAY-22	6			
Arsenic (As)-Total		1.4		1.0	ug/L	03-MAY-22	10.0			
Barium (Ba)-Total		57		10	ug/L	03-MAY-22	1000			
Boron (B)-Total		<50		50	ug/L	03-MAY-22	5000			
Cadmium (Cd)-Total		<0.10		0.10	ug/L	03-MAY-22	5			
Calcium (Ca)-Total		75.4		0.50	mg/L	03-MAY-22				
Chromium (Cr)-Total		<1.0		1.0	ug/L	03-MAY-22	50			
Copper (Cu)-Total		<1.0		1.0	ug/L	03-MAY-22		1000		
Iron (Fe)-Total		180		50	ug/L	03-MAY-22		300		
Lead (Pb)-Total		<1.0		1.0	ug/L	03-MAY-22	10			
Magnesium (Mg)-Total		28.8		0.50	mg/L	03-MAY-22				
Manganese (Mn)-Total		21.0		1.0	ug/L	03-MAY-22		50		
Selenium (Se)-Total		<5.0		5.0	ug/L	03-MAY-22	50			
Sodium (Na)-Total		11.8		0.50	mg/L	03-MAY-22	20	200		
Uranium (U)-Total		<5.0		5.0	ug/L	03-MAY-22	20			

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Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)



ANALYTICAL GUIDELINE REPORT

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Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2702028-1	FS-R									
Sampled By:	CLIENT on 28-APR-22 @ 10:25									
Matrix:	WATER									
Total Metals										
	Zinc (Zn)-Total	7.2		3.0	ug/L	03-MAY-22				
Volatile Organic Compounds										
	Benzene	<0.50		0.50	ug/L	06-MAY-22	1			
	Carbon tetrachloride	<0.20		0.20	ug/L	06-MAY-22	2			
	Monochlorobenzene	<0.50		0.50	ug/L	06-MAY-22	80	30		
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	06-MAY-22	200	3		
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	06-MAY-22	5	1		
	1,2-Dichloroethane	<0.50		0.50	ug/L	06-MAY-22	5			
	1,1-dichloroethylene (vinylidene chlorid	<0.50		0.50	ug/L	06-MAY-22	14			
	Dichloromethane	<5.0		5.0	ug/L	06-MAY-22	50			
	Ethylbenzene	<0.50		0.50	ug/L	06-MAY-22	140	2.4		
	Tetrachloroethylene (perchloroethylene)	<0.50		0.50	ug/L	06-MAY-22	10			
	Toluene	<0.50		0.50	ug/L	06-MAY-22	60	24		
	Trichloroethylene	<0.50		0.50	ug/L	06-MAY-22	5			
	Vinyl chloride	<0.20		0.20	ug/L	06-MAY-22	1			
	o-xylene	<0.50		0.50	ug/L	06-MAY-22				
	m/p-xylene	<1.0		1.0	ug/L	06-MAY-22				
	Xylenes (Total)	<1.5		1.5	ug/L	06-MAY-22	90	300		
	Surrogate: 4-Bromofluorobenzene	80.1		70-130	%	06-MAY-22				
	Surrogate: 1,4-Difluorobenzene	95.9		70-130	%	06-MAY-22				
Haloacetic Acids										
	Dibromoacetic Acid	<1.0		1.0	ug/L	03-MAY-22				
	Dichloroacetic Acid	<1.0		1.0	ug/L	03-MAY-22				
	Total Haloacetic Acids 5	<2.2		2.2	ug/L	03-MAY-22	80			
	Bromoacetic Acid	<1.0		1.0	ug/L	03-MAY-22				
	Chloroacetic acid	<1.0		1.0	ug/L	03-MAY-22				
	Trichloroacetic Acid	<1.0		1.0	ug/L	03-MAY-22				
Semi-Volatile Organics										
	N-Nitrosodimethylamine	<0.00090		0.00090	ug/L	08-MAY-22	0.009			
	Surrogate: N-Nitrosodimethylamine-d6	101.0		50-150	%	08-MAY-22				
Herbicides										
	AMPA	<0.50		0.50	ug/L	06-MAY-22				
	Bromoxynil	<0.20		0.20	ug/L	04-MAY-22	5			
	2,4-D	<0.20		0.20	ug/L	04-MAY-22	100			
	Dicamba	<0.20		0.20	ug/L	04-MAY-22	120			
	Dinoseb	<0.20		0.20	ug/L	04-MAY-22	10			
	Glyphosate	<5.0		5.0	ug/L	06-MAY-22	280			
	MCPA	<0.20		0.20	ug/L	04-MAY-22	100			
	Picloram	<0.20		0.20	ug/L	04-MAY-22	190			
	2,4,5-TP	<0.20		0.20	ug/L	04-MAY-22				
	Surrogate: 2,4-Dichlorophenylacetic Acid	106.0		50-130	%	04-MAY-22				
Pesticides										
	Alachlor	<0.10		0.10	ug/L	02-MAY-22	5			
	Atrazine	<0.10		0.10	ug/L	02-MAY-22				
	Atrazine & Metabolites	<0.20		0.20	ug/L	02-MAY-22	5			
	Azinphos-methyl	<0.10		0.10	ug/L	02-MAY-22	20			

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Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

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ANALYTICAL GUIDELINE REPORT

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Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2702028-1	FS-R									
Sampled By:	CLIENT on 28-APR-22 @ 10:25									
Matrix:	WATER						#1	#2		
Pesticides										
Carbaryl		<0.20		0.20	ug/L	02-MAY-22	90			
Carbofuran		<0.20		0.20	ug/L	02-MAY-22	90			
Chlorpyrifos		<0.10		0.10	ug/L	02-MAY-22	90			
Diazinon		<0.10		0.10	ug/L	02-MAY-22	20			
2,4-Dichlorophenol		<0.30		0.30	ug/L	04-MAY-22	900	0.3		
Dimethoate		<0.10		0.10	ug/L	02-MAY-22	20			
Diquat		<1.0		1.0	ug/L	06-MAY-22	70			
Diuron		<1.0		1.0	ug/L	03-MAY-22	150			
Atrazine-desethyl		<0.10		0.10	ug/L	02-MAY-22				
Malathion		<0.10		0.10	ug/L	02-MAY-22	190			
Diclofop-methyl		<0.20		0.20	ug/L	02-MAY-22	9			
Metolachlor		<0.10		0.10	ug/L	02-MAY-22	50			
Metribuzin		<0.10		0.10	ug/L	02-MAY-22	80			
Paraquat		<1.0		1.0	ug/L	06-MAY-22	10			
Pentachlorophenol		<0.50		0.50	ug/L	04-MAY-22	60	30		
Phorate		<0.10		0.10	ug/L	02-MAY-22	2			
Prometryne		<0.10		0.10	ug/L	02-MAY-22	1			
Simazine		<0.10		0.10	ug/L	02-MAY-22	10			
Terbufos		<0.20		0.20	ug/L	02-MAY-22	1			
2,3,4,6-Tetrachlorophenol		<0.50		0.50	ug/L	04-MAY-22	100	1		
Triallate		<0.10		0.10	ug/L	02-MAY-22	230			
2,4,6-Trichlorophenol		<0.50		0.50	ug/L	04-MAY-22	5	2		
Trifluralin		<0.10		0.10	ug/L	02-MAY-22	45			
Surrogate: 2-Fluorobiphenyl		73.4		40-130	%	02-MAY-22				
Surrogate: 2,4,6-Tribromophenol		100.2		40-150	%	04-MAY-22				
Organic Parameters										
Ethane, Dissolved		<5.0		5.0	ug/L	03-MAY-22				
Ethene, Dissolved		<5.0		5.0	ug/L	03-MAY-22				
Methane, Dissolved		<5.0		5.0	ug/L	03-MAY-22		2000		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Drinking Water Regulation (ODWQS) JAN.1,2020 = [Suite] - ON-DW-STANDARD+GUIDELINES

#1: Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)

#2: Ontario DW Aesthetic and Operational Guidelines (June, 2006)

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
ACIDS-ONT-DW-WT	Water	O.Reg 170/03 Acids	SW846 8270
Pesticides are extracted from an aqueous sample using separate aliquots of solvent, extracts are concentrated down to a certain volume and analyzed on the GC/MSD.			
ALK-ONT-DW-WT	Water	Alkalinity, Total (as CaCO3)	EPA 310.2
CHLORATE-IC-DW-WT	Water	Chlorate by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CHLORITE-IC-DW-WT	Water	Chlorite by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CL-IC-N-ONT-DW-WT	Water	Chloride by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CN-TOT-ONT-DW-WT	Water	Cyanide, Total	ISO 14403-2
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Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference.

Ontario Drinking Water samples are not filtered during analysis.

DIQUAT-DW-LCMS-WT	Water	Diquat in Water by LC/MS-MS	E3503
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An aliquot of the sample is taken and internal standard is added. The sample is analyzed by LC/MS/MS.

DIURON-DW-LCMS-WT	Water	Diuron in Drinking Water	E3501
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An aliquot of water sample is diluted 1:1 using acetonitrile and analyzed using LC/MS/MS

DOC-ONT-DW-WT	Water	Dissolved Organic Carbon	APHA 5310B
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Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
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Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

F-DW-IC-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

GLYPHOSATE-ONT-DW-WT	Water	Glyphosate in Drinking Water	MOE E3500
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This analysis is carried out using procedures adapted from ON MOE E3500 "Glyphosate". Glyphosate is determined by direct injection by LC-MS/MS on a sample that has been derivatized.

HAA-DW-LCMS-WT	Water	Haloacetic Acids - Ontario DW List	MOECC E3478
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An aliquot of sample is fortified with formic acid and analyzed by direct inject via Electro Spray Ionization MS/MS detection using Triple Quadrupole MS/MS detector.

HAA5-SUM-DW-CALC-WT	Water		CALCULATION
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Total Haloacetic Acids 5 (HAA5) represents the sum of monobromoacetic acid, monochloroacetic acid, dibromoacetic acid, dichloroacetic acid and trichloroacetic acid. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

Reference Information

HARDNESS-CALC-WT	Water	Hardness	APHA 2340 B
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Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HPC-DW-MF-WT	Water	Heterotrophic Plate Count	SM 9215D
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A 1mL volume of sample is filtered through a membrane, the membrane is placed on mHPC agar and incubated for 48–2h@35–0.5°C. Method ID: WT-TM-1200

MET-ONT-DW-DIG-WT	Water	Metals in Water by ICPMS	EPA 200.8
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This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

METHANE,C2-DIS-DW-WT	Water	Methane, Ethane and Ethene	EPA REGION 1, NATATTEN.WPD REV. 1
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Water samples are collected in headspace vials containing sodium bisulfate preservative. A volume of water is withdrawn from the un-capped vial. After shaking & equilibration, the vial headspace is analyzed for target gases by GC/FID. The concentration of the gas in water is proportional to the partial pressure of the gas above the liquid & is calculated using Henry's Law.

MISC-ONT-DW-WT	Water	O.Reg 170/03 Miscellaneous Pesticides	SW846 8270
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Pesticides are extracted from an aqueous sample using separate aliquots of solvent, extracts are concentrated down to a certain volume and analyzed on the GC/MSD.

N-T-ORG-DW-CALC-WT	Water	Total Organic Nitrogen (Calculation)	APHA 4500-NORG (TKN)/NH ₃ -NITROGEN (NH ₃)
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Total Organic Nitrogen is a calculated parameter. Total Organic Nitrogen = Total Kjeldahl Nitrogen - Ammonia.

NDMA-ONTDW-WT	Water	NDMA to meet Ont Reg 170/03	QWI-ORG/WP239
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An aliquot of sample is solid phase extracted followed by liquid chromatography tandem mass spectrometry instead of direct injection.

NH3-F-ONT-DW-WT	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
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This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-DW-IC-WT	Water	Nitrite in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-DW-IC-WT	Water	Nitrate in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PAHERB-ONT-DW-WT	Water	O.Reg 170/03 PA Herbicides	MOE E3552
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Water samples are analyzed by direct injection without sample preparation using liquid chromatography tandem mass spectrometry (LC-MS/MS).

PARAQUAT-ONT-DW-WT	Water	Paraquat in Water by LC/MS-MS	E3503
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An aliquot of the sample is taken and internal standard is added. The sample is analyzed by LC/MS/MS.

PH-ONT-DW-WT	Water	pH	APHA 4500 H-Electrode
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Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PO4-DO-COL-DW-WT	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
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This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-IC-N-ONT-DW-WT	Water	Sulfate in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-ONT-DW-WT	Water	Total Dissolved Solids	APHA 2540C
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This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

SULPHIDE-ONT-DW-WT	Water	Sulphide (as S)	APHA 4500S2D
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This analysis is carried out using procedures adapted from APHA Method 4500-S2-D "Methylene Blue Method". Sulphide is determined colourimetrically.

Reference Information

TC,EC-QT51-DW-WT Water Total Coliform and E. Coli APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture of hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.

TKN-ONT-DW-WT Water Total Kjeldahl Nitrogen J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TURB-MET-WT Water Turbidity on preserved metals APHA 2130 B

Sample result is based on a comparison of the intensity of the light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. Sample readings are obtained from a Nephelometer.

TURBIDITY-ONT-DW-WT Water Turbidity APHA 2130 B

Sample result is based on a comparison of the intensity of the light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. Sample readings are obtained from a Nephelometer.

VOC-ONT-DW-WT Water Volatile Organics (O.Reg 170/03) SW846 8260

Liquid samples are analyzed by headspace GC/MSD.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

20-946007

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2702028

Report Date: 15-JUN-22

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACIDS-ONT-DW-WT		Water						
Batch	R5771012							
WG3722194-2	LCS							
2,4-Dichlorophenol			97.3		%		50-140	04-MAY-22
2,4,6-Trichlorophenol			109.5		%		50-140	04-MAY-22
2,3,4,6-Tetrachlorophenol			119.1		%		50-140	04-MAY-22
Pentachlorophenol			144.0	LCS-H	%		60-130	04-MAY-22
WG3722194-1	MB							
2,4-Dichlorophenol			<0.30		ug/L		0.3	04-MAY-22
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	04-MAY-22
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	04-MAY-22
Pentachlorophenol			<0.50		ug/L		0.5	04-MAY-22
Surrogate: 2,4,6-Tribromophenol			80.3		%		40-150	04-MAY-22
ALK-ONT-DW-WT		Water						
Batch	R5771577							
WG3723597-4	DUP	WG3723597-3						
Alkalinity, Total (as CaCO3)		297	298		mg/L	0.4	20	04-MAY-22
WG3723597-2	LCS							
Alkalinity, Total (as CaCO3)			100.9		%		85-115	04-MAY-22
WG3723597-1	MB							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	04-MAY-22
CHLORATE-IC-DW-WT		Water						
Batch	R5779858							
WG3727087-3	DUP	WG3727087-5						
Chlorate		<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-MAY-22
WG3727087-2	LCS							
Chlorate			98.7		%		85-115	13-MAY-22
WG3727087-1	MB							
Chlorate			<0.010		mg/L		0.01	13-MAY-22
WG3727087-4	MS	WG3727087-5						
Chlorate			99.5		%		75-125	13-MAY-22
CHLORITE-IC-DW-WT		Water						
Batch	R5779858							
WG3727087-3	DUP	WG3727087-5						
Chlorite		<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-MAY-22
WG3727087-2	LCS							
Chlorite			99.6		%		85-115	13-MAY-22
WG3727087-1	MB							
Chlorite			<0.010				0.01	



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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
GLYPHOSATE-ONT-DW-WT Water								
Batch	R5774621							
WG3720886-1 MB								
Glyphosate			<5.0		ug/L		5	06-MAY-22
AMPA			<0.50		ug/L		0.5	06-MAY-22
WG3720886-4 MS		L2700819-1						
Glyphosate			96.1		%		70-130	06-MAY-22
AMPA			93.6		%		70-130	06-MAY-22
HAA-DW-LCMS-WT Water								
Batch	R5770756							
WG3722546-2 LCS								
Bromoacetic Acid			97.8		%		70-130	03-MAY-22
Chloroacetic acid			109.2		%		70-130	03-MAY-22
Dibromoacetic Acid			115.9		%		70-130	03-MAY-22
Dichloroacetic Acid			116.9		%		70-130	03-MAY-22
Trichloroacetic Acid			113.5		%		70-130	03-MAY-22
WG3722546-1 MB								
Bromoacetic Acid			<1.0		ug/L		1	03-MAY-22
Chloroacetic acid			<1.0		ug/L		1	03-MAY-22
Dibromoacetic Acid			<1.0		ug/L		1	03-MAY-22
Dichloroacetic Acid			<1.0		ug/L		1	03-MAY-22
Trichloroacetic Acid			<1.0		ug/L		1	03-MAY-22
WG3722546-3 MS		L2701941-1						
Bromoacetic Acid			91.9		%		70-130	03-MAY-22
Chloroacetic acid			106.1		%		70-130	03-MAY-22
Dibromoacetic Acid			111.2		%		70-130	03-MAY-22
Dichloroacetic Acid			N/A	MS-B	%		-	03-MAY-22
Trichloroacetic Acid			N/A	MS-B	%		-	03-MAY-22
WG3722546-4 MSD		WG3722546-3						
Bromoacetic Acid		91.9	90.4		%	1.7	50	03-MAY-22
Chloroacetic acid		106.1	103.8		%	2.2	50	03-MAY-22
Dibromoacetic Acid		111.2	121.7		%	9.1	50	03-MAY-22
HPC-DW-MF-WT Water								
Batch	R5770164							
WG3721946-1 MB								
Heterotrophic Plate Count			0		CFU/mL		1	29-APR-22
WG3721946-2 MB								
Heterotrophic Plate Count			0		CFU/mL		1	29-APR-22

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-DIG-WT		Water						
Batch	R5770728							
WG3722304-4 DUP		WG3722304-3						
Aluminum (Al)-Total		<10	<10	RPD-NA	ug/L	N/A	25	03-MAY-22
Antimony (Sb)-Total		<0.60	<0.60	RPD-NA	ug/L	N/A	25	03-MAY-22
Arsenic (As)-Total		<1.0	<1.0	RPD-NA	ug/L	N/A	25	03-MAY-22
Barium (Ba)-Total		173	172		ug/L	0.5	25	03-MAY-22
Boron (B)-Total		53	52		ug/L	1.5	25	03-MAY-22
Cadmium (Cd)-Total		<0.10	<0.10	RPD-NA	ug/L	N/A	25	03-MAY-22
Calcium (Ca)-Total		102	98.0		mg/L	3.6	25	03-MAY-22
Chromium (Cr)-Total		<1.0	<1.0	RPD-NA	ug/L	N/A	25	03-MAY-22
Copper (Cu)-Total		1.6	1.5		ug/L	5.9	25	03-MAY-22
Iron (Fe)-Total		109	105		ug/L	3.8	25	03-MAY-22
Lead (Pb)-Total		<1.0	<1.0	RPD-NA	ug/L	N/A	25	03-MAY-22
Magnesium (Mg)-Total		33.1	32.5		mg/L	2.0	25	03-MAY-22
Manganese (Mn)-Total		9.7	9.6		ug/L	1.2	25	03-MAY-22
Selenium (Se)-Total		<1.0	<1.0	RPD-NA	ug/L	N/A	25	03-MAY-22
Sodium (Na)-Total		28.9	29.1		mg/L	0.7	25	03-MAY-22
Uranium (U)-Total		2.2	2.2		ug/L	0.2	25	03-MAY-22
Zinc (Zn)-Total		<3.0	<3.0	RPD-NA	ug/L	N/A	25	03-MAY-22
WG3722304-2 LCS								
Aluminum (Al)-Total			98.1		%		70-130	03-MAY-22
Antimony (Sb)-Total			101.3		%		70-130	03-MAY-22
Arsenic (As)-Total			97.6		%		70-130	03-MAY-22
Barium (Ba)-Total			97.5		%		70-130	03-MAY-22
Boron (B)-Total			86.2		%		70-130	03-MAY-22
Cadmium (Cd)-Total			98.2		%		70-130	03-MAY-22
Calcium (Ca)-Total			96.4		%		70-130	03-MAY-22
Chromium (Cr)-Total			97.6		%		70-130	03-MAY-22
Copper (Cu)-Total			96.0		%		70-130	03-MAY-22
Iron (Fe)-Total			97.5		%		70-130	03-MAY-22
Lead (Pb)-Total			103.0		%		70-130	03-MAY-22
Magnesium (Mg)-Total			103.6		%		70-130	03-MAY-22
Manganese (Mn)-Total			96.8		%		70-130	03-MAY-22
Selenium (Se)-Total			97.7		%		70-130	03-MAY-22
Sodium (Na)-Total			98.1		%		70-130	03-MAY-22

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-DIG-WT		Water						
Batch	R5770728							
WG3722304-2	LCS							
Uranium (U)-Total			103.9		%		70-130	03-MAY-22
Zinc (Zn)-Total			96.8		%		70-130	03-MAY-22
WG3722304-1	MB							
Aluminum (Al)-Total			<10		ug/L		10	03-MAY-22
Antimony (Sb)-Total			<0.60		ug/L		0.6	03-MAY-22
Arsenic (As)-Total			<1.0		ug/L		1	03-MAY-22
Barium (Ba)-Total			<10		ug/L		10	03-MAY-22
Boron (B)-Total			<50		ug/L		50	03-MAY-22
Cadmium (Cd)-Total			<0.10		ug/L		0.1	03-MAY-22
Calcium (Ca)-Total			<0.50		mg/L		0.5	03-MAY-22
Chromium (Cr)-Total			<1.0		ug/L		1	03-MAY-22
Copper (Cu)-Total			<1.0		ug/L		1	03-MAY-22
Iron (Fe)-Total			<50		ug/L		50	03-MAY-22
Lead (Pb)-Total			<1.0		ug/L		1	03-MAY-22
Magnesium (Mg)-Total			<0.50		mg/L		0.5	03-MAY-22
Manganese (Mn)-Total			<1.0		ug/L		1	03-MAY-22
Selenium (Se)-Total			<1.0		ug/L		1	03-MAY-22
Sodium (Na)-Total			<0.50		mg/L		0.5	03-MAY-22
Uranium (U)-Total			<2.0		ug/L		2	03-MAY-22
Zinc (Zn)-Total			<3.0		ug/L		3	03-MAY-22
WG3722304-5	MS	WG3722304-6						
Aluminum (Al)-Total			N/A	MS-B	%		-	03-MAY-22
Antimony (Sb)-Total			103.4		%		70-130	03-MAY-22
Arsenic (As)-Total			99.0		%		70-130	03-MAY-22
Barium (Ba)-Total			N/A	MS-B	%		-	03-MAY-22
Boron (B)-Total			101.4		%		70-130	03-MAY-22
Cadmium (Cd)-Total			93.9		%		70-130	03-MAY-22
Calcium (Ca)-Total			N/A	MS-B	%		-	03-MAY-22
Chromium (Cr)-Total			98.0		%		70-130	03-MAY-22
Copper (Cu)-Total			93.4		%		70-130	03-MAY-22
Iron (Fe)-Total			N/A	MS-B	%		-	03-MAY-22
Lead (Pb)-Total			96.9		%		70-130	03-MAY-22
Magnesium (Mg)-Total			N/A	MS-B	%		-	03-MAY-22
Manganese (Mn)-Total			N/A	MS-B	%		-	03-MAY-22

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50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-ONT-DW-DIG-WT Water								
Batch	R5770728							
WG3722304-5 MS		WG3722304-6						
Selenium (Se)-Total			101.2		%		70-130	03-MAY-22
Sodium (Na)-Total			N/A	MS-B	%		-	03-MAY-22
Uranium (U)-Total			N/A	MS-B	%		-	03-MAY-22
Zinc (Zn)-Total			91.9		%		70-130	03-MAY-22
METHANE,C2-DIS-DW-WT Water								
Batch	R5770974							
WG3722807-4 DUP		WG3722807-3						
Methane, Dissolved		10200	12000		ug/L	16	50	03-MAY-22
Ethane, Dissolved		13.0	14.4		ug/L	9.8	50	03-MAY-22
Ethene, Dissolved		5.5	6.6		ug/L	18	50	03-MAY-22
WG3722807-1 MB								
Methane, Dissolved			<5.0		ug/L		5	03-MAY-22
Ethane, Dissolved			<5.0		ug/L		5	03-MAY-22
Ethene, Dissolved			<5.0		ug/L		5	03-MAY-22
MISC-ONT-DW-WT Water								
Batch	R5770281							
WG3721708-2 LCS								
Alachlor			115.1		%		60-130	02-MAY-22
Atrazine			114.1		%		60-130	02-MAY-22
Atrazine-desethyl			73.8		%		50-130	02-MAY-22
Azinphos-methyl			131.2		%		60-140	02-MAY-22
Carbaryl			149.5	LCS-H	%		50-140	02-MAY-22
Carbofuran			138.4		%		60-140	02-MAY-22
Chlorpyriphos			103.8		%		60-130	02-MAY-22
Diazinon			87.8		%		60-130	02-MAY-22
Diclofop-methyl			136.2		%		60-140	02-MAY-22
Dimethoate			116.6		%		60-130	02-MAY-22
Malathion			121.0		%		60-130	02-MAY-22
Metribuzin			110.8		%		60-130	02-MAY-22
Metolachlor			116.2		%		60-130	02-MAY-22
Phorate			99.7		%		30-140	02-MAY-22
Prometryne			107.8		%		60-130	02-MAY-22
Simazine			108.6		%		60-130	02-MAY-22
Terbufos			83.9		%		60-130	02-MAY-22

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MISC-ONT-DW-WT		Water						
Batch	R5770281							
WG3721708-2	LCS							
Triallate			104.1		%		60-130	02-MAY-22
Trifluralin			97.2		%		60-130	02-MAY-22
WG3721708-1	MB							
Alachlor			<0.10		ug/L		0.1	02-MAY-22
Atrazine			<0.10		ug/L		0.1	02-MAY-22
Atrazine-desethyl			<0.10		ug/L		0.1	02-MAY-22
Azinphos-methyl			<0.10		ug/L		0.1	02-MAY-22
Carbaryl			<0.20		ug/L		0.2	02-MAY-22
Carbofuran			<0.20		ug/L		0.2	02-MAY-22
Chlorpyrifos			<0.10		ug/L		0.1	02-MAY-22
Diazinon			<0.10		ug/L		0.1	02-MAY-22
Diclofop-methyl			<0.20		ug/L		0.2	02-MAY-22
Dimethoate			<0.10		ug/L		0.1	02-MAY-22
Malathion			<0.10		ug/L		0.1	02-MAY-22
Metribuzin			<0.10		ug/L		0.1	02-MAY-22
Metolachlor			<0.10		ug/L		0.1	02-MAY-22
Phorate			<0.10		ug/L		0.1	02-MAY-22
Prometryne			<0.10		ug/L		0.1	02-MAY-22
Simazine			<0.10		ug/L		0.1	02-MAY-22
Terbufos			<0.20		ug/L		0.2	02-MAY-22
Triallate			<0.10		ug/L		0.1	02-MAY-22
Trifluralin			<0.10		ug/L		0.1	02-MAY-22
Surrogate: 2-Fluorobiphenyl			66.7		%		40-130	02-MAY-22
NDMA-ONTDW-WT		Water						
Batch	R5774632							
WG3721940-3	DUP	L2702193-1						
N-Nitrosodimethylamine		<0.00090	<0.00090	RPD-NA	ug/L	N/A	30	08-MAY-22
WG3721940-2	LCS							
N-Nitrosodimethylamine			114.0		%		50-150	07-MAY-22
WG3721940-1	MB							
N-Nitrosodimethylamine			0.00113	MB-LOR	ug/L		0.0009	07-MAY-22
Surrogate: N-Nitrosodimethylamine-d6			99.0		%		50-150	07-MAY-22
WG3721940-4	MS	WG3721940-5						
N-Nitrosodimethylamine			111.3		%		50-150	08-MAY-22

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-ONT-DW-WT		Water						
Batch	R5782148							
WG3727728-3	DUP	WG3727728-5						
Ammonia, Total (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-MAY-22
WG3727728-2	LCS							
Ammonia, Total (as N)			109.1		%		85-115	16-MAY-22
WG3727728-1	MB							
Ammonia, Total (as N)			<0.010		mg/L		0.01	16-MAY-22
WG3727728-4	MS	WG3727728-5						
Ammonia, Total (as N)			101.5		%		75-125	16-MAY-22
NO2-DW-IC-WT		Water						
Batch	R5772848							
WG3724115-4	DUP	WG3724115-3						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	05-MAY-22
WG3724115-2	LCS							
Nitrite (as N)			101.2		%		90-110	05-MAY-22
WG3724115-1	MB							
Nitrite (as N)			<0.010		mg/L		0.01	05-MAY-22
WG3724115-5	MS	WG3724115-3						
Nitrite (as N)			103.5		%		75-125	05-MAY-22
NO3-DW-IC-WT		Water						
Batch	R5772848							
WG3724115-4	DUP	WG3724115-3						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	05-MAY-22
WG3724115-2	LCS							
Nitrate (as N)			100.3		%		90-110	05-MAY-22
WG3724115-1	MB							
Nitrate (as N)			<0.020		mg/L		0.02	05-MAY-22
WG3724115-5	MS	WG3724115-3						
Nitrate (as N)			100.6		%		75-125	05-MAY-22
PAHERB-ONT-DW-WT		Water						
Batch	R5771118							
WG3722989-3	DUP	WG3722989-5						
Dicamba		<0.20	<0.20	RPD-NA	ug/L	N/A	30	04-MAY-22
Bromoxynil		<0.20	<0.20	RPD-NA	ug/L	N/A	30	04-MAY-22
2,4-D		<0.20	<0.20	RPD-NA	ug/L	N/A	30	04-MAY-22
2,4,5-TP		<0.20	<0.20	RPD-NA	ug/L	N/A	50	04-MAY-22
Dinoseb		<0.20	<0.20	RPD-NA	ug/L	N/A	50	04-MAY-22
Picloram		<0.20	<0.20	RPD-NA	ug/L	N/A	30	04-MAY-22

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Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAHERB-ONT-DW-WT Water								
Batch	R5771118							
WG3722989-3	DUP	WG3722989-5						
MCPA		<0.20	<0.20	RPD-NA	ug/L	N/A	30	04-MAY-22
WG3722989-2	LCS							
Dicamba			109.8		%		65-130	04-MAY-22
Bromoxynil			129.4		%		65-130	04-MAY-22
2,4-D			89.1		%		65-130	04-MAY-22
2,4,5-TP			118.3		%		50-150	04-MAY-22
Dinoseb			94.3		%		50-150	04-MAY-22
Picloram			105.6		%		50-150	04-MAY-22
MCPA			103.1		%		65-130	04-MAY-22
WG3722989-1	MB							
Dicamba			<0.20		ug/L		0.2	04-MAY-22
Bromoxynil			<0.20		ug/L		0.2	04-MAY-22
2,4-D			<0.20		ug/L		0.2	04-MAY-22
2,4,5-TP			<0.20		ug/L		0.2	04-MAY-22
Dinoseb			<0.20		ug/L		0.2	04-MAY-22
Picloram			<0.20		ug/L		0.2	04-MAY-22
MCPA			<0.20		ug/L		0.2	04-MAY-22
Surrogate: 2,4-Dichlorophenylacetic Acid			91.0		%		50-130	04-MAY-22
WG3722989-4	MS	WG3722989-5						
Dicamba			119.2		%		50-150	04-MAY-22
Bromoxynil			124.1		%		50-150	04-MAY-22
2,4-D			108.4		%		50-150	04-MAY-22
2,4,5-TP			106.5		%		50-150	04-MAY-22
Dinoseb			107.3		%		50-150	04-MAY-22
Picloram			102.6		%		50-150	04-MAY-22
MCPA			112.2		%		50-150	04-MAY-22
PARAQUAT-ONT-DW-WT Water								
Batch	R5774650							
WG3722409-7	DUP	WG3722409-9						
Paraquat		<1.0	<1.0	RPD-NA	ug/L	N/A	30	06-MAY-22
WG3722409-6	LCS							
Paraquat			76.8		%		70-130	06-MAY-22
WG3722409-5	MB							
Paraquat			<1.0		ug/L		1	06-MAY-22
WG3722409-8	MS	WG3722409-9						

