CERTIFICATE OF ANALYSIS

REPORTED TO Purple Springs Nursery
4519 Hullcar Road
Armstrong, BC V0E 1B4

TEL (250) 546-8156
FAX -

ATTENTION Rico

WORK ORDER 7062957

PO NUMBER
PROJECT Project Well 7
PROJECT INFO

RECEIVED / TEMP 2017-06-29 14:47 / 13°C
REPORTED 2017-07-07

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062957
PROJECT	Project Well 7	**REPORTED**	2017-07-07

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

CARO ANALYTICAL SERVICES

SAMPLE ANALYTICAL DATA

REPORTED TO Purple Springs Nursery
PROJECT Project Well 7

WORK ORDER 7062957
REPORTED 2017-07-07

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 7 (7062957-01) [Water] Sampled: 2017-06-29 12:30						
Anions						
Chloride	**22.5**	0.10	mg/L	N/A	2017-07-04	
Nitrate (as N)	**2.18**	0.010	mg/L	N/A	2017-07-04	
Nitrite (as N)	**0.013**	0.010	mg/L	N/A	2017-07-04	
General Parameters						
Ammonia, Total (as N)	**0.127**	0.020	mg/L	N/A	2017-07-06	
Nitrogen, Total Kjeldahl	**0.194**	0.050	mg/L	2017-07-02	2017-07-05	
pH	**7.54**	0.01	pH units	N/A	2017-07-04	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**2.19**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**2.38**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062957
PROJECT	Project Well 7	**REPORTED**	2017-07-07

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7G0040										
Blank (B7G0040-BLK1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7G0040-BS1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
Chloride	15.6	0.10	mg/L	16.0		97	90-110			
Nitrate (as N)	4.10	0.010	mg/L	4.00		102	93-108			
Nitrite (as N)	1.93	0.010	mg/L	2.00		97	85-114			
General Parameters, Batch B7G0010										
Blank (B7G0010-BLK1)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7G0010-BLK2)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7G0010-BLK3)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7G0010-BS1)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			
LCS (B7G0010-BS2)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.04	0.020	mg/L	1.00		104	90-115			
LCS (B7G0010-BS3)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.04	0.020	mg/L	1.00		104	90-115			
General Parameters, Batch B7G0014										

REPORTED TO Purple Springs Nursery
PROJECT Project Well 7

WORK ORDER 7062957
REPORTED 2017-07-07

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7G0014, Continued										
Blank (B7G0014-BLK1)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B7G0014-BLK2)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B7G0014-BS1)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	1.06	0.050	mg/L	1.00		106	84-121			
LCS (B7G0014-BS2)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
General Parameters, Batch B7G0031										
Reference (B7G0031-SRM1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
pH	7.03	0.01	pH units	7.00		100	98-102			

110-4011 Viking Way, Richmond, BC V6V 2K9
Tel: (604) 279-1499 Fax: (604) 279-1599

102-3677 Highway 97N, Kelowna, BC V1X 5C3
Tel: (250) 765-9646 Fax: (250) 765-3893

17225 109 Avenue NW, Edmonton, AB T5S 1H7
Tel: (780) 489-9100 Fax: (780) 489-9700

CARO BC COC, Rev 2015-

CHAIN OF CUSTODY RECORD

COC# B 46983 PAGE OF

RELINQUISHED BY: Rico Thorsen | DATE: June 29 | TIME:

RECEIVED BY: ESUI | DATE: June 28 | TIME: 447

PROJECT: Project well 7

PROJECT INFO:

REPORT TO:
COMPANY: Ken Kragelin Feedlot
ADDRESS:
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: hm@psnursery.com
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1:
EMAIL 2:
EMAIL 3:
PO #:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines ☐ Regs on Report? ☐
BC Drinking Water Protection Act / Reg. ☐
BC CSR ☐ AB TIER 1 ☐ CCME ☐ OTHER* ☐
AL ☐ PL ☐ RL ☐ CL ☐ IL ☐ AW ☐ IW ☐ LW ☐

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	BTEX ☐	VPH ☐	PHC F1 ☐	VOC ☐	VPH ☐	EPH ☐	PHC F2-F4 ☐	PAH ☐	L/HEPH ☐	PHENOLS ☐	Chlorinated Non-Chlor. ☐	PCB ☐	GLYCOLS ☐	HAA ☐	PESTICIDES ☐	ACID HERBICIDES ☐	METALS - WATER TOTAL	Hg ☐	METALS - WATER DISSOLVED	Hg ☐	METALS - SOIL (SALM) ☐	inc. pH ☐	pH ☒	EC ☐	ALK ☐	TSS ☐	VSS ☐	TDS ☐	BOD ☐	COD ☐	TOG ☐	MOG ☐	FECAL COLIFORMS ☐	HPC ☐	TOTAL COLIFORMS ☐	E. coli ☐	ASBESTOS	N - Nitrate	N - Nitrite	Ammonia	TKN	Chloride	HOLD
Project well 7		X				June 29	12:30																																													

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days ☐ 90 Days ☐ Longer Date (Surcharges will Apply):

*** OTHER INSTRUCTIONS:**

PAYMENT:
CHEQUE ☐
CREDIT ☐
DEBIT ☐
CASH ☐
INVOICE ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 12.9 ICE: Y ☒ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

Field Sampling Sheet - Groundwater

Site/Facility Name:	Kew Regehr Feedlot	Client:	
Well ID:		Project Number:	
Date:		Sampled by:	
Casing Diameter:		Weather:	
Well Stick-up:		Remarks:	
Condition of well:	good / needs attention		
		Is the well marked/flagged? Yes No	

DTB:		m	**Pressure:**
DTW:		m	negative positive
Difference:		m	none
	X 2	L/m	
Volume of water in well:		Litres	15cm (6") casing has 18L/m
Volume of water to purge:		Litres	10cm (4") casing has 8L/m
Volume actually purged:		Litres	5cm (2") casing has 2L/m

UTM Coordinates:
Easting (6 digits)
Northing (7 digits)
Zone:

Purge method: Bailer Pump None Other:
Purged to dry: Yes No
Purge water disposal: Ground Container

Was sheen observed during purging or sampling?
Yes No

Field Parameters

	Volume (L)	Time	pH	Temp °C	Cond µS/cm	ORP (mv)	Turbidity	Colour	Odour	Comments
1st		12 13	7.8	10.3						
2nd		12 18	7.6	10.5						
3rd		12 22	7.5	10.5						
4th		12 29	7.5	10.5						
5th										
6th										
7th										
8th										

write additional lines on the back

Sample Descriptions:

Sample date: June 29. 2017 Sample time: 12 30 PM

Appearance: _____ Sample Colour: _____

Order of bottles collected: _____

List any Parameters not Sampled/bottles missed: _____

Were Samples Filtered and Preserved? Yes No

Duplicate Sample? Yes No **Duplicate Sample ID:** _____

Additional Notes:
- site access
- hidden well location
- safety concerns
- unusual well behaviour

Associated Environmental

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4	**TEL** **FAX**	(250) 546-8156 -
ATTENTION	Rico Thorsen	**WORK ORDER**	7092352
PO NUMBER		**RECEIVED / TEMP**	2017-09-26 14:40 / 12°C
PROJECT	Project Well 7	**REPORTED**	2017-10-02
PROJECT INFO		**COC NUMBER**	B64745

General Comments:

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Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

Locations:

#110 4011 Viking Way
Richmond, BC V6V 2K9
Tel: 604-279-1499

#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

www.caro.ca

ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092352
PROJECT	Project Well 7	**REPORTED**	2017-10-02

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

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Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

SAMPLE ANALYTICAL DATA

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092352
PROJECT	Project Well 7	**REPORTED**	2017-10-02

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 7 (7092352-01) [Water] Sampled: 2017-09-25 13:15						
Anions						
Chloride	**1.37**	0.10	mg/L	N/A	2017-09-28	
Nitrate (as N)	**0.061**	0.010	mg/L	N/A	2017-09-28	
Nitrite (as N)	**0.023**	0.010	mg/L	N/A	2017-09-28	
General Parameters						
Ammonia, Total (as N)	**0.103**	0.020	mg/L	N/A	2017-10-01	
Nitrogen, Total Kjeldahl	**0.143**	0.050	mg/L	2017-09-27	2017-10-01	
pH	**7.79**	0.10	pH units	N/A	2017-09-28	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**0.0840**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**0.227**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092352
PROJECT	Project Well 7	**REPORTED**	2017-10-02

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- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7I1890										
Blank (B7I1890-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B7I1890-BLK2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7I1890-BS1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	16.2	0.10	mg/L	16.0		101	90-110			
Nitrate (as N)	4.05	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
LCS (B7I1890-BS2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	16.3	0.10	mg/L	16.0		102	90-110			
Nitrate (as N)	4.04	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
General Parameters, Batch B7I1912										
Reference (B7I1912-SRM1)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
pH	7.00	0.10	pH units	7.00		100	98-102			HT2
Reference (B7I1912-SRM2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
pH	7.00	0.10	pH units	7.00		100	98-102			HT2
General Parameters, Batch B7I1950										
Blank (B7I1950-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							

REPORTED TO Purple Springs Nursery
PROJECT Project Well 7

WORK ORDER 7092352
REPORTED 2017-10-02

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7I1950, Continued										
LCS (B7I1950-BS1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	0.995	0.050	mg/L	1.00		100	84-121			
General Parameters, Batch B7I2208										
Blank (B7I2208-BLK1)				Prepared: 2017-10-01, Analyzed: 2017-10-01						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7I2208-BLK2)				Prepared: 2017-10-01, Analyzed: 2017-10-01						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7I2208-BS1)				Prepared: 2017-10-01, Analyzed: 2017-10-01						
Ammonia, Total (as N)	1.02	0.020	mg/L	1.00		102	90-115			
LCS (B7I2208-BS2)				Prepared: 2017-10-01, Analyzed: 2017-10-01						
Ammonia, Total (as N)	1.05	0.020	mg/L	1.00		105	90-115			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-

CHAIN OF CUSTODY RECORD

COC# B 64745 PAGE OF

RELINQUISHED BY: Rico Thorsen | DATE: Sept 25 | TIME:
RECEIVED BY: ARB UNI | DATE: 9/25 | TIME: 1440

REPORT TO:
COMPANY: Ken Regehr Feedlot
ADDRESS:
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: ☐ OTHER: ☐

PROJECT NUMBER / INFO: Project Well 7

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	ANALYSES REQUESTED: BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E.coli ☐	ASBESTOS	N - Nitrate	N - Nitrite	TKN	Chloride	Ammonia	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
Project well 7						Sept 25	1:15																													

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 12.0 ICE: Y ☒ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4	**TEL** **FAX**	(250) 546-8156 -
ATTENTION	Rico	**WORK ORDER**	7062953
PO NUMBER		**RECEIVED / TEMP**	2017-06-29 14:47 / 13°C
PROJECT	Project Well 8	**REPORTED**	2017-07-07
PROJECT INFO		**COC NUMBER**	B46982

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

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Kelowna, BC V1X 5C3
Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

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ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062953
PROJECT	Project Well 8	**REPORTED**	2017-07-07

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

SAMPLE ANALYTICAL DATA

REPORTED TO Purple Springs Nursery
PROJECT Project Well 8

WORK ORDER 7062953
REPORTED 2017-07-07

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 8 (7062953-01) [Water] Sampled: 2017-06-29 12:18						
Anions						
Chloride	**21.9**	0.10	mg/L	N/A	2017-07-04	
Nitrate (as N)	**2.02**	0.010	mg/L	N/A	2017-07-04	
Nitrite (as N)	**0.013**	0.010	mg/L	N/A	2017-07-04	
General Parameters						
Ammonia, Total (as N)	**0.121**	0.020	mg/L	N/A	2017-07-06	
Nitrogen, Total Kjeldahl	**0.244**	0.050	mg/L	2017-07-02	2017-07-05	
pH	**7.54**	0.01	pH units	N/A	2017-07-04	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**2.03**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**2.27**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062953
PROJECT	Project Well 8	**REPORTED**	2017-07-07

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7G0040										
Blank (B7G0040-BLK1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7G0040-BS1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
Chloride	15.6	0.10	mg/L	16.0		97	90-110			
Nitrate (as N)	4.10	0.010	mg/L	4.00		102	93-108			
Nitrite (as N)	1.93	0.010	mg/L	2.00		97	85-114			
General Parameters, Batch B7G0010										
Blank (B7G0010-BLK1)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7G0010-BLK2)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7G0010-BLK3)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7G0010-BS1)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			
LCS (B7G0010-BS2)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.04	0.020	mg/L	1.00		104	90-115			
LCS (B7G0010-BS3)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.04	0.020	mg/L	1.00		104	90-115			
General Parameters, Batch B7G0014										

REPORTED TO Purple Springs Nursery
PROJECT Project Well 8

WORK ORDER 7062953
REPORTED 2017-07-07

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7G0014, Continued										
Blank (B7G0014-BLK1)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B7G0014-BLK2)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B7G0014-BS1)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	1.06	0.050	mg/L	1.00		106	84-121			
LCS (B7G0014-BS2)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
General Parameters, Batch B7G0031										
Reference (B7G0031-SRM1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
pH	7.03	0.01	pH units	7.00		100	98-102			

7062953

RVICES
bviously

110-4011 Viking Way, Richmond, BC V6V 2K9
Tel: (604) 279-1499 Fax: (604) 279-1599

102-3677 Highway 97N, Kelowna, BC V1X 5C3
Tel: (250) 765-9646 Fax: (250) 765-3893

17225 109 Avenue NW, Edmonton, AB T5S 1H7
Tel: (780) 489-9100 Fax: (780) 489-9700

CARO BC COC, Rev 2015-09

CHAIN OF CUSTODY RECORD COC# B 46982 PAGE OF

RELINQUISHED BY: Rico Thorsen | DATE: June 29 | TIME:
RECEIVED BY: ESdat | DATE: June 29 | TIME: 1447
PROJECT: Project well 8 | PROJECT INFO:

