



**A.M. BAIRD**

ENGINEERING & SURVEYING, INC.

1257 Main Street • P.O. Box 396 • Fortuna, CA. 95540 • (707) 725-5182 • Fax (707) 725-5581

**CONSULTING - LAND DEVELOPMENT - DESIGN - SURVEYING**

# **AMBIENT WATER QUALITY** **REPORT**

PREPARED FOR  
**Old Goat Farms**  
**Bald Hill Road**  
**APN:531-011-005**  
**Orick, Humboldt County, CA**

Revised July 23rd, 2019  
Job # 17-4696



## 1. Background/Objective

The objective of this ambient water quality study and sampling is to determine if there are any impacts created by Old Goat Farms near the Pine Creek Watershed. During both site visits, the first on January 15<sup>th</sup>, 2019 and another on May 23<sup>rd</sup>, 2019, the ephemeral stream adjacent to a cultivation area was dry and no surface runoff was observed. The only watercourse leaving Old Goat Farms was a small stream north of any cultivation activity. Samples in the small stream were tested for Hydrocarbons, Nitrogen, Phosphorous, and Turbidity by North Coast Laboratories. pH was field tested. The results of the water quality testing/sampling are on the final page of this report and the full results are attached as an addendum.

### 1.1.1. Stream Baseline

No baseline study of the stream exists. The Pine Creek watershed has been impacted historically by natural resources management and usage. The area was used for logging, ranching, and illegal cannabis cultivation (based on aeriels and permit records) prior to the ambient water quality sampling and testing.

### 2.1.1 Constituents/Typical Values

All allowable water quality parameters are taken from The Hoopa Valley Tribe *Water Quality Control Plan* unless otherwise noted. Any values that are not noted in the plan will be compared to the EPA standard values from the *Ambient Water Quality Criteria Recommendations, Rivers and Streams in Nutrient Ecoregion II- Ecoregion Western Forested Mountains*, or the Northcoast Regional Water Quality Control Board (NCWRB) *Klamath River Basin Plan*.

#### 2.1.1 pH

The typical pH of a tributary from the cannabis site can fluctuate throughout the year and the wet season. Rain can increase the pH of a stream on the North Coast because of the higher acidity of the rain compared to the normal range of a stream. The allowable pH range for the Trinity and Klamath river respectively is 5.0 – 9.0 for municipal usage, and 7.0 – 8.5. Below is a diagram of pH and a map of hydrogen ion concentration across the US.