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50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PARAQUAT-ONT-DW-WT Water								
Batch	R5774650							
WG3722409-8	MS	WG3722409-9						
Paraquat			92.4		%		70-130	06-MAY-22
PH-ONT-DW-WT Water								
Batch	R5771577							
WG3723597-4	DUP	WG3723597-3						
pH		7.90	7.92	J	pH units	0.02	0.2	04-MAY-22
WG3723597-2	LCS							
pH			6.96		pH units		6.9-7.1	04-MAY-22
PO4-DO-COL-DW-WT Water								
Batch	R5769784							
WG3721857-3	DUP	WG3721857-5						
Orthophosphate-Dissolved (as P)		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	29-APR-22
WG3721857-2	LCS							
Orthophosphate-Dissolved (as P)			108.2		%		80-120	29-APR-22
WG3721857-1	MB							
Orthophosphate-Dissolved (as P)			<0.0030		mg/L		0.003	29-APR-22
WG3721857-4	MS	WG3721857-5						
Orthophosphate-Dissolved (as P)			97.3		%		70-130	29-APR-22
SO4-IC-N-ONT-DW-WT Water								
Batch	R5772848							
WG3724115-4	DUP	WG3724115-3						
Sulfate (SO4)		<0.30	<0.30	RPD-NA	mg/L	N/A	20	05-MAY-22
WG3724115-2	LCS							
Sulfate (SO4)			102.4		%		90-110	05-MAY-22
WG3724115-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	05-MAY-22
WG3724115-5	MS	WG3724115-3						
Sulfate (SO4)			104.7		%		75-125	05-MAY-22
SOLIDS-TDS-ONT-DW-WT Water								
Batch	R5776119							
WG3725025-3	DUP	L2703904-4						
Total Dissolved Solids		334	331		mg/L	0.9	25	09-MAY-22
WG3725025-2	LCS							
Total Dissolved Solids			102.5		%		70-130	09-MAY-22
WG3725025-1	MB							
Total Dissolved Solids			<10		mg/L		10	09-MAY-22

Quality Control Report

Workorder: L2702028

Report Date: 15-JUN-22

Page 12 of 15

Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SULPHIDE-ONT-DW-WT		Water						
Batch	R5770462							
WG3722545-3	DUP	WG3722545-5						
Sulphide (as S)		0.95	1.06		mg/L	11	20	02-MAY-22
WG3722545-2	LCS							
Sulphide (as S)			87.9		%		75-125	02-MAY-22
WG3722545-1	MB							
Sulphide (as S)			<0.018		mg/L		0.018	02-MAY-22
WG3722545-4	MS	WG3722545-5						
Sulphide (as S)			N/A	MS-B	%		-	02-MAY-22
TC,EC-QT51-DW-WT		Water						
Batch	R5770080							
WG3722065-2	DUP	L2702098-2						
Total Coliforms		0	0		MPN/100mL	0.0	65	29-APR-22
Escherichia Coli		0	0		MPN/100mL	0.0	65	29-APR-22
WG3722065-1	MB							
Total Coliforms			0		MPN/100mL		1	29-APR-22
Escherichia Coli			0		MPN/100mL		1	29-APR-22
TKN-ONT-DW-WT		Water						
Batch	R5784167							
WG3727736-3	DUP	WG3727736-5						
Total Kjeldahl Nitrogen		0.80	0.73		mg/L	9.2	20	17-MAY-22
WG3727736-2	LCS							
Total Kjeldahl Nitrogen			101.3		%		75-125	17-MAY-22
WG3727736-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	17-MAY-22
WG3727736-4	MS	WG3727736-5						
Total Kjeldahl Nitrogen			99.2		%		70-130	17-MAY-22
TURBIDITY-ONT-DW-WT		Water						
Batch	R5770712							
WG3721943-2	LCS							
Turbidity			95.0		%		85-115	29-APR-22
WG3721943-1	MB							
Turbidity			<0.10		NTU		0.1	29-APR-22
VOC-ONT-DW-WT		Water						
Batch	R5772679							
WG3724017-4	DUP	WG3724017-3						
1,1-dichloroethylene (vinylidene chlorid		<0.50	<0.50	RPD-NA	ug/L	N/A	30	06-MAY-22
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	06-MAY-22

Quality Control Report

Workorder: L2702028

Report Date: 15-JUN-22

Page 14 of 15

Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4

Contact: Matthew Alexander c/o Centre Wellington

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ONT-DW-WT		Water						
Batch	R5772679							
WG3724017-2 MB								
1,4-Dichlorobenzene			<0.50		ug/L		0.5	06-MAY-22
Surrogate: 1,4-Difluorobenzene			97.2		%		70-130	06-MAY-22
Benzene			<0.50		ug/L		0.5	06-MAY-22
Carbon tetrachloride			<0.20		ug/L		0.2	06-MAY-22
Dichloromethane			<5.0		ug/L		5	06-MAY-22
Ethylbenzene			<0.50		ug/L		0.5	06-MAY-22
Monochlorobenzene			<0.50		ug/L		0.5	06-MAY-22
Tetrachloroethylene (perchloroethylene)			<0.50		ug/L		0.5	06-MAY-22
Toluene			<0.50		ug/L		0.5	06-MAY-22
Trichloroethylene			<0.50		ug/L		0.5	06-MAY-22
m/p-xylene			<1.0		ug/L		1	06-MAY-22
o-xylene			<0.50		ug/L		0.5	06-MAY-22
Vinyl chloride			<0.20		ug/L		0.2	06-MAY-22
Surrogate: 4-Bromofluorobenzene			80.6		%		70-130	06-MAY-22
WG3724017-5 MS		WG3724017-3						
1,1-dichloroethylene (vinylidene chlorid			110.4		%		70-130	06-MAY-22
1,2-Dichlorobenzene			99.4		%		70-130	06-MAY-22
1,2-Dichloroethane			122.4		%		70-130	06-MAY-22
1,4-Dichlorobenzene			104.2		%		70-130	06-MAY-22
Benzene			109.4		%		70-130	06-MAY-22
Carbon tetrachloride			106.0		%		70-130	06-MAY-22
Dichloromethane			113.7		%		70-130	06-MAY-22
Ethylbenzene			87.6		%		70-130	06-MAY-22
Monochlorobenzene			101.4		%		70-130	06-MAY-22
Tetrachloroethylene (perchloroethylene)			79.7		%		70-130	06-MAY-22
Toluene			93.1		%		50-150	06-MAY-22
Trichloroethylene			102.7		%		70-130	06-MAY-22
m/p-xylene			97.3		%		70-130	06-MAY-22
o-xylene			92.4		%		50-150	06-MAY-22
Vinyl chloride			101.4		%		70-130	06-MAY-22

Quality Control Report

Workorder: L2702028

Report Date: 15-JUN-22

Client: TOWNSHIP OF CENTRE WELLINGTON
50 Sportsworld Crossing Rd
Kitchener ON N2P 0A4
Contact: Matthew Alexander c/o Centre Wellington

Page 15 of 15

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Your P.O. #: L2702028
Your C.O.C. #: n/a

Attention: Candice Hunter

ALS Laboratory Group
Environmental Div.
60 Northland Dr.
Unit #1
Waterloo, ON
Canada N2V 2B8

Report Date: 2022/06/02
Report #: R7149142
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2B7960

Received: 2022/05/03, 12:30

Sample Matrix: Water
Samples Received: 1

Analyses	Date		Laboratory Method	Analytical Method
	Quantity	Date		
Dioxins/Furans in Water (1613B) (1)	1	2022/05/13 2022/05/17	BRL SOP-00410	EPA 1613B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.



Your P.O. #: L2702028
Your C.O.C. #: n/a

Attention: Candice Hunter

ALS Laboratory Group
Environmental Div.
60 Northland Dr.
Unit #1
Waterloo, ON
Canada N2V 2B8

Report Date: 2022/06/02
Report #: R7149142
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2B7960

Received: 2022/05/03, 12:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Archana Gothoskar, B.Sc., Project Manager
Email: archana.gothoskar@bureauveritas.com
Phone# (905) 817-5700

=====

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

BUREAU
VERITAS

Bureau Veritas Job #: C2B7960

Report Date: 2022/06/02

ALS Laboratory Group

Your P.O. #: L2702028

Sampler Initials: PM

DIOXINS AND FURANS BY HRMS (WATER)

Bureau Veritas ID		SNC549						
Sampling Date		2022/04/28 10:25						
COC Number		n/a			TOXIC EQUIVALENCY		# of	
	UNITS	L2702028-1 FS-R	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	<1.66	1.66	10.5	1.00	1.66		7993737
1,2,3,7,8-Penta CDD *	pg/L	<1.54	1.54	52.6	1.00	1.54		7993737
1,2,3,4,7,8-Hexa CDD *	pg/L	<1.62	1.62	52.6	0.100	0.162		7993737
1,2,3,6,7,8-Hexa CDD *	pg/L	<1.59	1.59	52.6	0.100	0.159		7993737
1,2,3,7,8,9-Hexa CDD *	pg/L	2.79	1.63	52.6	0.100	0.279		7993737
1,2,3,4,6,7,8-Hepta CDD *	pg/L	2.69	1.56	52.6	0.0100	0.0269		7993737
Octa CDD *	pg/L	<3.51 (1)	3.51	105	0.000300	0.00105		7993737
Total Tetra CDD *	pg/L	3.29	1.66	10.5			1	7993737
Total Penta CDD *	pg/L	<4.20 (1)	4.20	52.6			0	7993737
Total Hexa CDD *	pg/L	13.4	1.68	52.6			3	7993737
Total Hepta CDD *	pg/L	9.71	1.56	52.6			2	7993737
2,3,7,8-Tetra CDF **	pg/L	<1.15	1.15	10.5	0.100	0.115		7993737
1,2,3,7,8-Penta CDF **	pg/L	<1.53	1.53	52.6	0.0300	0.0459		7993737
2,3,4,7,8-Penta CDF **	pg/L	<1.36	1.36	52.6	0.300	0.408		7993737
1,2,3,4,7,8-Hexa CDF **	pg/L	<1.39	1.39	52.6	0.100	0.139		7993737
1,2,3,6,7,8-Hexa CDF **	pg/L	<1.50	1.50	52.6	0.100	0.150		7993737
2,3,4,6,7,8-Hexa CDF **	pg/L	<1.28	1.28	52.6	0.100	0.128		7993737
1,2,3,7,8,9-Hexa CDF **	pg/L	<1.45	1.45	52.6	0.100	0.145		7993737
1,2,3,4,6,7,8-Hepta CDF **	pg/L	<1.33	1.33	52.6	0.0100	0.0133		7993737
1,2,3,4,7,8,9-Hepta CDF **	pg/L	<1.33	1.33	52.6	0.0100	0.0133		7993737
Octa CDF **	pg/L	2.73	1.58	105	0.000300	0.000819		7993737
Total Tetra CDF **	pg/L	<1.15	1.15	10.5			0	7993737
Total Penta CDF **	pg/L	<1.44	1.44	52.6			0	7993737
Total Hexa CDF **	pg/L	<1.40	1.40	52.6			0	7993737
Total Hepta CDF **	pg/L	1.65	1.33	52.6			1	7993737
TOTAL TOXIC EQUIVALENCY	pg/L					4.99		

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.



BUREAU
VERITAS

Bureau Veritas Job #: C2B7960

Report Date: 2022/06/02

ALS Laboratory Group

Your P.O. #: L2702028

Sampler Initials: PM

DIOXINS AND FURANS BY HRMS (WATER)

Bureau Veritas ID		SNC549						
Sampling Date		2022/04/28 10:25						
COC Number		n/a			TOXIC EQUIVALENCY		# of	
	UNITS	L2702028-1 FS-R	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)								
37CL4 2378 Tetra CDD *	%	94						7993737
C13-1234678 HeptaCDD *	%	88						7993737
C13-1234678 HeptaCDF **	%	89						7993737
C13-123478 HexaCDD *	%	93						7993737
C13-123478 HexaCDF **	%	93						7993737
C13-1234789 HeptaCDF **	%	89						7993737
C13-123678 HexaCDD *	%	89						7993737
C13-123678 HexaCDF **	%	88						7993737
C13-12378 PentaCDD *	%	97						7993737
C13-12378 PentaCDF **	%	88						7993737
C13-123789 HexaCDF **	%	87						7993737
C13-234678 HexaCDF **	%	101						7993737
C13-23478 PentaCDF **	%	94						7993737
C13-2378 TetraCDD *	%	72						7993737
C13-2378 TetraCDF **	%	84						7993737
C13-OCDD *	%	88						7993737
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan								



BUREAU
VERITAS

Bureau Veritas Job #: C2B7960

Report Date: 2022/06/02

ALS Laboratory Group

Your P.O. #: L2702028

Sampler Initials: PM

GENERAL COMMENTS

DIOXINS AND FURANS BY HRMS (WATER)

Dioxins/Furans in Water (1613B): Worksheet Blank contains some traces levels of total tetra CDD that is above the RDL. However, all samples in the worksheet (7993737) have lower TCDD concentration in total compared to levels found in blank. Data is reportable.

Results relate only to the items tested.



**BUREAU
VERITAS**

Bureau Veritas Job #: C2B7960
Report Date: 2022/06/02

ALS Laboratory Group
Your P.O. #: L2702028
Sampler Initials: PM

QUALITY ASSURANCE REPORT

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7993737	RAK	Spiked Blank		37CL4 2378 Tetra CDD	2022/05/17		100	%	35 - 197
				C13-1234678 HeptaCDD	2022/05/17		94	%	23 - 140
				C13-1234678 HeptaCDF	2022/05/17		106	%	28 - 143
				C13-123478 HexaCDD	2022/05/17		95	%	32 - 141
				C13-123478 HexaCDF	2022/05/17		100	%	26 - 152
				C13-1234789 HeptaCDF	2022/05/17		91	%	28 - 138
				C13-123678 HexaCDD	2022/05/17		100	%	28 - 130
				C13-123678 HexaCDF	2022/05/17		102	%	26 - 123
				C13-12378 PentaCDD	2022/05/17		94	%	25 - 181
				C13-12378 PentaCDF	2022/05/17		99	%	24 - 185
				C13-123789 HexaCDF	2022/05/17		99	%	29 - 147
				C13-234678 HexaCDF	2022/05/17		109	%	28 - 136
				C13-23478 PentaCDF	2022/05/17		93	%	21 - 178
				C13-2378 TetraCDD	2022/05/17		80	%	25 - 164
				C13-2378 TetraCDF	2022/05/17		95	%	24 - 169
				C13-OCDD	2022/05/17		79	%	17 - 157
				2,3,7,8-Tetra CDD	2022/05/17		103	%	67 - 158
				1,2,3,7,8-Penta CDD	2022/05/17		99	%	25 - 181
				1,2,3,4,7,8-Hexa CDD	2022/05/17		97	%	70 - 164
				1,2,3,6,7,8-Hexa CDD	2022/05/17		101	%	76 - 134
				1,2,3,7,8,9-Hexa CDD	2022/05/17		106	%	64 - 162
				1,2,3,4,6,7,8-Hepta CDD	2022/05/17		105	%	70 - 140
				Octa CDD	2022/05/17		99	%	78 - 144
				2,3,7,8-Tetra CDF	2022/05/17		108	%	75 - 158
				1,2,3,7,8-Penta CDF	2022/05/17		102	%	80 - 134
				2,3,4,7,8-Penta CDF	2022/05/17		100	%	68 - 160
				1,2,3,4,7,8-Hexa CDF	2022/05/17		104	%	72 - 134
				1,2,3,6,7,8-Hexa CDF	2022/05/17		107	%	84 - 130
				2,3,4,6,7,8-Hexa CDF	2022/05/17		96	%	70 - 156
				1,2,3,7,8,9-Hexa CDF	2022/05/17		104	%	78 - 130
				1,2,3,4,6,7,8-Hepta CDF	2022/05/17		101	%	82 - 122
				1,2,3,4,7,8,9-Hepta CDF	2022/05/17		98	%	78 - 138
				Octa CDF	2022/05/17		102	%	63 - 170
7993737	RAK	RPD		2,3,7,8-Tetra CDD	2022/05/17	17		%	25
				1,2,3,7,8-Penta CDD	2022/05/17	14		%	25
				1,2,3,4,7,8-Hexa CDD	2022/05/17	19		%	25
				1,2,3,6,7,8-Hexa CDD	2022/05/17	20		%	25
				1,2,3,7,8,9-Hexa CDD	2022/05/17	22		%	25
				1,2,3,4,6,7,8-Hepta CDD	2022/05/17	25		%	25
				Octa CDD	2022/05/17	0		%	25
				2,3,7,8-Tetra CDF	2022/05/17	22		%	25
				1,2,3,7,8-Penta CDF	2022/05/17	16		%	25
				2,3,4,7,8-Penta CDF	2022/05/17	17		%	25
				1,2,3,4,7,8-Hexa CDF	2022/05/17	18		%	25
				1,2,3,6,7,8-Hexa CDF	2022/05/17	22		%	25
				2,3,4,6,7,8-Hexa CDF	2022/05/17	25		%	25
				1,2,3,7,8,9-Hexa CDF	2022/05/17	20		%	25
				1,2,3,4,6,7,8-Hepta CDF	2022/05/17	13		%	25
				1,2,3,4,7,8,9-Hepta CDF	2022/05/17	9.6		%	25
				Octa CDF	2022/05/17	2.0		%	25
7993737	RAK	Method Blank		37CL4 2378 Tetra CDD	2022/05/18		95	%	35 - 197
				C13-1234678 HeptaCDD	2022/05/18		102	%	23 - 140



BUREAU
VERITAS

Bureau Veritas Job #: C2B7960
Report Date: 2022/06/02

ALS Laboratory Group
Your P.O. #: L2702028
Sampler Initials: PM

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			C13-1234678 HeptaCDF	2022/05/18		106	%	28 - 143
			C13-123478 HexaCDD	2022/05/18		105	%	32 - 141
			C13-123478 HexaCDF	2022/05/18		103	%	26 - 152
			C13-1234789 HeptaCDF	2022/05/18		103	%	28 - 138
			C13-123678 HexaCDD	2022/05/18		100	%	28 - 130
			C13-123678 HexaCDF	2022/05/18		99	%	26 - 123
			C13-12378 PentaCDD	2022/05/18		106	%	25 - 181
			C13-12378 PentaCDF	2022/05/18		103	%	24 - 185
			C13-123789 HexaCDF	2022/05/18		102	%	29 - 147
			C13-234678 HexaCDF	2022/05/18		117	%	28 - 136
			C13-23478 PentaCDF	2022/05/18		107	%	21 - 178
			C13-2378 TetraCDD	2022/05/18		80	%	25 - 164
			C13-2378 TetraCDF	2022/05/18		89	%	24 - 169
			C13-OCDD	2022/05/18		107	%	17 - 157
			2,3,7,8-Tetra CDD	2022/05/18	<1.61, EDL=1.61		pg/L	
			1,2,3,7,8-Penta CDD	2022/05/18	<1.53, EDL=1.53		pg/L	
			1,2,3,4,7,8-Hexa CDD	2022/05/18	<1.41, EDL=1.41		pg/L	
			1,2,3,6,7,8-Hexa CDD	2022/05/18	<1.38, EDL=1.38		pg/L	
			1,2,3,7,8,9-Hexa CDD	2022/05/18	<2.51, EDL=2.51 (1)		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2022/05/18	<1.64, EDL=1.64		pg/L	
			Octa CDD	2022/05/18	<1.31, EDL=1.31		pg/L	
			Total Tetra CDD	2022/05/18	37.1, EDL=1.61		pg/L	
			Total Penta CDD	2022/05/18	41.2, EDL=1.53		pg/L	
			Total Hexa CDD	2022/05/18	19.0, EDL=1.46		pg/L	
			Total Hepta CDD	2022/05/18	<1.16, EDL=1.16		pg/L	
			2,3,7,8-Tetra CDF	2022/05/18	<1.52, EDL=1.52		pg/L	
			1,2,3,7,8-Penta CDF	2022/05/18	<1.14, EDL=1.14		pg/L	
			2,3,4,7,8-Penta CDF	2022/05/18	<1.02, EDL=1.02		pg/L	
			1,2,3,4,7,8-Hexa CDF	2022/05/18	<0.996, EDL=0.996		pg/L	
			1,2,3,6,7,8-Hexa CDF	2022/05/18	<1.07, EDL=1.07		pg/L	
			2,3,4,6,7,8-Hexa CDF	2022/05/18	<0.913, EDL=0.913		pg/L	
			1,2,3,7,8,9-Hexa CDF	2022/05/18	<1.03, EDL=1.03		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2022/05/18	<1.46, EDL=1.46		pg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C2B7960

Report Date: 2022/06/02

ALS Laboratory Group

Your P.O. #: L2702028

Sampler Initials: PM

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,2,3,4,7,8,9-Hepta CDF	2022/05/18	<1.46, EDL=1.46		pg/L	
			Octa CDF	2022/05/18	<1.04, EDL=1.04		pg/L	
			Total Tetra CDF	2022/05/18	<1.52, EDL=1.52		pg/L	
			Total Penta CDF	2022/05/18	<1.08, EDL=1.08		pg/L	
			Total Hexa CDF	2022/05/18	<1.00, EDL=1.00		pg/L	
			Total Hepta CDF	2022/05/18	<1.46, EDL=1.46		pg/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.



BUREAU
VERITAS

Bureau Veritas Job #: C2B7960

Report Date: 2022/06/02

ALS Laboratory Group

Your P.O. #: L2702028

Sampler Initials: PM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

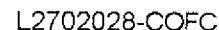
A handwritten signature in black ink, appearing to read 'Angel Guerrero'.

Angel Guerrero, Supervisor, Ultra Trace Analysis, HRMS

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Canada Toll Free: 1 800 6



Page 1 of 1

Report To		Contact and company name below will appear on the final report		Reports / Recipients		ad			
Company:	AECOM			Select Report Format:	☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)		☒ Routine [R] if received by 3pm M-F - no surcharges apply		AFFIX ALS BARCODE LABEL HERE (ALS use only)
Contact:	Matthew Alexander			Merge QC/QCI Reports with COA	☒ YES ☐ NO ☐ N/A		☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum		
Phone:	226-821-4906			☒ Compare Results to Criteria on Report - provide details below if box checked			☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum		
Company address below will appear on the final report				Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX		☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum		
Street:	50 Sportswood Crossing			Email 1 or Fax	matthew.alexander@aecom.com		☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum		
City/Province:	Kitchener ON			Email 2	A.Gilmore@centrewellington.ca		☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests		
Postal Code:	N2P 0A4			Email 3			Date and Time Required for all E&P TATs:		
Invoice To	Same as Report To ☐ YES ☒ NO			Invoice Recipients		For all tests with rush TATs requested, please contact your AM to confirm availability.			
	Copy of Invoice with Report ☐ YES ☐ NO			Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX		Analysis Request		
Company:	Township of Centre Wellington			Email 1 or Fax			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below		
Contact:	Adam Gilmore			Email 2			NUMBER OF CONTAINERS		
Project Information				Oil and Gas Required Fields (client use)					
ALS Account # / Quote #	BR 350349 / Q89128			AFE/Cost Center:	PO#				
Job #:				Major/Minor Code:	Routing Code:				
PO / AFE:				Requisitioner:					
LSD:				Location:					
ALS Lab Work Order # (ALS use only): 227020028				ALS Contact:		Sampler:			
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mm-yy)	Time (hh:mm)	Sample Type			
	FS-R			28-04-22	10:25	GW	34	☒	
Drinking Water (DW) Samples ¹ (client use)				Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)		SAMPLE RECEIPT DETAILS (ALS use only)			
Are samples taken from a Regulated DW System? ☐ YES ☒ NO				DDWQS		Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED			
Are samples for human consumption/ use? ☐ YES ☒ NO						Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO			
						Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A			
						INITIAL COOLER TEMPERATURES °C			
						FINAL COOLER TEMPERATURES °C			
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (ALS use only)		FINAL SHIPMENT RECEPTION (ALS use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:	
Peter Maki	April 28, 2022	12:00				TS	4/28/22	12:15pm	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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 a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALSO AVAILABLE

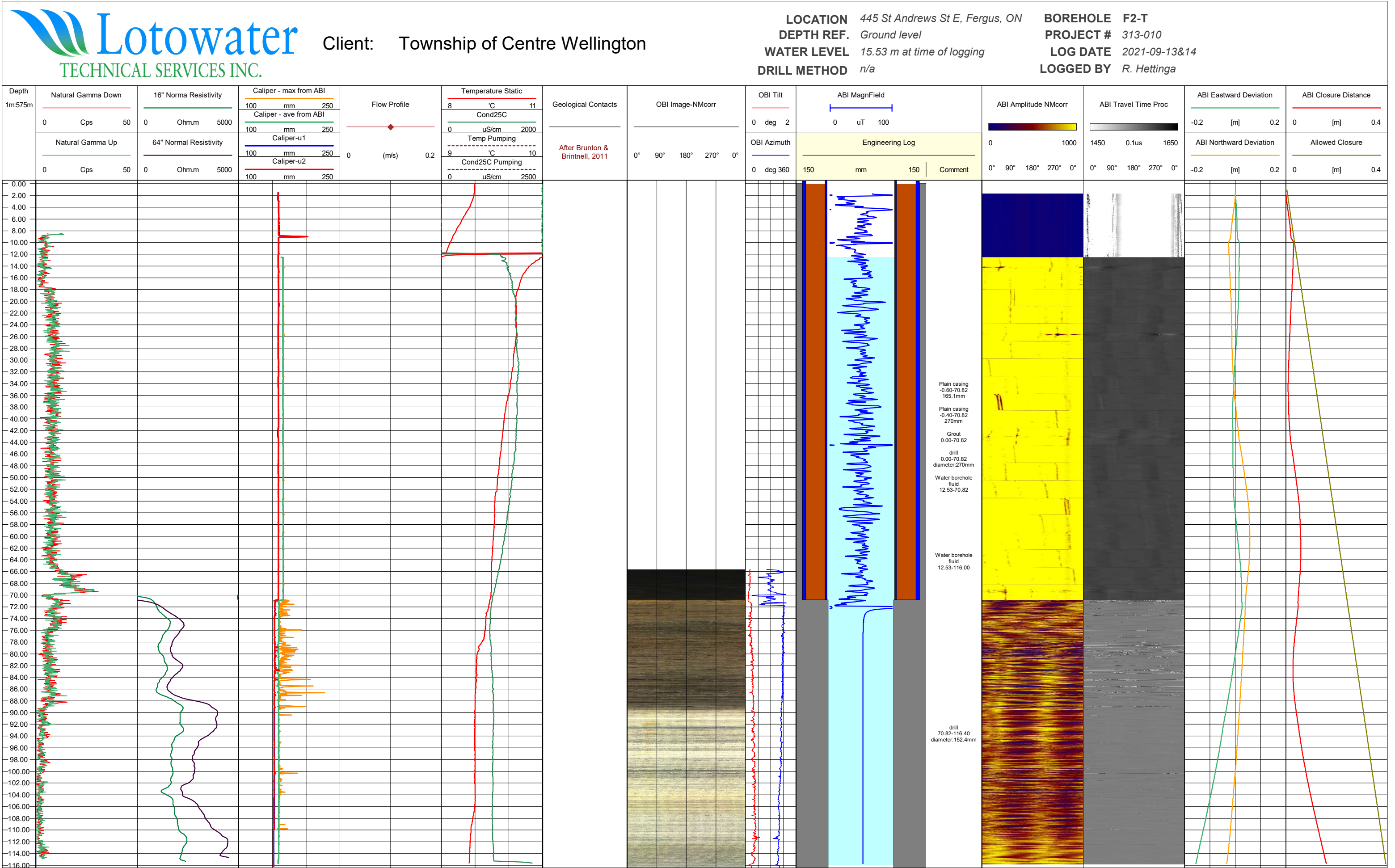
Appendix **C**

Lotowater Technical Services Test Results

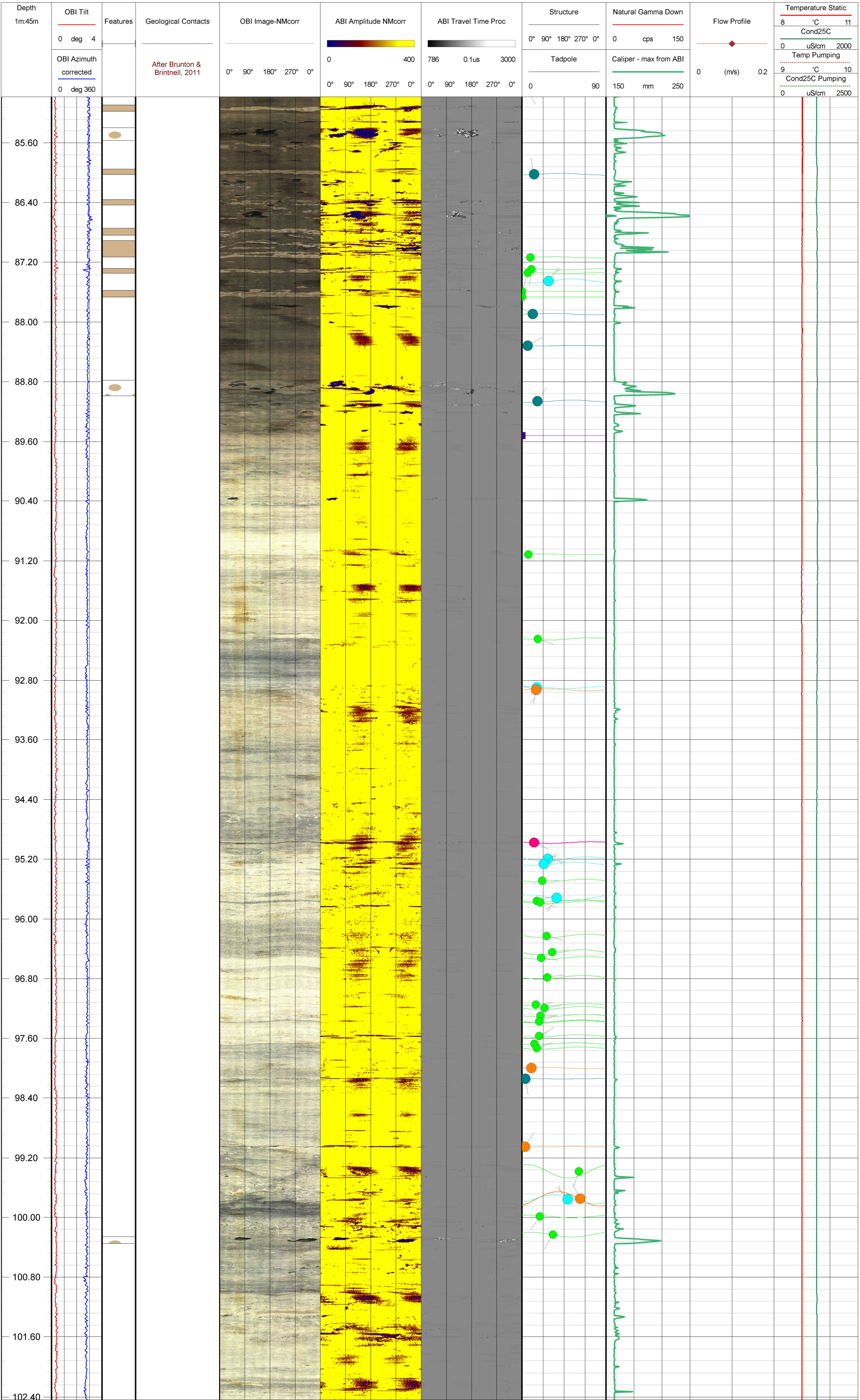


F2-T Well Results









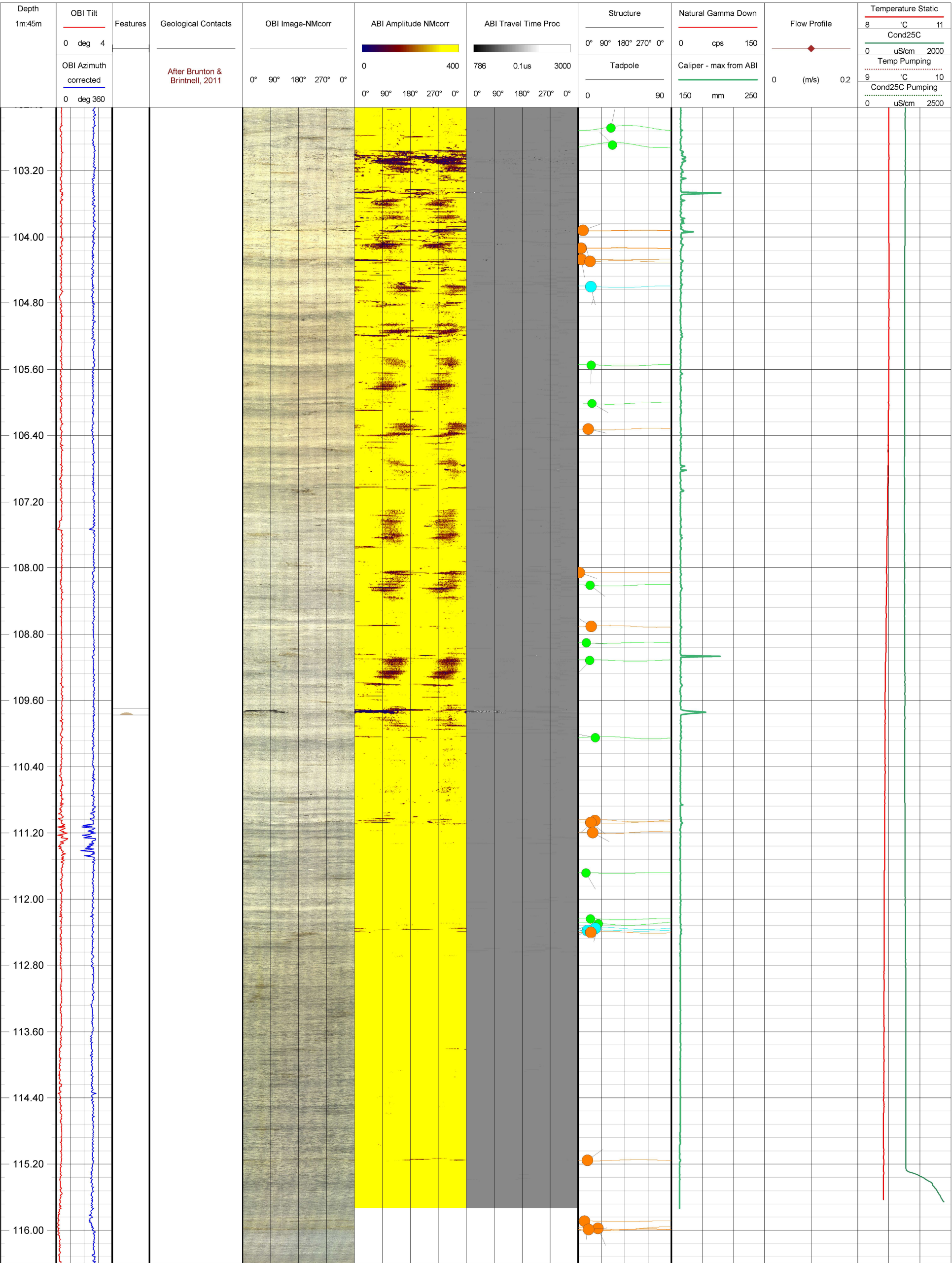


Figure:

Plumbness and Alignment Log

CLIENT
Twp of Centre Wellington

LOCATION 445 St Andrew St E, Fergus, ON
DEPTH REF. Ground Surface
WATER LEVEL 12.53 m bgl
DRILL METHOD n/a

BOREHOLE F2-T
PROJECT # 313-010
LOG DATE 2021-09-14
LOGGED BY R. Hettinga

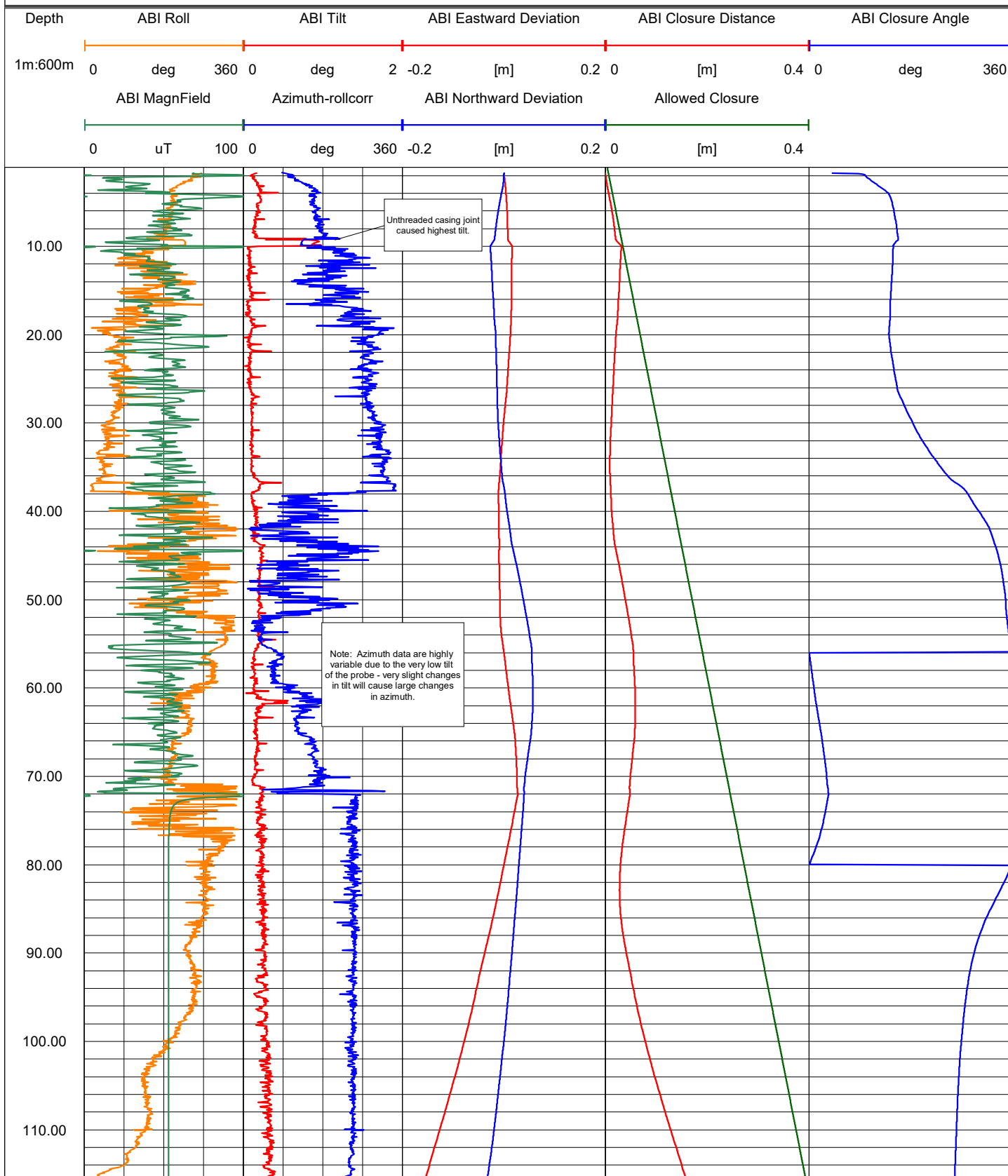


TABLE 2

Township of Centre Wellington

Well F2-T

Static Investigation Video Summary

2021/09/13

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	0.79	0.24	At ground level (top of casing is 0.60 m above ground level)
0:00	7.12	2.17	Casing joint
0:01	16.96	5.17	Casing joint
0:03	26.71	8.14	Casing joint (broken)
0:05	37.14	11.32	Casing joint
0:06	39.37	12.00	Static water level (turbid)
0:07	46.85	14.28	Casing joint
0:26	203.35	61.98	Casing joint
0:28	212.60	64.80	Casing joint
0:29	222.38	67.78	Casing joint
0:30	230.97	70.40	Bottom of casing
0:31	232.15	70.76	Vuggy
0:31	234.02	71.33	Horizontal flow visible
0:32	238.78	72.78	Vuggy w/grout
0:33	239.90	73.12	Fracture w/grout
0:34	247.97	75.58	Large vug
0:34	250.00	76.20	Horizontal flow visible
0:35	252.07	76.83	Horizontal flow visible, vuggy
0:36	254.79	77.66	Vuggy
0:36	256.00	78.03	Horizontal flow visible, vuggy
0:37	259.35	79.05	Fracture zone
0:38	264.67	80.67	Vuggy
0:38	267.62	81.57	Partial fractures
0:39	270.44	82.43	Partial fractures
0:39	273.43	83.34	Horizontal flow visible, vuggy
0:40	274.97	83.81	Horizontal flow visible, fracture zone
0:41	279.07	85.06	Vuggy
0:41	283.01	86.26	Large vug
0:42	284.42	86.69	Partial fractures
0:42	290.72	88.61	Partial fractures
0:45	310.73	94.71	Horizontal ring feature
0:47	321.13	97.88	Horizontal ring feature
0:47	324.08	98.78	Partial fracture
0:48	328.18	100.03	Partial fracture
0:48	332.45	101.33	Vuggy
0:49	337.37	102.83	Vuggy
0:50	340.22	103.70	Partial fracture
0:52	359.32	109.52	Partial fracture
0:56	381.82	116.38	Bottom of well
0:58	380.22	115.89	Minor partial fracture

TABLE 2

**Township of Centre Wellington
Well F2-T
Static Investigation Video Summary
2021/09/13**

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:59	377.82	115.16	Minor partial fracture
1:03	364.37	111.06	Minor partial fracture
1:06	356.59	108.69	Minor partial fracture
1:10	341.93	104.22	Minor partial fracture
1:11	340.78	103.87	Major fracture, minor flow visible
1:14	332.25	101.27	Vuggy
1:15	330.28	100.67	Large vugs
1:16	327.99	99.97	Crinoid bed
1:17	326.87	99.63	Fracture w/high dip
1:19	324.77	98.99	Major fracture, minor flow visible
1:21	321.75	98.07	Partially filled fracture
1:22	321.26	97.92	Minor partial fracture
1:24	313.55	95.57	Vuggy
1:25	311.35	94.90	Fracture w/grout
1:27	304.59	92.84	Minor partial fracture
1:31	292.06	89.02	Large vugs
1:34	288.02	87.79	Partially filled fracture
1:34	287.66	87.68	Large vug
1:35	285.04	86.88	Large vug, minor flow visible
1:37	283.69	86.47	Large vugs
1:38	280.41	85.47	Vuggy
1:39	279.53	85.20	Partial fracture/vugs
1:41	278.15	84.78	Fracture
1:43	276.44	84.26	Major fracture, minor flow visible
1:44	274.25	83.59	Large vug
1:46	271.10	82.63	Large partial fracture, minor flow visible
1:48	268.41	81.81	Large vugs
1:49	266.60	81.26	Partial fracture
1:50	264.01	80.47	Partial fracture, minor flow visible
1:52	263.12	80.20	Large vug, major flow visible
1:53	261.38	79.67	Vuggy
1:53	261.06	79.57	Major fracture, minor flow visible
1:55	260.96	79.54	Large partial fracture, major flow visible
1:56	258.37	78.75	Large vug
1:56	257.22	78.40	Large vugs/breakouts
1:58	252.95	77.10	Large vugs/breakouts
2:00	246.49	75.13	Vuggy
2:02	240.52	73.31	NEW DISK
-	-	-	-
0:00	240.52	73.31	Continue up run
0:00	240.58	73.33	Vuggy, major flow visible
0:01	238.06	72.56	Vuggy

TABLE 2

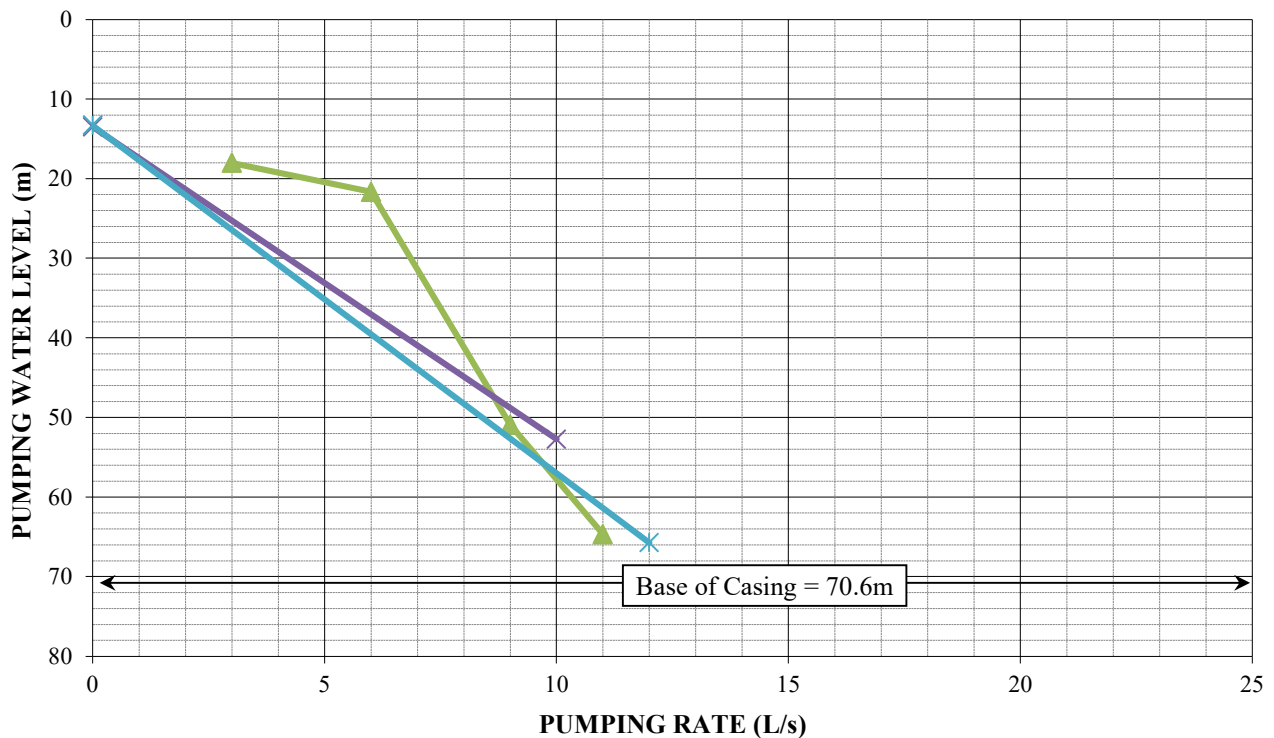
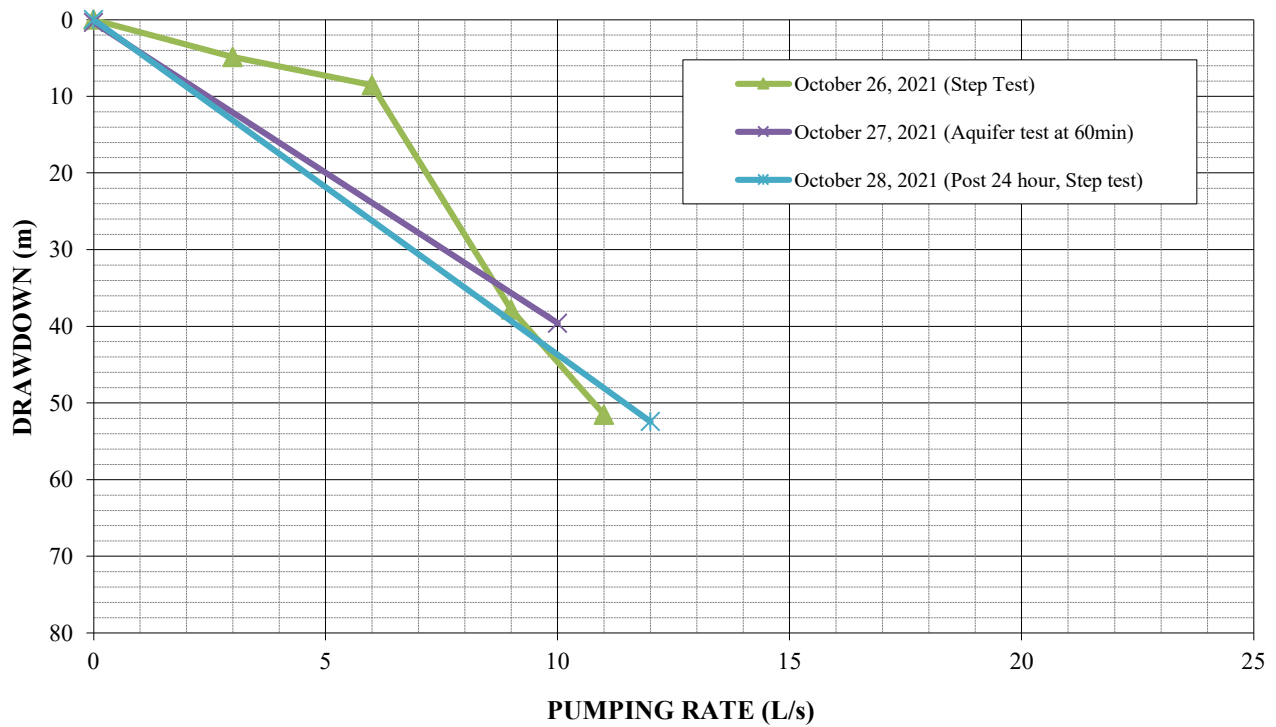
Township of Centre Wellington

Well F2-T

Static Investigation Video Summary

2021/09/13

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:03	235.14	71.67	Vuggy
0:04	233.17	71.07	Large vug
0:04	232.87	70.98	Large vug
0:05	231.76	70.64	Bottom of casing (reduction opens upward)
0:08	223.16	68.02	Casing joint
0:10	213.39	65.04	Casing joint
0:12	203.61	62.06	Casing joint
0:14	193.80	59.07	Casing joint
0:16	183.99	56.08	Casing joint
0:18	174.70	53.25	Casing joint
0:22	164.86	50.25	Casing joint
0:24	155.02	47.25	Casing joint
0:26	145.21	44.26	Casing joint
0:28	135.37	41.26	Casing joint
0:31	125.56	38.27	Casing joint
0:32	116.21	35.42	Casing joint
0:33	106.40	32.43	Casing joint
0:35	96.59	29.44	Casing joint
0:36	86.78	26.45	Casing joint
0:38	76.94	23.45	Casing joint
0:40	67.16	20.47	Casing joint
0:41	57.84	17.63	Casing joint
0:43	48.00	14.63	Casing joint
0:45	39.99	12.19	Static water level
0:45	38.19	11.64	Casing joint
0:47	28.15	8.58	Unthreaded casing joint
0:48	27.76	8.46	Bottom of unthreaded casing joint
0:50	17.98	5.48	Casing joint
0:51	8.17	2.49	Casing joint
0:53	1.31	0.40	Below ground level
Video survey conducted by Rayne Hettinga Note: Measuring point (MP) is ground level. Top of casing is 0.60 m above			



Notes:

All water levels are referenced from top of casing
 Top of casing = 0.60 m above floor surface
 Flow meter = 3" Banjo Flow Meter

Township of Centre Wellington

Fergus F2-T

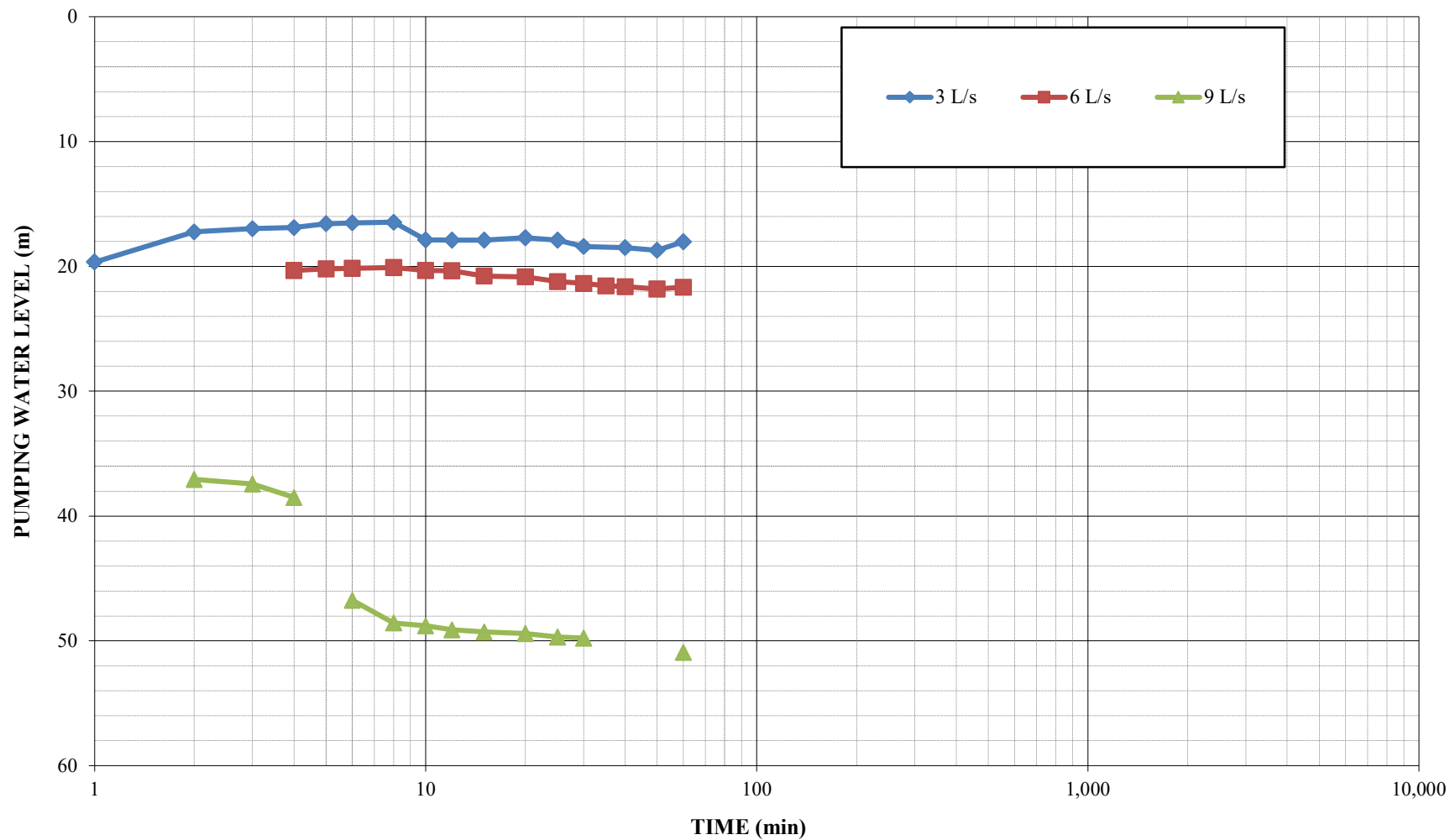
Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

Reference: 313-010

Figure 1

10/25/2021



Notes:

Step Test October 26, 2021

Township of Centre Wellington

Fergus Well F2-T

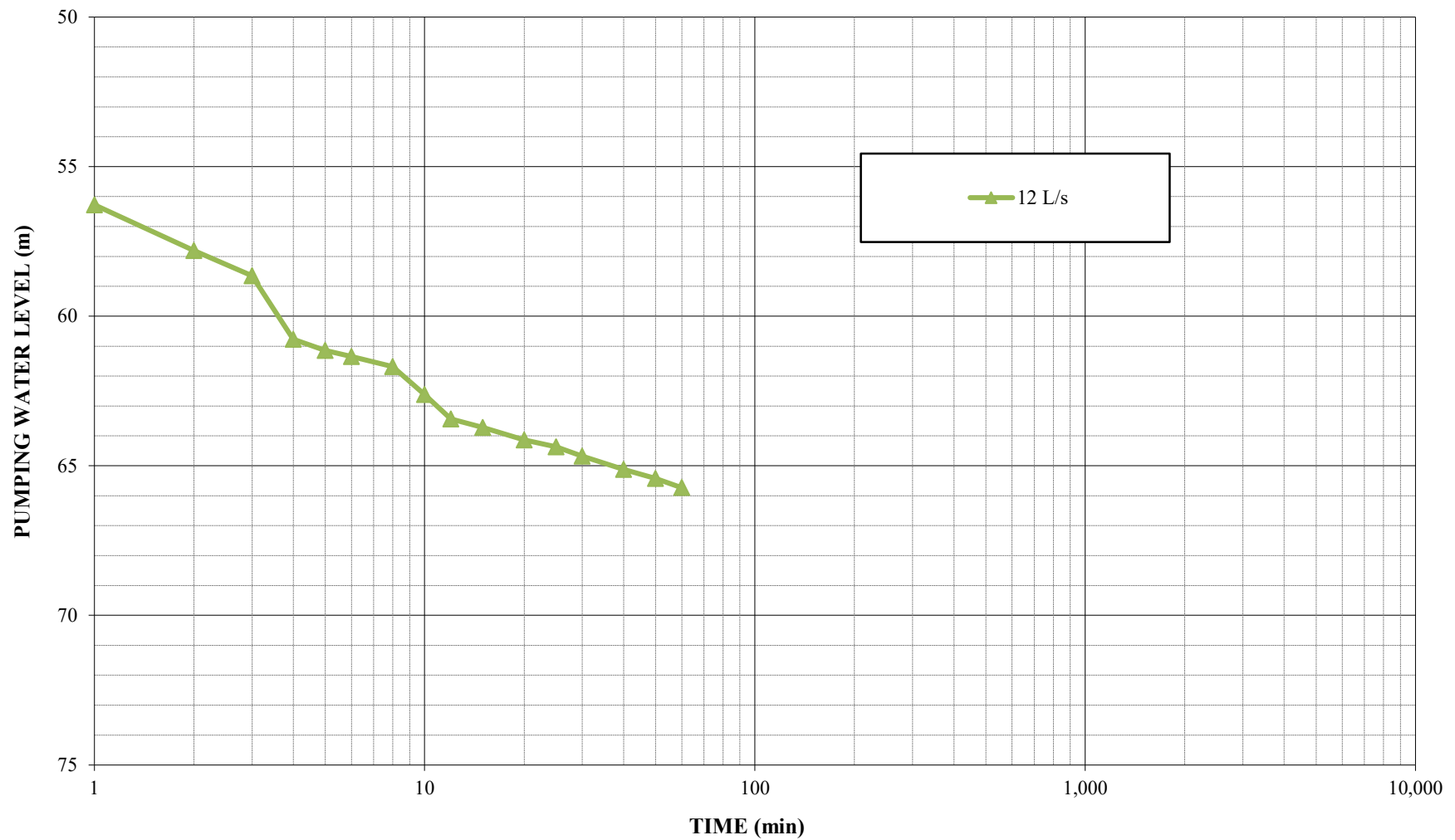
Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

Figure 1

Reference: 313-010

10/26/2021



Notes:

Step Test October 28, 2021

Township of Centre Wellington

Fergus Well F2-T

Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

Reference: 313-010

Figure 1

10/29/2021

TABLE 1

VARIABLE RATE PERFORMANCE TEST



Well Name:	Fergus Test Well F2-T
Client:	Township Centre of Wellington
Technician Name:	Art Krzysko
Water Level Device:	LTS water level meter
Water Level Reference:	Top of casing (0.60m ags)
Test Note:	Test to waste

Project Number:	313-010
Date:	10/26/2021
Pump:	Grundfos 300S-7aa (30hp)
Pump Inlet:	71.0 m
Measuring Device:	3" Banjo

Time <i>hr:min</i>	Elapsed Time <i>min</i>	Level <i>mbBP</i>	Drawdown <i>m</i>	Flow <i>L/s</i>	Note
9:47	0	13.13	0.00	3.0	<u>Start Step 1</u>
9:48	1	19.65	6.52	3.0	
9:49	2	17.23	4.10	3.0	
9:50	3	16.97	3.84	3.0	
9:51	4	16.89	3.76	3.0	
9:52	5	16.58	3.45	3.0	
9:53	6	16.51	3.38	3.0	
9:55	8	16.46	3.33	3.0	
9:57	10	17.87	4.74	3.0	
9:59	12	17.89	4.76	3.0	
10:02	15	17.90	4.77	3.0	
10:07	20	17.71	4.58	3.0	
10:12	25	17.89	4.76	3.0	
10:17	30	18.41	5.28	3.0	170 psi
10:27	40	18.49	5.36	3.0	
10:37	50	18.70	5.57	3.0	
10:47	60	18.02	4.89	3.0	
10:47	0			6.0	<u>Start Step 2</u>
10:48	1			6.0	adjusting flow
10:49	2			6.0	
10:50	3			6.0	
10:51	4	20.32	7.19	6.0	flow set
10:52	5	20.19	7.06	6.0	
10:53	6	20.16	7.03	6.0	140 psi
10:55	8	20.09	6.96	6.0	
10:57	10	20.32	7.19	6.0	
10:59	12	20.35	7.22	6.0	
11:02	15	20.78	7.65	6.0	
11:07	20	20.83	7.70	6.0	
11:12	25	21.21	8.08	6.0	
11:17	30	21.36	8.23	6.0	
11:22	35	21.55	8.42	6.0	
11:27	40	21.62	8.49	6.0	
11:37	50	21.82	8.69	6.0	
11:47	60	21.67	8.54	6.0	

TABLE 1

VARIABLE RATE PERFORMANCE TEST



Well Name:	Fergus Test Well F2-T
Client:	Township Centre of Wellington
Technician Name:	Art Krzysko
Water Level Device:	LTS water level meter
Water Level Reference:	Top of casing (0.60m ags)
Test Note:	Test to waste

Project Number:	313-010
Date:	10/26/2021
Pump:	Grundfos 300S-7aa (30hp)
Pump Inlet:	71.0 m
Flow Measuring Device:	3" Banjo

[illegible]

TABLE 1

VARIABLE RATE PERFORMANCE TEST



Well Name:	Fergus Test Well F2-T
Client:	Township Centre of Wellington
Technician Name:	Art Krzysko
Water Level Device:	LTS water level meter
Water Level Reference:	Top of casing (0.60m ags)
Test Note:	ReTest to check flow meter and levels

Project Number:	313-010
Date:	10/26/2021
Pump:	Grundfos 300S-7aa (30hp)
Pump Inlet:	71.0 m
Measuring Device:	3" Banjo

Time <i>hr:min</i>	Elapsed Time <i>min</i>	Level <i>mbBP</i>	Drawdown <i>m</i>	Flow <i>L/s</i>	Note
12:47	0	15.84		9.0	<u>Re run 9 L/s test</u>
	1			9.0	
	2	46.16		9.0	
	3	47.19		9.0	
	4			9.0	
	5	47.47		9.0	
	6	47.66		9.0	
	8	47.89		9.0	
	10	48.15		9.0	55 sec to fill 160gallon bin
	12	48.31		9.0	
	15	48.70		9.0	
	20	49.08		9.0	
	25	49.32		9.0	
	30	49.40		9.0	
	40	49.65		9.0	
	50	49.86		9.0	
	60	50.07		9.0	
	68	60.44		11.0	Increase flow to 11 L/s
	69	60.10		11.0	
	70	62.67		11.0	
	71	64.28		11.0	
	72	64.66		11.0	

TABLE 1

VARIABLE RATE PERFORMANCE TEST



Well Name:	Fergus Test Well F2-T
Client:	Township Centre of Wellington
Technician Name:	Art Krzysko
Water Level Device:	LTS water level meter
Water Level Reference:	Top of casing (0.60m ags)
Test Note:	Retest after 24 test at 12 L/s rate

Project Number:	313-010
Date:	10/29/2021
Pump:	Grundfos 300S-7aa (30hp)
Pump Inlet:	71.0 m
Flow Measuring Device:	3" Banjo

Time <i>hr:min</i>	Elapsed Time <i>min</i>	Level <i>mbBP</i>	Drawdown <i>m</i>	Flow <i>L/s</i>	Note
8:58	0	13.31	0.00	12.0	
	1	56.28	42.97	12.0	
	2	57.81	44.50	12.0	
	3	58.65	45.34	12.0	
	4	60.77	47.46	12.0	
	5	61.15	47.84	12.0	
	6	61.35	48.04	12.0	
	8	61.69	48.38	12.0	
	10	62.62	49.31	12.0	63 psi
	12	63.44	50.13	12.0	
	15	63.72	50.41	12.0	
	20	64.14	50.83	12.0	
	25	64.37	51.06	12.0	
	30	64.68	51.37	12.0	
	40	65.12	51.81	12.0	
	50	65.43	52.12	12.0	
	60	65.73	52.42	12.0	

APPENDIX A

Well Chlorination Record

Well Name: F2T

Client: Wellington Township

Project #: 313-010

Disinfected By:

LTS Chlorination Worksheet Used: Yes

Treatment Volume: 2,022 Litres

Desired Concentration: 100 ppm

Volume of Mixing Water: n/a Litres

Qty of Sterilene Needed (granular 55%): 367.57 grams

5.39 Capfuls

Type and Quantity of Chlorine Used: Sterilene 400 g

Date and Time Chlorine Added:

Chlorine Addition Method: Added granular directly to well
recirc at aprox 3 L/s

Chlorine Residual Measured at Surface:

Chlorine Residual Measurement Method:

Date & Time Chlorine Purged:

Pre-Purge Chlorine Residual Measured at Surface:

Chlorine Residual Measurement Method: Test strip

Purged By: 400L poly bin with 75mm conection

Purged To: Storm

Quantity and Type of Dechlorinating Agent Used: 0.50 kg sodium thiosulphate

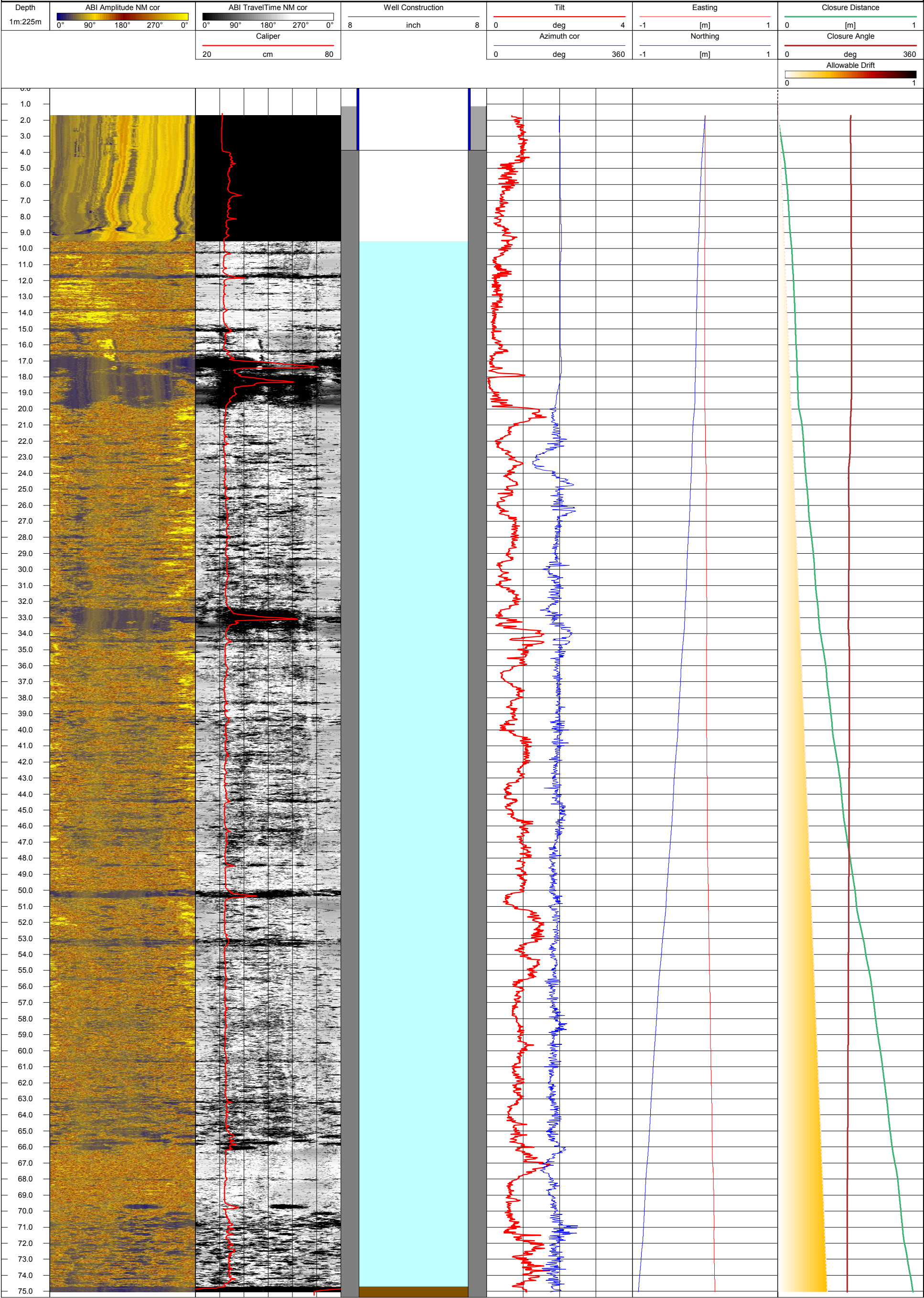
Minutes of Pumping until Zero Free Chlorine Residual:

Final Turbidity Measurement (NTU):

Notes on Disinfection:

F2-R Well Results





Pumping Flow Profile (16 L/s)

CLIENT

Township of Centre Wellington

LOCATION

St Andrew St E, Fergus ON

DEPTH REF.