REPORT TO:
COMPANY: Ken Regehr Feedlot
ADDRESS:
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
DATA FORMAT: EXCEL [ ] WATERTRAX [ ] ESdat [ ] EQuIS [ ] BC EMS [ ] OTHER* [ ]
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO [ ]
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
EMAIL 1: @ hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) [X]
Rush: 1 Day* [ ] 2 Day* [ ] 3 Day* [ ]
Other*
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Regs on Report? [ ]
Canadian Drinking Water Quality Guidelines [ ]
BC Drinking Water Protection Act / Reg. [ ]
BC CSR [ ] AB TIER 1 [ ] CCME [ ] OTHER* [ ]
AL [ ] PL [ ] RL [ ] CL [ ] IL [ ] AW [ ] IW [ ] LW [ ]

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: [ ]

SAMPLED BY:

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	BTEX [ ] VPH [ ] PHC F1 [ ]	VOC [ ] VPH [ ]	EPH [ ] PHC F2-F4 [ ]	PAH [ ] L/HEPH [ ]	PHENOLS [ ] Chlorinated [ ] Non-Chlor.	PCB [ ] GLYCOLS [ ] HAA [ ]	PESTICIDES [ ] ACID HERBICIDES	METALS - WATER TOTAL [ ] Hg	METALS - WATER DISSOLVED [ ] Hg	METALS - SOIL (SALM) [ ] inc. pH	pH [X] EC [ ] ALK [ ]	TSS [ ] VSS [ ] TDS [ ]	BOD [ ] COD [ ]	TOG [ ] MOG [ ]	FECAL COLIFORMS [ ] HPC [ ]	TOTAL COLIFORMS [ ] E. coli [ ]	ASBESTOS	N - Nitrate	N - Nitrite	Ammonia	TKN	Cl orides			HOLD
Project well 8		X				June 29	12 15																													

Page 6 of 7

SHIPPING INSTRUCTIONS: Return Cooler(s) [ ]
Supplies Needed:

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days [ ] 90 Days [ ] Longer Date (Surcharges will Apply):
* **OTHER INSTRUCTIONS:**

PAYMENT:
CHEQUE [ ]
CREDIT [ ]
DEBIT [ ]
CASH [ ]
INVOICE [ ]

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 12.0 ICE: Y [X] N [ ]
COOLER 2 (°C): ICE: Y [ ] N [ ]
COOLER 3 (°C): ICE: Y [ ] N [ ]
CUSTODY SEALS INTACT: NA [ ] Y [ ] N [ ]

Field Sampling Sheet - Groundwater

Site/Facility Name:	New Regelm Foodfest	Client:	
Well ID:	Project well 8	Project Number:	
Date:		Sampled by:	
Casing Diameter:		Weather:	
Well Stick-up:		Remarks:	
Condition of well:	good / needs attention		
		Is the well marked/flagged? Yes No	

DTB:		m	**Pressure:**
DTW:		m	negative positive
Difference:		m	none
	X 2	L/m	
Volume of water in well:		Litres	15cm (6") casing has 18L/m
Volume of water to purge:		Litres	10cm (4") casing has 8L/m
Volume actually purged:		Litres	5cm (2") casing has 2L/m

UTM Coordinates:
Easting (6 digits)
Northing (7 digits)
Zone:

Purge method: Bailer Pump None Other:
Purged to dry: Yes No
Purge water disposal: Ground Container

Was sheen observed during purging or sampling? Yes No

Field Parameters

	Volume (L)	Time	pH	Temp °C	Cond µS/cm	ORP (mv)	Turbidity	Colour	Odour	Comments
1st		12 05	7.8	10.6						
2nd		12 08	7.6	10.5						
3rd		12 12	7.6	10.5						
4th		12 16	7.6	10.5						
5th										
6th										
7th										
8th										

write additional lines on the back

Sample Descriptions:

Sample date: June 29 - 2017 Sample time: 12 18 pm

Appearance: Sample Colour:

Order of bottles collected:

List any Parameters not Sampled/bottles missed:

Were Samples Filtered and Preserved? Yes No

Duplicate Sample? Yes No **Duplicate Sample ID:**

Additional Notes:
- site access
- hidden well location
- safety concerns
- unusual well behaviour

Associated Environmental

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4	**TEL** **FAX**	(250) 546-8156 -
ATTENTION	Rico Thorsen	**WORK ORDER**	7092349
PO NUMBER		**RECEIVED / TEMP**	2017-09-25 14:40 / 13°C
PROJECT	Project Well 8	**REPORTED**	2017-10-02
PROJECT INFO		**COC NUMBER**	B64747

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

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Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

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Tel: 780-489-9100

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ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092349
PROJECT	Project Well 8	**REPORTED**	2017-10-02

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

SAMPLE ANALYTICAL DATA

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092349
PROJECT	Project Well 8	**REPORTED**	2017-10-02

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 8 (7092349-01) [Water] Sampled: 2017-09-25 13:28						
Anions						
Chloride	**16.4**	0.10	mg/L	N/A	2017-09-28	
Nitrate (as N)	**0.817**	0.010	mg/L	N/A	2017-09-28	
Nitrite (as N)	**0.025**	0.010	mg/L	N/A	2017-09-28	
General Parameters						
Ammonia, Total (as N)	**0.112**	0.020	mg/L	N/A	2017-09-29	
Nitrogen, Total Kjeldahl	**0.163**	0.050	mg/L	2017-09-27	2017-10-01	
pH	**7.74**	0.10	pH units	N/A	2017-09-27	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**0.842**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**1.00**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092349
PROJECT	Project Well 8	**REPORTED**	2017-10-02

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7I1890										
Blank (B7I1890-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B7I1890-BLK2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7I1890-BS1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	16.2	0.10	mg/L	16.0		101	90-110			
Nitrate (as N)	4.05	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
LCS (B7I1890-BS2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	16.3	0.10	mg/L	16.0		102	90-110			
Nitrate (as N)	4.04	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
General Parameters, Batch B7I1870										
Reference (B7I1870-SRM1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
pH	7.00	0.10	pH units	7.00		100	98-102			HT2
General Parameters, Batch B7I1950										
Blank (B7I1950-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B7I1950-BS1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	0.995	0.050	mg/L	1.00		100	84-121			

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO Purple Springs Nursery
PROJECT Project Well 8

WORK ORDER 7092349
REPORTED 2017-10-02

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7I2057										
Blank (B7I2057-BLK1)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7I2057-BLK2)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7I2057-BS1)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	1.00	0.020	mg/L	1.00		100	90-115			
LCS (B7I2057-BS2)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	1.02	0.020	mg/L	1.00		102	90-115			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017

CHAIN OF CUSTODY RECORD

COC# B 64747 PAGE OF

RELINQUISHED BY: Rico Thorsen DATE: Sept 25 TIME:

RECEIVED BY: DATE: 09/25/17 TIME: 1447

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: ☐ OTHER: ☐

REPORT TO:
COMPANY: Ken Regehr Feedlot
ADDRESS:
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nurs
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

PROJECT NUMBER / INFO: Project well 8

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	MATRIX: OTHER WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	SAMPLING: TIME HH:MM	COMMENTS: CHLORINATED	COMMENTS: FILTERED	COMMENTS: PRESERVED	COMMENTS: (e.g. flow/volume media ID/notes)
Project well 8						Sept 25	1:28				

ANALYSES REQUESTED:

BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E.coli ☐	ASBESTOS	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
																	N - Nitrate N - Nitrite TKN Chloride Ammonia	

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.3 ICE: Y ☒ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4	**TEL** **FAX**	(250) 546-8156 -
ATTENTION	Rico	**WORK ORDER**	7062956
PO NUMBER		**RECEIVED / TEMP**	2017-06-29 14:47 / 14°C
PROJECT	Project Well 13	**REPORTED**	2017-07-07
PROJECT INFO		**COC NUMBER**	B46984

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

Locations:

#110 4011 Viking Way
Richmond, BC V6V 2K9
Tel: 604-279-1499

#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

www.caro.ca

ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062956
PROJECT	Project Well 13	**REPORTED**	2017-07-07

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

SAMPLE ANALYTICAL DATA

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062956
PROJECT	Project Well 13	**REPORTED**	2017-07-07

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 13 (7062956-01) [Water] Sampled: 2017-06-29 12:40						
Anions						
Chloride	**21.8**	0.10	mg/L	N/A	2017-07-04	
Nitrate (as N)	**1.96**	0.010	mg/L	N/A	2017-07-04	
Nitrite (as N)	**0.014**	0.010	mg/L	N/A	2017-07-04	
General Parameters						
Ammonia, Total (as N)	**0.128**	0.020	mg/L	N/A	2017-07-06	
Nitrogen, Total Kjeldahl	**0.160**	0.050	mg/L	2017-07-02	2017-07-05	
pH	**7.57**	0.01	pH units	N/A	2017-07-04	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**1.98**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**2.14**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7062956
PROJECT	Project Well 13	**REPORTED**	2017-07-07

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7G0040										
Blank (B7G0040-BLK1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7G0040-BS1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
Chloride	15.6	0.10	mg/L	16.0		97	90-110			
Nitrate (as N)	4.10	0.010	mg/L	4.00		102	93-108			
Nitrite (as N)	1.93	0.010	mg/L	2.00		97	85-114			
General Parameters, Batch B7G0010										
Blank (B7G0010-BLK1)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7G0010-BLK2)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7G0010-BLK3)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7G0010-BS1)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			
LCS (B7G0010-BS2)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.04	0.020	mg/L	1.00		104	90-115			
LCS (B7G0010-BS3)				Prepared: 2017-07-06, Analyzed: 2017-07-06						
Ammonia, Total (as N)	1.04	0.020	mg/L	1.00		104	90-115			
General Parameters, Batch B7G0014										

REPORTED TO Purple Springs Nursery
PROJECT Project Well 13

WORK ORDER 7062956
REPORTED 2017-07-07

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7G0014, Continued										
Blank (B7G0014-BLK1)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B7G0014-BLK2)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B7G0014-BS1)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	1.06	0.050	mg/L	1.00		106	84-121			
LCS (B7G0014-BS2)				Prepared: 2017-07-02, Analyzed: 2017-07-05						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
General Parameters, Batch B7G0031										
Reference (B7G0031-SRM1)				Prepared: 2017-07-04, Analyzed: 2017-07-04						
pH	7.03	0.01	pH units	7.00		100	98-102			

7062956

VICES
viously

110-4011 Viking Way, Richmond, BC V6V 2K9
Tel: (604) 279-1499 Fax: (604) 279-1599

102-3677 Highway 97N, Kelowna, BC V1X 5C3
Tel: (250) 765-9646 Fax: (250) 765-3893

17225 109 Avenue NW, Edmonton, AB T5S 1H7
Tel: (780) 489-9100 Fax: (780) 489-9700

CARO BC COC, Rev 2015-09

CHAIN OF CUSTODY RECORD COC# B 46984 PAGE OF

RELINQUISHED BY: Rice Thorsen | DATE: June 29 | TIME:
RECEIVED BY: ESWI | DATE: June 29 | TIME: 447
PROJECT: Project well 13 | PROJECT INFO:

REPORT TO:
COMPANY: Ken Ragehr Feedlot
ADDRESS:
CONTACT: Rice Thorsen
TEL/FAX: 250-878-1709
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: ☐

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines ☐ Regs on Report? ☐
BC Drinking Water Protection Act / Reg. ☐
BC CSR ☐ AB TIER 1 ☐ CCME ☐ OTHER* ☐
AL ☐ PL ☐ RL ☐ CL ☐ IL ☐ AW ☐ IW ☐ LW ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
Project well 13						June 29	12:40				

ANALYSES REQUESTED:

BTEX ☐	VPH ☐	PHC F1 ☐	VOC ☐	VPH ☐	EPH ☐	PHC F2-F4 ☐	PAH ☐	L/HEPH ☐	PHENOLS Chlorinated ☐	Non-Chlor. ☐	PCB ☐	GLYCOLS ☐	HAA ☐	PESTICIDES ☐	ACID HERBICIDES ☐	METALS - WATER TOTAL	Hg ☐	METALS - WATER DISSOLVED	Hg ☐	METALS - SOIL (SALM) ☐	inc. pH ☐	pH ☒	EC ☐	ALK ☐	TSS ☐	VSS ☐	TDS ☐	BOD ☐	COD ☐	TOG ☐	MOG ☐	FECAL COLIFORMS ☐	HPC ☐	TOTAL COLIFORMS ☐	E. coli ☐	ASBESTOS	N - Nitrate	N - Nitrite	Ammonia	TAN	chloride				HOLD

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Policies Needed:

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days ☐ 90 Days ☐ Longer Date (Surcharges will Apply): _____

*** OTHER INSTRUCTIONS:**

PAYMENT:
CHEQUE ☐
CREDIT ☐
DEBIT ☐
CASH ☐
INVOICE ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.8 ICE: Y ☒ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

Field Sampling Sheet - Groundwater

Site/Facility Name:	Ken Regehr Feedlot	Client:	
Well ID:	Project Well 13	Project Number:	
Date:		Sampled by:	
Casing Diameter:		Weather:	
Well Stick-up:		Remarks:	
Condition of well:	good needs attention		
		Is the well marked/flagged? Yes No	

DTB:		m	**Pressure:**
DTW:		m	negative positive
Difference:		m	none
	X 2	L/m	
Volume of water in well:		Litres	15cm (6") casing has 18L/m
Volume of water to purge:		Litres	10cm (4") casing has 8L/m
Volume actually purged:		Litres	5cm (2") casing has 2L/m

UTM Coordinates:
Easting (6 digits)
Northing (7 digits)
Zone:

Purge method: Bailer Pump None Other:
Purged to dry: Yes No
Purge water disposal: Ground Container

Was sheen observed during purging or sampling?
Yes No

Field Parameters

	Volume (L)	Time	pH	Temp °C	Cond µS/cm	ORP (mv)	Turbidity	Colour	Odour	Comments
1st										
2nd		12 28	7.8	10.3						
3rd		12 26	7.6	10.4						
4th		12 30	7.6	10.4						
5th		12 36	7.6	10.4						
6th										
7th										
8th										

write additional lines on the back

Sample Descriptions:

Sample date: June 29 - 2017 Sample time: 12 49 PM

Appearance: _____ Sample Colour: _____

Order of bottles collected: _____

List any Parameters not Sampled/bottles missed: _____

Were Samples Filtered and Preserved? Yes No

Duplicate Sample? Yes No **Duplicate Sample ID:** _____

Additional Notes:
- site access
- hidden well location
- safety concerns
- unusual well behaviour