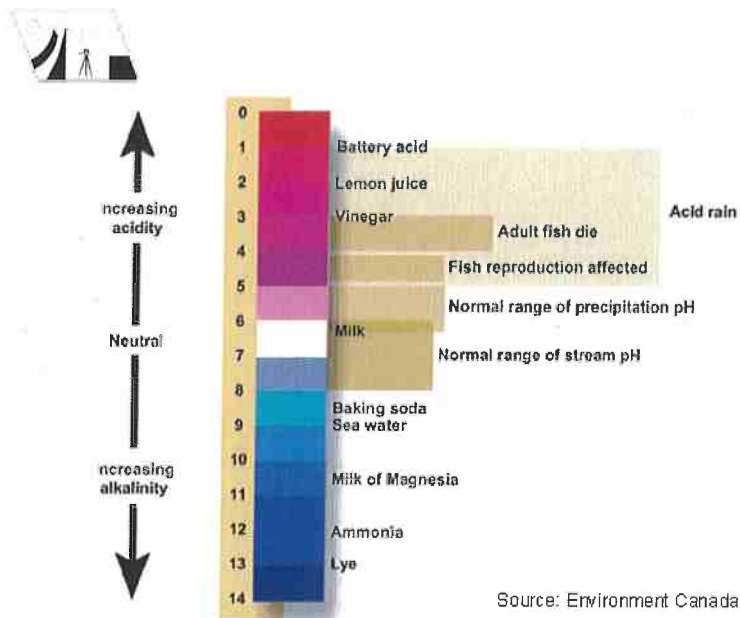


Figure 1 Diagram of pH

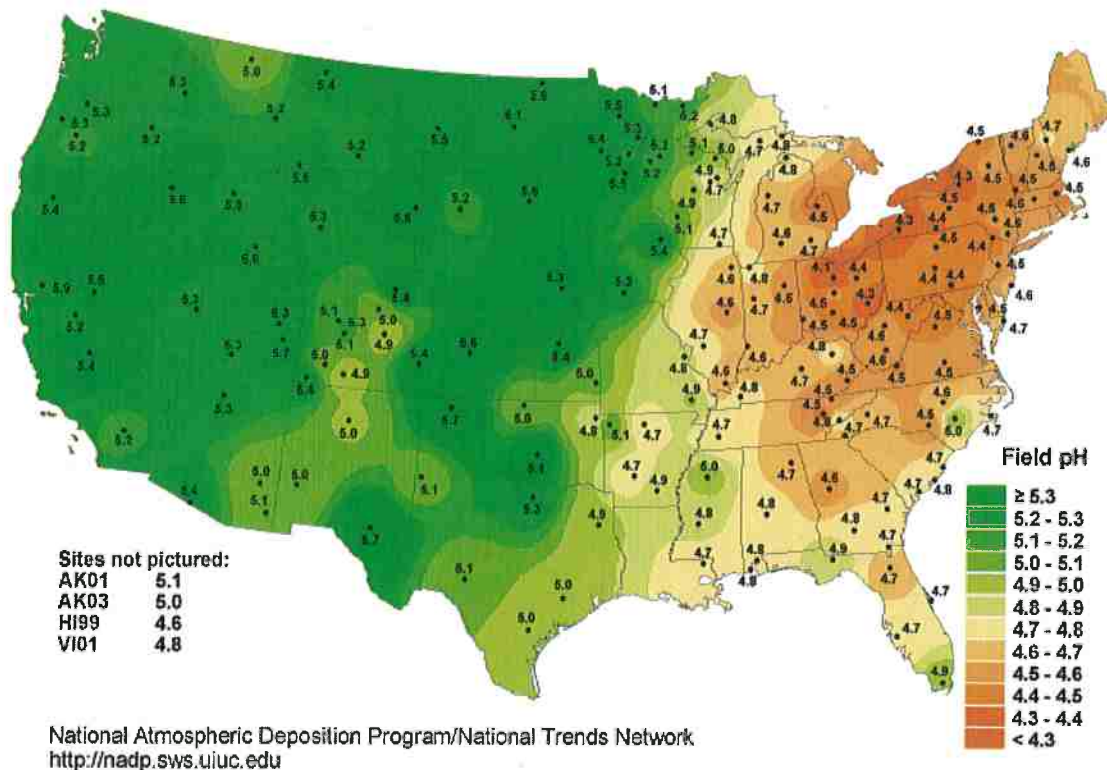


Figure 2 - Hydrogen Ion Concentration as pH of Precipitation 2002



#### 2.1.1.1 Turbidity

The allowable turbidity level for the Klamath and Trinity river is not stipulated by the Hoopa Valley *Water Quality Control Plan* as it is currently being evaluated. Turbidity is the measurement of sedimentation in the water. The unit of measurement for turbidity is the Nephelometric Turbidity Unit or NTU, the amount of incident light coming from 90 degrees off the object in which the initial light was directed at. The NCRWB basin plan states that the allowable NTU for discharging waters is 20% of the typical level of turbidity for the main body of water being discharged to.