Top of casing (0.73 magl)

WATER LEVEL

12.07 mbToC static

DRILL METHOD

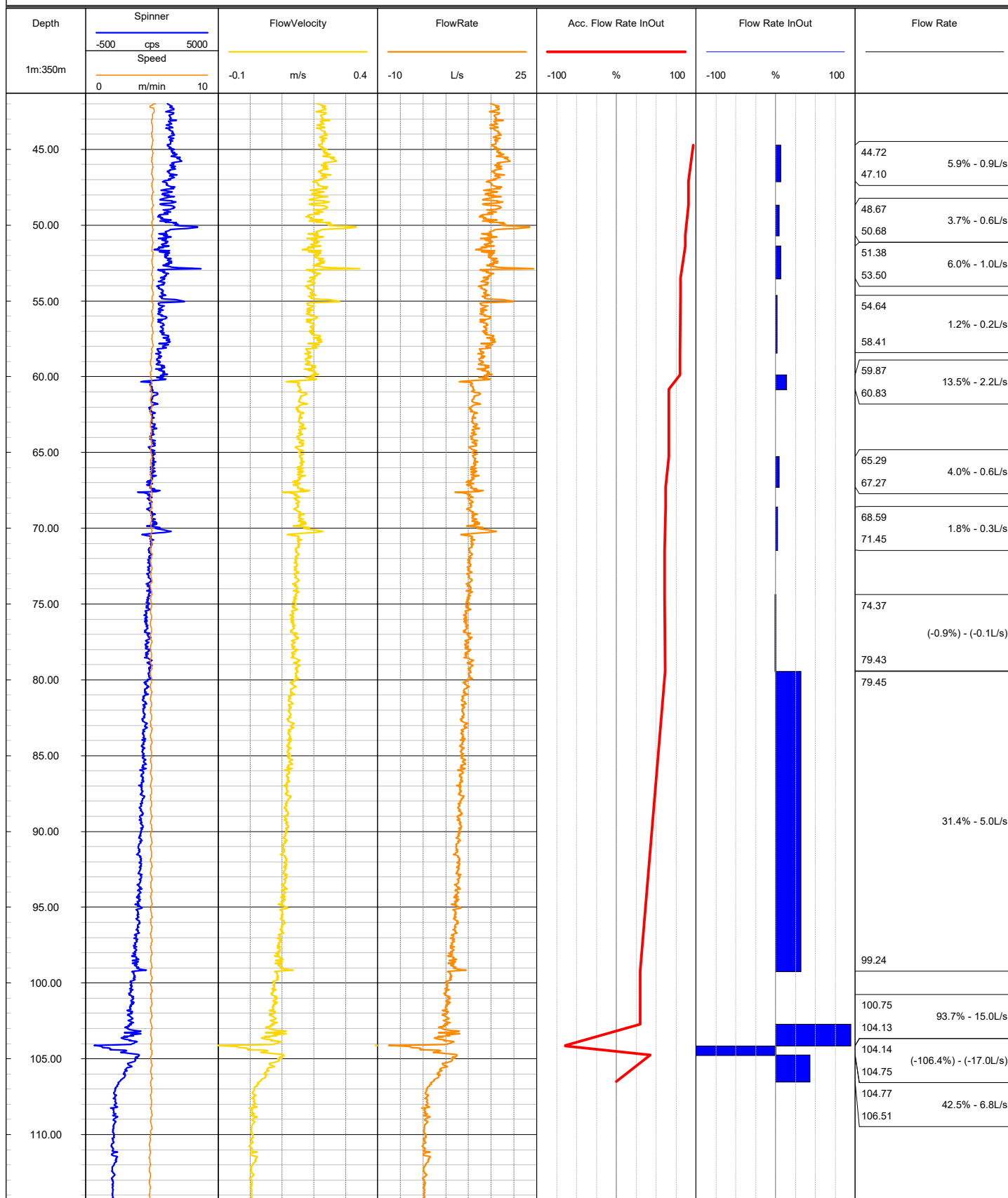
n/a

BOREHOLE F2-R

PROJECT # 313-010

LOG DATE 2022-12-14

LOGGED BY RH



3-arm Caliper Logs

CLIENT

Township of Centre Wellington

LOCATION

St Andrew St E, Fergus ON

DEPTH REF.

Top of casing (0.73 m agl)

WATER LEVEL

12.02 m bToC

DRILL METHOD

n/a

BOREHOLE

F2-R

PROJECT

313-010

LOG DATE

2022-12-14

LOGGED BY

RH

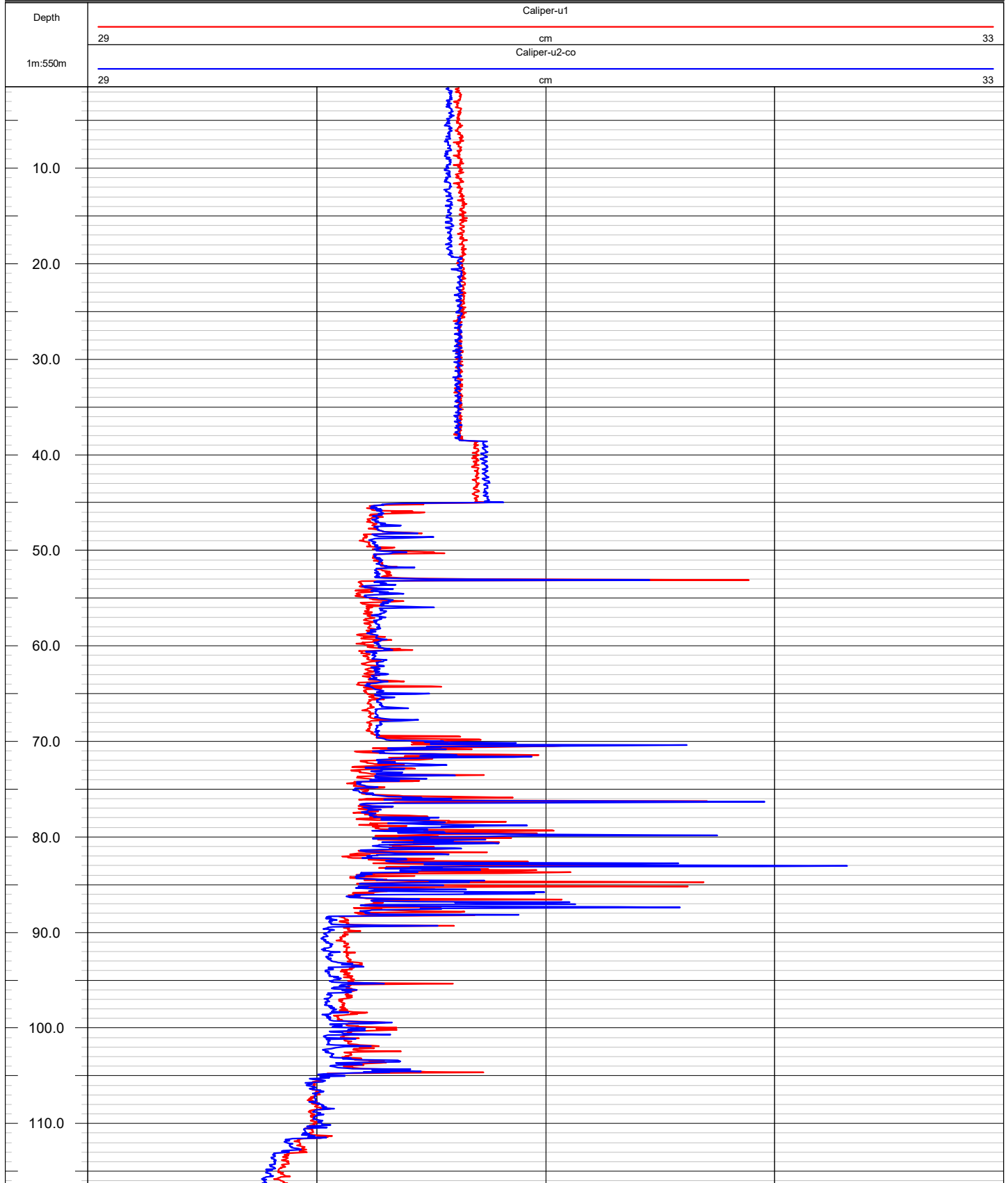


TABLE X**Township of Centre Wellington**

Well F2-R
Static Investigation Video Summary
2022/12/21

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2.76	0.84	Below top of casing
0:01	20.54	6.26	Casing joint
0:02	39.57	12.06	Static water level
0:02	40.03	12.20	Casing joint
0:04	62.47	19.04	Casing joint
0:06	83.69	25.51	Casing joint
0:07	104.82	31.95	Casing joint
0:09	126.08	38.43	Casing joint
0:10	147.31	44.90	Bottom of casing
0:12	164.86	50.25	Partial fracture
0:12	174.01	53.04	Fracture
0:13	181.43	55.30	Partial fracture
0:14	190.78	58.15	Rock staining change
0:14	198.23	60.42	Partial fracture
0:15	214.76	65.46	Vuggy
0:16	219.88	67.02	Vug
0:16	222.44	67.80	Rock staining change
0:16	228.08	69.52	Vuggy
0:17	231.36	70.52	Large vugs
0:17	233.59	71.20	Vuggy zone
0:17	239.50	73.00	Vuggy/partial fractures
0:18	250.82	76.45	Large vug/partial fracture
0:19	262.46	80.00	Vuggy/partial fractures
0:20	272.80	83.15	Vuggy/partial fractures
0:21	278.87	85.00	Large vugs
0:21	285.86	87.13	Large vug
0:24	313.68	95.61	Fracture, rock staining change
0:25	327.16	99.72	Fracture
0:26	340.42	103.76	Rough rock
0:28	344.22	104.92	Fracture
0:28	347.08	105.79	Darker rock
0:29	356.92	108.79	Filled fracture
0:29	358.95	109.41	Filled fracture
0:30	366.83	111.81	Filled fracture
0:32	384.97	117.34	Bottom of well, tape
0:35	368.04	112.18	Partial/filled fracture
0:36	360.23	109.80	Partial/filled fracture
0:39	345.63	105.35	Partial fracture, flow visible, taking water
0:40	345.14	105.20	Partial fracture zone
0:41	340.68	103.84	Lighter rock, vuggy
0:42	334.12	101.84	Large vug
0:43	332.44	101.33	Large vug
0:43	328.44	100.11	Partial fracture

TABLE X**Township of Centre Wellington**

Well F2-R
Static Investigation Video Summary
2022/12/21

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:45	325.36	99.17	Partial fracture
0:46	324.80	99.00	Partial fracture
0:48	314.89	95.98	Partial/filled fracture
0:51	294.85	89.87	Large vug, biofouling
0:53	289.07	88.11	Vuggy
0:53	286.18	87.23	Amethyst geodes?
0:55	280.80	85.59	Large vug, biofouling
0:56	275.69	84.03	Large vug, biofouling
0:57	273.95	83.50	Many large vugs
0:57	271.68	82.81	Large vug, biofouling, amethyst?
0:59	266.34	81.18	Large vugs
1:00	262.73	80.08	More dolomitic stone
1:04	243.86	74.33	Large vug
1:06	232.28	70.80	Large vugs
1:08	230.41	70.23	Large vuggy zone
1:09	223.88	68.24	Partial fracture
1:11	214.63	65.42	Large vug
1:13	199.60	60.84	Partial fracture
1:17	182.74	55.70	Partial fracture
1:18	175.39	53.46	Major fracture zone
1:20	166.27	50.68	Partial fracture zone, laterL flow visible
1:23	152.23	46.40	Partial fracture zone, lateral flow visible
1:24	148.62	45.30	Bottom of casing
1:27	127.33	38.81	Casing joint
1:30	106.23	32.38	Casing joint
1:33	85.04	25.92	Casing joint
1:35	63.91	19.48	Casing joint
1:38	42.75	13.03	Casing joint
1:39	40.88	12.46	Static water level
1:41	21.55	6.57	Casing joint
1:44	2.85	0.87	Below top of casing
Video survey conducted by Rayne Hettinga Note: Measuring point (MP) is top of casing which is 0.73 m above ground level			

Well Chlorination Record

Well Name: Well F2-R

Client: Township of Centre Wellington

Project #: 313-010

Disinfected By: Arthur Krzysko

LTS Chlorination Worksheet Used: Yes

Treatment Volume: 3,016 Litres

Desired Concentration: 150 ppm

Volume of Mixing Water: n/a Litres

Qty of Sterilene Needed (granular 55%): 822.53 grams

Type and Quantity of Chlorine Used: 850 grams Sterilene

Date and Time Chlorine Added: 2022-08-31 15:30

Chlorine Addition Method: circulate with test pump

Chlorine Residual Measured at Surface: 150ppm

Chlorine Residual Measurement Method: test strip

Date & Time Chlorine Purged: 2022-09-01 10:00

Pre-Purge Chlorine Residual Measured at Surface: 50ppm

Chlorine Residual Measurement Method: test strip

Purged By: Arthur Krzysko

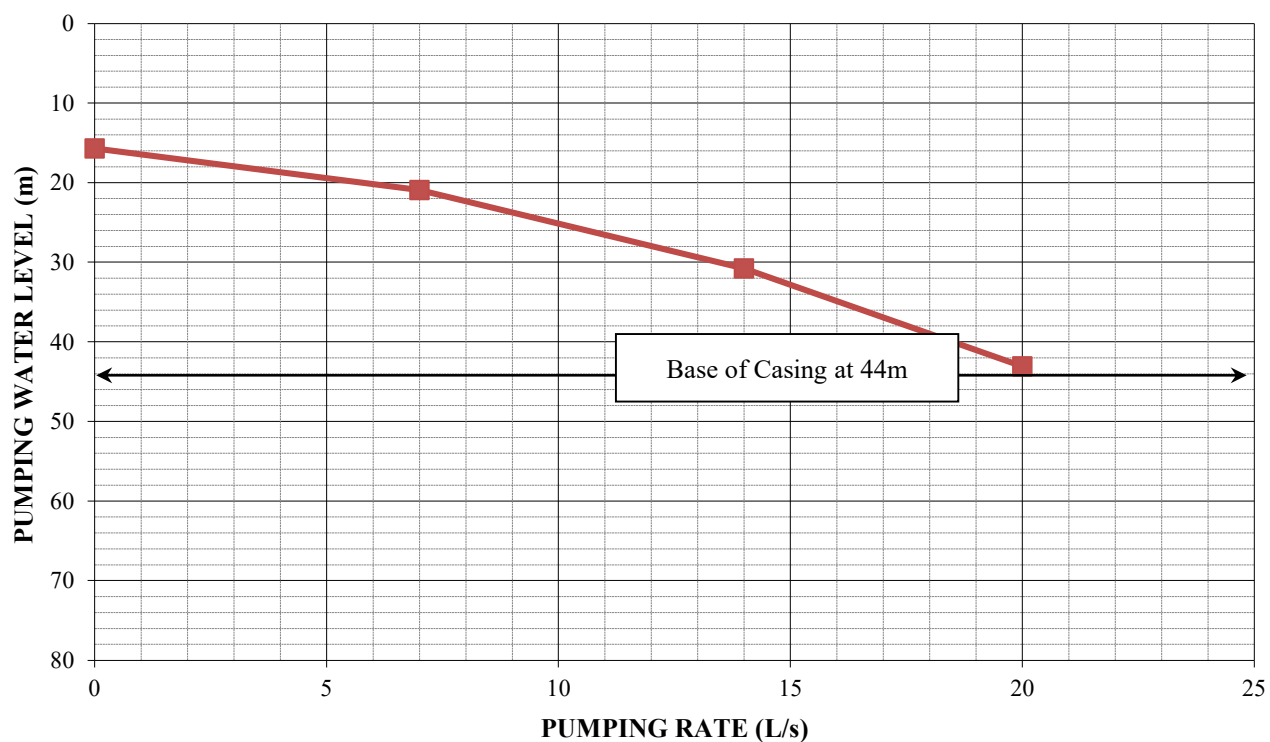
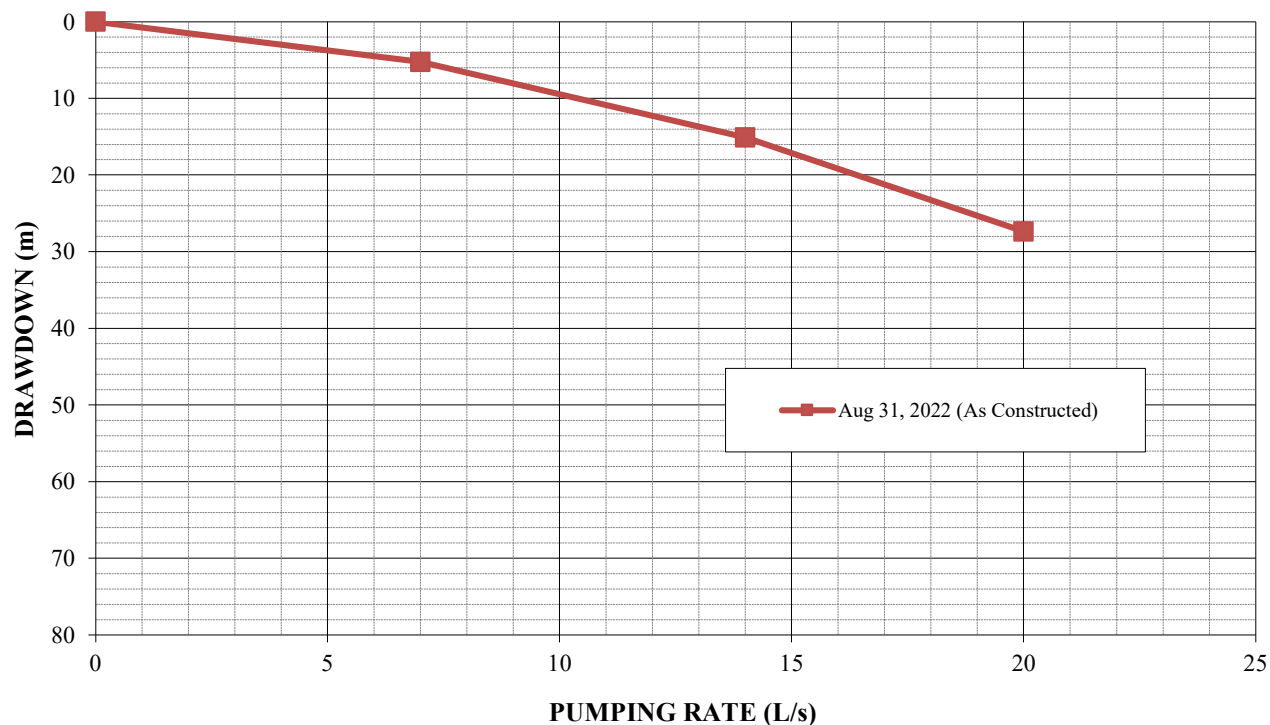
Purged To: Storm drain

Quantity and Type of Dechlorinating Agent Used: 850grams sodium metabisulphate

Minutes of Pumping until Zero Free Chlorine Residual: 2min

Final Turbidity Measurement (NTU):

Notes on Disinfection:



Notes:

All water levels are referenced from top of casing
 Top of casing = 0.58m above ground surface
 Flow meter = 4" Mcrometer Propeller Flow Meter
 Pump Inlet 71.6m

Township of Centre Wellington

Fergus F2-R

Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

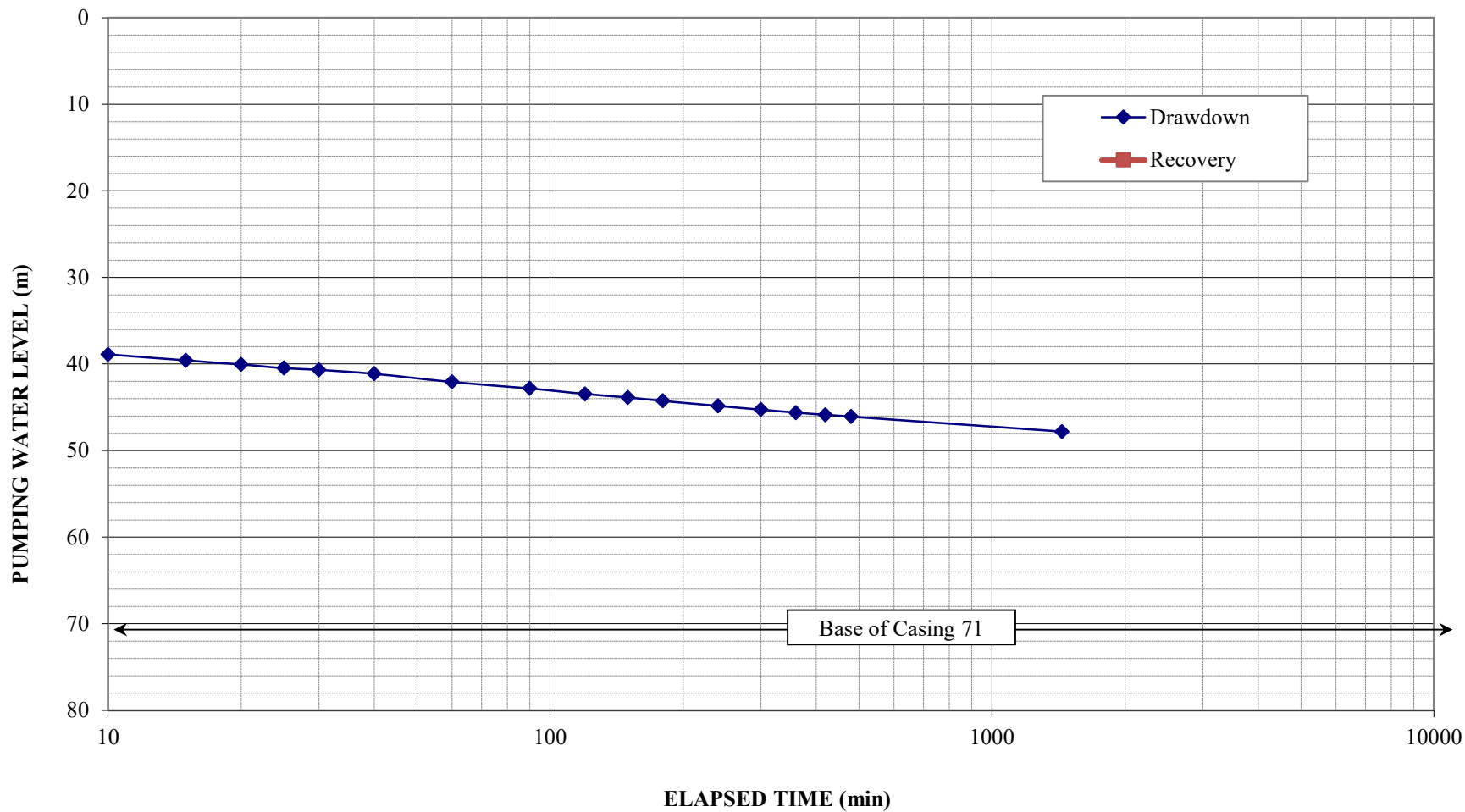
Reference: 313-010

Figure 1

8/31/2022

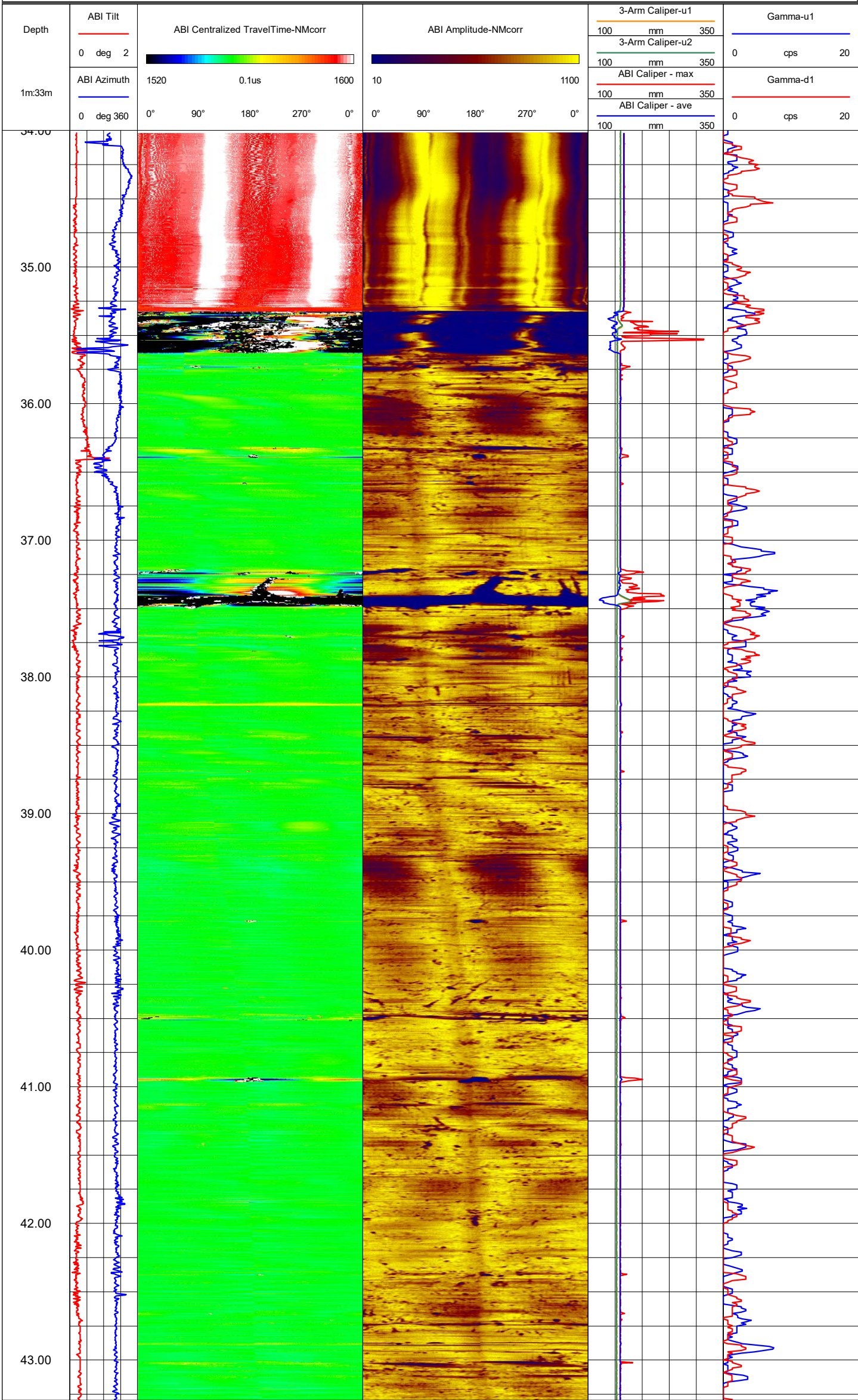
Fergus F2-R
Q = 20.0 L/s
Test Start on September 1, 2022; 9:00
SWL = 13.28m