Associated Environmental

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4	**TEL** **FAX**	(250) 546-8156 -
ATTENTION	Rico Thorsen	**WORK ORDER**	7092350
PO NUMBER		**RECEIVED / TEMP**	2017-09-25 14:40 / 13°C
PROJECT	Project Well 13	**REPORTED**	2017-10-02
PROJECT INFO		**COC NUMBER**	B64748

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

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Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

Locations:

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Tel: 604-279-1499

#102 3677 Highway 97N
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Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

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ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092350
PROJECT	Project Well 13	**REPORTED**	2017-10-02

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

SAMPLE ANALYTICAL DATA

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092350
PROJECT	Project Well 13	**REPORTED**	2017-10-02

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 13 (7092350-01) [Water] Sampled: 2017-09-25 13:40						
Anions						
Chloride	**16.0**	0.10	mg/L	N/A	2017-09-28	
Nitrate (as N)	**0.665**	0.010	mg/L	N/A	2017-09-28	
Nitrite (as N)	**0.017**	0.010	mg/L	N/A	2017-09-28	
General Parameters						
Ammonia, Total (as N)	**0.144**	0.020	mg/L	N/A	2017-09-29	
Nitrogen, Total Kjeldahl	**0.321**	0.050	mg/L	2017-09-27	2017-10-01	
pH	**7.77**	0.10	pH units	N/A	2017-09-27	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**0.682**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**1.00**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092350
PROJECT	Project Well 13	**REPORTED**	2017-10-02

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7I1890										
Blank (B7I1890-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B7I1890-BLK2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7I1890-BS1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	16.2	0.10	mg/L	16.0		101	90-110			
Nitrate (as N)	4.05	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
LCS (B7I1890-BS2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	16.3	0.10	mg/L	16.0		102	90-110			
Nitrate (as N)	4.04	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
General Parameters, Batch B7I1870										
Reference (B7I1870-SRM1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
pH	7.00	0.10	pH units	7.00		100	98-102			HT2
General Parameters, Batch B7I1950										
Blank (B7I1950-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B7I1950-BS1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	0.995	0.050	mg/L	1.00		100	84-121			

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO Purple Springs Nursery
PROJECT Project Well 13

WORK ORDER 7092350
REPORTED 2017-10-02

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7I2057										
Blank (B7I2057-BLK1)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7I2057-BLK2)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7I2057-BS1)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	1.00	0.020	mg/L	1.00		100	90-115			
LCS (B7I2057-BS2)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	1.02	0.020	mg/L	1.00		102	90-115			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

RO.ca 1-888-311-8846
-4011 Viking Way, Richmond, BC V6V 2K9
3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

AN
Caring ... Results, Obviously.

7092350

CARO BC COC, Rev 2017-

CHAIN OF CUSTODY RECORD COC# B 64748 PAGE OF

RELINQUISHED BY: Rico Thorsem | DATE: Sept 25 | TIME: | RECEIVED BY: JB COI | DATE: 09/25/17 | TIME: 1446

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) [X]
Rush: 1 Day* [ ] 2 Day* [ ] 3 Day* [ ]
Other* [ ]
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality [ ] BC WQG [ ] BC HWR [ ]
BC CSR Soil: WL [ ] AL [ ] PL [ ] RL-LD [ ] RL-HD [ ] CL [ ] IL [ ]
BC CSR Water: AW [ ] IW [ ] LW [ ] DW [ ]
CCME: [ ] OTHER: [ ]

PROJECT NUMBER / INFO: Project well 13

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

REPORT TO:
COMPANY: Ken Regehr Feedlot
ADDRESS:
CONTACT: Rico Thorsem
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
DATA FORMAT: EXCEL [ ] WATERTRAX [ ] ESdat [ ] EQuIS [ ] BC EMS [ ] OTHER* [ ]
EMAIL 1: thorsem4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO [ ]
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: [ ]

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	ANALYSES REQUESTED: BTEX [ ] VPH [ ] PHC F1 [ ]	VOC [ ] VPH [ ]	EPH [ ] PHC F2-F4 [ ]	PAH [ ] L/HEPH [ ]	PHENOLS Chlorinated [ ] Non-Chlor. [ ]	PCB [ ] GLYCOLS [ ] HAA [ ]	PESTICIDES [ ] ACID HERBICIDES [ ]	METALS - WATER TOTAL [ ] Hg [ ]	METALS - WATER DISSOLVED [ ] Hg [ ]	METALS - SOIL (SALM) [ ] inc. pH [ ]	pH [X] EC [ ] ALK [ ]	TSS [ ] VSS [ ] TDS [ ]	BOD [ ] COD [ ]	TOG [ ] MOG [ ]	FECAL COLIFORMS [ ] HPC [ ]	TOTAL COLIFORMS [ ] E.coli [ ]	ASBESTOS	N - Nitrate	N - Nitrite	TKN	Chloride	Ammonia	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
Project well 13						Sept 25	1446																														

SHIPPING INSTRUCTIONS: Return Cooler(s) [ ]
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) [ ]
60 Days [ ] 90 Days [ ]
Other (surcharges will apply): [ ]

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: [ ]

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): B.1 ICE: Y [X] N [ ]
COOLER 2 (°C): [ ] ICE: Y [ ] N [ ]
COOLER 3 (°C): [ ] ICE: Y [ ] N [ ]
CUSTODY SEALS INTACT: NA [ ] Y [ ] N [ ]

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4	**TEL** **FAX**	(250) 546-8156 -
ATTENTION	Rico Thorsen	**WORK ORDER**	7092353
PO NUMBER		**RECEIVED / TEMP**	2017-09-25 14:40 / 9°C
PROJECT	Project Well 17	**REPORTED**	2017-10-02
PROJECT INFO		**COC NUMBER**	B64746

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Authorized By: **Sara Gulenchyn, B.Sc, P.Chem.**
Client Service Coordinator

If you have any questions or concerns, please contact me at sgulenchyn@caro.ca

Locations:

#110 4011 Viking Way
Richmond, BC V6V 2K9
Tel: 604-279-1499

#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

www.caro.ca

ANALYSIS INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092353
PROJECT	Project Well 17	**REPORTED**	2017-10-02

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Nitrogen, Total Kjeldahl in Water	APHA 4500-Norg D*	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA	Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic

SAMPLE ANALYTICAL DATA

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092353
PROJECT	Project Well 17	**REPORTED**	2017-10-02

Analyte	Result / *Recovery*	MRL / *Limits*	Units	Prepared	Analyzed	Notes
Sample ID: Project Well 17 (7092353-01) [Water] Sampled: 2017-09-25 13:46						
Anions						
Chloride	**15.6**	0.10	mg/L	N/A	2017-09-28	
Nitrate (as N)	**0.716**	0.010	mg/L	N/A	2017-09-28	
Nitrite (as N)	**0.018**	0.010	mg/L	N/A	2017-09-28	
General Parameters						
Ammonia, Total (as N)	**0.243**	0.020	mg/L	N/A	2017-09-29	
Nitrogen, Total Kjeldahl	**0.259**	0.050	mg/L	2017-09-27	2017-10-01	
pH	**7.74**	0.10	pH units	N/A	2017-09-27	HT2
Calculated Parameters						
Nitrate+Nitrite (as N)	**0.734**	0.0100	mg/L	N/A	N/A	
Nitrogen, Total	**0.993**	0.0500	mg/L	N/A	N/A	

Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	7092353
PROJECT	Project Well 17	**REPORTED**	2017-10-02

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Anions, Batch B7I1890										
Blank (B7I1890-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B7I1890-BLK2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B7I1890-BS1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
Chloride	16.2	0.10	mg/L	16.0		101	90-110			
Nitrate (as N)	4.05	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
LCS (B7I1890-BS2)				Prepared: 2017-09-28, Analyzed: 2017-09-28						
Chloride	16.3	0.10	mg/L	16.0		102	90-110			
Nitrate (as N)	4.04	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-114			
General Parameters, Batch B7I1870										
Reference (B7I1870-SRM1)				Prepared: 2017-09-27, Analyzed: 2017-09-27						
pH	7.00	0.10	pH units	7.00		100	98-102			HT2
General Parameters, Batch B7I1950										
Blank (B7I1950-BLK1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B7I1950-BS1)				Prepared: 2017-09-27, Analyzed: 2017-10-01						
Nitrogen, Total Kjeldahl	0.995	0.050	mg/L	1.00		100	84-121			

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO Purple Springs Nursery
PROJECT Project Well 17

WORK ORDER 7092353
REPORTED 2017-10-02

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7I2057										
Blank (B7I2057-BLK1)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B7I2057-BLK2)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B7I2057-BS1)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	1.00	0.020	mg/L	1.00		100	90-115			
LCS (B7I2057-BS2)				Prepared: 2017-09-29, Analyzed: 2017-09-29						
Ammonia, Total (as N)	1.02	0.020	mg/L	1.00		102	90-115			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTIC
Caring About R

CARO.ca

1-888-311-8846

ng Way, Richmond, BC V6V 2K9
nway 97N, Kelowna, BC V1X 5C3
nue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017

CHAIN OF CUSTODY RECORD

COC# B 64746 PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Rico Thorsen	Sept 25		
	TIME:		TIME:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ OTHER: _____

REPORT TO:
COMPANY: Ken Regenr treedlot
ADDRESS:
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: ~~EXCEL~~ ☒ WATERTRAX ☐ ESdat ☐
EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: Thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

PROJECT NUMBER / INFO: Project well 17

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
Project well 17						Sept 25	1146				

ANALYSES REQUESTED:

BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL ☐ Hg ☐	METALS - WATER DISSOLVED ☐ Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ *E. coli* ☐	ASBESTOS	N - Nitrate	N - Nitrite	TKN	Cloride	Ammonia	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 9.0 ICE: Y ☒ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4		
ATTENTION	Rico Thorsen	**WORK ORDER**	8040121
PO NUMBER		**RECEIVED / TEMP**	2018-04-03 15:35 / 13°C
PROJECT	Lagoon Pond	**REPORTED**	2018-04-09 16:14
PROJECT INFO		**COC NUMBER**	B 46985

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

TEST RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8040121
PROJECT	Lagoon Pond	**REPORTED**	2018-04-09 16:14

Analyte	Result	RL	Units	Analyzed	Qualifier
Lagoon Pond (8040121-01) | Matrix: Water | Sampled: 2018-04-03 13:30					
Anions					
Chloride	**152**	0.10	mg/L	2018-04-05	
Nitrate (as N)	**0.041**	0.010	mg/L	2018-04-04	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-04-04	
General Parameters					
Ammonia, Total (as N)	**116**	0.020	mg/L	2018-04-09	
Nitrogen, Total Kjeldahl	**211**	0.050	mg/L	2018-04-05	
pH	**7.41**	0.10	pH units	2018-04-09	HT2
Calculated Parameters					
Nitrate+Nitrite (as N)	**0.0414**	0.0100	mg/L	N/A	
Nitrogen, Total	**211**	12.5	mg/L	N/A	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8040121
PROJECT	Lagoon Pond	**REPORTED**	2018-04-09 16:14

Analysis Description	Method Ref.	Technique	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2011)	Automated Colorimetry (Phenate)	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2011)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8040121
PROJECT	Lagoon Pond	**REPORTED**	2018-04-09 16:14

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8D0128										
Blank (B8D0128-BLK1)				Prepared: 2018-04-04, Analyzed: 2018-04-04						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B8D0128-BLK2)				Prepared: 2018-04-05, Analyzed: 2018-04-05						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B8D0128-BS1)				Prepared: 2018-04-04, Analyzed: 2018-04-04						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	4.04	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	2.05	0.010	mg/L	2.00		102	85-114			
LCS (B8D0128-BS2)				Prepared: 2018-04-05, Analyzed: 2018-04-05						
Chloride	16.1	0.10	mg/L	16.0		101	90-110			
Nitrate (as N)	4.24	0.010	mg/L	4.00		106	93-108			
Nitrite (as N)	2.06	0.010	mg/L	2.00		103	85-114			
General Parameters, Batch B8D0161										
Blank (B8D0161-BLK1)				Prepared: 2018-04-04, Analyzed: 2018-04-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B8D0161-BLK2)				Prepared: 2018-04-04, Analyzed: 2018-04-05						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B8D0161-BS1)				Prepared: 2018-04-04, Analyzed: 2018-04-05						
Nitrogen, Total Kjeldahl	0.882	0.050	mg/L	1.00		88	84-121			
LCS (B8D0161-BS2)				Prepared: 2018-04-04, Analyzed: 2018-04-05						
Nitrogen, Total Kjeldahl	0.906	0.050	mg/L	1.00		91	84-121			
General Parameters, Batch B8D0484										

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8040121
PROJECT	Lagoon Pond	**REPORTED**	2018-04-09 16:14

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8D0484, Continued										
Blank (B8D0484-BLK1)				Prepared: 2018-04-08, Analyzed: 2018-04-08						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D0484-BLK2)				Prepared: 2018-04-08, Analyzed: 2018-04-08						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D0484-BLK3)				Prepared: 2018-04-09, Analyzed: 2018-04-09						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B8D0484-BS1)				Prepared: 2018-04-08, Analyzed: 2018-04-08						
Ammonia, Total (as N)	1.10	0.020	mg/L	1.00		110	90-115			
LCS (B8D0484-BS2)				Prepared: 2018-04-08, Analyzed: 2018-04-08						
Ammonia, Total (as N)	1.11	0.020	mg/L	1.00		111	90-115			
LCS (B8D0484-BS3)				Prepared: 2018-04-09, Analyzed: 2018-04-09						
Ammonia, Total (as N)	1.01	0.020	mg/L	1.00		101	90-115			
General Parameters, Batch B8D0500										
Reference (B8D0500-SRM1)				Prepared: 2018-04-09, Analyzed: 2018-04-09						
pH	7.01	0.10	pH units	7.01		100	98-102			HT2

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

80401210

110-4011 Viking Way, Richmond, BC V6V 2K9
Tel: (604) 279-1499 Fax: (604) 279-1599