#### 2.1.1.2 Nitrogen and Phosphorous

Nitrogen and Phosphorous are naturally occurring elements and are important for creating the algae, plants, and aquatic organisms that larger animals like anadromous salmonids depend on. However, they can be detrimental if they attribute to eutrophication, which may occur in low flow periods during hot dry weather. The *Water Quality Control Plan* stipulates a total nitrogen value of 0.2 mg/L and a total phosphorus value of 0.035 mg/L. On the North Coast, typical values for phosphorous are 0.01 mg/L for 25%, 0.01-0.1 mg/L for 70%, and 0.1 mg/L – 1 mg/L for 4% of rivers, and greater than 1 mg/L for 1% of rivers in this region. The typical nitrogen range is less than 0.1 mg/L for 45%, 0.1 – 1.0 mg/L for 54%, and greater than 1 mg/L for 1% of rivers in this region. On the next page is data showing the typical ranges for rivers in the "Ecoregion Western Forested Mountains"

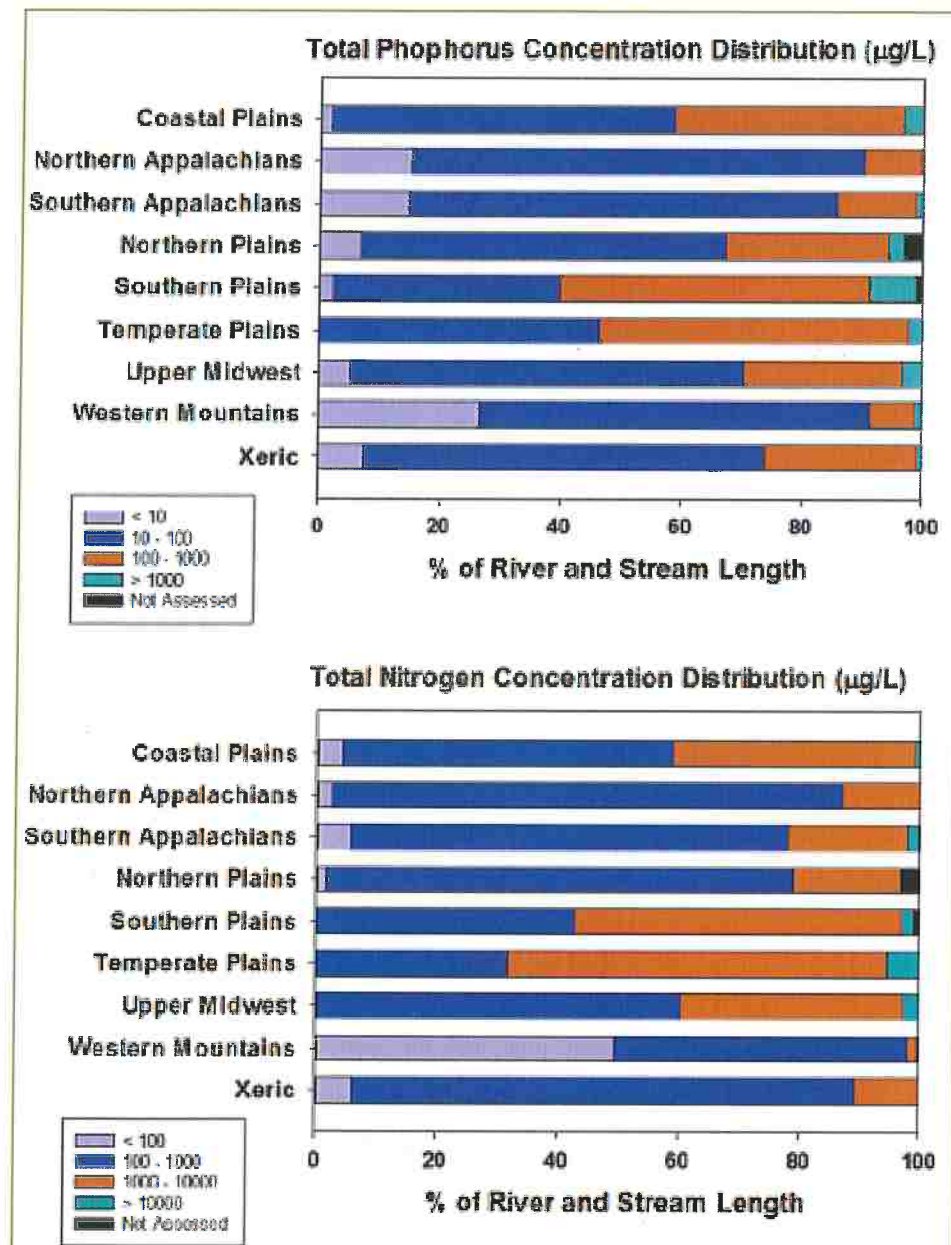


Figure 3 Typical Nitrogen and Phosphorous Levels

### 2.1.1.3 Hydrocarbons

Diesel, gasoline, motor oils and other operating fluids which are used by heavy equipment, generators, and cars are considered hydrocarbons. Hydrocarbons are detrimental to a water supply or watershed and the amount contained in a stream should be zero.





## Results

Water quality sampling was completed in the locations as shown on the enclosed site map. There is an ephemeral stream on the parcel, but the stream contained no water when the sampling process was being conducted. pH measurements were completed in the field using calibrated instrumentation.. The remaining contaminant testing was analyzed by North Coast Laboratory in Arcata, California.