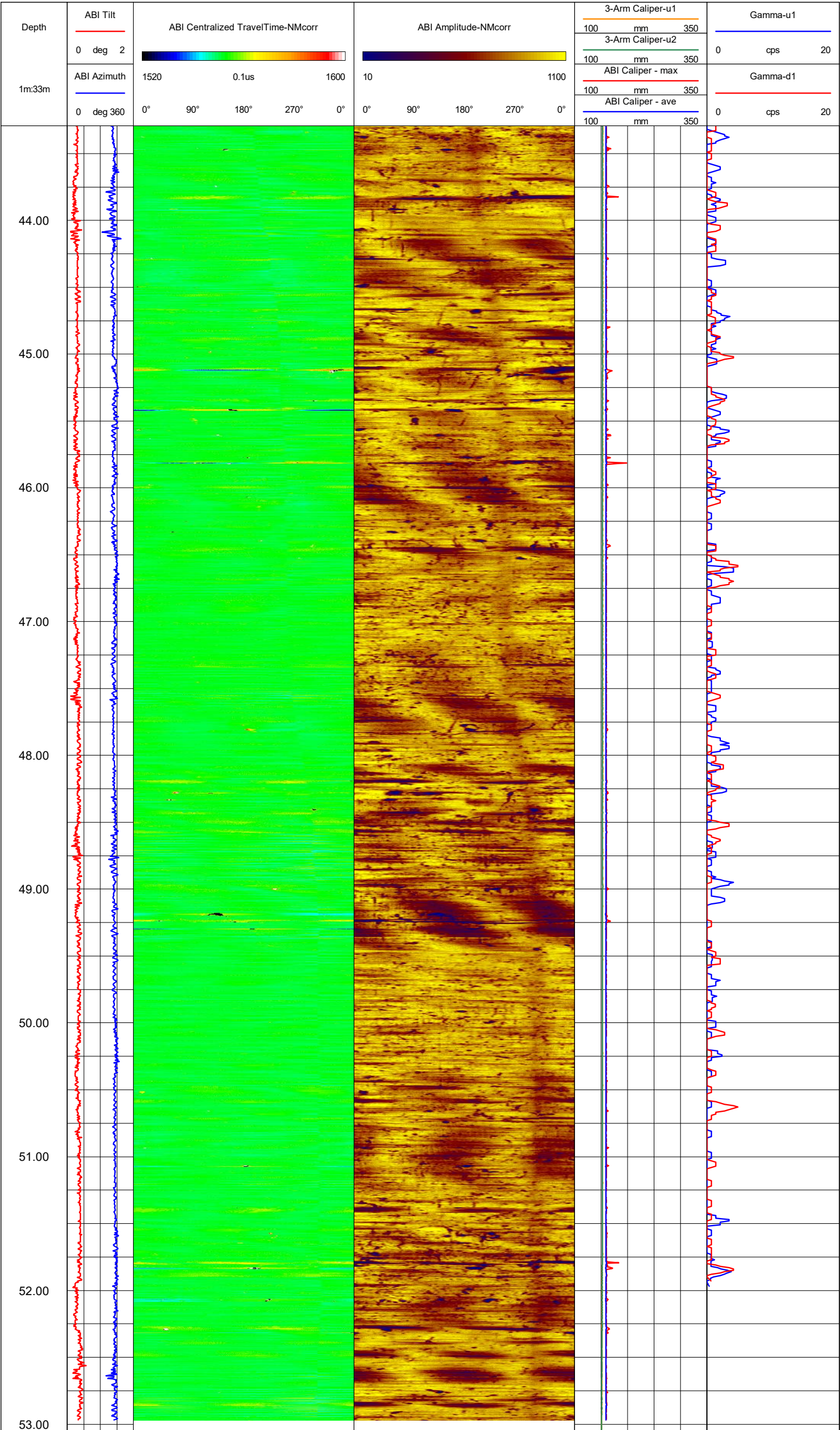
Pump at 71m

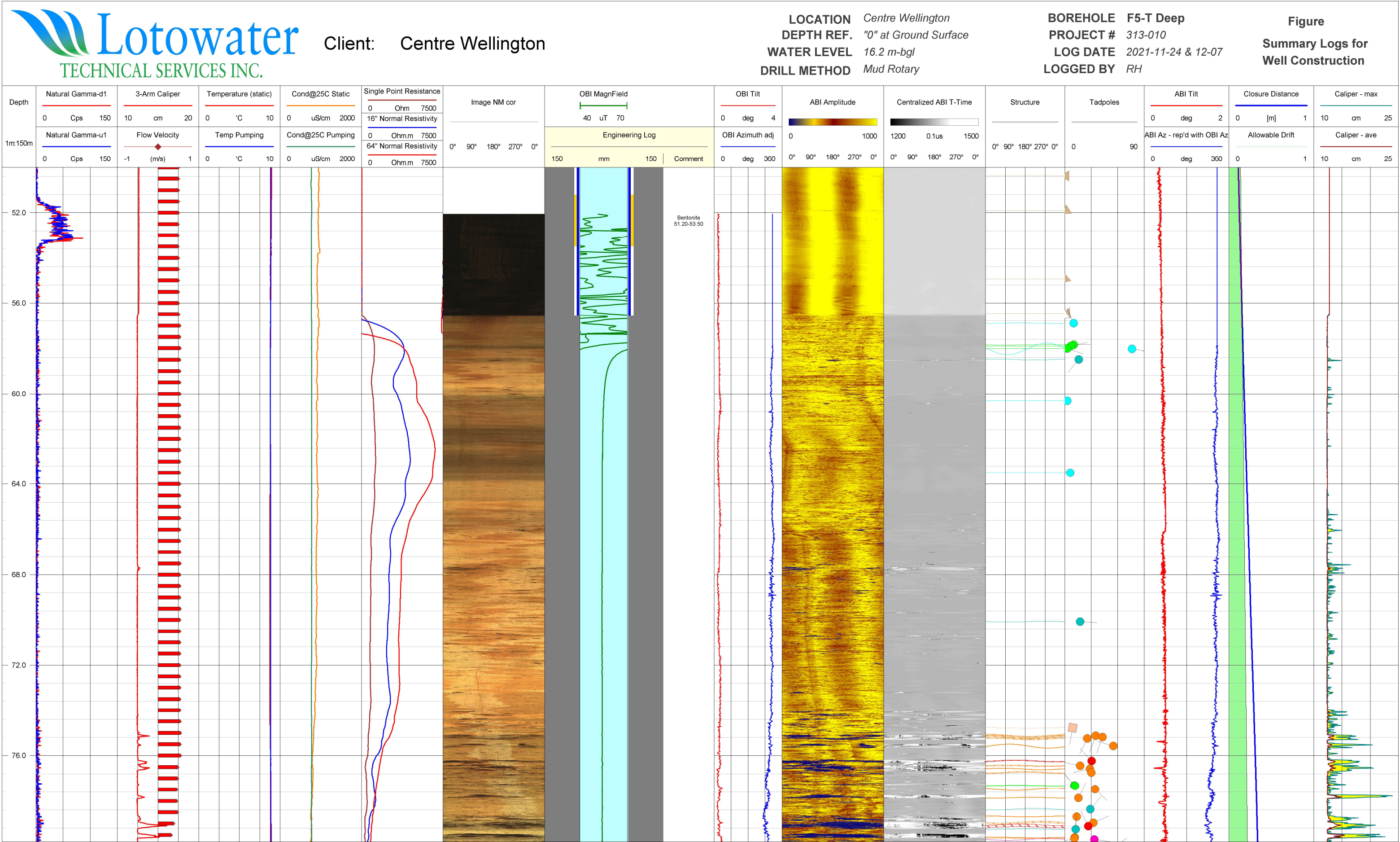


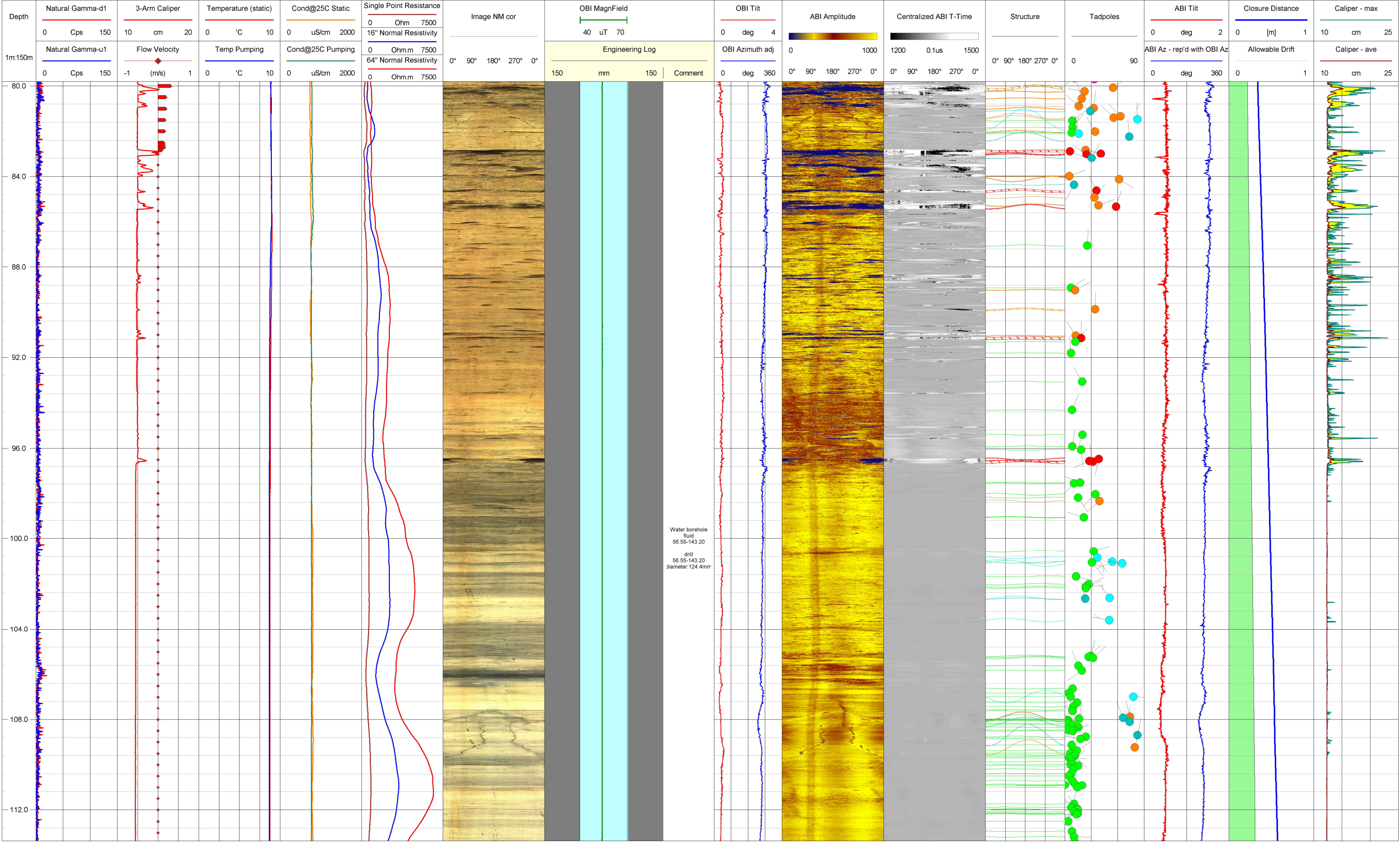
F5-T Well Results











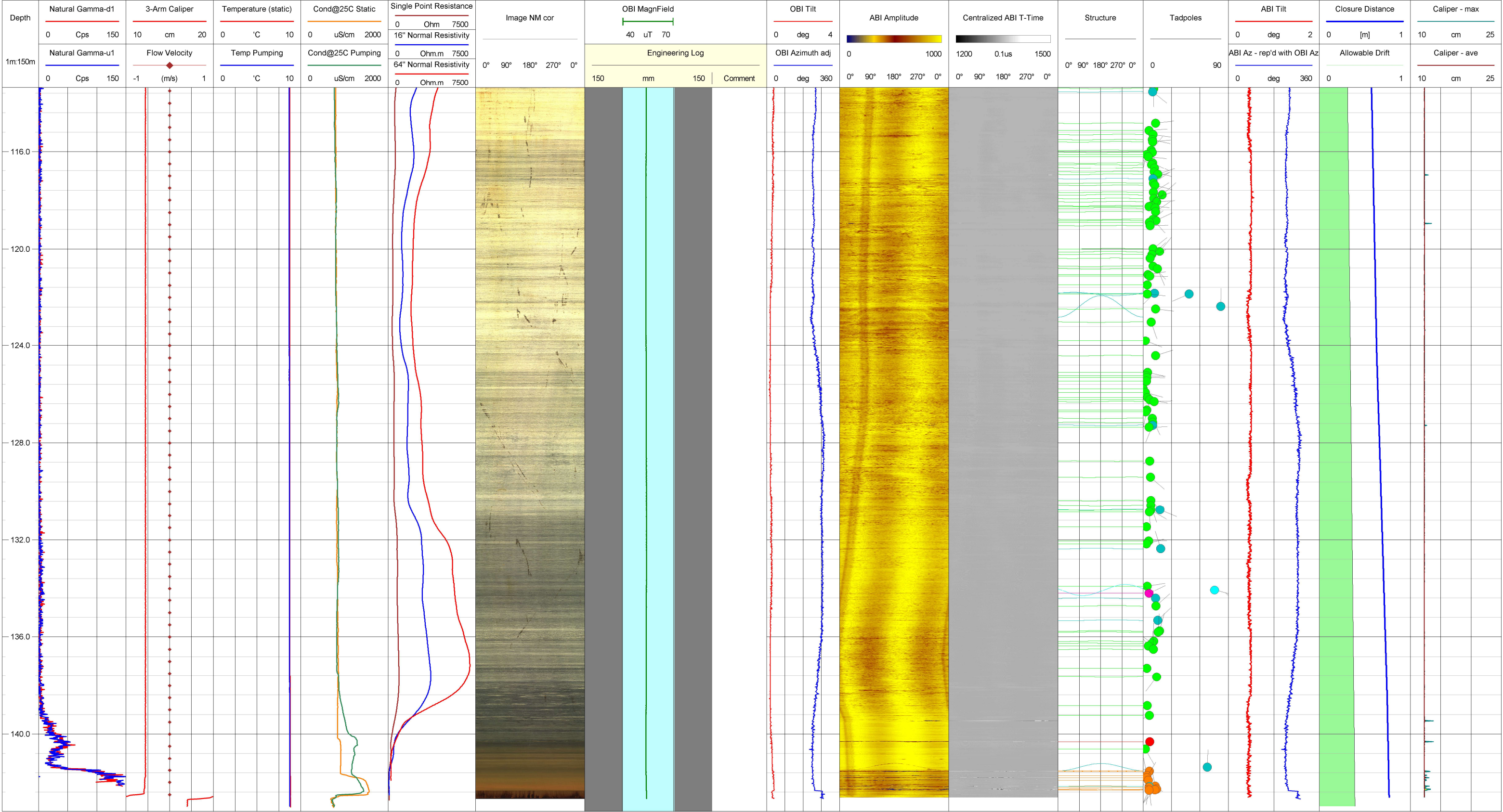
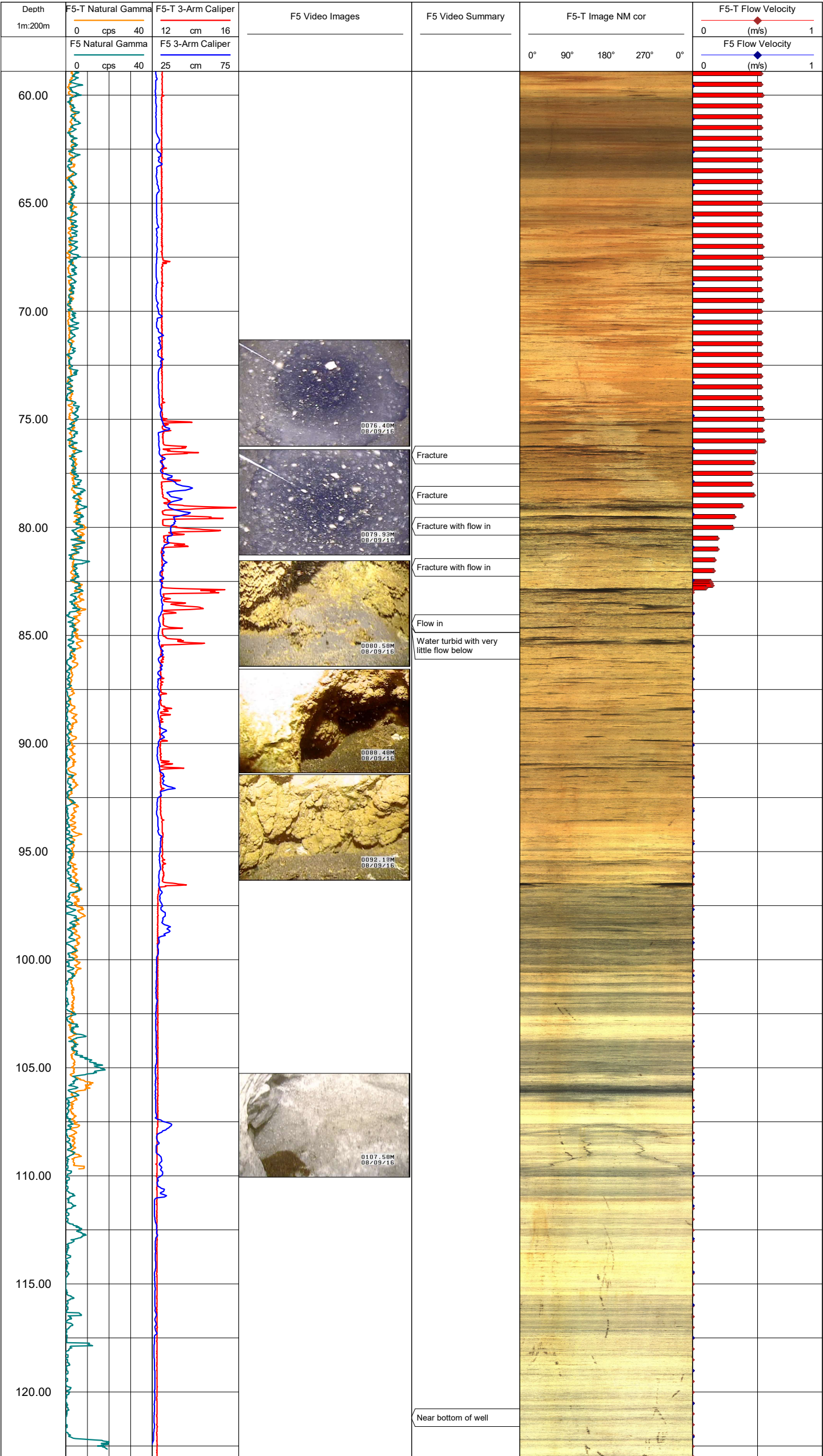


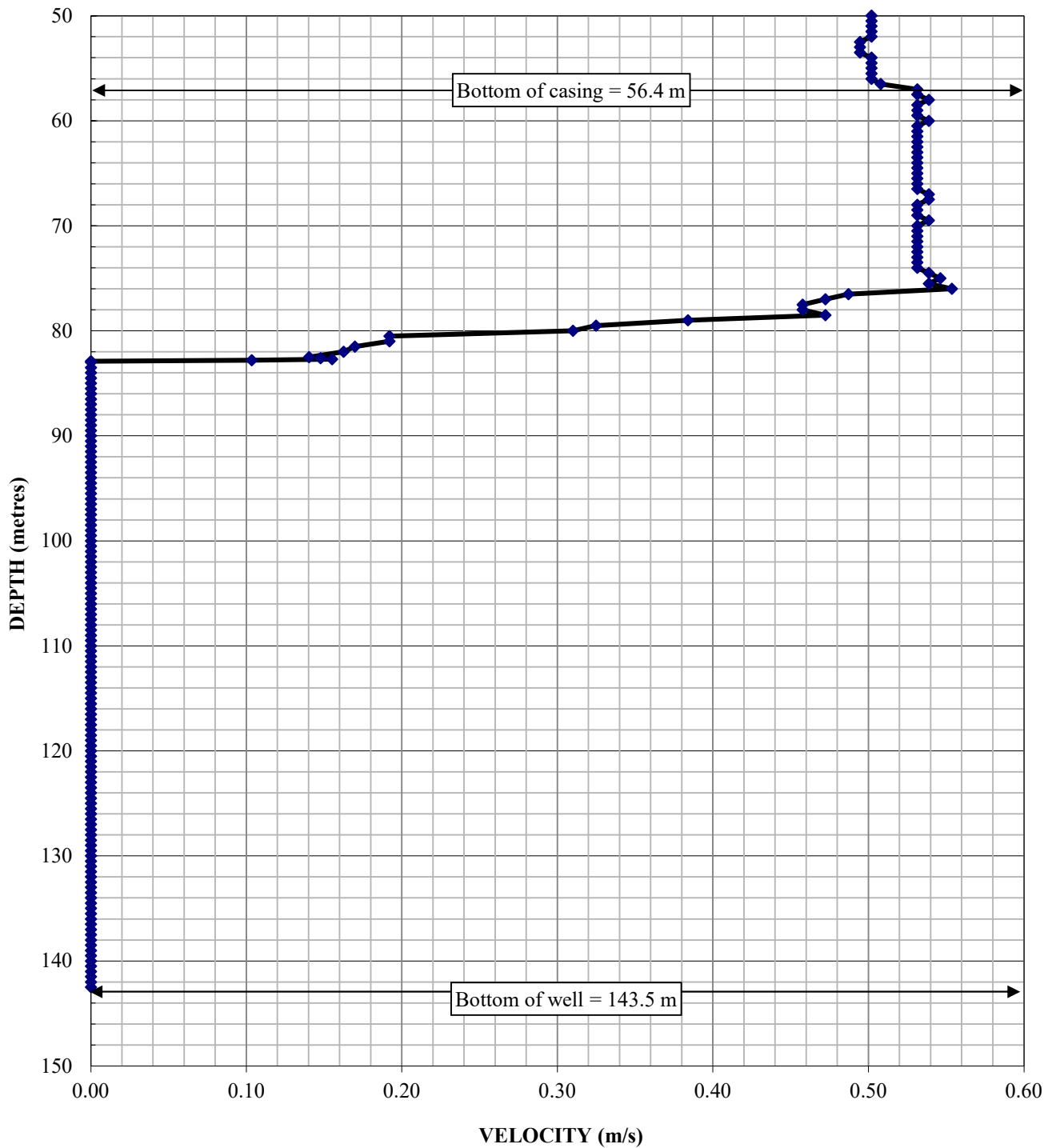
Figure: 2

DRILL METHOD *n/a*

LOGGED BY *RH & JD*

Page 1





Notes:

Measurement point: Ground level
Test Date: November 24, 2021
Test Flow: 6.06 L/s

Township of Centre Wellington

Fergus Well F5-T

Flow Distribution Profile

Lotowater Technical Services Inc.

Reference: 313-010

Figure X

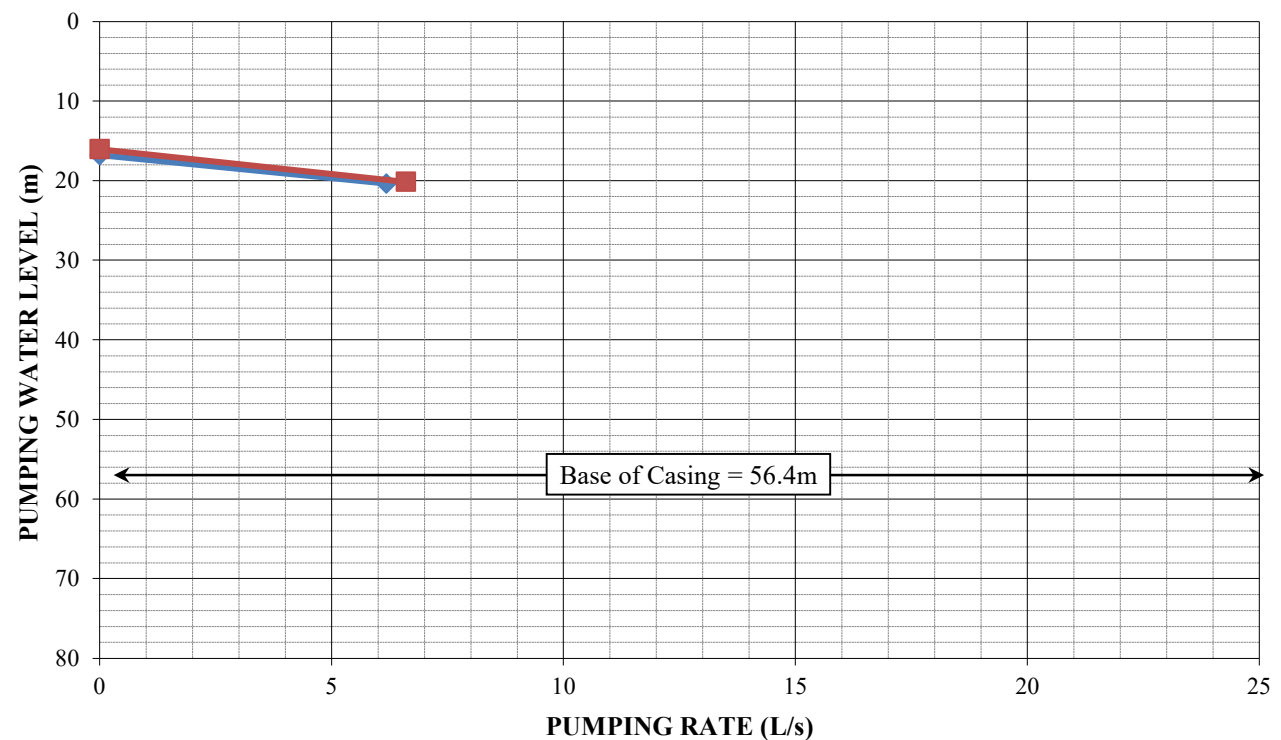
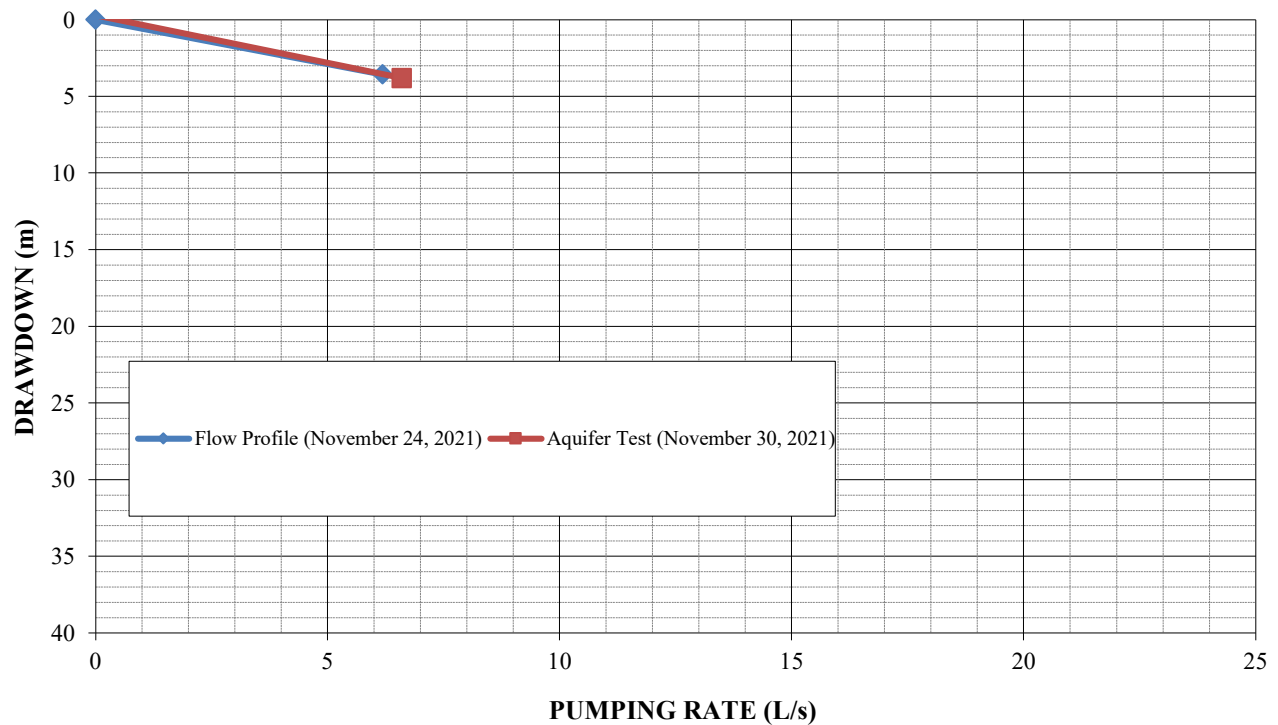
2021-11-24

TABLE 2**Township of Centre Wellington**

Fergus Well F5-T
Investigation Video Summary
2021/10/20

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2.76	0.84	Below ground level (0.38 m top of casing reference depth)
0:01	15.22	4.64	Casing joint
0:02	35.37	10.78	Casing joint
0:04	55.45	16.90	Casing joint
0:04	57.32	17.47	Static water level (turbid)
0:09	116.47	35.50	Bottom of casing
0:13	123.46	37.63	Major fracture w/ vertical fracture
0:18	161.78	49.31	Minor fracture, turbidity increases below
0:21	174.90	53.31	Bottom of well (drilling mud fill)
0:22	171.72	52.34	Vugs
0:24	162.40	49.50	Partially open fracture
0:26	157.78	48.09	Closed fracture
0:29	149.77	45.65	Large vug
0:29	149.61	45.60	Partially open fracture
0:32	142.95	43.57	Vuggy
0:33	140.98	42.97	Partially open fracture
0:34	139.86	42.63	Closed fracture
0:36	133.53	40.70	Major, partially open fracture w/ vertical fractures
0:41	123.52	37.65	Major fracture (drilling mud/grout)
0:45	118.93	36.25	Closed fracture
0:46	117.85	35.92	Closed fracture
0:48	117.13	35.70	Partially open fracture
0:48	116.93	35.64	Major fracture, filled with drilling mud/grout
0:50	116.54	35.52	Bottom of casing, possible fracture below
0:51	115.55	35.22	10SQ pump set to clear image, pause
1:05	116.57	35.53	Grout/mud source, bottom of casing
1:07	116.96	35.65	Major fracture, grout/mud source
1:10	162.47	49.52	Sand source, turbid below
1:13	174.84	53.29	Bottom of well
n/a	1.97	0.60	Below top of casing (+0.22 m off reference depth)

Note: Measuring point (MP) is ground level. Top of temporary casing is 0.46 m above ground level



Notes:

All water levels are referenced from top of casing
 Top of casing = 0.46 m above ground surface
 Flow meter = 2" Banjo Flow Meter

Township of Centre Wellington

Fergus F5-T

Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

Reference: 313-010

Figure 1

12/1/2021

TABLE 1

VARIABLE RATE PERFORMANCE TEST



Well Name:	Fergus F5-T
Client:	Township of Centre Wellington
Technician Name:	Alex O'Hearn
Water Level Device:	LTS water level meter
Water Level Reference:	Top of casing
Test Note:	

Project Number:	313-010
Date:	11/24/2021
Pump:	LTS test pump
Pump Inlet:	45 m
Flow Measuring Device:	2" LTS flow meter

Time <i>hr:min</i>	Elapsed Time <i>min</i>	Level <i>mbBP</i>	Drawdown <i>m</i>	Flow <i>L/s</i>	Note
0:00	0	16.79	0.00	6.18	<u>Test</u>
0:01	1	19.03	2.24	6.18	
0:02	2	19.49	2.70	6.18	
0:03	3	19.62	2.83	6.18	
0:04	4	19.77	2.98	6.18	
0:05	5	19.82	3.03	6.18	
0:06	6	19.91	3.12	6.18	
0:08	8	20.00	3.21	6.18	
0:10	10	20.08	3.29	6.18	
0:12	12	20.14	3.35	6.18	
0:15	15	20.18	3.39	6.18	
0:20	20	20.28	3.49	6.18	
0:25	25	20.33	3.54	6.18	
0:30	30	20.36	3.57	6.18	

TABLE 1

VARIABLE RATE PERFORMANCE TEST

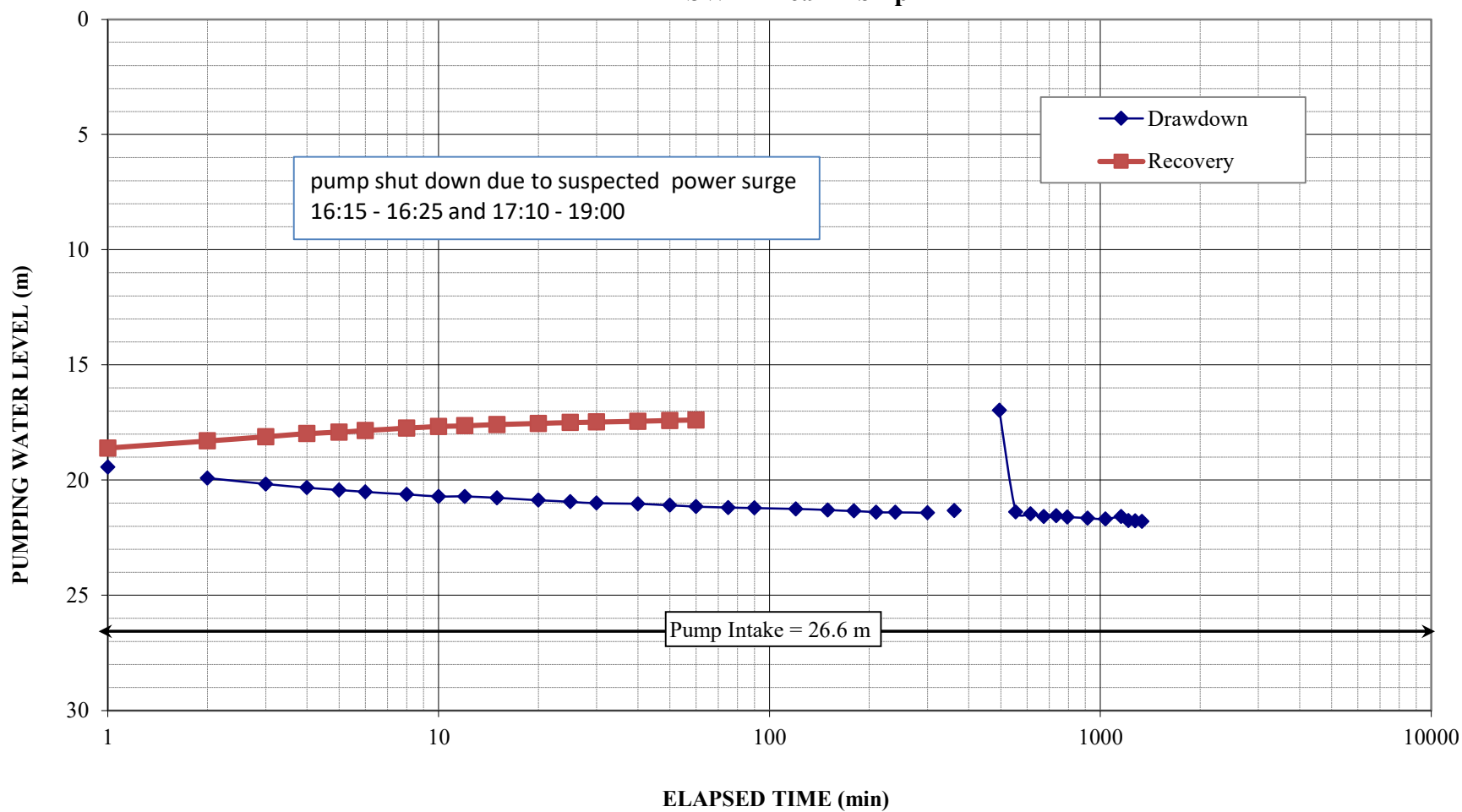


Well Name:	Fergus F5-T
Client:	Township of Centre Wellington
Technician Name:	Alex O'Hearn
Water Level Device:	LTS water level meter
Water Level Reference:	Top of casing
Test Note:	