102-3677 Highway 97N, Kelowna, BC V1X 5C3
Tel: (250) 765-9646 Fax: (250) 765-3893

17225 109 Avenue NW, Edmonton, AB T5S 1H7
Tel: (780) 489-9100 Fax: (780) 489-9700

CARO BC COC, Rev 2015-0

CHAIN OF CUSTODY RECORD

COC# B 46985 PAGE OF

RELINQUISHED BY:	DATE: April 3	RECEIVED BY:	DATE: APR
Rico Thorsen	TIME:	Km W	TIME: 1533
PROJECT:		PROJECT INFO:	

REPORT TO:

COMPANY: Ken Regehr Feedlot
ADDRESS:
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☐ MAIL ☒ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐

COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: hm@psnursery.com
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1:
EMAIL 2:
EMAIL 3:
PO #:

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: ☐

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines ☐
BC Drinking Water Protection Act / Reg. ☐
BC CSR ☐ AB TIER 1 ☐ CCME ☐ OTHER* ☐
AL ☐ PL ☐ RL ☐ CL ☐ IL ☐ AW ☐ IW ☐ LW ☐
Regs on Report? ☐

ANALYSES REQUESTED:

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	MATRIX: OTHER WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE	SAMPLING: TIME	COMMENTS: CHLORINATED	COMMENTS: FILTERED	COMMENTS: PRESERVED	COMMENTS: (e.g. flow/volume media ID/notes)
Lagoon Pond.		X				April 3	13:30				

ANALYSES REQUESTED: BTEX ☐ VPH ☐ PHC F1 ☐ VOC ☐ VPH ☐ EPH ☐ PHC F2-F4 ☐ PAH ☐ L/HEPH ☐ PHENOLS Chlorinated ☐ Non-Chlor. ☐ PCB ☐ GLYCOLS ☐ HAA ☐ PESTICIDES ☐ ACID HERBICIDES ☐ METALS - WATER TOTAL Hg ☐ METALS - WATER DISSOLVED Hg ☐ METALS - SOIL (SALM) ☐ inc. pH ☐ pH ☒ EC ☐ ALK ☐ TSS ☐ VSS ☐ TDS ☐ BOD ☐ COD ☐ TOG ☐ MOG ☐ FECAL COLIFORMS ☐ HPC ☐ TOTAL COLIFORMS ☐ E. coli ☐ ASBESTOS
N - Nitrite
N - Nitrate
Ammonia
TKN
Chloride
HOLD

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days ☐ 90 Days ☐ Longer Date (Surcharges will Apply):

*** OTHER INSTRUCTIONS:**

PAYMENT:
CHEQUE ☐
CREDIT ☐
DEBIT ☐
CASH ☐
INVOICE ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 2.6 ICE: Y ☐ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4		
ATTENTION	Rico Thorsen	**WORK ORDER**	8041100
PO NUMBER		**RECEIVED / TEMP**	2018-04-11 16:05 / 13°C
PROJECT	Project Well 8	**REPORTED**	2018-04-19 08:09
PROJECT INFO		**COC NUMBER**	B55218

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041100
PROJECT	Project Well 8	**REPORTED**	2018-04-19 08:09

Analyte	Result	RL	Units	Analyzed	Qualifier
Project Well 8 (8041100-01) | Matrix: Water | Sampled: 2018-04-11 13:55					
Anions					
Chloride	**28.6**	0.10	mg/L	2018-04-14	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-04-14	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-04-14	
General Parameters					
Ammonia, Total (as N)	**0.155**	0.020	mg/L	2018-04-16	
Nitrogen, Total Kjeldahl	**0.343**	0.050	mg/L	2018-04-18	
pH	**7.80**	0.10	pH units	2018-04-16	HT2
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	**0.343**	0.0500	mg/L	N/A	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041100
PROJECT	Project Well 8	**REPORTED**	2018-04-19 08:09

Analysis Description	Method Ref.	Technique	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2011)	Automated Colorimetry (Phenate)	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2011)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041100
PROJECT	Project Well 8	**REPORTED**	2018-04-19 08:09

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8D0914										
Blank (B8D0914-BLK1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B8D0914-BLK2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B8D0914-BS1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.08	0.010	mg/L	2.00		104	85-114			
LCS (B8D0914-BS2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.10	0.010	mg/L	2.00		105	85-114			
General Parameters, Batch B8D0912										
Reference (B8D0912-SRM1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.01	0.10	pH units	7.01		100	98-102			HT2
Reference (B8D0912-SRM2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.01	0.10	pH units	7.01		100	98-102			HT2
General Parameters, Batch B8D1026										
Blank (B8D1026-BLK1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041100
PROJECT	Project Well 8	**REPORTED**	2018-04-19 08:09

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8D1026, Continued										
Blank (B8D1026-BLK3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B8D1026-BS1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.01	0.020	mg/L	1.00		101	90-115			
LCS (B8D1026-BS2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			
LCS (B8D1026-BS3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.03	0.020	mg/L	1.00		103	90-115			
General Parameters, Batch B8D1119										
Blank (B8D1119-BLK1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B8D1119-BLK2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B8D1119-BS1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
LCS (B8D1119-BS2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.05	0.050	mg/L	1.00		105	84-121			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-0

CHAIN OF CUSTODY RECORD COC# B 55218 PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Rico Thorsen	TIME:	Esui	TIME: 1605

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: ☐ OTHER: ☐

PROJECT NUMBER / INFO:

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

REPORT TO:
COMPANY: Ken Regehr
ADDRESS: Feed Pot
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
project well 8						2018/04/11	01 55				
						pH 7.6					

ANALYSES REQUESTED:

BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E. coli ☐	ASBESTOS	N - Nitrite	N - Nitrate	N - Ammonia	TKN	Cl⁻		HOLD	POSSIBLE SAMPLE HAZARD CODE(S)

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.4 ICE: Y ☒ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4		
ATTENTION	Rico Thorsen	**WORK ORDER**	8041097
PO NUMBER		**RECEIVED / TEMP**	2018-04-11 16:05 / 13°C
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:07
PROJECT INFO	#1	**COC NUMBER**	B55220

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041097
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:07

Analyte	Result	RL	Units	Analyzed	Qualifier
Project Well 13 #1 (8041097-01) | Matrix: Water | Sampled: 2018-04-11 12:00					
Anions					
Chloride	**23.2**	0.10	mg/L	2018-04-14	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-04-14	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-04-14	
General Parameters					
Ammonia, Total (as N)	**0.023**	0.020	mg/L	2018-04-16	
Nitrogen, Total Kjeldahl	**0.093**	0.050	mg/L	2018-04-18	
pH	**7.74**	0.10	pH units	2018-04-16	HT2
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	**0.0930**	0.0500	mg/L	N/A	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041097
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:07

Analysis Description	Method Ref.	Technique	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2011)	Automated Colorimetry (Phenate)	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2011)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

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APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041097
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:07

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8D0914										
Blank (B8D0914-BLK1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B8D0914-BLK2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B8D0914-BS1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.08	0.010	mg/L	2.00		104	85-114			
LCS (B8D0914-BS2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.10	0.010	mg/L	2.00		105	85-114			
General Parameters, Batch B8D1026										
Blank (B8D1026-BLK1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B8D1026-BS1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.01	0.020	mg/L	1.00		101	90-115			
LCS (B8D1026-BS2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041097
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:07

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8D1026, Continued										
LCS (B8D1026-BS3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.03	0.020	mg/L	1.00		103	90-115			
General Parameters, Batch B8D1107										
Reference (B8D1107-SRM1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.00	0.10	pH units	7.01		100	98-102			HT2
Reference (B8D1107-SRM2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	6.99	0.10	pH units	7.01		100	98-102			HT2
General Parameters, Batch B8D1119										
Blank (B8D1119-BLK1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B8D1119-BLK2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B8D1119-BS1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
LCS (B8D1119-BS2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.05	0.050	mg/L	1.00		105	84-121			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-0

CHAIN OF CUSTODY RECORD

COC# B 55220 PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Rico Thorsen	TIME:	FSJ	TIME: 1605

REPORT TO:
COMPANY: Ken Regehr
ADDRESS: Feedlot
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other*
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: OTHER:

PROJECT NUMBER / INFO:

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
Project well 13						2018/04/12	12:00				
#1						pH	7.6				

ANALYSES REQUESTED:

BTEX ☐	VPH ☐	PHC F1 ☐	VOC ☐	VPH ☐	PHC F2-F4 ☐	EPH ☐	L/HEPH ☐	PAH ☐	PHENOLS Chlorinated ☐	Non-Chlor. ☐	PCB ☐	GLYCOLS ☐	HAA ☐	PESTICIDES ☐	ACID HERBICIDES ☐	METALS - WATER TOTAL	Hg ☐	METALS - WATER DISSOLVED	Hg ☐	METALS - SOIL (SALM) ☐	inc. pH ☐	pH ☒	EC ☐	ALK ☐	TSS ☐	VSS ☐	TDS ☐	BOD ☐	COD ☐	TOG ☐	MOG ☐	FECAL COLIFORMS ☐	HPC ☐	TOTAL COLIFORMS ☐	E. coli ☐	ASBESTOS	N - Nitrite	N - Nitrate	N - Ammonia	TKN	Cl	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.4 ICE: Y ☒ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4		
ATTENTION	Rico Thorsen	**WORK ORDER**	8041098
PO NUMBER		**RECEIVED / TEMP**	2018-04-11 16:05 / 13°C
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:08
PROJECT INFO	#2	**COC NUMBER**	B55221

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041098
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:08

Analyte	Result	RL	Units	Analyzed	Qualifier
Project Well 13 #2 (8041098-01) | Matrix: Water | Sampled: 2018-04-11 13:15					
Anions					
Chloride	**23.1**	0.10	mg/L	2018-04-14	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-04-14	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-04-14	
General Parameters					
Ammonia, Total (as N)	**0.029**	0.020	mg/L	2018-04-16	
Nitrogen, Total Kjeldahl	**0.412**	0.050	mg/L	2018-04-18	
pH	**7.73**	0.10	pH units	2018-04-16	HT2
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	**0.412**	0.0500	mg/L	N/A	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041098
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:08

Analysis Description	Method Ref.	Technique	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2011)	Automated Colorimetry (Phenate)	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2011)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041098
PROJECT	Project Well 13	**REPORTED**	2018-04-19 08:08

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8D0914										
Blank (B8D0914-BLK1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B8D0914-BLK2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B8D0914-BS1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.08	0.010	mg/L	2.00		104	85-114			
LCS (B8D0914-BS2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.10	0.010	mg/L	2.00		105	85-114			
General Parameters, Batch B8D1026										
Blank (B8D1026-BLK1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B8D1026-BS1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.01	0.020	mg/L	1.00		101	90-115			
LCS (B8D1026-BS2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Purple Springs Nursery
PROJECT Project Well 13

WORK ORDER 8041098
REPORTED 2018-04-19 08:08

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8D1026, Continued										
LCS (B8D1026-BS3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.03	0.020	mg/L	1.00		103	90-115			
General Parameters, Batch B8D1107										
Reference (B8D1107-SRM1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.00	0.10	pH units	7.01		100	98-102			HT2
Reference (B8D1107-SRM2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	6.99	0.10	pH units	7.01		100	98-102			HT2
General Parameters, Batch B8D1119										
Blank (B8D1119-BLK1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B8D1119-BLK2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B8D1119-BS1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
LCS (B8D1119-BS2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.05	0.050	mg/L	1.00		105	84-121			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

8041098

ERVICES Obviously.
CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-05

CHAIN OF CUSTODY RECORD

COC# B 55221 PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Rico Thorsen	TIME:	ESui	TIME:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) [X]
Rush: 1 Day* [ ] 2 Day* [ ] 3 Day* [ ]
Other* [ ]
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report [ ]
Canadian Drinking Water Quality [ ] BC WQG [ ] BC HWR [ ]
BC CSR Soil: WL [ ] AL [ ] PL [ ] RL-LD [ ] RL-HD [ ] CL [ ] IL [ ]
BC CSR Water: AW [ ] IW [ ] LW [ ] DW [ ]
CCME: [ ] OTHER: [ ]

REPORT TO:
COMPANY: Ken Regehr
ADDRESS: Feed lot
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
DATA FORMAT: EXCEL [ ] WATERTRAX [ ] ESdat [ ] EQuIS [ ] BC EMS [ ] OTHER* [ ]
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO [ ]
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: [ ]

PROJECT NUMBER / INFO:

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
Project well 13						2018/04/11	15				
#2											
						pH	7.6				

ANALYSES REQUESTED:

BTEX [ ] VPH [ ]	PHC F1 [ ] VPH [ ]	VOC [ ]	EPH [ ]	PHC F2-F4 [ ]	PAH [ ]	L/HEPH [ ]	PHENOLS Chlorinated [ ]	Non-Chlor. [ ]	PCB [ ]	GLYCOLS [ ]	HAA [ ]	PESTICIDES [ ]	ACID HERBICIDES [ ]	METALS - WATER TOTAL	Hg [ ]	METALS - WATER DISSOLVED	Hg [ ]	METALS - SOIL (SALM) [ ]	inc. pH [ ]	pH [X]	EC [ ]	ALK [ ]	TSS [ ]	VSS [ ]	TDS [ ]	BOD [ ]	COD [ ]	TOG [ ]	MOG [ ]	FECAL COLIFORMS [ ]	HPC [ ]	TOTAL COLIFORMS [ ]	*E. coli* [ ]	ASBESTOS	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)

N - Nitrite
N - Nitrate
N - Ammonia
TKN
Cloride

SHIPPING INSTRUCTIONS: Return Cooler(s) [ ]
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) [ ]
60 Days [ ] 90 Days [ ]
Other (surcharges will apply): [ ]

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: [ ]

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.4 ICE: Y [X] N [ ]
COOLER 2 (°C): [ ] ICE: Y [ ] N [ ]
COOLER 3 (°C): [ ] ICE: Y [ ] N [ ]
CUSTODY SEALS INTACT: NA [ ] Y [ ] N [ ]

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4		
ATTENTION	Rico Thorsen	**WORK ORDER**	8041096
PO NUMBER		**RECEIVED / TEMP**	2018-04-11 16:05 / 13°C
PROJECT	Project Well 17	**REPORTED**	2018-04-19 08:06
PROJECT INFO		**COC NUMBER**	B55222