All testing results have been attached as an addendum to this document. There were little to none of any of the constituents or pollutants addressed above. These results are only characteristic or indicative of the stream at the time the sampling and testing was completed. These results should not be considered a baseline study or long-term health indicator of the stream.

The water leaving the culvert was not tested during the second site visit because the water from the ditch may not reflect the runoff that is occurring from Old Goat Farms. Results from each site visit are below.

**Table 1 First Site Visit– Results\***

	Turbidity (NTU)	Phosphorous (mg/L)
Sample Site 1	20	0
Sample Site 2	1.9	0.022
Sample Site 3	0.74	0

**Table 2 Second Site Visit– Results\***

	Turbidity (NTU)	pH
Sample Site 1	0.80	8.2
Sample Site 3	0.39	7.3

*\*The turbidity in sample site 1 after the first site visit is likely higher due to the sampling technique. The sample bottle most likely disturbed the bed of the small stream and stirred up detritus. The high pH downstream of the culvert may be a statistical outlier, or due to contamination from the ditch.*

## CLOSING

The nutrient and constitute levels in the surface water near the cannabis cultivation areas are low in concentration if they were detected at all. All values are within the allowable ranges for the Klamath and Trinity river according to the Hoopa Valley Water Quality Control Plan, the NCWRB Basin Plan, and the EPA *Ambient Water Quality Criteria Recommendations* report.