Project Number:	313-010
Date:	11/24/2021
Pump:	LTS test pump
Pump Inlet:	26.6 m
Flow Measuring Device:	2" LTS flow meter

[illegible]

Fergus F5-T
Q = 6.6 L/s
Test Start on November 30, 2021; 10:45
SWL = 16.91mbmp



Well Chlorination Record

Well Name: Well F5-T

Client: Township of Centre Wellington

Project #: 313-010

Disinfected By: Justin Bickle

LTS Chlorination Worksheet Used: Yes

Treatment Volume: 2,253 Litres

Desired Concentration: 150 ppm

Volume of Mixing Water: n/a Litres

Qty of Sterilene Needed (granular 55%): 614.48 grams

Type and Quantity of Chlorine Used: 650 grams Sterilene

Date and Time Chlorine Added: 2021-11-29 14:00

Chlorine Addition Method: inject from surface and circulate
with test pump

Chlorine Residual Measured at Surface: 150ppm

Chlorine Residual Measurement Method: test strip

Date & Time Chlorine Purged: 2021-11-30 10:45

Pre-Purge Chlorine Residual Measured at Surface: 50ppm

Chlorine Residual Measurement Method: test strip

Purged By: Justin Bickle

Purged To: storm ditch

Quantity and Type of Dechlorinating Agent Used: 600grams sodium metabisulphate

Minutes of Pumping until Zero Free Chlorine Residual: 2min

Final Turbidity Measurement (NTU):

Notes on Disinfection:



92 SCOTT AVENUE T (519) 442-2086
PARIS, ON N3L 3R1 F (519) 442-7242
www.lotowater.com

F5-R Well Results



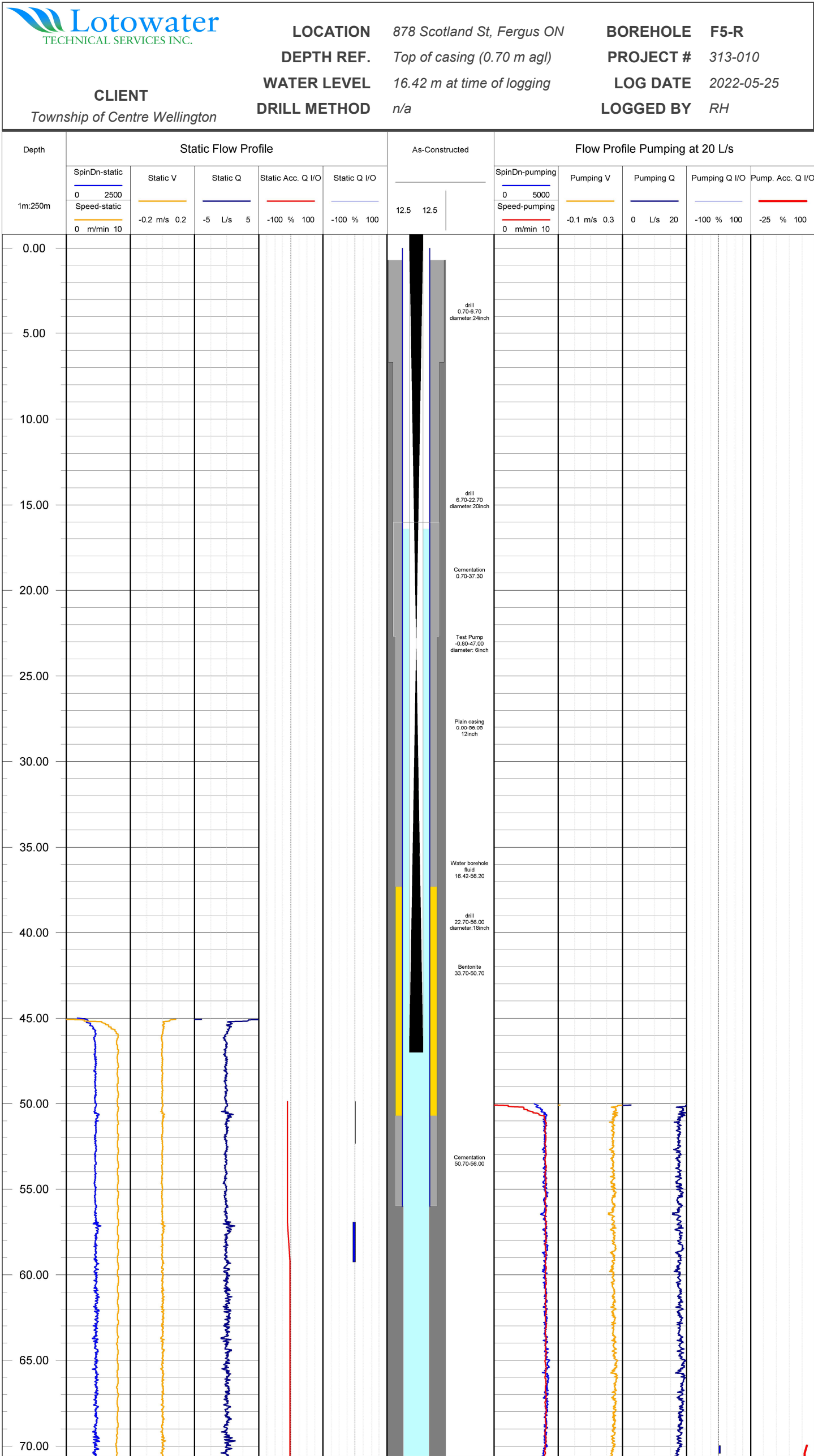
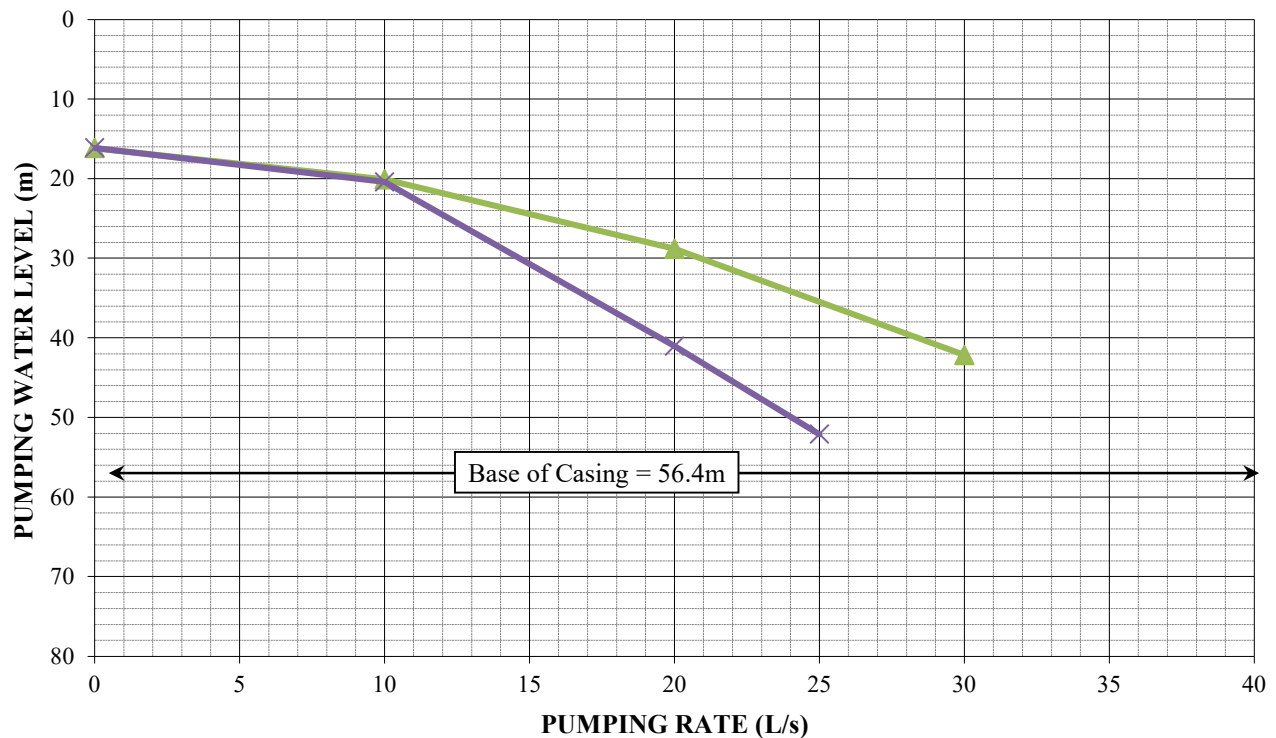
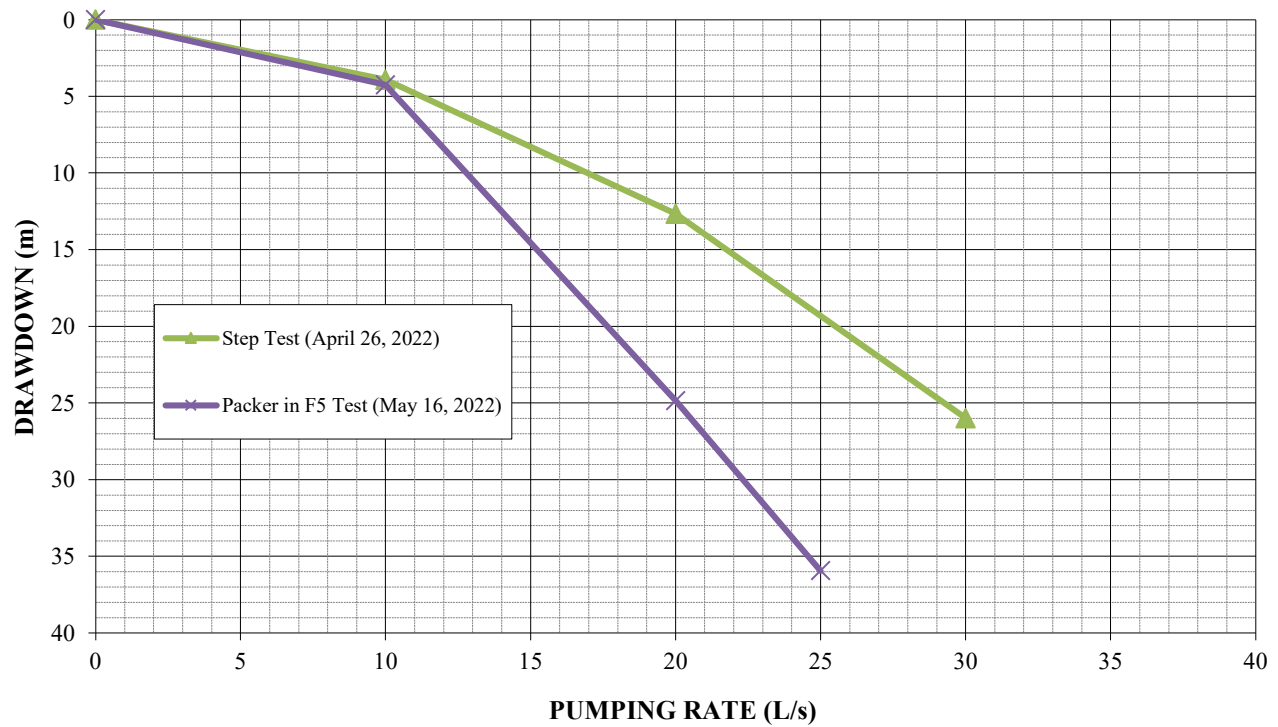


TABLE X**Township of Centre Wellington**

Fergus Well F5-R
Pumping/Static Investigation Video Summary
2022/05/25

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2.76	0.84	Below top of casing
0:00	16.08	4.90	Casing joint
0:01	37.34	11.38	Casing joint
0:02	53.87	16.42	Static water level (turbid)
0:08	186.52	56.85	Bottom of casing
0:08	183.73	56.00	Pause above bottom of casing, set pump
0:10	183.73	56.00	Pumping at 20 L/s
0:29	277.03	84.44	Fracture, source of turbidity
0:30	285.43	87.00	Fracture
0:31	288.71	88.00	Minimal flow visible
0:34	319.88	97.50	Fracture
0:38	356.17	108.56	Slight flow visible
0:39	359.32	109.52	Vertical fracture/breakout
0:48	459.74	140.13	Pause to lower Flow tool
0:48	459.71	140.12	Downward flow visible
0:49	467.49	142.49	Above flow tool on bottom of well
0:52	451.51	137.62	Crinoid bed
1:02	375.75	114.53	Pump failure, pause
1:02	375.75	114.53	Resume run, not pumping
1:07	321.00	97.84	Partial fracture zone
1:07	317.13	96.66	Vuggy
1:08	302.56	92.22	Large vug
1:09	299.87	91.40	Vuggy
1:11	284.45	86.70	Large fracture
1:11	283.20	86.32	Void/fracture zone
1:12	279.66	85.24	Void/fracture zone
1:13	277.46	84.57	Fracture with silt, turbidity increases above
1:16	267.52	81.54	Pumping at 20 L/s
1:19	250.00	76.20	Large vug/fracture
1:19	248.26	75.67	Turbidity clears slightly
1:22	232.61	70.90	Vuggy
1:27	186.19	56.75	Bottom of casing, source of bubbles, possibly very fine particles
1:30	180.45	55.00	In casing, end video
Video survey conducted by Rayne Hettinga			
Note: Measuring point (MP) is top of casing which is 0.70 m above ground surface			



Notes:

All water levels are referenced from top of casing
 Top of casing = 0.46 m above ground surface

Township of Centre Wellington

Fergus F5-R

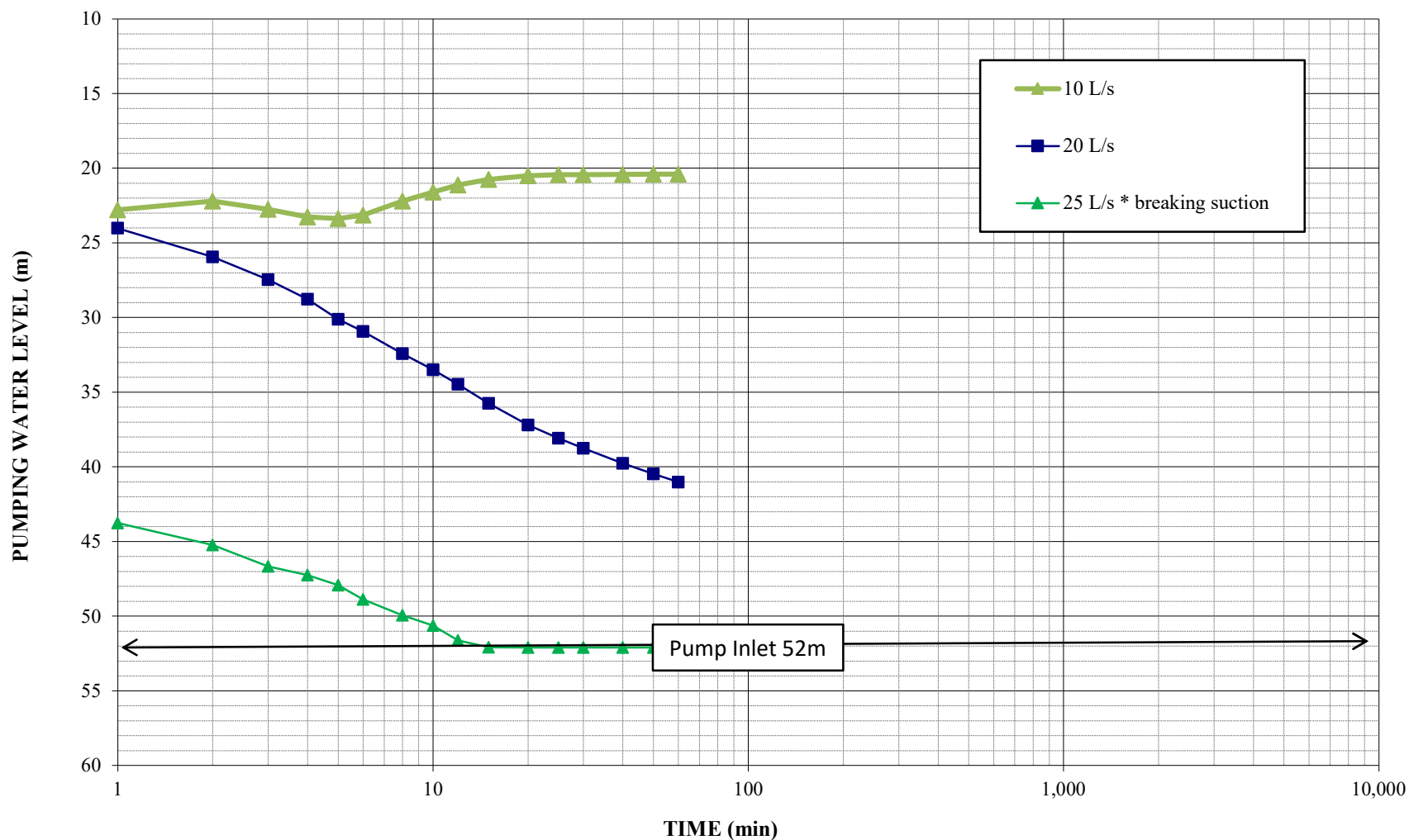
Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

Reference: 313-010

Figure 1

5/16/2022



Notes:

Test Date : May 16, 2022

All water levels are referenced from top of casing

Top of casing = 0.46 m above ground surface

Pump inlet at 52m

Township of Centre Wellington

Fergus F5-R

Comparison of Variable Rate Tests

Lotowater Technical Services Inc.

Reference: 313-010

Figure 1

5/16/2022

TABLE 1

VARIABLE RATE PERFORMANCE TEST

Well Name: Fergus F5-R
Client: Township of Centre Wellington
Technician Name: Justin Bickel
Water Level Device: LTS water level meter
Water Level Reference: Top of casing
Test Note:

Project Number: 313-010
Date: 4/14/2022
Pump: Unitra SP500-5b (40hp)
Pump Inlet: 52m
Flow Measuring Device: 6" McCrometer

Time <i>hr:min</i>	Elapsed Time <i>min</i>	Level <i>mbBP</i>	Drawdown <i>m</i>	Flow <i>L/s</i>	Note
0:00	0	16.05	0.00	20.0	<u>Step 1</u>
	1	21.46	5.41		
	2	22.11	6.06		Turbid for about 5min then clear
	3	22.88	6.83		
	4	23.37	7.32		115psi
	5	23.79	7.74		
	6	24.22	8.17		
	8	24.85	8.80		
	10	25.36	9.31		
	12	25.70	9.65		
	15	26.13	10.08		
	20	26.71	10.66		
	25	27.16	11.11		
	30	27.47	11.42		
	1	30.17	14.12	30.0	<u>Step 2</u>
	2	31.33	15.28		
	3	32.19	16.14		
	4	32.90	16.85		72 psi
	5	33.49	17.44		
	6	33.99	17.94		
	8	34.85	18.80		
	10	35.53	19.48		
	12	36.09	20.04		
	15	36.80	20.75		
	20	37.80	21.75		
	25	38.50	22.45		
	30	38.99	22.94		

TABLE 1

Well Name:

Fergus F5-R

Client:

Township of Centre Wellington

Technician Name:

Rodney Secor

Water Level Device:

LTS water level meter

Water Level Reference:

Top of casing 0.46m ags

Test Note:

Project Number:

313-010

Date:

4/26/2022

Pump:

385S400-5 (destaged) - 40hp

Pump Inlet:

52m

Flow Measuring Device:

6" McCrometer

Time
hr:min

Elapsed Time
min

Level
mbBP

Drawdown
m

Flow
L/s

Note

12:19

0

16.16

0.00

10.0

Step 1

1

10.0

2

10.0

3

20.05

3.89

10.0

4

19.80

3.64

10.0

>100 psi

5

19.71

3.55

10.0

6

19.68

3.52

10.0

8

19.66

3.50

10.0

10

19.65

3.49

10.0

12

19.67

3.51

10.0

15

19.73

3.57

10.0

20

19.80

3.64

10.0

25

19.87

3.71

10.0

30

19.92

3.76

10.0

40

19.99

3.83

10.0

50

20.05

3.89

10.0

60

20.09

3.93

10.0

1

22.86

6.70

20.0

Step 2

2

23.76

7.60

20.0

3

24.40

8.24

20.0

4

24.84

8.68

20.0

5

25.24

9.08

20.0

105 psi

6

25.54

9.38

20.0

8

26.05

9.89

20.0

10

26.43

10.27

20.0

12

26.71

10.55

20.0

15

27.12

10.96

20.0

100 psi

20

27.59

11.43

20.0

25

27.89

11.73

20.0

30

28.10

11.94

20.0

40

28.46

12.30

20.0

98 psi

50

28.66

12.50

20.0

60

28.82

12.66

20.0

1

31.02

14.86

30.0

Step 3

2

32.42

16.26

30.0

3

33.59

17.43

30.0

4

34.44

18.28

30.0

5

35.09

18.93

30.0

22 psi

6

35.64

19.48

30.0

8

36.60

20.44

30.0

10

37.25

21.09

30.0

18 psi

12

37.86

21.70

30.0

15

38.51

22.35

30.0

20

39.39

23.23

30.0

25

39.96

23.80

30.0

30

40.45

24.29

30.0

40

41.20

25.04

30.0

17 psi

50

41.71

25.55

30.0

60

42.15

25.99

30.0

2733301 m^3

TABLE 1

VARIABLE RATE PERFORMANCE TEST						
Well Name:		Fergus F5-R		Project Number: 313-010		
Client:		Township of Centre Wellington		Date: 5/16/2022		
Technician Name:		Steve V		Pump: 385S400-5 (destaged) - 40hp		
Water Level Device:		LTS water level meter		Pump Inlet: 52m		
Water Level Reference:		Top of casing 0.46m ags		Flow Measuring Device: 6" McCrometer		
Test Note:		Test with Packer in F5 at 52m and 135psi				
Time hr:min	Elapsed Time min	Level mbBP	Drawdown m	Flow L/s	Note	
10:38	0	16.12	0.00	10.0	Step 1 F5 level 16.10m	
	1	22.80	6.68			
	2	22.21	6.09		ramp flow down	
	3	22.75	6.63			
	4	23.27	7.15			
	5	23.37	7.25			
	6	23.15	7.03			
	8	22.20	6.08	10.0	Flow set	
	10	21.60	5.48	10.0		
	12	21.13	5.01	10.0		
	15	20.75	4.63	10.0		
	20	20.50	4.38	10.0		
	25	20.44	4.32	10.0		
	30	20.43	4.31	10.0		
	40	20.42	4.30	10.0	F5 level at 20.17m	
	50	20.40	4.28	10.0		
	60	20.41	4.29	10.0		
	1	24.02	7.90	20.0	Step 2	
	2	25.95	9.83	20.0		
	3	27.46	11.34	20.0		
	4	28.77	12.65	20.0		
	5	30.12	14.00	20.0		
	6	30.94	14.82	20.0		
	8	32.42	16.30	20.0		
	10	33.50	17.38	20.0		
	12	34.48	18.36	20.0		
	15	35.75	19.63	20.0		
	20	37.20	21.08	20.0		
	25	38.09	21.97	20.0		
	30	38.75	22.63	20.0		
	40	39.76	23.64	20.0	12.7 NTU	
	50	40.48	24.36	20.0		
	60	41.02	24.90	20.0		
	1	43.76	27.64	25.0	Step 3	
	2	45.23	29.11	25.0		
	3	46.67	30.55	25.0	Pump valve wide open	
	4	47.25	31.13	25.0		
	5	47.92	31.80	25.0		
	6	48.88	32.76	25.0		
	8	49.94	33.82	25.0		
	10	50.64	34.52	25.0		
	12	51.62	35.50	25.0		
	15	52.09	35.97	25.0		
	20	52.10	35.98	25.0	pump breaking suction	
	25	52.10	35.98	25.0	water turbid	
	30	52.10	35.98	25.0		
	40	52.10	35.98	25.0		
	50	52.10	35.98	25.0		
	60	52.10	35.98	25.0	F5 level 51.55m	



Aquifer Test (Pumping Well)



Project Number: 313-010

Location: Fergus

Sheet: 1 of 3

Measuring Point: Top of nipple, 5 cm above top of casing

Pump Type: 385S400-5 (40hp)

Stick-up: 0.51 m above ground surface

Pump Inlet: 52 m

SWL: 16.28 m

Technician: Nathan Schmitt

Pumping Rate: 30 L/s

Transducer Serial #:

Flow Measurement: LTS 6" flow meter

Discharge Location: Approx 45 m NE of well head

Test Note: Top of casing 0.46 m above ground surface

WELL NAME: Fergus F5-R

Date	Time	Elapsed Time	Water Level	Drawdown	Flow Rate	Totalizer	Comments
yyyy/mm/dd	hr:min	min	mbMP	m	L/s	m3	
4/27/2022	10:30	0	16.28		30	273,300	Start of Test
	10:31	1	24.34	8.06			
	10:32	2	26.04	9.76			
	10:33	3	27.90	11.62			
	10:34	4	29.28	13.00			
	10:35	5	30.55	14.27			20psi
	10:36	6	31.43	15.15			
	10:38	8	32.81	16.53			
	10:40	10	33.89	17.61			
	10:42	12	34.71	18.43			
	10:45	15	35.63	19.35			
	10:50	20	37.15	20.87			
	10:55	25	38.26	21.98			10psi
	11:00	30	39.00	22.72			
	11:10	40	40.06	23.78			
	11:20	50	40.75	24.47			
	11:30	60	41.27	24.99			
	11:45	75	42.25	25.97			
	12:00	90	42.74	26.46			
	12:30	120	43.29	27.01			
	13:00	150	43.69	27.41			

Aquifer Test (Pumping Well)



WELL NAME: Fergus F5-R

Sheet: 2 of 3

Date	Time	Elapsed Time	Water Level	Drawdown	Flow Rate	Totalizer	Comments
yyyy/mm/dd	hr:min	min	mbMP	m	L/s	m3	
	13:30	180	44.00	27.72			
	14:00	210	44.23	27.95			0psi
	14:30	240	44.82	28.54			
	15:30	300	44.39	28.11	30.0	273,803	28.70 m
	15:34	304					Pump off, blown fuse
	15:54	324	28.70		30.0		Pump on
	16:30	360	42.56	26.28	30.0		
	18:30	480	45.25	28.97		274,071	28-30 L/s
	20:30	600	45.58	29.30		274,274	30 L/s
	22:30	720	45.75	29.47		274,464	30 L/s
4/28/2022	00:30	840	45.98	29.70			30 L/s
	02:30	960	46.09	29.81		275,059	30 L/s
	04:30	1080	46.14	29.86			
	06:30	1200	46.29	30.01	30.00	275,279	30 L/s
	08:30	1320	46.38	30.10	29.50	275,480	Pump wide open
	10:30	1440	46.41	30.13	29.50	275,683	
4/28/2022	10:50	0	46.43	30.15		275,716	Recovery
		1	39.98				
		2	36.73				
		3	34.3				
		4	32.29				
		5	30.57				
		6	29.19				
		8	27.00				
		10	25.41				
		12	24.21				
		15	22.89				
		20	21.56				
		25	20.78				

Aquifer Test (Pumping Well)



WELL NAME: Fergus F5-R

Sheet: 3 of 3

[illegible]

Aquifer Test (Observation Well)



Project Number: _____

Location:

Measuring Point: _____

Stick-up:

SWL: _____

Pumping Well: _____

Distance to PW: _____

Technician: _____

Transducer Serial #:

Sheet: 1 of 2

WELL NAME: F5

[illegible]

Aquifer Test (Observation Well)

Transducer Serial #:

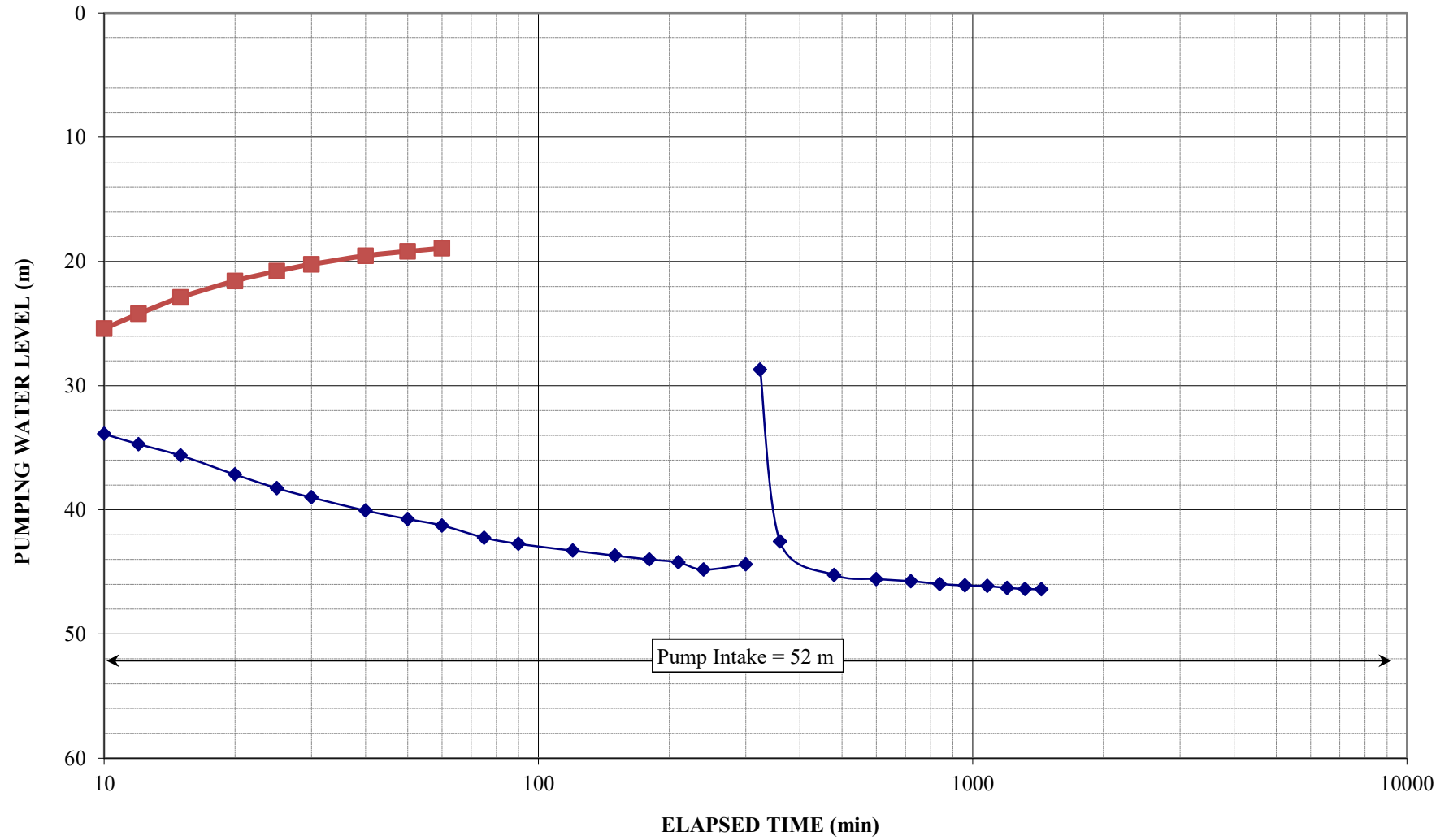


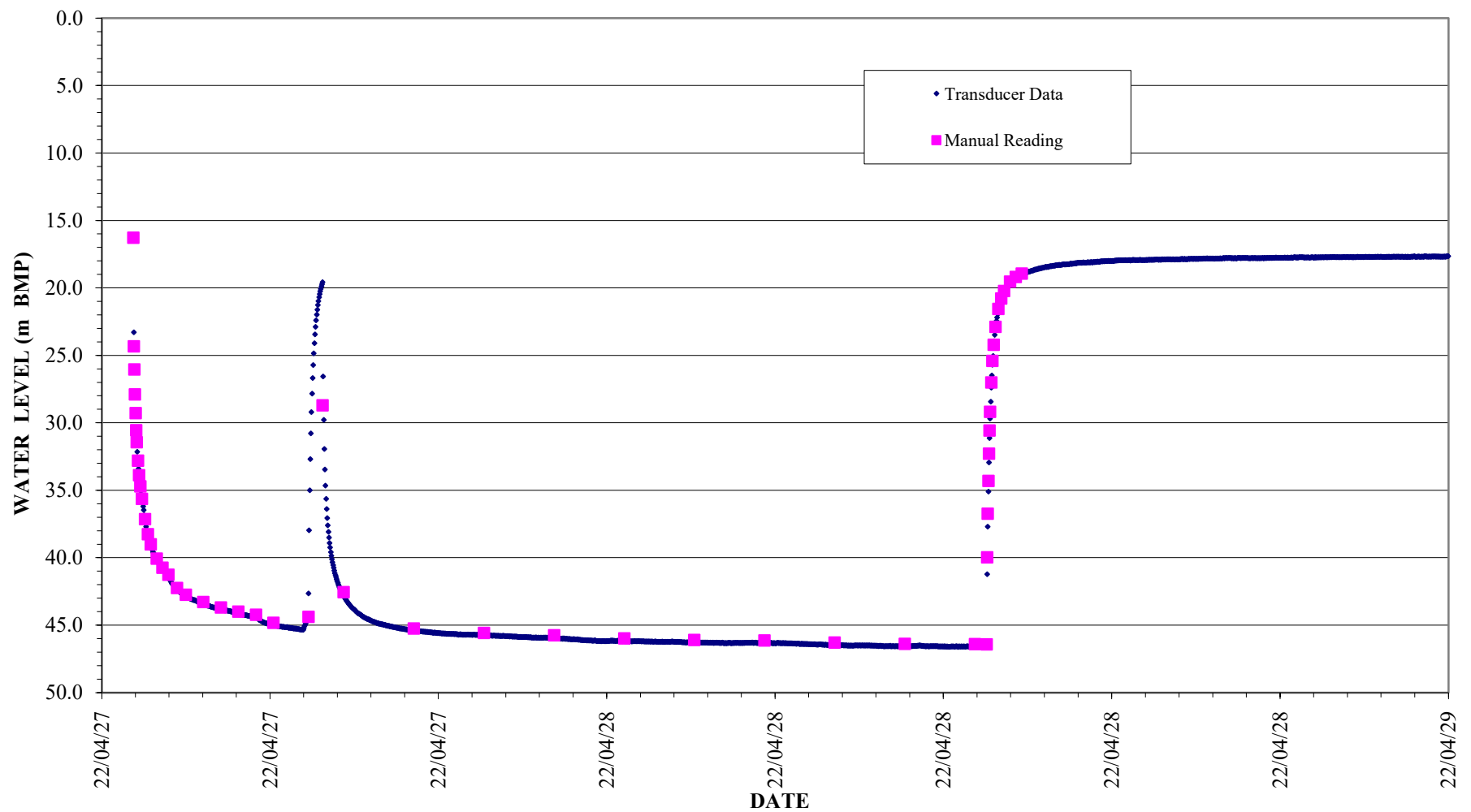
Sheet: 2 of 2

WELL NAME: F5

[illegible]