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041096
PROJECT	Project Well 17	**REPORTED**	2018-04-19 08:06

Analyte	Result	RL	Units	Analyzed	Qualifier
Project Well 17 (8041096-01) | Matrix: Water | Sampled: 2018-04-11 14:10					
Anions					
Chloride	**24.0**	0.10	mg/L	2018-04-14	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-04-14	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-04-14	
General Parameters					
Ammonia, Total (as N)	**0.183**	0.020	mg/L	2018-04-16	
Nitrogen, Total Kjeldahl	**0.298**	0.050	mg/L	2018-04-18	
pH	**7.80**	0.10	pH units	2018-04-16	HT2
Calculated Parameters					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	**0.298**	0.0500	mg/L	N/A	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041096
PROJECT	Project Well 17	**REPORTED**	2018-04-19 08:06

Analysis Description	Method Ref.	Technique	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2011)	Automated Colorimetry (Phenate)	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2011)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041096
PROJECT	Project Well 17	**REPORTED**	2018-04-19 08:06

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8D0914										
Blank (B8D0914-BLK1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B8D0914-BLK2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B8D0914-BS1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.08	0.010	mg/L	2.00		104	85-114			
LCS (B8D0914-BS2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.10	0.010	mg/L	2.00		105	85-114			
General Parameters, Batch B8D1026										
Blank (B8D1026-BLK1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B8D1026-BS1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.01	0.020	mg/L	1.00		101	90-115			
LCS (B8D1026-BS2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Purple Springs Nursery
PROJECT Project Well 17

WORK ORDER 8041096
REPORTED 2018-04-19 08:06

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8D1026, Continued										
LCS (B8D1026-BS3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.03	0.020	mg/L	1.00		103	90-115			
General Parameters, Batch B8D1107										
Reference (B8D1107-SRM1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.00	0.10	pH units	7.01		100	98-102			HT2
Reference (B8D1107-SRM2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	6.99	0.10	pH units	7.01		100	98-102			HT2
General Parameters, Batch B8D1119										
Blank (B8D1119-BLK1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B8D1119-BLK2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B8D1119-BS1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
LCS (B8D1119-BS2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.05	0.050	mg/L	1.00		105	84-121			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

8041096

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-0

CHAIN OF CUSTODY RECORD COC# B 55222 PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Rico Thorsen	TIME:	ESui	TIME: 1005

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ OTHER: _____

PROJECT NUMBER / INFO:

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

REPORT TO:
COMPANY: Ken Regehr
ADDRESS: Feedlot
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
CONTACT: Helen McCloud
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: hm@psnursery.com
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

SAMPLED BY:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
Project well 17						2018/04/10	2 pm				
						pH	7.6				

ANALYSES REQUESTED:

BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ *E. coli* ☐	ASBESTOS	N- Nitrite	N- Nitrate	N- Ammonia	TKN	Cl- Chloride	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.4 ICE: Y ☒ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Purple Springs Nursery 4519 Hullcar Road Armstrong, BC V0E 1B4		
ATTENTION	Rico Thorsen	**WORK ORDER**	8041101
PO NUMBER		**RECEIVED / TEMP**	2018-04-11 16:05 / 13°C
PROJECT	Project Well 7	**REPORTED**	2018-04-23 15:11
PROJECT INFO		**COC NUMBER**	B55217

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

TEST RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041101
PROJECT	Project Well 7	**REPORTED**	2018-04-23 15:11

Analyte	Result	RL	Units	Analyzed	Qualifier
Project Well 7 (8041101-01) | Matrix: Water | Sampled: 2018-04-11 13:50					
Anions					
Chloride	**32.8**	0.10	mg/L	2018-04-14	
Nitrate (as N)	**1.82**	0.010	mg/L	2018-04-14	
Nitrite (as N)	**0.108**	0.010	mg/L	2018-04-14	
General Parameters					
Ammonia, Total (as N)	**0.070**	0.020	mg/L	2018-04-16	
Nitrogen, Total Kjeldahl	< 0.500	0.050	mg/L	2018-04-23	RA1
pH	**7.82**	0.10	pH units	2018-04-16	HT2
Calculated Parameters					
Nitrate+Nitrite (as N)	**1.93**	0.100	mg/L	N/A	
Nitrogen, Total	**1.93**	0.500	mg/L	N/A	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

RA1 The Reporting Limit has been raised due to matrix interference.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041101
PROJECT	Project Well 7	**REPORTED**	2018-04-23 15:11

Analysis Description	Method Ref.	Technique	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2011)	Automated Colorimetry (Phenate)	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2011)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041101
PROJECT	Project Well 7	**REPORTED**	2018-04-23 15:11

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8D0914										
Blank (B8D0914-BLK1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Blank (B8D0914-BLK2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
LCS (B8D0914-BS1)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.08	0.010	mg/L	2.00		104	85-114			
LCS (B8D0914-BS2)				Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.10	0.010	mg/L	2.00		105	85-114			
Duplicate (B8D0914-DUP2)		**Source: 8041101-01**		Prepared: 2018-04-17, Analyzed: 2018-04-14						
Chloride	32.8	0.10	mg/L		32.8			< 1	10	
Nitrate (as N)	1.82	0.010	mg/L		1.82			< 1	10	
Nitrite (as N)	0.106	0.010	mg/L		0.108			2	6	
Matrix Spike (B8D0914-MS2)		**Source: 8041101-01**		Prepared: 2018-04-14, Analyzed: 2018-04-14						
Chloride	49.3	0.10	mg/L	16.0	32.8	103	75-125			
Nitrate (as N)	5.75	0.010	mg/L	4.00	1.82	98	75-125			
Nitrite (as N)	2.16	0.010	mg/L	2.00	0.108	103	80-120			
General Parameters, Batch B8D0912										
Reference (B8D0912-SRM1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.01	0.10	pH units	7.01		100	98-102			HT2
Reference (B8D0912-SRM2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
pH	7.01	0.10	pH units	7.01		100	98-102			HT2

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Purple Springs Nursery	**WORK ORDER**	8041101
PROJECT	Project Well 7	**REPORTED**	2018-04-23 15:11

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8D0912, Continued										
General Parameters, Batch B8D1026										
Blank (B8D1026-BLK1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B8D1026-BLK3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B8D1026-BS1)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.01	0.020	mg/L	1.00		101	90-115			
LCS (B8D1026-BS2)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.09	0.020	mg/L	1.00		109	90-115			
LCS (B8D1026-BS3)				Prepared: 2018-04-16, Analyzed: 2018-04-16						
Ammonia, Total (as N)	1.03	0.020	mg/L	1.00		103	90-115			
General Parameters, Batch B8D1119										
Blank (B8D1119-BLK1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B8D1119-BLK2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B8D1119-BS1)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.02	0.050	mg/L	1.00		102	84-121			
LCS (B8D1119-BS2)				Prepared: 2018-04-17, Analyzed: 2018-04-18						
Nitrogen, Total Kjeldahl	1.05	0.050	mg/L	1.00		105	84-121			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-05

CHAIN OF CUSTODY RECORD

COC# B 55217 PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Rico Thorsen		FEDEX	[illegible] 11
	TIME:		TIME: [illegible]

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* ☐
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: ☐ OTHER: ☐

PROJECT NUMBER / INFO:

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

COMPANY: Ken Regehr
ADDRESS: Feedlot
CONTACT: Rico Thorsen
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: thorsen4@yahoo.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☐
COMPANY: Purple Springs Nursery
ADDRESS:
CONTACT: Helen McCloud
~~TEL/FAX:~~ M hm@pshursery.com
DELIVERY METHOD: EMAIL ☐ MAIL ☐ OTHER* ☐
EMAIL 1:
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or Envirochain, CARO's online service offerings, please check here: ☐

SAMPLED BY:

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E. coli ☐	ASBESTOS	N- Nitrate	N- Nitrite	N- Ammonia	TKN	Cloride		HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
Project Well 7						2018/04/[illegible]	0150																																
pH 7.7																																							

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): ☐

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.4 ICE: Y ☒ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

2018 Crop Plan

Ken Regher Feedyard

Updated June 24th 2018

Acreage Report

Acreage Report

Client	Farm	Field	Mapped Area (ac)	Tillable Area (ac)	Legal Area (ac)
Regher, Ken					
	Home				
		101 Home Field	17.19	17.20	0.00
		102 West fld.	51.19	51.20	0.00
		103 Far West	40.53	40.50	0.00
		104 West Hill	22.65	22.50	0.00
		105 Bottom Feedlot	33.23	33.00	0.00
		Total Home	164.80	164.40	0.00
	PS				
		Purple Springs East	64.09	64.00	0.00
		Purple Springs West	106.35	106.00	0.00
		Purple Springs Yellow	29.47	29.50	0.00
		Total PS	199.91	199.50	0.00
	Rented				
		201 Top Back	60.44	60.40	0.00
		202 Small Field	10.51	10.00	0.00
		203 Road	7.97	8.00	0.00
		205 Reserve	52.06	52.00	0.00
		206 Lens Field	44.24	44.20	0.00
		207 Top Rserve	36.47	36.50	0.00
		208 Dorthys	15.90	15.90	0.00
		209 Swaans	26.85	26.90	0.00
		Total Rented	254.44	253.90	0.00
		Total Regher, Ken	619.15	617.80	0.00
		Total	619.15	617.80	0.00

101 **Home** **17.2 Acres**

Long term corn . High organic matter with 31 lb residual N in the top 6” and only 41 lb in the next 2 1/2 feet. All other soil levels are good to high with excessive phos. being the biggest challenge going forward.

2017	**Corn Silage**	**2018**	**Corn silage**

Planned Events and Records

Date	**Event**	**Comments**	**Result**
April	*Manure*	*Rec—20 tons fresh feedlot manure*	
April	*Manure*	*Actual application **15 tons** for a **259 ton total***	*259 T*

Grower Code:05219123 05219-N1303

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:35 - 101 HOME KR

Report Date:2017-10-27 Print Date:2017-11-02

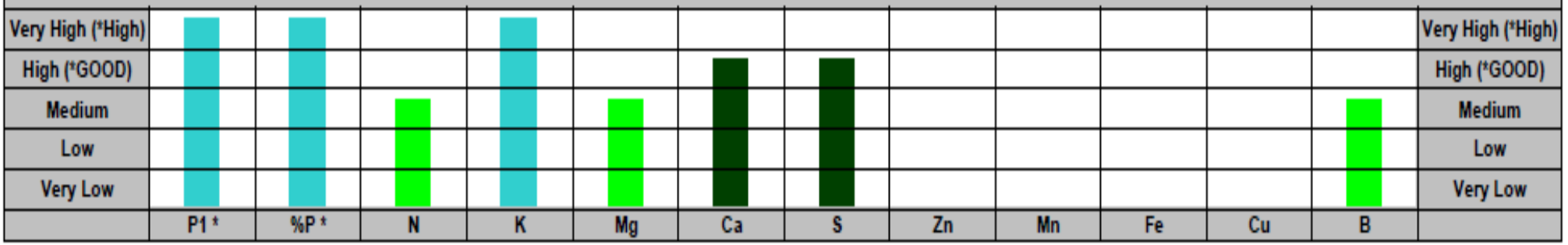
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
351A		6	49152	9.9	106 H	308 H	362 VH	305 M	2920 H	7.4		18.2	5.1	14.0	80.2		0.9
351B		12	49153	5.3	69 G	203 H	332 VH	220 M	2220 H	7.6		13.9	6.1	13.2	79.9		1.0
351C		24	49154	2.1	41 G	87 H	279 VH	180 L	2630 H	7.9		15.5	4.6	9.7	85.0		0.8
351D		36	49155	1.1	21 M	40 M	151 M	155 L	3130 VH	8.0		17.4	2.2	7.4	89.8		0.7

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
351A	48 H	86	17 M	31					0.9 M		25 H	417	0.0 G	0.36	112		38 M	
351B	32 M	58	7 L	13							16 H	565	0.0 G	0.46	66		32 M	
351C	22 L	79	4 VL	14							7 G	439	0.0 G	0.47	33		29 M	
351D	19 VL	68	4 VL	14							3 L	283	0.0 G	0.30	23		27 M	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

102	West	51.2 Acres

Long term corn silage field just west of the feedlot. Good nitrogen remaining after the crop and medium levels at the deeper depths. Manure applications should be maintained to ensure any off season nitrogen leaching is minimized. The biggest challenge on this field is the elevated phosphorous levels and rotating into alfalfa in the near future would be recommended. Soil OM is excellent

2017	Corn Silage	2018	Corn Silage

Planned Events and Records

Date	Event	Comments	Result
April	*Manure*	*18 tons fresh feedlot manure*	
April	*Manure*	*Actual app of **15 tons for 770 ton total***	*770 T*

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

Report Number:C16293-10441
Account Number:05219

To:EMERALD BAY AG SERVICES
10 MARYS EMERALD BAY ROAD
VERNON, BC V1H 2A7

Attn:DOUG MACFARLANE
250-546-3847

For:KEN REGEHR FEEDYARDS
4516 HULLCAR ROAD
Grower Code:05219043
Farm:FEEDLOT
Field:102 WEST FIELD

05219-N1116

Report Date:2016-10-21 **Print Date:**2018-03-20

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
K201A		6	27566	7.2	101 H	304 H	410 VH	300 M	3560 H	7.3		21.5	4.9	11.6	82.7		0.9
K201B		12	27567	5.6	83 H	223 H	448 VH	240 M	2280 H	7.4		14.7	7.8	13.6	77.7		1.0
K201C		24	27568	1.8	36 M	61 M	372 VH	190 M	1690 H	7.9		11.1	8.6	14.3	76.1		1.2
K201D		36	27569	1.2	22 M	30 L	252 H	155 L	3550 VH	8.1		19.8	3.3	6.5	89.6		0.7

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
K201A	47 H	85	19 M	34					0.9 M		24 H	127	0.0 G	0.42	85		46 M	
K201B	35 M	63	9 L	16							18 H	534	0.0 G	0.57	69		35 M	
K201C	27 M	97	2 VL	7							12 H	639	0.0 G	0.60	30		31 H	
K201D	28 L	101	6 L	22							2 L	118	0.0 G	0.51	24		33 M	

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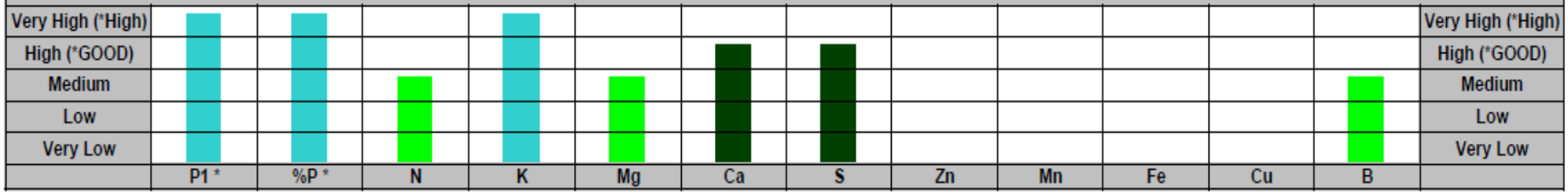
GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B
K201A	Corn Silage Western	Corn Silage Western	25 tons	0.0	228	20	20	15	0	0					0.0
K201A	Corn Silage Western	Corn Silage West Bld	25 tons	0.0	228	55	150	15	0	0					0.0

Crop yield is influenced by a number of factors in addition to soil fertility. No guarantee or warranty concerning crop performance is made by A & L.