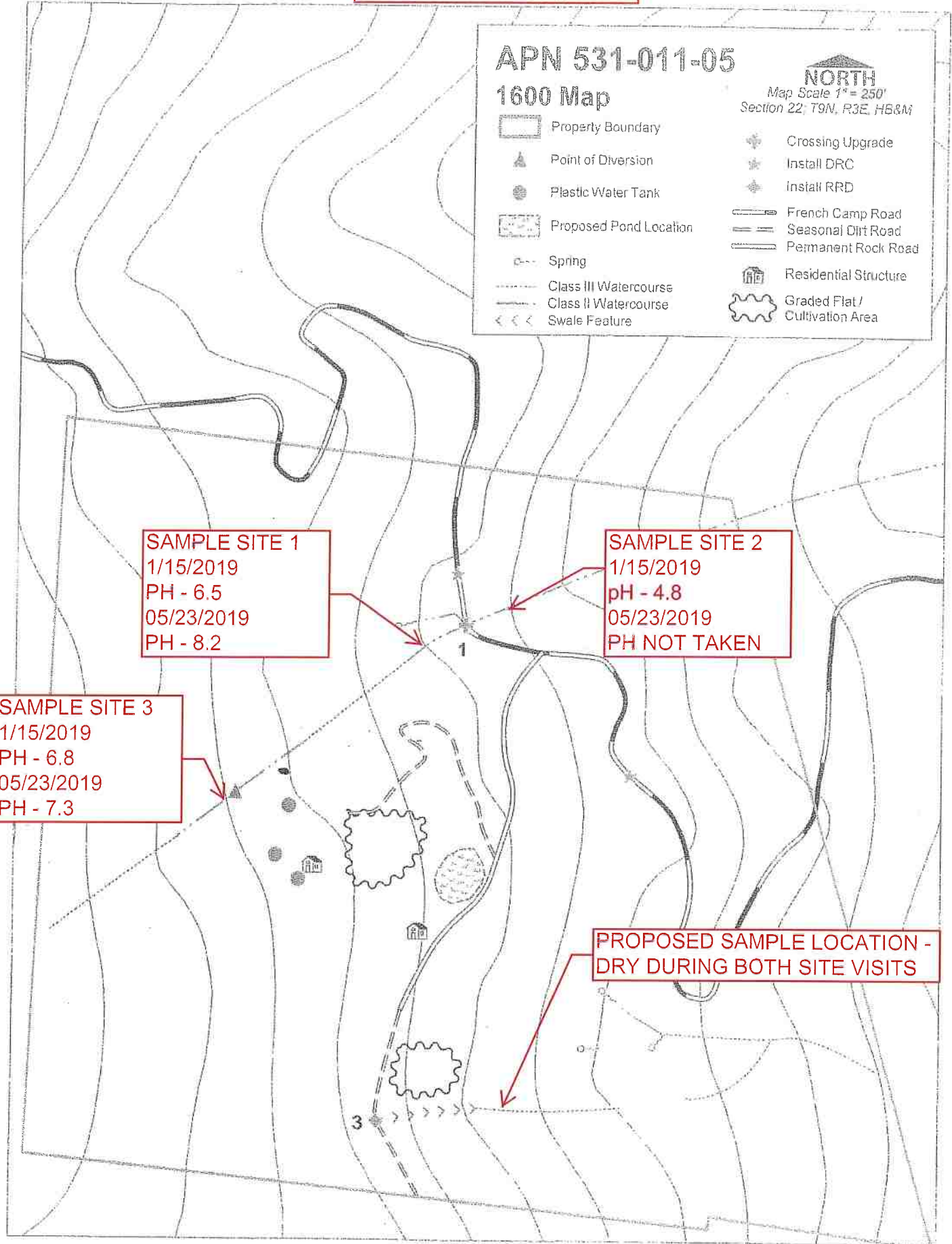
## References

Environmental Protection Agency, December 2000, *Ambient Water Quality Criteria Recommendations Rivers and Streams in Nutrient Ecoregion II*

Hoopa Valley Tribe, September 11, 2002, Revisions June, 2, 2018. *Water Quality Control Plan Hoopa Valley Indian Reservation*, pg 48 - 52

Northcoast Regional Water Quality Control Board (NCWRB), June 2018. *Water Quality Control Plan for the North Coast Region*, Chapter 3, *Water Quality Objectives*, pg 3-6

SITES ARE APPROXIMATE







**NORTH COAST  
LABORATORIES LTD.**

January 30, 2019

A.M. Baird Engineering  
P.O. Box 396  
Fortuna, CA 95540-0396

Attn: Allan Baird

Order No.: 1901274  
Invoice No.: 144561  
PO No.:  
ELAP No.1247-Expires July 2020

RE:

**SAMPLE IDENTIFICATION**

Fraction	Client Sample Description
01B	Sample Site 1
01C	Sample Site 1
01D	Sample Site 1
02B	Sample Site 2
02C	Sample Site 2
02D	Sample Site 2
03B	Sample Site 3
03C	Sample Site 3
03D	Sample Site 3

ND = Not Detected at the Reporting Limit

Limit = Reporting Limit

Flag = Explanation in Case Narrative

All solid results are expressed on a wet-weight basis unless otherwise noted.