Fergus F5-R
Q = 30L/s
Start: April 27, 2022 10:30AM





Notes:

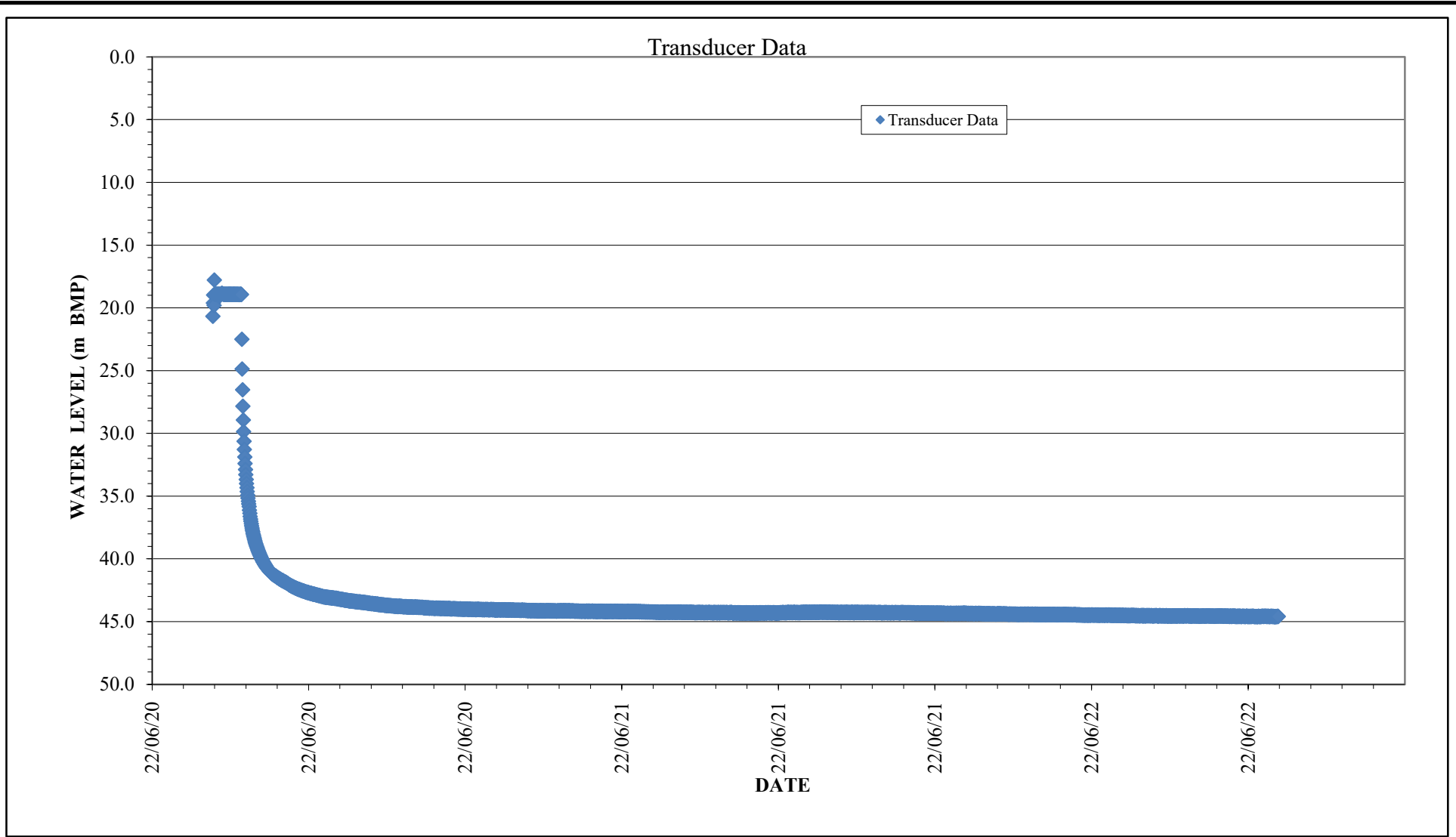
Measuring Point: Top of PVC flush joint
 Stickup: 0.51 m AGL

Township of Centre Wellington

Well 5-R Hydrograph

Lotowater Technical Services Inc.
 Reference: 313-010

Figure A1
 5/18/2022



Notes:

Measuring Point: Top of PVC flush joint
Stickup: 0.51 m AGL

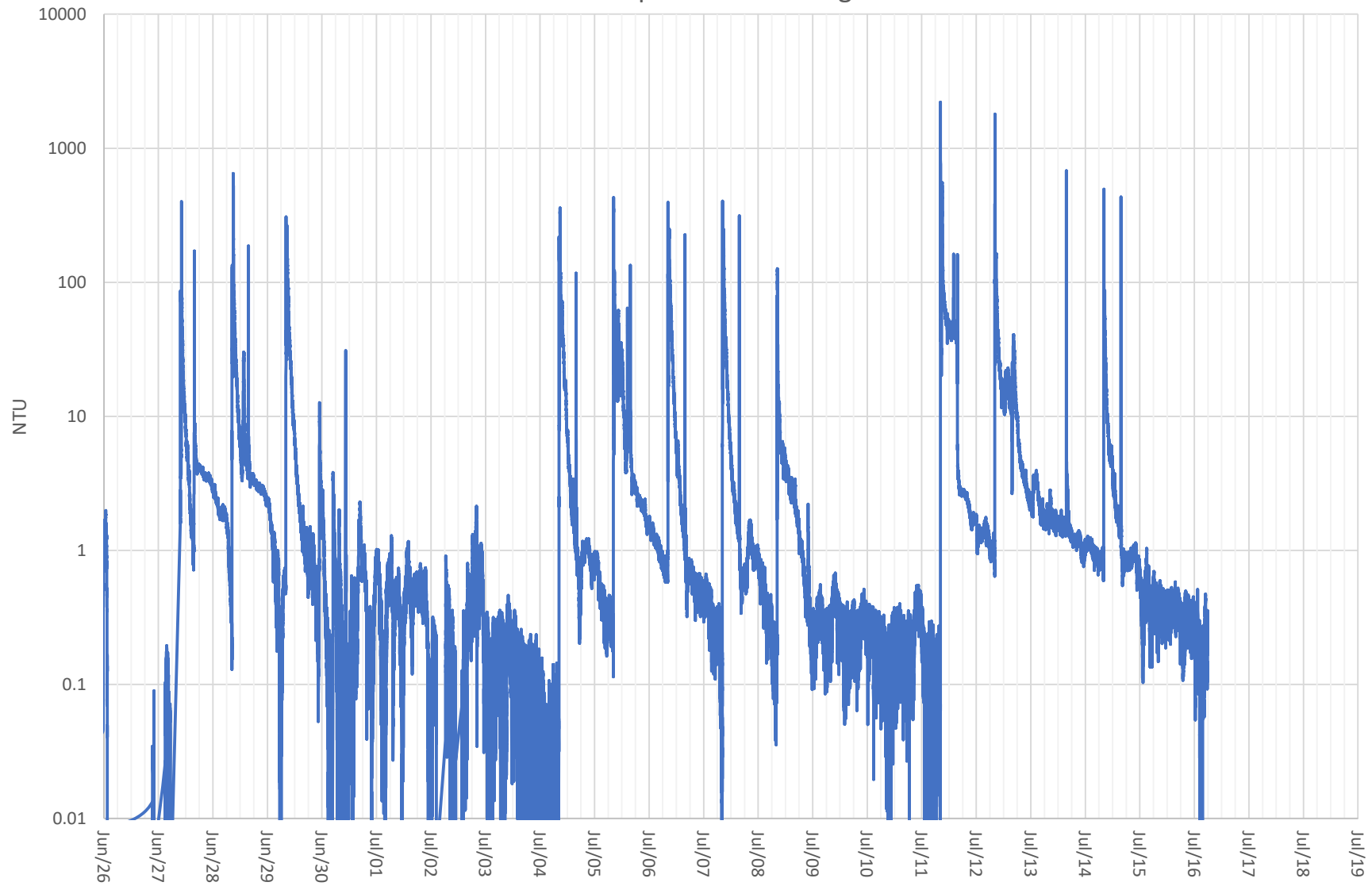
Township of Centre Wellington

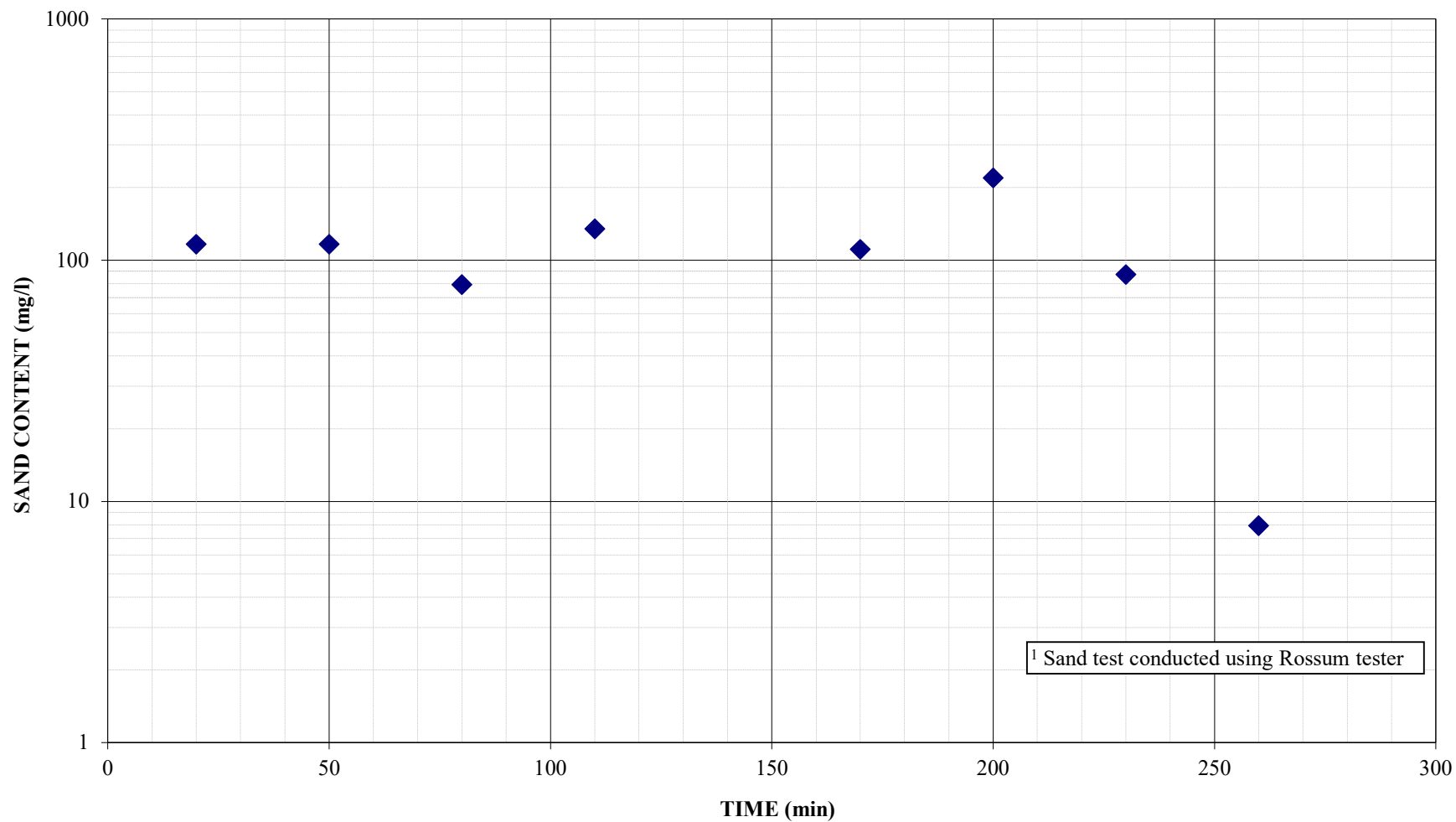
Well 5-R Hydrograph

Lotowater Technical Services Inc.
Reference: 313-010

Figure A2
6/23/2022

Centre Wellington F5-R Operational Testing





Notes:

Test to waste
concentration in ppm over 20min test period at 25-15 L/s

Centre Wellington

Sand Testing Results

Sand Test Results

Lotowater Technical Services Inc.

Reference: 313-010

Figure X

5/18/2021

Well Chlorination Record

Well Name: Well F5-R

Client: Township of Centre Wellington

Project #: 313-010

Disinfected By: Justin Bickle

LTS Chlorination Worksheet Used: Yes

Treatment Volume: 9,118 Litres

Desired Concentration: 100 ppm

Volume of Mixing Water: n/a Litres

Qty of Sterilene Needed (granular 55%): 1657.90 grams

Type and Quantity of Chlorine Used: 1750 grams Sterilene

Date and Time Chlorine Added: 2022-08-08 10:45

Chlorine Addition Method: inject from surface

Chlorine Residual Measured at Surface:

Chlorine Residual Measurement Method:

Date & Time Chlorine Purged:

Pre-Purge Chlorine Residual Measured at Surface:

Chlorine Residual Measurement Method:

Purged By:

Purged To:

Quantity and Type of Dechlorinating Agent Used:

Minutes of Pumping until Zero Free Chlorine Residual:

Final Turbidity Measurement (NTU):

Notes on Disinfection:



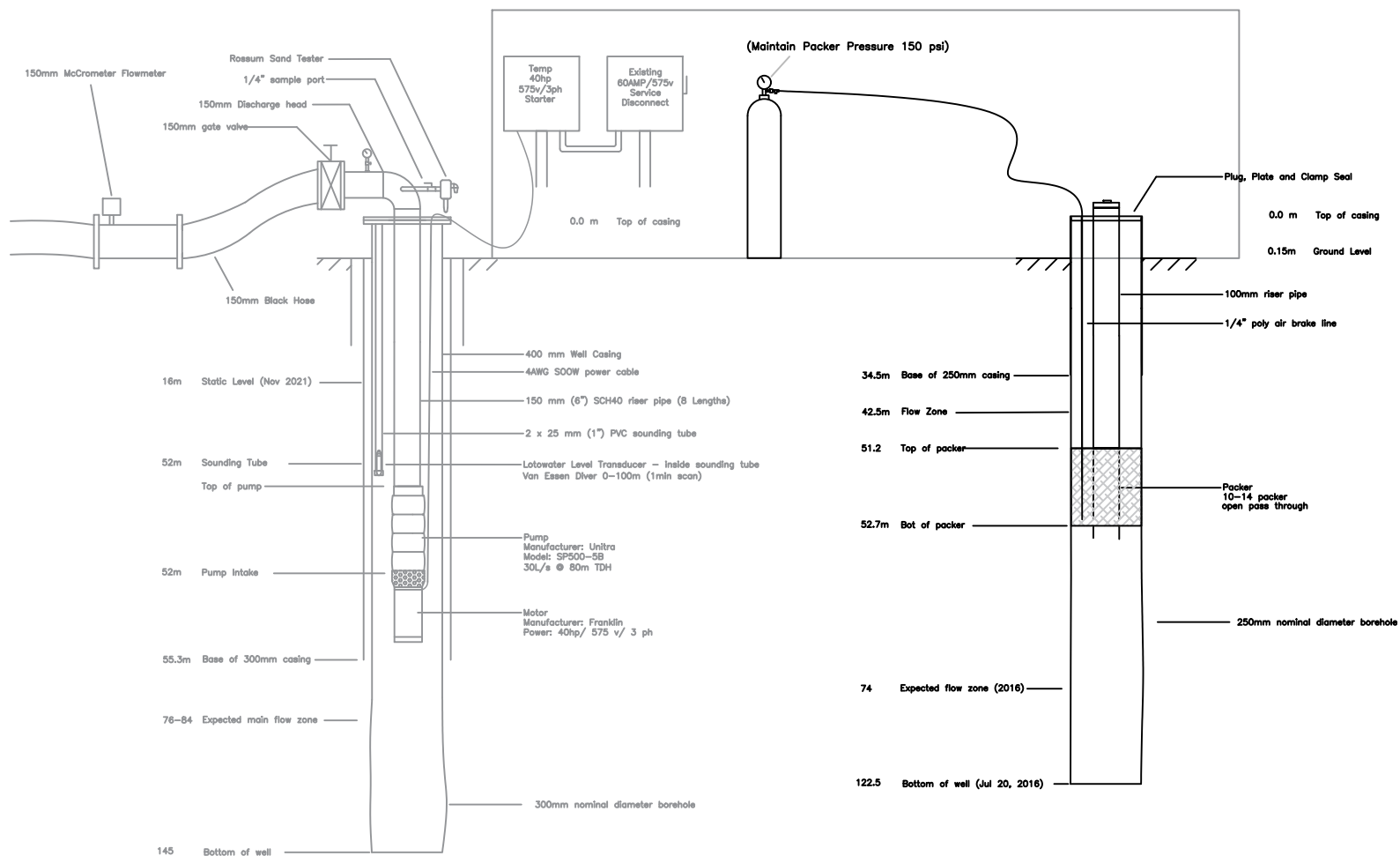
92 SCOTT AVENUE T (519) 442-2086
PARIS, ON N3L 3R1 F (519) 442-7242
www.lotowater.com

F5 Well Results



F5-R

F5



LEGEND



CLIENT

Township of Centre Wellington

TITLE

F5 Packer Install
Proposed

PROJECT No. 313-010

DESIGN

DRAWN

CHECKED

BP

Nov 26, 2021

REVISION No. May 9, 2022

SCALE (m)

SCALE

NTS

FIGURE

1

TABLE X**Township of Centre Wellington**

Fergus Well F5
Static/Well F5-R Pumping Video Summary
2022/08/05

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	2.76	0.84	Below top of casing
0:03	48.13	14.67	Casing joint
0:04	51.08	15.57	Packer marks
0:04	56.82	17.32	Static water level (tubid)
0:08	111.48	33.98	Turbidity decreases
0:10	115.48	35.20	Bottom of casing
0:10	124.67	38.00	Major partial fracture/breakout
0:12	139.53	42.53	Large major fracture
0:14	171.78	52.36	Change of rock, darker
0:16	194.26	59.21	Vuggy
0:17	205.08	62.51	Large vertical fracture
0:18	219.06	66.77	Beakout/vuggy
0:19	233.17	71.07	Vuggy
0:20	248.52	75.75	Breakouts/vuggy
0:21	257.71	78.55	Major fracture zone, large vugs
0:22	267.39	81.50	Turbidity increases
0:22	272.31	83.00	Large vug
0:23	278.87	85.00	Turbidity increases
0:23	286.84	87.43	Large vugs
0:24	296.58	90.40	Large vugs/partial fracture
0:25	304.88	92.93	Large partial fracture
0:26	317.38	96.74	Turbidity slightly decreases
0:27	326.01	99.37	Very large partial fracture/karst feature
0:29	354.33	108.00	Turbidity increases
0:30	355.70	108.42	Above fill on bottom of well
0:33	342.52	104.40	Vuggy
0:35	327.42	99.80	Very large partial fracture/karst feature
0:38	318.96	97.22	Large vugs
0:43	305.08	92.99	Partial fracture/karst feature
0:44	304.29	92.75	Large vug/karst feature
0:45	303.51	92.51	Large vug/karst feature
0:47	297.90	90.80	Large vug/karst feature
0:48	296.65	90.42	Large vug/karst feature
0:49	292.88	89.27	Breakouts/vuggy
0:50	288.45	87.92	Breakouts/vuggy
0:51	284.18	86.62	Breakouts/vuggy
0:54	272.47	83.05	Breakouts/vuggy
0:55	266.43	81.21	Breakouts/vuggy
0:57	259.81	79.19	Breakout/karst feature (grout?)
1:01	245.21	74.74	Vugs
1:03	241.17	73.51	Vertical fracture (grout fill?)
1:04	239.10	72.88	Key seat
1:08	219.81	67.00	Vuggy

TABLE X**Township of Centre Wellington**

Fergus Well F5
Static/Well F5-R Pumping Video Summary
2022/08/05

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:10	209.81	63.95	Vertical fracture
1:15	171.16	52.17	Darker rock
1:16	173.52	52.89	Blue precipitate?
1:19	161.48	49.22	Vuggy
1:23	141.27	43.06	Major karst feature/void
1:27	125.62	38.29	Partial fracture
1:30	115.98	35.35	Bottom of casing, blisters
1:31	114.20	34.81	Above base of casing, prep for pumping video
-	-	-	-
0:00	114.20	34.81	Begin pumping at 20 L/s
0:12	156.63	47.74	Pause to clear, not clearing, increase flow to 30 L/s
0:19	241.20	73.52	Turbid
0:21	259.81	79.19	Turbid
0:24	288.71	88.00	Turbidity lessening
0:36	354.88	108.17	Camera in fill on bottom
0:38	341.20	104.00	NEW DISK
0:00	341.20	104.00	Continue up-run
0:03	327.92	99.95	Flow of fine particles from large void
0:14	297.50	90.68	Particle source, large turbidity increase
0:18	269.03	82.00	Slight decrease in turbidity
0:41	143.83	43.84	Flow out
0:45	140.55	42.84	High turbidity
0:46	136.65	41.65	Bubble/particle source
0:50	125.00	38.10	Flow zone
0:52	119.45	36.41	High flow, moving camera, high turbidity, bubbles
0:55	112.33	34.24	In casing, still turbid
0:57	94.09	28.68	F5-R pumping 30 L/s water level
1:02	34.28	10.45	Heavy delamination
1:06	2.23	0.68	Below top of casing
Video survey conducted by Rayne Hettinga Note: Measuring point (MP) is top of casing which is 0.43 m above floor level			

MW7 Well Results



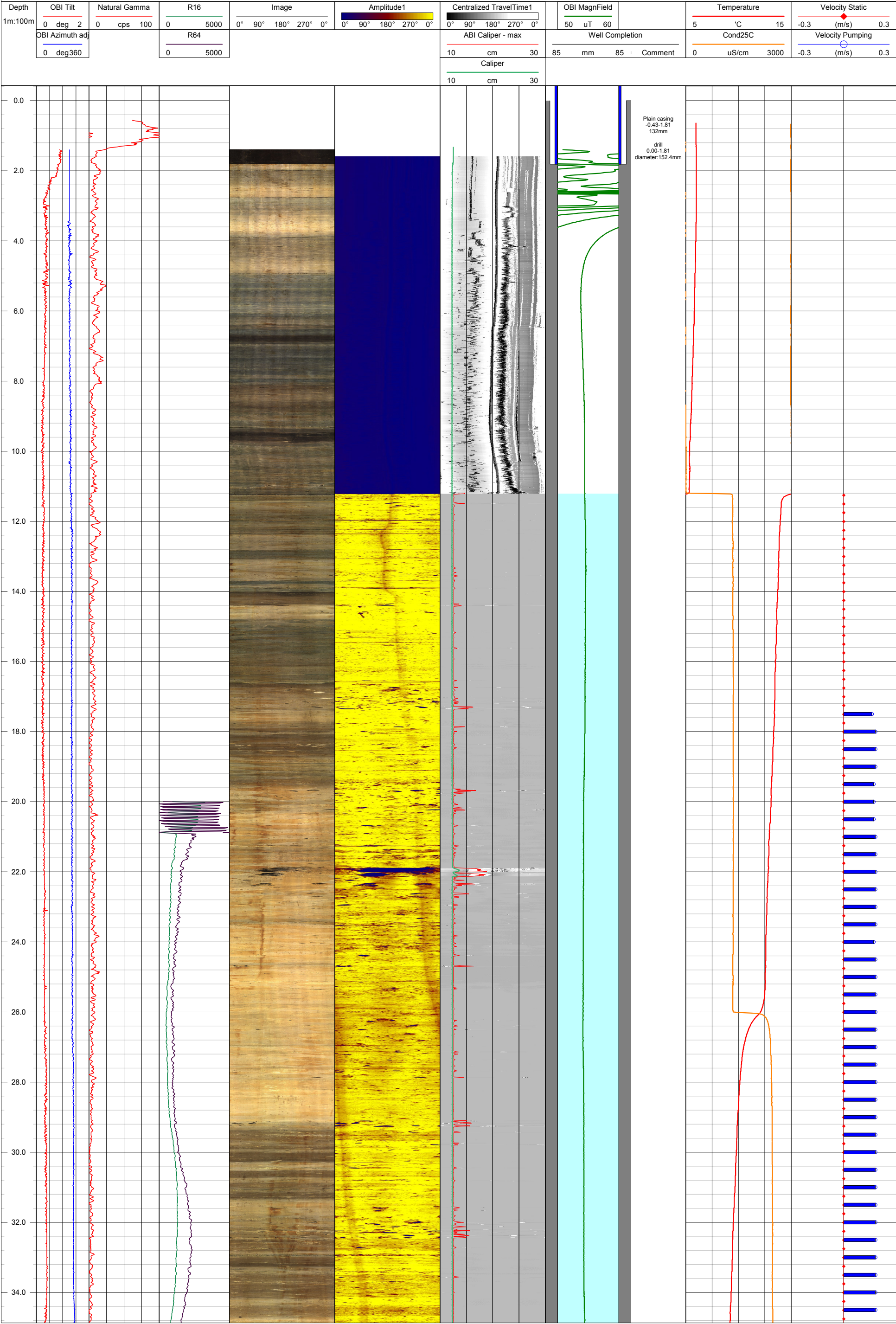


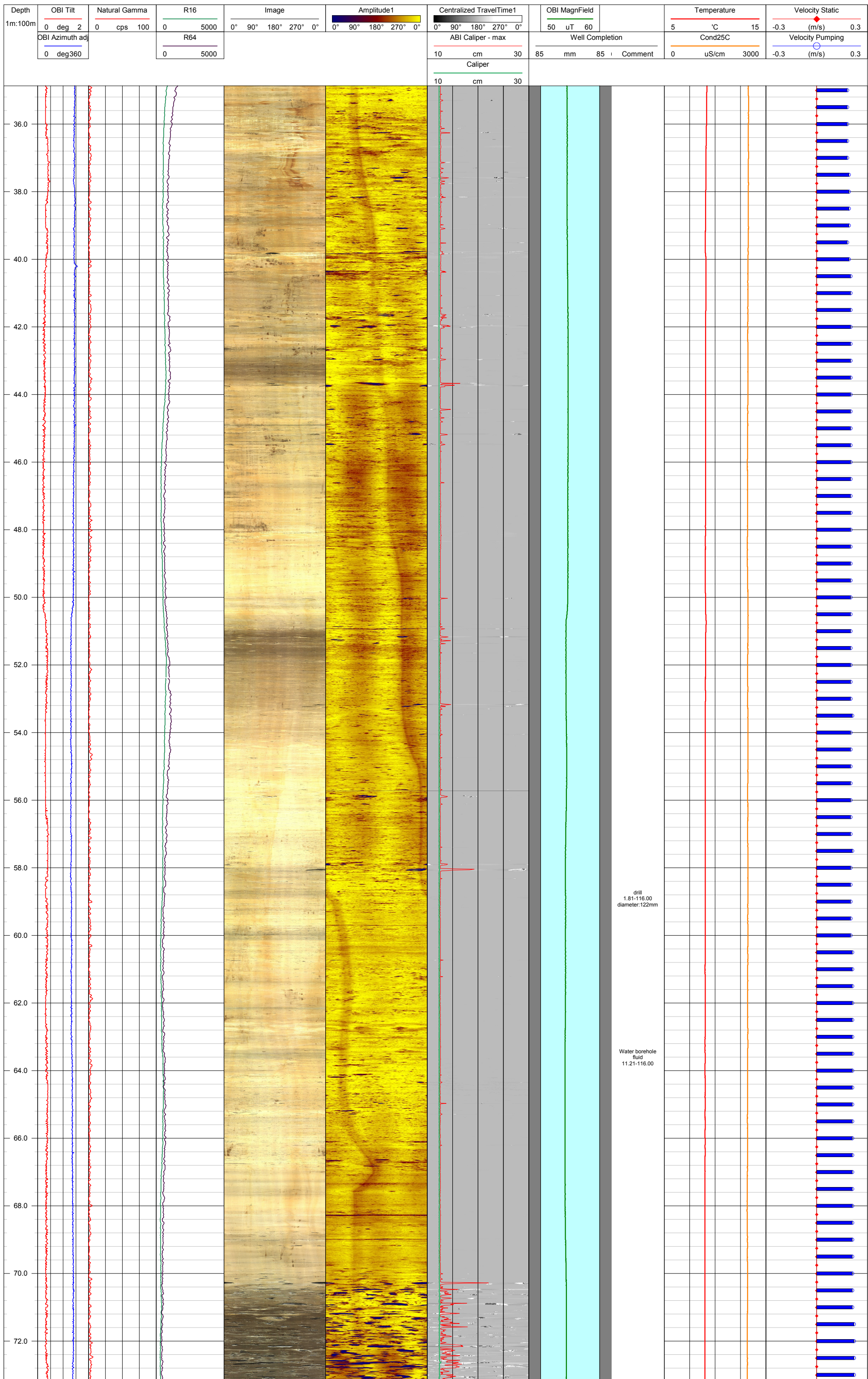
CLIENT
?