103 FAR WEST 40.5 Acres

Planted in 2013. Soil Phosphorous levels are getting better with potassium levels almost low enough to where manure will be needed again in the next year. This is the 5th year of the alfalfa stand and it is time to rotate back to corn next year.

2017	Alfalfa	2018	Alfalfa

Planned Events and Records

Date	Event	Comments	Result
		Sulfur will improve plant protein content	
		300 lb gypsum	*9.2 tn*
		Delayed until 2019	

Grower Code:05219123 05219-N1378

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:37 - 103 FAR WEST & 104 WEST

Report Date:2017-10-27 Print Date:2017-11-02

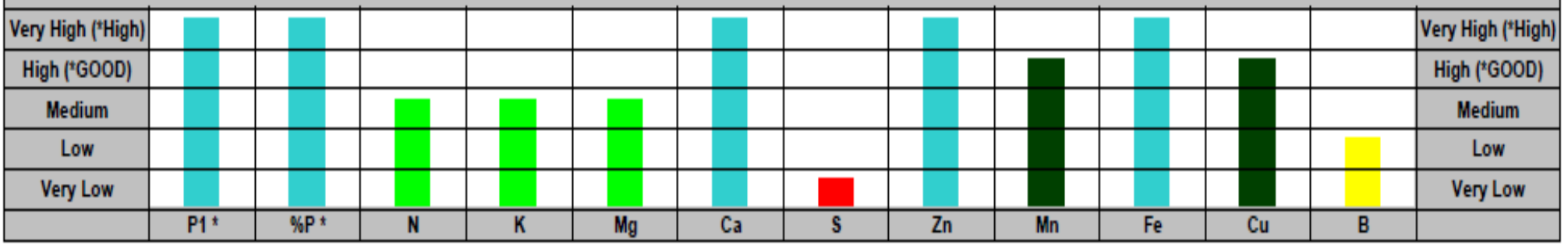
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
371A		6	18343	6.7	51 H	146 H	121 M	255 M	3020 VH	7.4		17.6	1.8	12.0	85.6		0.8
371B		12	18344	3.1	42 M	111 G	161 H	245 M	2390 H	7.3		14.5	2.8	14.1	82.4		0.9
371C		24	18345	2.2	33 M	54 M	177 H	205 M	1830 H	7.6		11.4	4.0	15.0	80.1		1.2
371D		36	18346	1.4	18 L	24 L	84 M	130 L	2110 VH	7.9		11.9	1.8	9.1	88.4		0.9

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
371A	25 VL	45	10 M	18	20.5 VH	47 H	90 VH	2.8 H	0.5 L	0.4 VL	11 H	367	0.0 G	0.15	80	14 L	32 M	
371B	28 L	50	3 VL	5							9 G	596	0.0 G	0.20	43		29 M	
371C	19 VL	68	2 VL	7							4 L	618	0.0 G	0.27	34		31 H	
371D	15 VL	54	1 VL	4							2 VL	243	0.0 G	0.20	26		24 M	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

104 West Hill 22.5 Acres

Planted to alfalfa in 2013. 2014 soil test shows good levels in all nutrients with lower level nitrogen depleted but still lots being released from the high organic matter applied over the corn years with feedlot manure.

Soil potassium levels staying well elevated so no nutrients should be required for the l4-5 year life of the stand.

Manage with 103.

2016	Alfalfa	2017	Alfalfa

Planned Events and Records

Date	Event	Comments	Result
		Sulfur Recommended - 500 lb gypsum	*5 t*
		Delayed until 2019	

Grower Code:05219123 05219-N1378

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:37 - 103 FAR WEST & 104 WEST

Report Date:2017-10-27 Print Date:2017-11-02

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
371A		6	18343	6.7	51 H	146 H	121 M	255 M	3020 VH	7.4		17.6	1.8	12.0	85.6		0.8
371B		12	18344	3.1	42 M	111 G	161 H	245 M	2390 H	7.3		14.5	2.8	14.1	82.4		0.9
371C		24	18345	2.2	33 M	54 M	177 H	205 M	1830 H	7.6		11.4	4.0	15.0	80.1		1.2
371D		36	18346	1.4	18 L	24 L	84 M	130 L	2110 VH	7.9		11.9	1.8	9.1	88.4		0.9

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
371A	25 VL	45	10 M	18	20.5 VH	47 H	90 VH	2.8 H	0.5 L	0.4 VL	11 H	367	0.0 G	0.15	80	14 L	32 M	
371B	28 L	50	3 VL	5							9 G	596	0.0 G	0.20	43		29 M	
371C	19 VL	68	2 VL	7							4 L	618	0.0 G	0.27	34		31 H	
371D	15 VL	54	1 VL	4							2 VL	243	0.0 G	0.20	26		24 M	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

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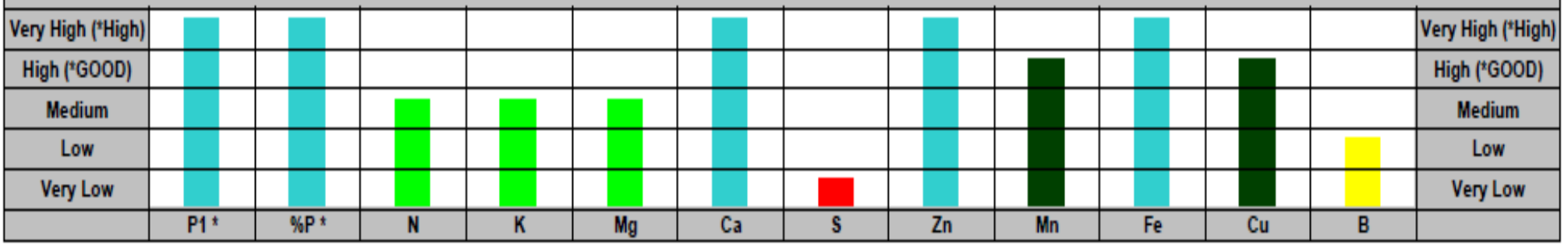

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

105 BOTTOM FEEDLOT 33 Acres

Long term corn silage.

2017– residual nitrogen is down to good. @75 pounds. Maintain existing manure program for 1 more year, other nutrients still very high and a rotation into alfalfa is recommended soon.

2018 plant to alfalfa

2016	Corn Silage	2017	Alf/Grass seedling

Planned Events and Records

Date	Event	Comments	Result
April	*Manure*	*20 ton feedlot manure for Alfalfa seeding*	
		500 lb gypsum (delayed 2019)	*7.5 tn*
April	*Manure*	*Actual 15 tons feedlot manure applied*	*495 T*
		Alfalfa grass planted and establishing .	

Grower Code:05219123 05219-N1304

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:36 - 105 FEEDLOT BOTTOM

Report Date:2017-10-27 Print Date:2017-11-02

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
361A		6	49156	8.0	90 H	247 H	296 VH	250 M	2510 H	7.3		15.5	4.9	13.4	80.9		0.9
361B		12	49157	3.3	58 G	143 H	342 VH	200 M	2480 H	7.6		15.0	5.8	11.1	82.4		0.8
361C		24	49158	1.5	33 M	58 M	270 VH	180 M	2250 H	7.9		13.5	5.1	11.1	83.1		0.8
361D		36	49159	1.6	24 M	46 M	204 H	180 L	2920 VH	8.1		16.7	3.1	9.0	87.3		0.8

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
361A	38 M	68	13 M	23					0.7 M		20 H	419	0.0 G	0.37	93		32 M	
361B	26 L	47	5 L	9							11 H	488	0.0 G	0.52	45		28 M	
361C	24 L	86	2 VL	7							5 M	445	0.0 G	0.46	27		26 M	
361D	23 L	83	4 VL	14							3 L	312	0.0 G	0.34	28		29 M	

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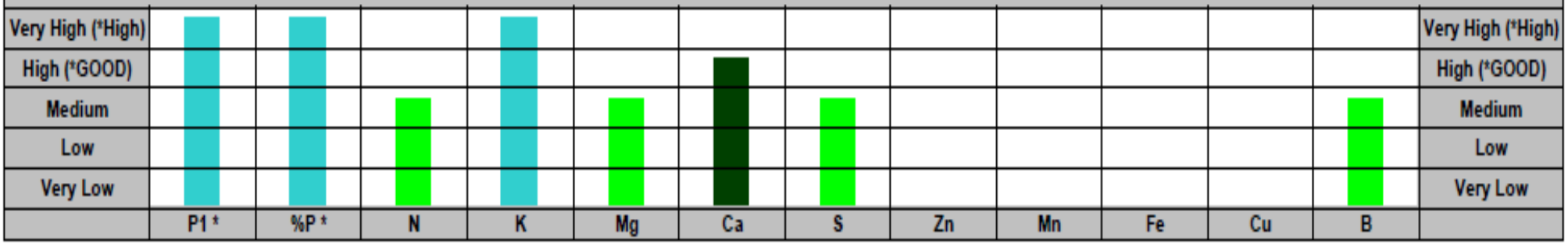

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

201 Top Back Rented 60.4 Acres

Good residual nitrogen fall 2017

2016	Corn Silage	2017	Corn Silage

Planned Events and Records

Date	Event	Comments	Result
Spring		*30-35 tons feedlot manure.*	*1,965 t*
April	*manure*	*23.75 ton applied*	*1435 T*
		Limited Irrigation available over complete field this year	

To:EMERALD BAY AG SERVICES
10 MARYS EMERALD BAY ROAD
VERNON, BC V1H 2A7

Attn:DOUG MACFARLANE
250-546-3847

For:KEN REGEHR FEEDYARDS
4516 HULLCAR ROAD
Grower Code:05219043
Farm:FEEDLOT
Field:201 TOP BACK

05219-N1384

Report Date:2017-10-27 Print Date:2018-04-06

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
2041A		6	18367	4.4	30 M	47 M	144 H	165 M	1590 H	7.3		9.8	3.8	14.0	81.1		1.2
2041B		12	18368	2.4	14 L	20 VL	74 M	120 M	1050 H	7.2		6.9	2.8	14.6	76.4	4.6	1.7
2041C		24	18369	1.0	6 VL	8 VL	84 M	155 H	1040 H	7.6		6.8	3.2	19.0	76.6		1.5

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
2041A	20 L	36	5 L	9	4.7 M	38 H	54 VH	1.4 H	0.5 L	0.3 VL	4 L	439	0.1 G	0.27	56	22 M	28 H	
2041B	16 L	29	1 VL	2							6 L	414	0.1 G	0.19	36		27 H	
2041C	16 L	58	1 VL	4							3 VL	299	0.0 G	0.17	22		23 H	

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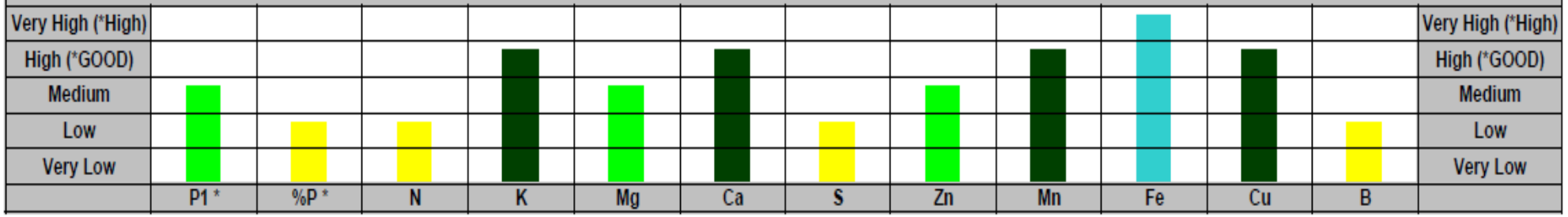

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

Crop yield is influenced by a number of factors in addition to soil fertility. No guarantee or warranty concerning crop performance is made by A & L.