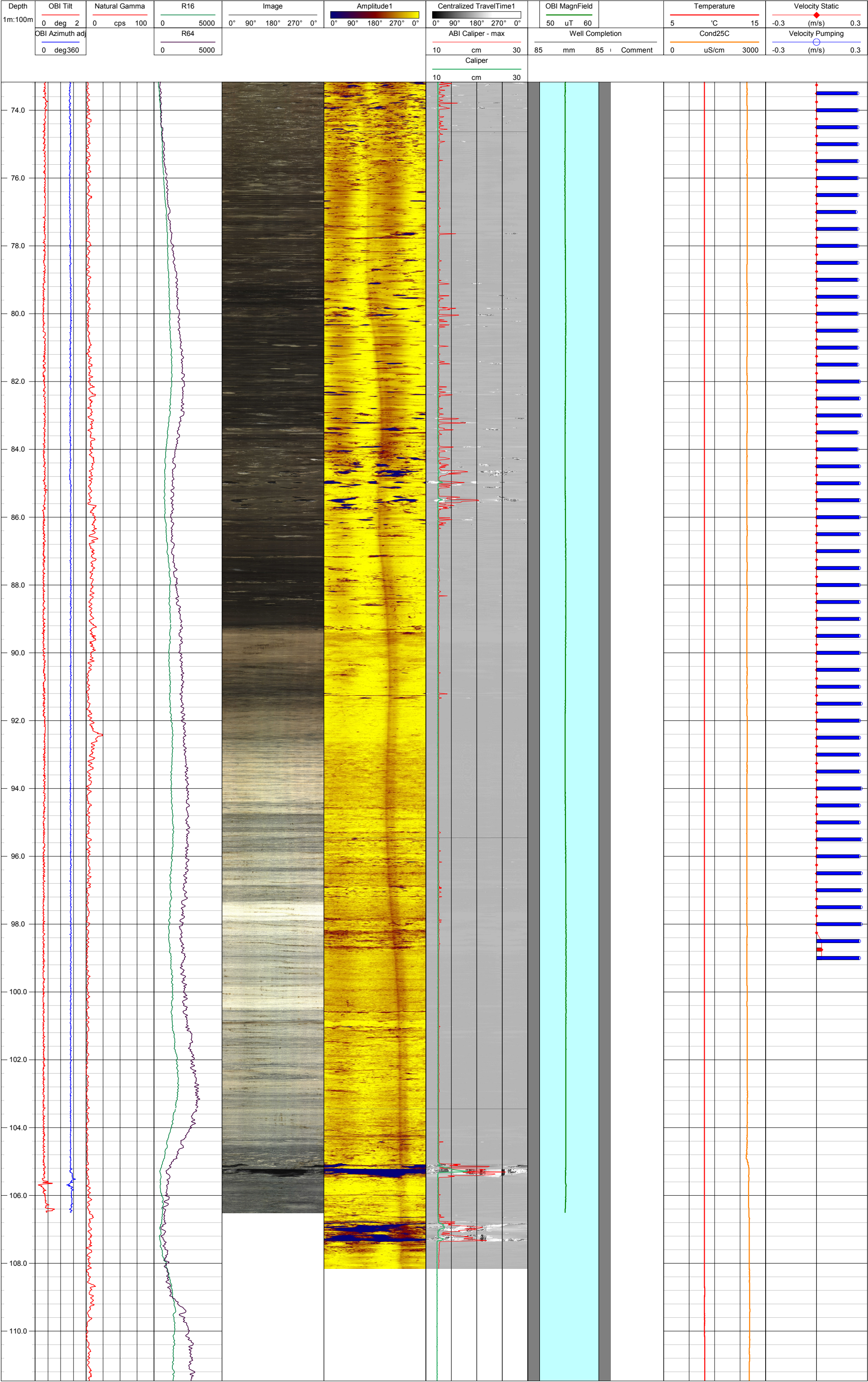
LOCATION Centre Wellington
DEPTH REF. "0" at ToC - 0.43 m agl
WATER LEVEL 11.21 m - btoc
DRILL METHOD ?

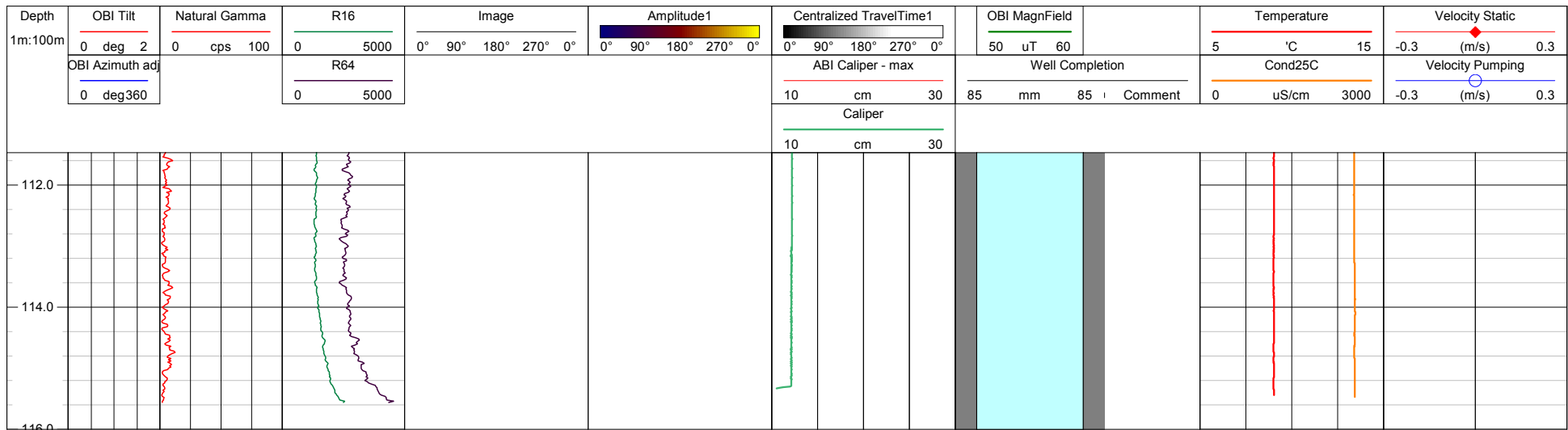
BOREHOLE MW7
PROJECT # 313-010
LOG DATE 2021/09/27&28
LOGGED BY R. Hettinga

Figure ?
Preliminary
Geophysical
Logs



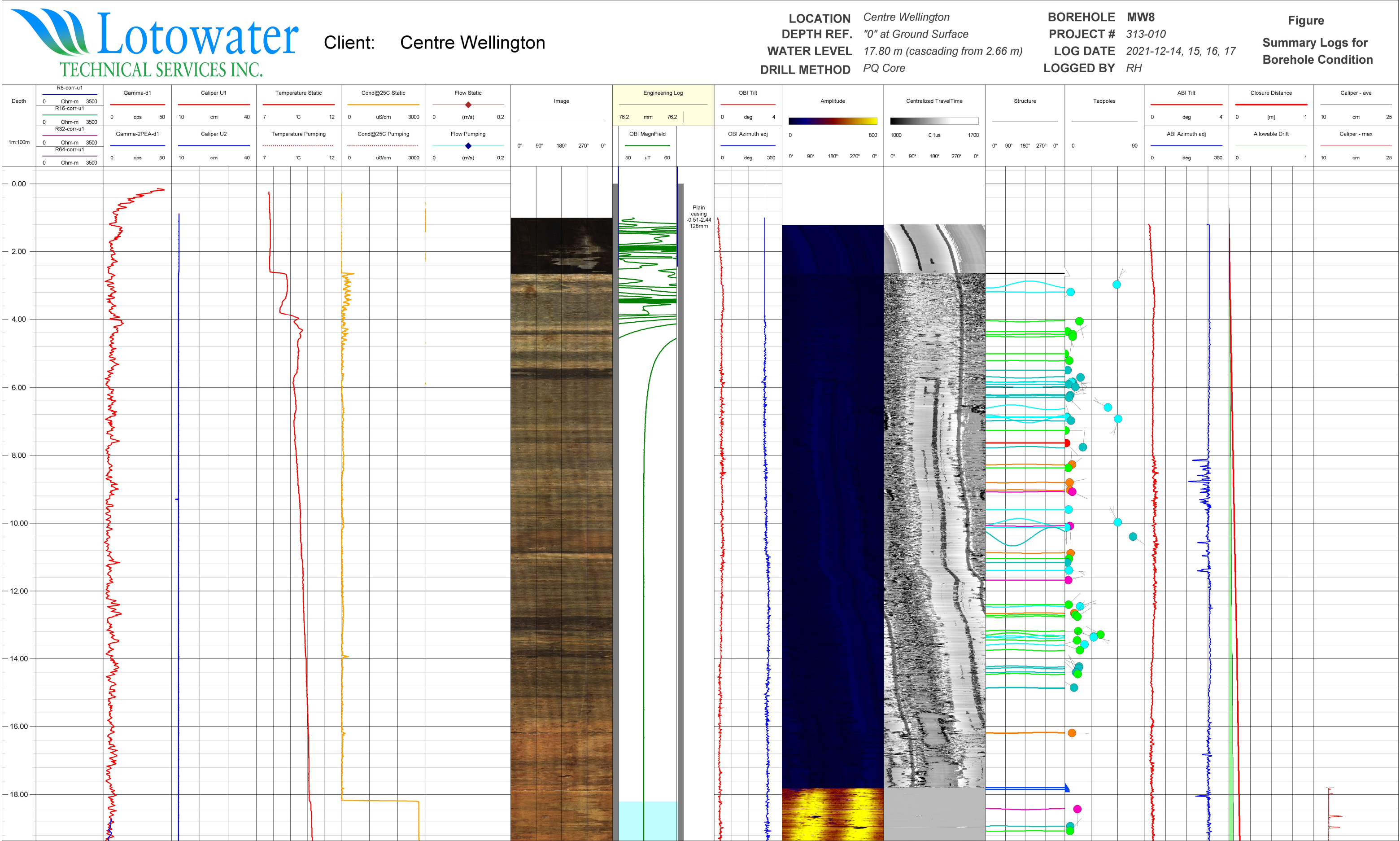


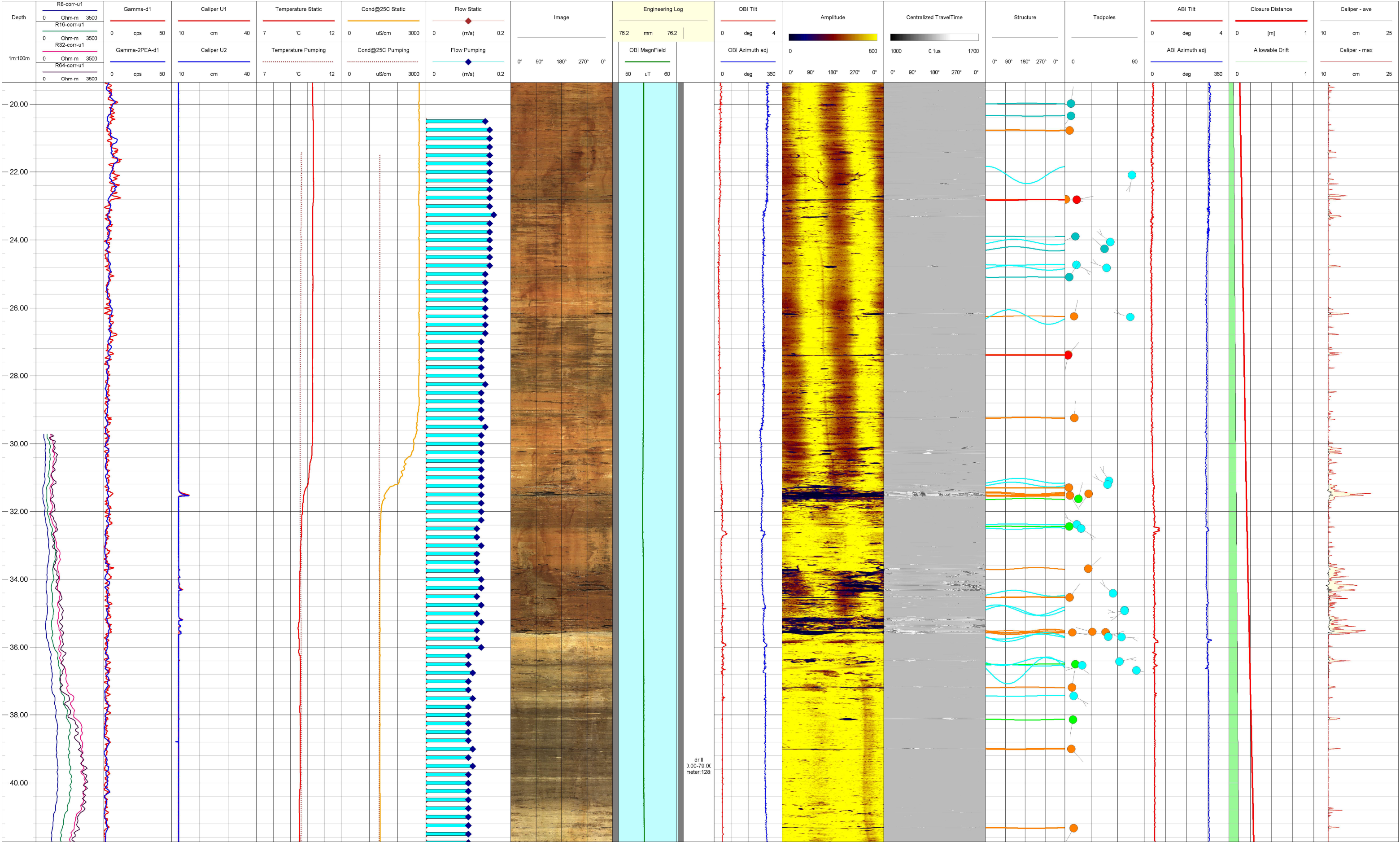


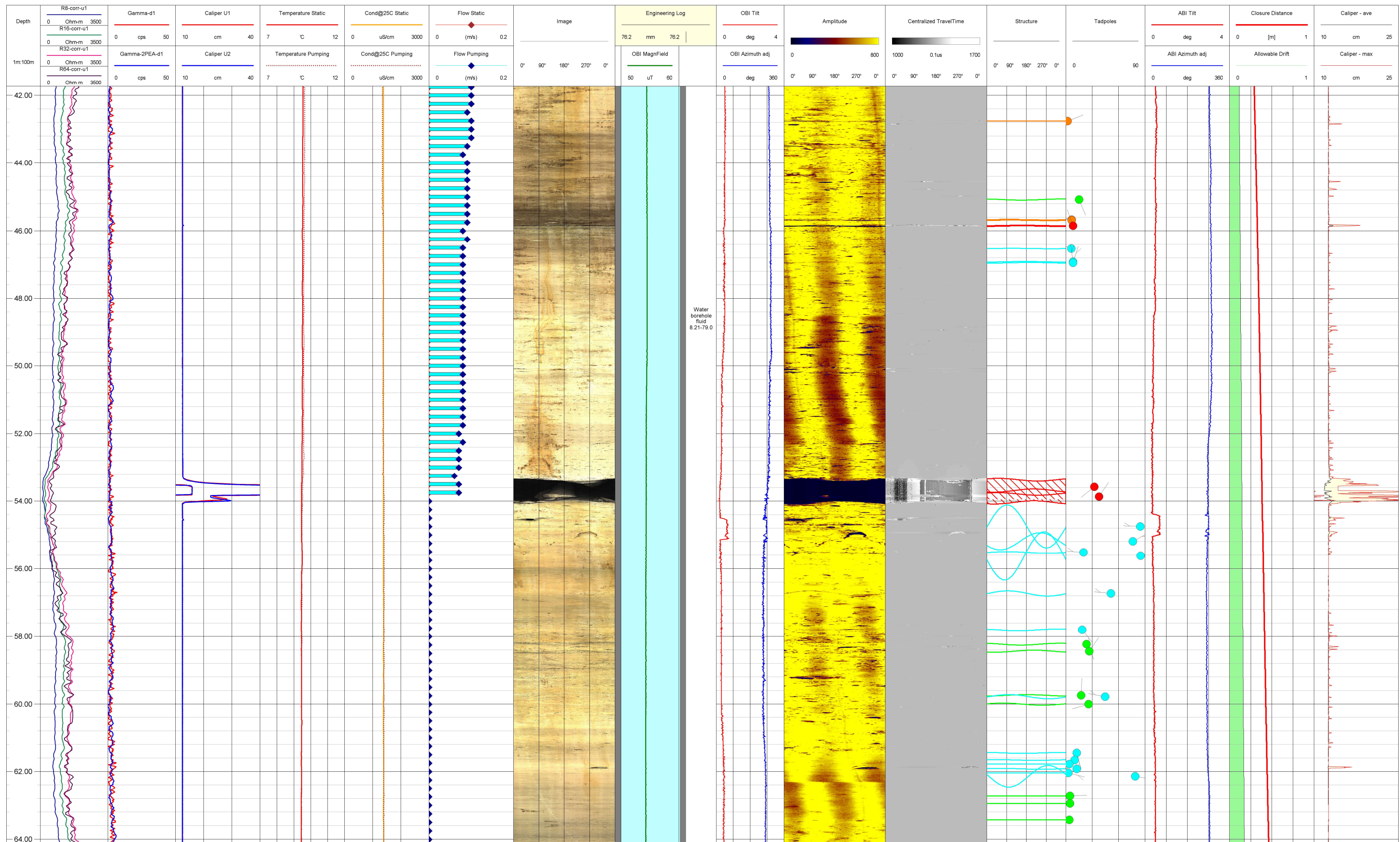


MW8 Well Results









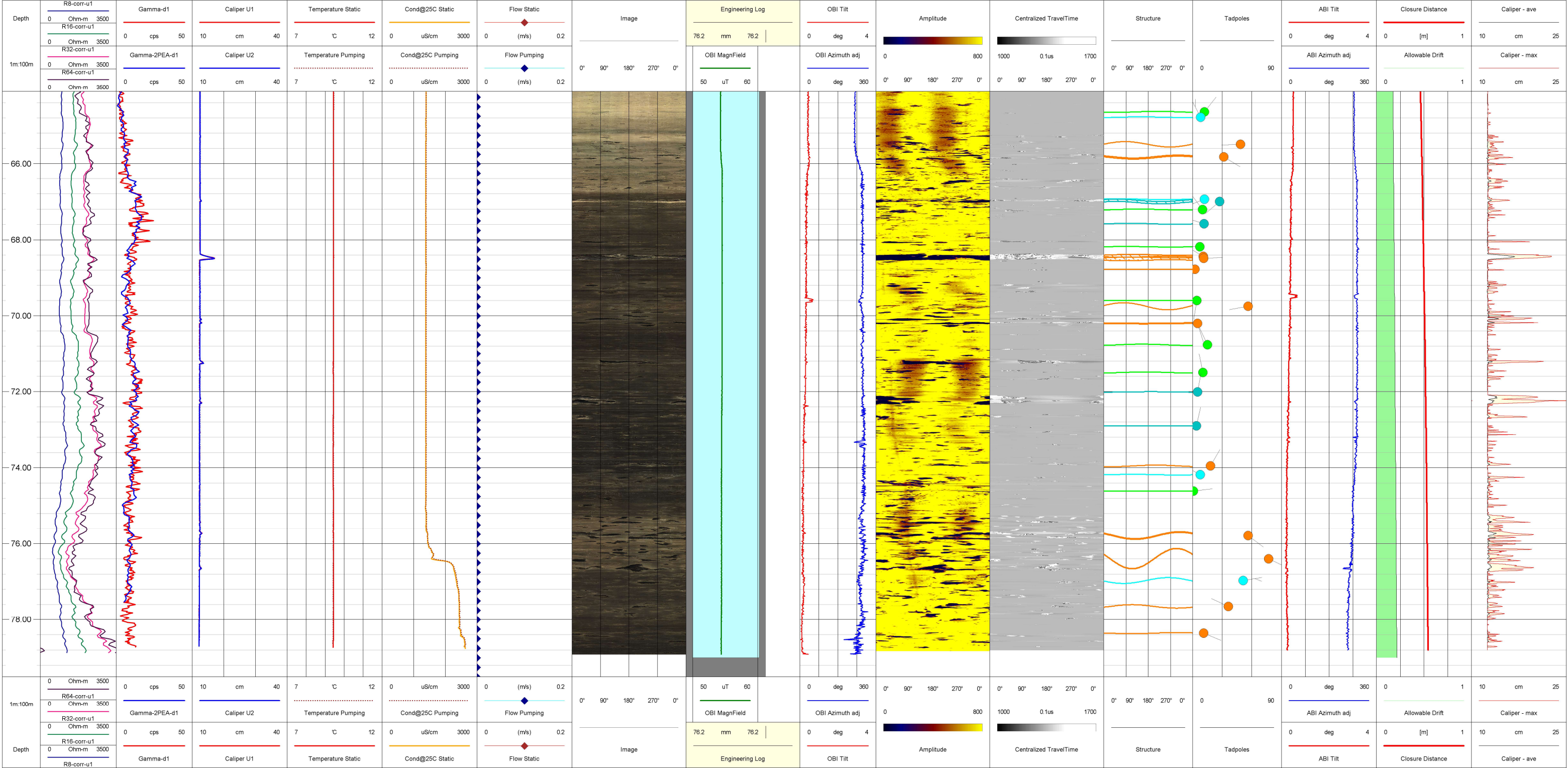
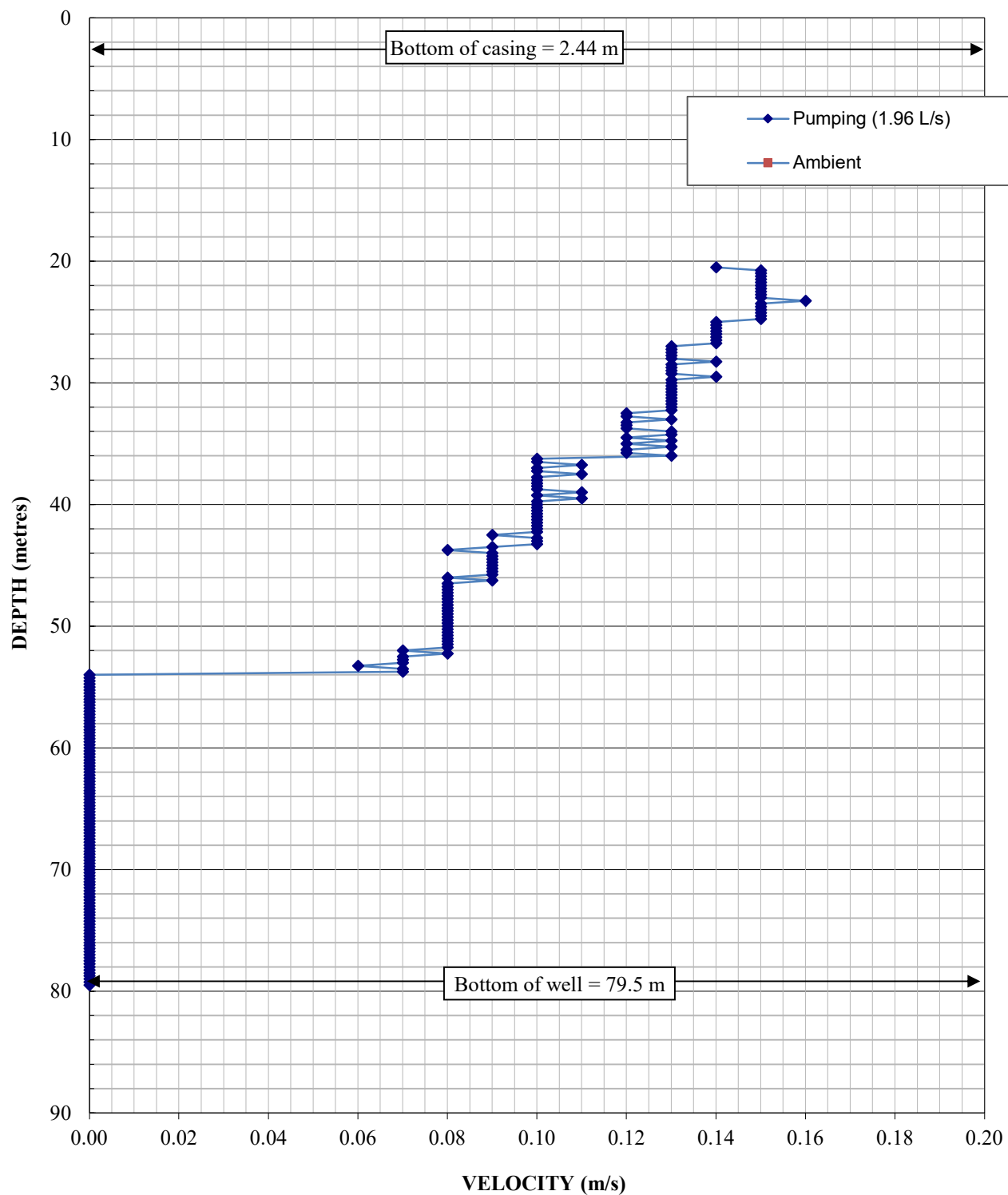


Figure: ?



Notes:

Top of casing 0.53m above ground surface

Test Date: December 17, 2021

Note cascade heard entering well likely from base of casing

Twp of Centre Wellington

Borehole MW8

Flow Distribution Profile

Lotowater Technical Services Inc.

Reference: 313-010

Figure X

2021-12-17

TABLE 2**Township of Centre Wellington****Well MW8****Static/Pumping Video Summary****2022/02/10**

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:00	1.12	0.34	Below ground level (soap on lens)
0:01	7.64	2.33	Bottom of casing, water cascading
0:02	11.94	3.64	Streams of cascading water
0:02	14.90	4.54	Streams of cascading water
0:03	24.11	7.35	Fracture, possible cascading water source
0:05	35.73	10.89	Fracture, possible cascading water source
0:07	45.37	13.83	Vug, possible cascading water source
0:08	52.33	15.95	Fracture, possible cascading water source
0:09	56.53	17.23	Vug, possible cascading water source
0:10	67.42	20.55	Fracture, possible cascading water source
0:11	74.15	22.60	Fracture, possible cascading water source
0:12	83.30	25.39	Static water level
0:13	86.02	26.22	Flow visible, bubble source below
0:14	89.67	27.33	Fracture, flow visible
0:17	95.14	29.00	Pause to set 10SQ pump
0:18	102.59	31.27	Major fracture, water producing
0:19	111.88	34.10	Fractured/vuggy
0:20	115.94	35.34	Major fracture, possible downward flow
0:22	121.39	37.00	Minor fracture
0:23	127.49	38.86	Minor fracture
0:24	135.14	41.19	Minor fracture
0:24	139.83	42.62	Minor fracture
0:26	150.07	45.74	Fracture, flow visible
0:28	160.50	48.92	Large vug, water producing, particle source
0:30	175.00	53.34	Top of very large fracture/void, water producing
0:32	177.33	54.05	Bottom of fracture/void
0:33	179.17	54.61	Very little flow visible
0:27	214.73	65.45	Vuggy (drilling mud?)
0:38	224.41	68.40	Major fracture, very little flow
0:40	236.94	72.22	Vuggy zone
0:42	248.69	75.80	Vuggy zone
0:42	251.18	76.56	Large vug (dissolution waves/line?)
0:45	259.61	79.13	On bottom of well, fallen cobbles
0:47	258.14	78.68	Large vug
0:48	254.59	77.60	Vuggy zone
0:50	249.54	76.06	Large vugs
0:55	237.83	72.49	Large vug/karst features
0:58	230.94	70.39	Vug/breakout
0:59	229.99	70.10	Vuggy zone
1:01	225.16	68.63	Large fracture/karst feature, precipitate
1:03	221.19	67.42	Large breakout/karst feature

TABLE 2**Township of Centre Wellington****Well MW8****Static/Pumping Video Summary****2022/02/10**

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
1:05	216.60	66.02	Large vug
1:06	212.27	64.70	Lighter, more crystalline rock than below
1:10	199.28	60.74	Reefal limestone
1:18	177.56	54.12	Bottom of very large fracture/void
1:19	176.57	53.82	Water producing
1:20	175.59	53.52	Top of very large fracture/void, water producing
1:28	151.15	46.07	Vuggy, slightly wate producing
1:29	150.72	45.94	Major fracture, water producing
1:33	142.95	43.57	Vug, particle source
1:34	140.85	42.93	Large vug, water producing, particle source
1:36	135.83	41.40	Minor fracture
1:38	128.18	39.07	Minor fracture
1:40	122.11	37.22	Fracture, water producing, particle source
1:41	119.46	36.41	Vuggy
1:43	116.83	35.61	Major fracture, water producing
1:44	110.56	33.70	Fracture/vuggy zone
1:45	103.61	31.58	Major fracture, water producing
1:48	95.14	29.00	Pause to pull 10SQ pump
1:50	89.90	27.40	Major fracture, water producing (fabric?)
1:52	86.12	26.25	Minor fracture, water producing
1:53	85.86	26.17	Very large vug
1:54	84.55	25.77	Water level, cascading from above
1:57	74.80	22.80	Fracture, possible cascading water source
2:00	68.04	20.74	Fracture, possible cascading water source
-	-	-	NEW DVD DISK
0:00	68.04	20.74	Continue up run
0:03	60.33	18.39	Minor fracture, possible cascading water source
0:04	55.91	17.04	Minor fracture, possible cascading water source
0:07	53.02	16.16	Fracture, possible cascading water source
0:09	48.56	14.80	Fracture, possible cascading water source
0:10	46.72	14.24	Fracture, possible cascading water source
0:11	45.70	13.93	Vug/breakout, possible cascading water source
0:15	36.42	11.10	Fracture, possible cascading water source
0:17	32.84	10.01	Minor fracture, possible cascading water source
0:18	32.02	9.76	Vuggy
0:19	29.36	8.95	Minor fracture, possible cascading water source
0:21	24.80	7.56	Fracture, possible cascading water source
0:25	15.39	4.69	Streams of cascading water
0:28	12.24	3.73	Streams of cascading water
0:28	12.53	3.82	Streams of cascading water

TABLE 2

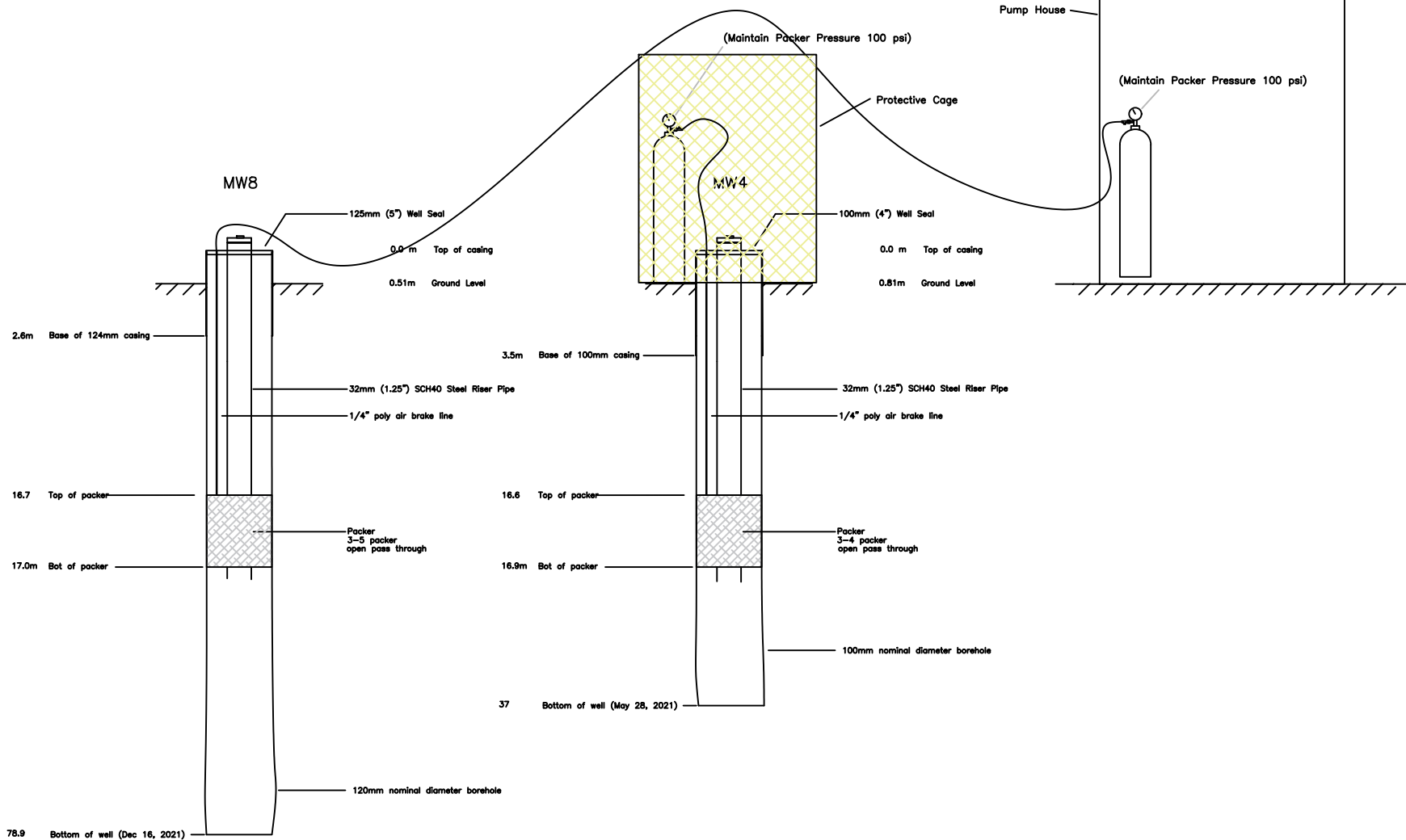
Township of Centre Wellington

Well MW8

Static/Pumping Video Summary

2022/02/10

Elapsed Time (h:min)	Depth (ft below MP)	Depth (m below MP)	Comments
0:30	8.37	2.55	Bottom of casing, water cascading
0:31	0.66	0.20	Below ground level
Video survey conducted by Rayne Hettinga			
Note: Measuring point (MP) is ground level. Top of casing is currently 0.51 m above ground level			



LEGEND



CLIENT

Township of Centre Wellington

TITLE

MW8 and MW4 Packer Install
(As Constructed)

PROJECT No. 313-010

DESIGN

REVISION No. Dec 23, 2021

SCALE

NTS

DRAWN

BP

Dec 20, 2021

SCALE (m)

CHECKED

FIGURE

1