202 Small Field 10 Acres

Manage with 201

2016	Corn Silage	2017	Cereal Silage

Planned Events and Records

Date	Event	Comments	Result
Spring		*30-35 tons feedlot manure.*	
April	*Manure*	*26.4 ton applied*	*264 T*

To:EMERALD BAY AG SERVICES
10 MARYS EMERALD BAY ROAD
VERNON, BC V1H 2A7

Attn:DOUG MACFARLANE
250-546-3847

For:KEN REGEHR FEEDYARDS
4516 HULLCAR ROAD
Grower Code:05219043
Farm:FEEDLOT
Field:201 TOP BACK

05219-N1384

Report Date:2017-10-27 Print Date:2018-04-06

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
2041A		6	18367	4.4	30 M	47 M	144 H	165 M	1590 H	7.3		9.8	3.8	14.0	81.1		1.2
2041B		12	18368	2.4	14 L	20 VL	74 M	120 M	1050 H	7.2		6.9	2.8	14.6	76.4	4.6	1.7
2041C		24	18369	1.0	6 VL	8 VL	84 M	155 H	1040 H	7.6		6.8	3.2	19.0	76.6		1.5

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
2041A	20 L	36	5 L	9	4.7 M	38 H	54 VH	1.4 H	0.5 L	0.3 VL	4 L	439	0.1 G	0.27	56	22 M	28 H	
2041B	16 L	29	1 VL	2							6 L	414	0.1 G	0.19	36		27 H	
2041C	16 L	58	1 VL	4							3 VL	299	0.0 G	0.17	22		23 H	

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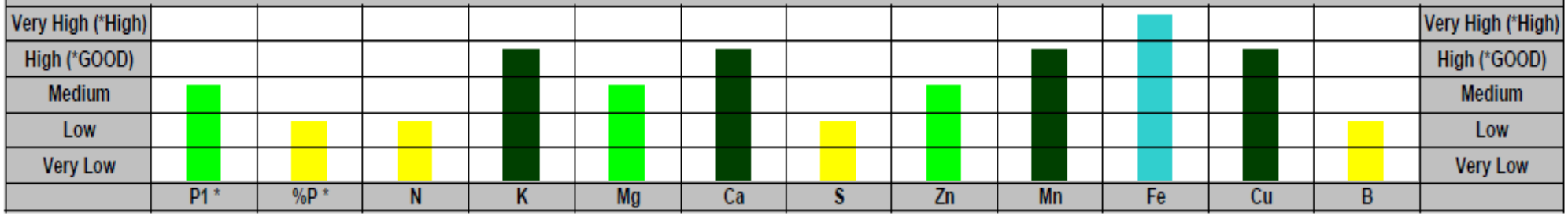


SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

Crop yield is influenced by a number of factors in addition to soil fertility. No guarantee or warranty concerning crop performance is made by A & L.

203	Road	8 Acres

Manage with 105 corn field No samples have been taken

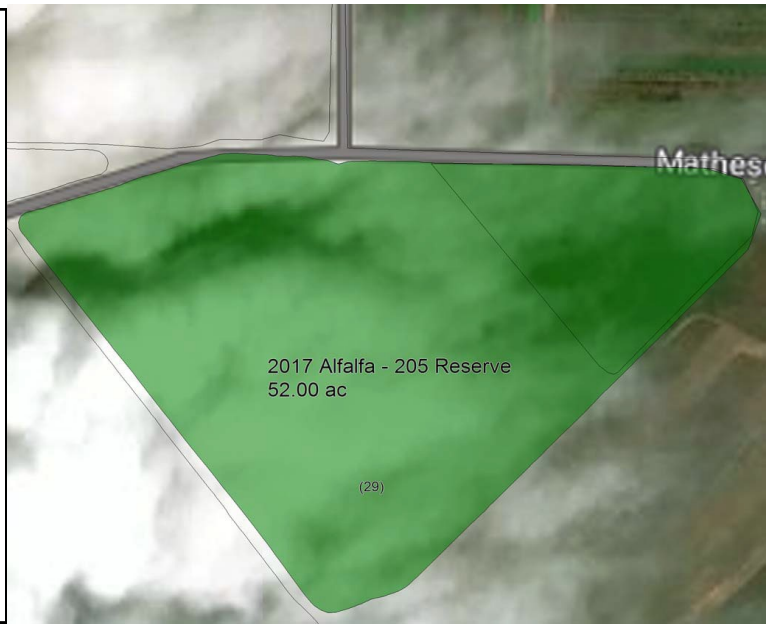
2017	Corn Silage	2018	Corn Silage

Planned Events and Records

Date	Event	Comments	Result
	manure	*30 ton Feedlot manure*	
April	*manure*	*24.5 ton applied*	*196 T*

205 **Reserve** **52 Acres**

Note: This field can stay in alfalfa for 1 more year but potassium levels are low enough to where the crop would respond from additional potassium. The farm overall does not need any additional potassium though.



2017	**Alfalfa**	**2018**	**Corn Silage?**

Planned Events and Records

Date	**Event**	**Comments**	**Result**
Spring	*Manure*	*25 ton feedlot manure for corn silage*	
Spring	*Manure*	*Actual—25.1 ton applied*	*1306 T*

Grower Code:05219123 05219-N1379

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:38 - 205 RESERVE

Report Date:2017-10-27 Print Date:2017-11-02

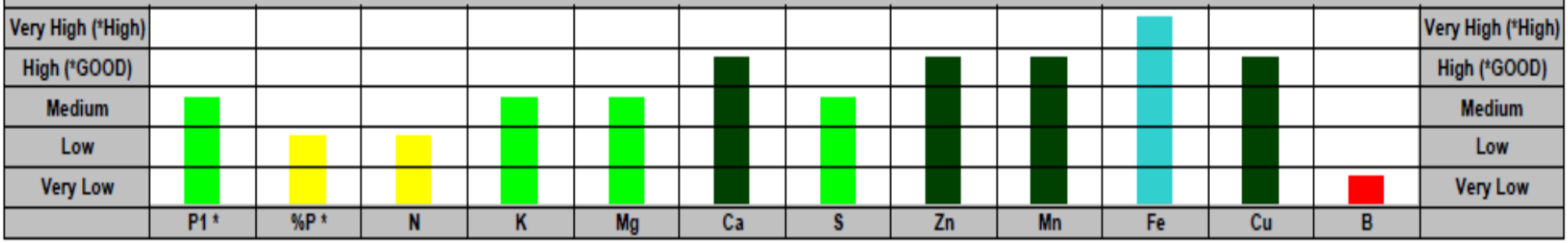
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
381A		6	18347	5.1	34 M	61 M	103 M	165 M	1760 H	7.3		10.5	2.5	13.1	83.6		1.0
381B		12	18348	2.8	19 L	26 L	67 L	150 M	1540 H	7.4		9.2	1.9	13.6	83.5		1.3
381C		24	18349	1.3	6 VL	8 VL	70 L	120 L	2360 VH	7.8		13.1	1.4	7.6	90.1		1.0
381D		36	18350	0.9	5 VL	7 VL	97 M	185 L	4570 VH	8.1		24.8	1.0	6.2	92.2		0.7

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
381A	26 M	47	9 L	16	9.0 H	36 H	62 VH	1.9 H	0.2 VL	0.3 VL	5 L	393	0.0 G	0.19	64	14 L	25 M	
381B	20 L	36	2 VL	4							2 VL	412	0.0 G	0.14	40		27 H	
381C	17 VL	61	1 VL	4							1 VL	275	0.0 G	0.18	25		29 M	
381D	32 L	115	1 VL	4								202	0.0 G	0.16	21		40 M	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

206	Lens	44.2 Acres

Soil residuals are good except phosphorous levels elevated. Maintain manure program

2015	Corn Silage	2016	Corn Silage

2016 Planned Events and Records

Date	Event	Comments	Result
Spring	*manure*	*28 ton feedlot manure*	
Spring	*manure*	*Actual 17 tons applied*	*750 T*

Grower Code:05219123 05219-N1299

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:39 - 206 LENS

Report Date:2017-10-27 Print Date:2017-11-02

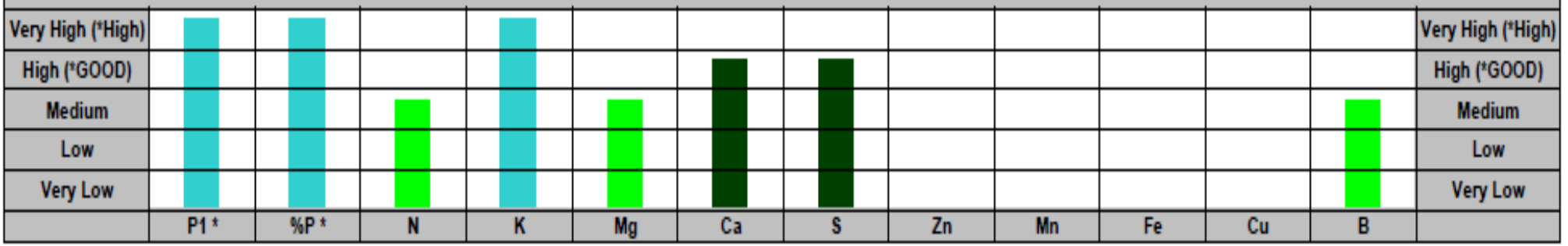
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
391A		6	44904	7.6	66 H	182 H	421 VH	290 M	2700 H	7.3		17.1	6.3	14.1	78.7		1.1
391B		12	44905	5.7	56 H	152 H	373 VH	300 M	2770 H	7.4		17.5	5.5	14.3	79.0		1.4
391C		24	44906	2.6	34 M	55 M	200 H	210 M	2270 H	7.5		13.8	3.7	12.7	82.2		1.6
391D		36	44907	1.8	15 L	20 L	141 M	160 L	4370 VH	7.9		23.7	1.5	5.6	92.1		0.9

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
391A	48 H	86	12 M	22					0.6 M		15 H	431	0.0 G	0.45	89		42 H	
391B	43 M	77	18 M	32							12 H	519	0.0 G	0.38	70		58 H	
391C	24 L	86	4 VL	14							4 L	571	0.0 G	0.29	38		50 H	
391D	41 H	148	4 VL	14							1 VL	114	0.0 G	0.27	30		47 M	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

207 Reserve Top 36.5 Acres

Good soil residual nitrogen. Ample Phos and Potassium.

2016	Corn Silage	2017	Corn Silage

Planned Events and Records

Date	Event	Comments	Result
	Manure	*20 ton feedlot manure*	
April	*Manure*	*Actual 17 ton manure applied*	*620 T*

Grower Code:05219123 05219-N1301

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:40 - 207 RES TOP & 208 DORTHYS

Report Date:2017-10-27 Print Date:2017-11-02

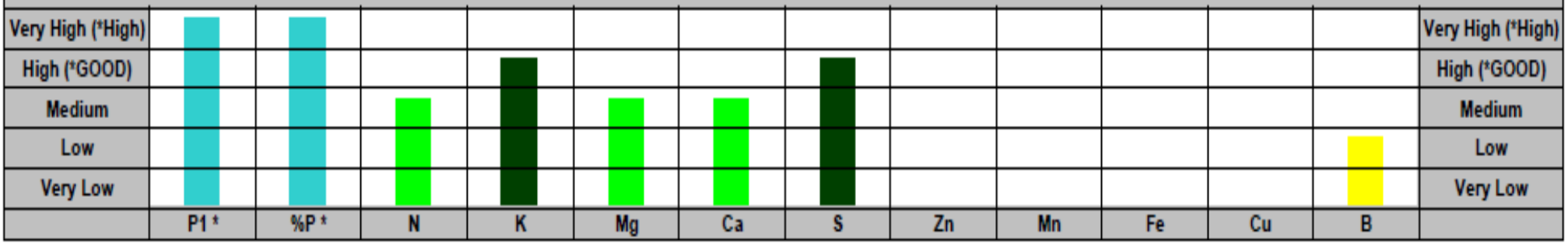
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
401A		6	49144	7.9	46 G	123 H	248 H	290 M	2560 M	7.0		18.4	3.5	13.1	69.5	12.9	1.0
401B		12	49145	3.6	36 M	61 M	158 H	245 M	2000 M	6.9	6.9	13.8	2.9	14.8	72.4	8.5	1.4
401C		24	49146	1.6	22 L	31 L	145 M	215 H	1710 H	7.3		10.9	3.4	16.4	78.3		2.1
401D		36	49147	1.8	9 VL	14 VL	143 M	200 L	3900 VH	7.9		21.7	1.7	7.7	89.7		1.1

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
401A	42 H	76	15 M	27					0.5 L		22 H	734	0.1 G	0.27	92		43 M	
401B	32 M	58	8 L	14							10 H	819	0.1 G	0.20	48		43 H	
401C	24 L	86	3 VL	11							3 VL	659	0.1 G	0.21	28		52 VH	
401D	34 M	122	2 VL	7							1 VL	418	0.0 G	0.22	30		54 H	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

208	Dorthys	15.9 Acres

Using 207 Reserve top soil test.

2016	Alfalfa	2017	Alfalfa

Planned Events and Records

Date	Event	Comments	Result
		No manure application	
		Nothing applied	

Grower Code:05219123 05219-N1301

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:40 - 207 RES TOP & 208 DORTHYS

Report Date:2017-10-27 Print Date:2017-11-02

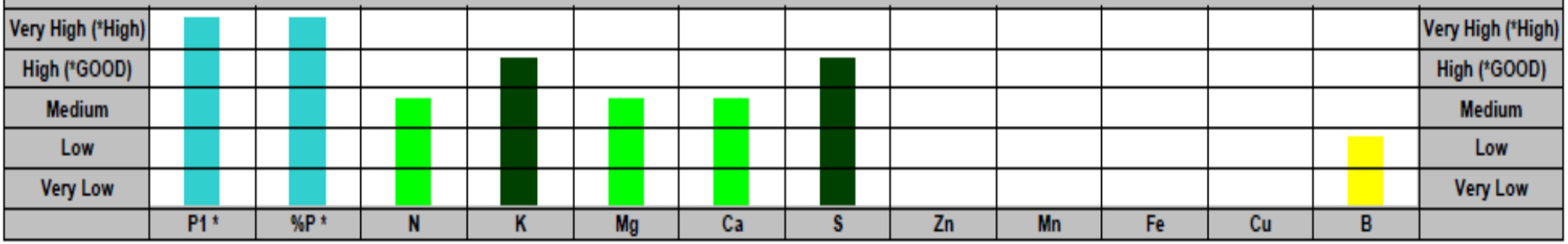
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
401A		6	49144	7.9	46 G	123 H	248 H	290 M	2560 M	7.0		18.4	3.5	13.1	69.5	12.9	1.0
401B		12	49145	3.6	36 M	61 M	158 H	245 M	2000 M	6.9	6.9	13.8	2.9	14.8	72.4	8.5	1.4
401C		24	49146	1.6	22 L	31 L	145 M	215 H	1710 H	7.3		10.9	3.4	16.4	78.3		2.1
401D		36	49147	1.8	9 VL	14 VL	143 M	200 L	3900 VH	7.9		21.7	1.7	7.7	89.7		1.1

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
401A	42 H	76	15 M	27					0.5 L		22 H	734	0.1 G	0.27	92		43 M	
401B	32 M	58	8 L	14							10 H	819	0.1 G	0.20	48		43 H	
401C	24 L	86	3 VL	11							3 VL	659	0.1 G	0.21	28		52 VH	
401D	34 M	122	2 VL	7							1 VL	418	0.0 G	0.22	30		54 H	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

209	Swanns	26.9 Acres

2016-

Apply heavy manure for corn crop. 24-30 ton per acre.

2017— Good soil levels maintain manure build program for 2017

2018— Still low nitrogen and medium phos levels

2017	Corn Sialge	2018	Corn Silage

Planned Events and Records

Date	Event	Comments	Result
	Manure	*35 tons feedlot manure*	
April	*Manure*	*Actual 23.5 tons applied*	*634 T*

Grower Code:05219123 05219-N1302

Attn:DOUG MACFARLANE
250-546-3847

Farm:K REGHER FEEDYARD
Field:31 - 209 SWAANS

Report Date:2017-10-27 Print Date:2017-11-02

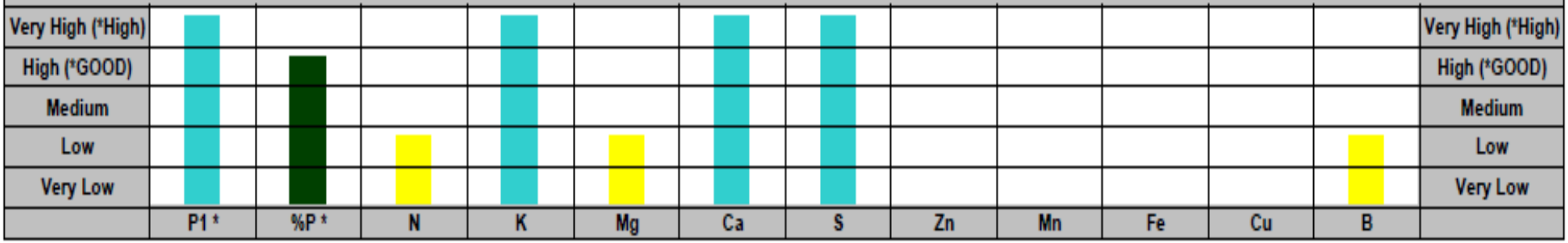
SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
311A		6	49148	6.9	35 H	57 H	307 VH	275 L	5750 VH	7.8		32.0	2.5	7.2	89.9		0.6
311B		12	49149	3.6	18 M	26 M	155 M	225 L	6010 VH	8.1		32.5	1.2	5.8	92.6		0.5
311C		24	49150	2.2	15 M	20 L	125 M	180 L	4710 VH	8.1		25.5	1.3	5.9	92.4		0.5
311D		36	49151	1.8	10 L	17 L	137 M	160 L	4840 VH	8.2		26.0	1.3	5.1	92.9		0.7

Sample Number	Sulfur ppm S	Sulfur lbs/ac	Nitrate Nitrogen ppm NO3-N	Nitrate Nitrogen lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts ms/cm	Saturation %P	Aluminum Al ppm	Saturation %Al *	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm	Molybdenum Mo ppm
311A	60 VH	108	9 L	16					0.5 L		4 G	217	0.0 G	0.35	82		43 L	
311B	50 H	90	4 VL	7							2 L	227	0.0 G	0.21	48		39 L	
311C	37 M	133	2 VL	7							1 VL	254	0.0 G	0.22	34		31 L	
311D	34 M	122	3 VL	11							1 VL	258	0.0 G	0.25	30		40 M	

OE VL = VERY LOW L = LOW M = MEDIUM H = HIGH VH = VERY HIGH * G = GOOD, M = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

GRAPHIC SUMMARY



SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

Worksheet 2. Calculate the Crop Phosphorus Application Recommendation

A	B	C	D	E	F	G	H	I
Field Description	Crop Information		Crop Phosphorus (P) Applicator Calculations					Crop
(Worksheet 1, col. A) (name or number)	Crop type to be fertilized	Crop dry yield (estimated) (tons/ac)	Crop phosphorus factor (Table 2) (lb P/ton)	Crop Phosphorus Uptake (col. C x D) (lb P/ac)	Soil test phosphorus value (Kelowna method) [a] 0-15 cm depth (ppm)	Soil phosphorus status (Table 3, col. 2)	Soil phosphorus level factor (Table 3, col. 5)	Phosphorus Application Recommendation (SEE NOTE BELOW) (col. E x H) x 2.3 ($lb P_2O_5$/ac)
101 Home	corn sil	8	4.0	32	212	Excess	0	0
102 West Field	corn sil	8	4.0	32	202	Excess	0	0
103 Far West	Alf/Gra	7	7.4	52	185	Excess	0	0
104 West Hill	Alf/Gra	7	7.4	52	185	Excess	0	0
105 Bottom Feedlot	Alf/Gra	5	4.0	20	186	Excess	0	0
106 PS Holding	corn sil	7.5	7.4	56	118	Excess	0	0
201,202 Top Back	corn sil	6.5	4.0	26	60	Optimum	0.5	30
203 Road	corn sil	7.5	4.0	30	180	Excess	0	0
205 Reserve	corn sil	7.5	4.0	30	148	Excess	0	0
206 Lens	corn sil	7	7.4	52	132	Excess	0	0
207 Reserve Top	corn sil	7.5	4.0	30	91	High	0.2	14
208 Dorthy's	Alf/Gra	6	7.0	42	91	High	0.2	19
209 Swaans	corn sil	4.5	6.0	27	70	Optimum	0.5	31
PS North West	Nursery	10	3.0	30	86	High	0.2	14
PS South West	Nursery	10	3.0	30	84	High	0.2	14
PS East	Nursery	10	3.0	30	108	Excess	0	0

Worksheet 6. Estimate the Agronomic Balance for Nitrogen, Phosphorus and Potassium

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Field Description	Crop type	Field Size	Manure Source and Application Method	Manure Application Rate	Available Nutrients in the Year of Application							Crop Nutrient Recommendation (based on estimated soil nutrient supply)			Agronomic Balance (crop nutrient recommendation minus available nutrients in the year of application)		
					Manure Sources				Fertilizer								
(Worksheet 1, col. A)	(Worksheet 1, col. B)		Show/Hide Manure Source #2 / Show/Hide Manure Source #3 — Click here for help to use the show/hide buttons.	See note below for guidance in determining rate*	N (Col E x Worksheet 4, col. J)	P_2O_5 First-year P availability coefficient*	P_2O_5 (Col E x G x Worksheet 4, col. L)	K_2O (Col E x Worksheet 4, col. N)	N	P_2O_5	K_2O	N (Worksheet 1, col. H)	P_2O_5 (Worksheet 2, col. I)	K_2O (Worksheet 3, col. I)	N* (col. M – F – J)	P_2O_5* (col. N – H – K)	K_2O* (col. O – I – L)
(name or number)		(ac)	(select from drop-down list)	(tons/ac)	(lb N/ac)	-	(lb P_2O_5/ac)	(lb K_2O/ac)	Sum all planned fertilizer additions for the year. Use Worksheet 6.1 to the right to help.			(lb N/ac)	(lb P_2O_5/ac)	(lb K_2O/ac)	(lb N/ac)	(lb P_2O_5/ac)	(lb K_2O/ac)
101 Home	corn sil	17.2	Feedlot Solids	20	64	0.85	60	208									
				0	0	0.85	0	0									
				0	0	0.85	0	0									
			all manures		64	n/a	60	208	0			43	0	0	-21	-60	-208
102 West Field	corn sil	51.2	Feedlot Solids	18	58	0.85	54	187									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		58	n/a	54	187	0			36	0	0	-22	-54	-187
103 Far West	Alf/Gra	40.5	Feedlot Solids	0	0	0.85	0	0									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		0	n/a	0	0	0			341	0	0	341	0	0
104 West Hill	Alf/Gra	22.5	Feedlot Solids	0	0	0.85	0	0									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		0	n/a	0	0	0			341	0	0	341	0	0
105 Bottom Feedlot	Alf/Gra	33.5	Feedlot Solids	20	64	0.85	60	208									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		64	n/a	60	208	0			177	0	36	113	-60	-172
106 PS Holding	corn sil	17.0	Feedlot Solids	38	122	0.85	114	394									
				0	0	0.85	0	0									
					0	0.85	0	0									
			all manures		122	n/a	114	394	0			121	0	0	-1	-114	-394
201,202 Top Back	corn sil	70.4	Feedlot Solids	33	106	0.85	99	342									
				0	0	0.85	0	0									
				0	0	0.85	0	0									
			all manures		106	n/a	99	342	0			106	0	0	0	-99	-342
203 Road	corn sil	8.0	Feedlot Solids	30	96	0.85	90	311									
				0	0	0.85	0	0									
					0	0.85	0	0									
			all manures		96	n/a	90	311	0			94	0	0	-2	-90	-311
205 Reserve	corn sil	52.0	Feedlot Solids	20	64	0.85	60	208									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		64	n/a	60	208	0			119	0	0	55	-60	-208
206 Lane	corn sil	44.2	Feedlot Solids	20	64	0.85	60	208									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		64	n/a	60	208	0			52	0	0	-12	-60	-208
207 Reserve Top	corn sil	36.5	Feedlot Solids	27	87	0.75	71	280									
					0	0.75	0	0									
					0	0.75	0	0									
			all manures		87	n/a	71	280	0			88	14	54	1	-57	-226
208 Dorthy's	Alf/Gra	15.9	Feedlot Solids	15	48	0.75	40	156									
					0	0.75	0	0									
					0	0.75	0	0									
			all manures		48	n/a	40	156	0			242	19	86	193	-20	-69
209 Swans	corn sil	26.9	Feedlot Solids	35	112	0.65	80	363									
				0	0	0.65	0	0									
					0	0.65	0	0									
			all manures		112	n/a	80	363				130	31	65	18	-49	-298
PS North West	Nursery	40.8	Feedlot Solids	52	167	0.75	137	540									
					0	0.75	0	0									
					0	0.75	0	0									
			all manures		167	n/a	137	540	0			169	14	90	2	-123	-450
PS South West	Nursery	65.0	Feedlot Solids	54	173	0.75	142	560									
					0	0.75	0	0									
					0	0.75	0	0									
			all manures		173	n/a	142	560				173	14	90	0	-129	-470
PS East	Nursery	64.0	Feedlot Solids	47	151	0.85	140	488									
					0	0.85	0	0									
					0	0.85	0	0									
			all manures		151	n/a	140	488	0			152	0	90	1	-140	-398
Total		605.6															

IRRIGATION CHART FOR FEEDLOT COLLECTION POND 2018

Date	Hrs per pull	PSI	Acer	Run	Pond Level Meter
Apr 5	5	95	2.2	Top half of bush pasture	0.72 M
Apr 12	2	"	1	Other half of bush pasture	
Apr 26	2.5	"	1.2	Other half of bush pasture	
May 19	8.5	"	3.7	Top of Bush / Corn field	0.46 M
May 25	10.5	"	4.5	Pond field / Fall Rye	0.33 M
Jun 1	8	"	3.5	Corn Field / Top Bush	
June 2	12	"	5.2	Top Pasture	
Jun 7/8	18	"	7.8	Pond field Fall rye	0.0 M

Irrigation was done on 24 hour total pulls with 95 PSI at the gun using a 25 MM nozzle. This calculates to 275 US gallon per minute, 0.52 acres per hour 1.17 inches of irrigation water with no evaporation calculated in.

Feedlot runoff retention pond was emptied June 6th 2018.

KBR - 2018 POND LEVEL RECORDS

The following is a record of the water levels in the Feedlot collection pond and relevant notes. The pond was irrigated out this spring as per the previous page.

Nov 7	.0m	
Nov 14	.05m	
Nov 21	.085m	
Nov 27	.09m	
Dec 30/17	.085m	Frozen
Jan 18/18	.115	
Feb 28/18	.595	
Mar 6/18	.73m	
Mar 13/18	.875	
Mar 25/18	.85	Pond level Indicator Received Damage from Ice + Wind,
Mar 27/18	.85	level of pond is the same as th 13th reading, however level Indicator is at an angle, will fix when empty.
April 6/18	.72	
April 13/18	.67	
April 16/18	.67	
April 27/18	.59	
April 30/18	.59	

2018

Pond Level Chart

Date	Level	Activity
May 11/18	.59 m	
May 19/18	.46 m	Level After Pumping / Irrigating
May 24/18	.33 m	
June 2/18	.1 m	
June 8/18	0 m	
June 15/18	0 m	
June 19/18	0 m	

REPORT NO. C18064-80004
ACCOUNT NO. 05219

A&L CANADA LABORATORIES INC.

2136 Jetstream Rd, London, ON, N5V 3P5 Tel (519) 457-2575 Fax: (519) 457-2664

TO: EMERALD BAY AG SERVICES
10 MARYS EMERALD BAY ROAD
VERNON, BC V1H 2A7
CANADA
ATTN: DOUG MACFARLANE

FOR: KEN REGEHR FEEDLOT

MANURE ANALYSIS

LAB NUMBER: 648012
SAMPLE ID: SOLIDS

DATE RECEIVED: 2018-03-05
DATE REPORTED:
DATE PRINTED: 2018-03-14

PARAMETER	ANALYSIS RESULT	POUNDS PER TON	ESTIMATED AVAILABILITY PER TON
Dry Matter	22.5 %		
Nitrogen (Total)	0.373 %	7.5	
NH4-N	859 ppm	1.7	
Phosphorus (Total)	0.0764 %		
Phosphate (P as P205) **	0.1757 %	3.5	1.4
Potassium (Total)	0.4324 %		
Potash (K as K2O) **	0.5189 %	10.4	9.4
Organic Matter *	15.9 %		
Carbon:Nitrogen Ratio (C:N)	24 : 1		
Calcium	0.1854 %	3.7	
Magnesium	0.0785 %	1.6	

* All Parameters are reported on an as is basis.

2018 Crop Plan

Prepared by:

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