Approved for release by:

Roxanne Moore, Project Manager

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**Date:** 30-Jan-2019

**WorkOrder:** 1901274

## CASE NARRATIVE

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The samples were received outside the EPA recommended temperature of less than or equal to 6° C.

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Date: 30-Jan-2019

WorkOrder: 1901274

## ANALYTICAL REPORT

Client Sample ID: Sample Site 1

Received: 1/15/2019

Lab ID: 1901274-01B

Collected: 1/15/2019 10:00

Test Name: TPH as Diesel

Reference: EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	1/18/2019	1/21/2019
Surrogate: N-Tricosane	101		71.8-126	% Rec	1.0	1/18/2019	1/21/2019

Client Sample ID: Sample Site 1

Received: 1/15/2019

Lab ID: 1901274-01C

Collected: 1/15/2019 10:00

Test Name: Nitrate and/or Nitrite

Reference: EPA 300.0 Rev 2.1 (1993)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrate (as Nitrogen)	ND		0.10	mg/L	1.0		1/16/2019
Nitrite (as Nitrogen)	ND		0.10	mg/L	1.0		1/16/2019

Test Name: Total Nitrogen

Reference: SM 4500-N, 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Nitrogen	ND		1.0	mg/L	1.0		1/30/2019

Test Name: Turbidity

Reference: EPA 180.1

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Turbidity	20		0.050	NTU	1.0		1/16/2019

Client Sample ID: Sample Site 1

Received: 1/15/2019

Lab ID: 1901274-01D

Collected: 1/15/2019 10:00

Test Name: Total Phosphate Phosphorus

Reference: SM 4500-PE, 1999. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Phosphate Phosphorus	ND		0.020	mg/L	1.0	1/21/2019	1/21/2019

Client Sample ID: Sample Site 2

Received: 1/15/2019

Lab ID: 1901274-02B

Collected: 1/15/2019 10:00

Test Name: TPH as Diesel

Reference: EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	1/18/2019	1/21/2019
Surrogate: N-Tricosane	102		71.8-126	% Rec	1.0	1/18/2019	1/21/2019

Client Sample ID: Sample Site 2

Received: 1/15/2019

Lab ID: 1901274-02C

Collected: 1/15/2019 10:00

Test Name: Nitrate and/or Nitrite

Reference: EPA 300.0 Rev 2.1 (1993)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrate (as Nitrogen)	ND		0.10	mg/L	1.0		1/16/2019
Nitrite (as Nitrogen)	ND		0.10	mg/L	1.0		1/16/2019

Test Name: Total Nitrogen

Reference: SM 4500-N, 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Nitrogen	ND		1.0	mg/L	1.0		1/30/2019

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Date: 30-Jan-2019

WorkOrder: 1901274

## ANALYTICAL REPORT

Client Sample ID: Sample Site 2

Received: 1/15/2019

Lab ID: 1901274-02C

Collected: 1/15/2019 10:00

Test Name: Turbidity

Reference: EPA 180.1

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Turbidity	1.9		0.050	NTU	1.0		1/16/2019

Client Sample ID: Sample Site 2

Received: 1/15/2019

Lab ID: 1901274-02D

Collected: 1/15/2019 10:00

Test Name: Total Phosphate Phosphorus

Reference: SM 4500-PE, 1999. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Phosphate Phosphorus	0.022		0.020	mg/L	1.0	1/21/2019	1/21/2019

Client Sample ID: Sample Site 3

Received: 1/15/2019

Lab ID: 1901274-03B

Collected: 1/15/2019 10:00

Test Name: TPH as Diesel

Reference: EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	1/18/2019	1/21/2019
Surrogate: N-Tricosane	100		71.8-126	% Rec	1.0	1/18/2019	1/21/2019

Client Sample ID: Sample Site 3

Received: 1/15/2019

Lab ID: 1901274-03C

Collected: 1/15/2019 10:00

Test Name: Nitrate and/or Nitrite

Reference: EPA 300.0 Rev 2.1 (1993)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrate (as Nitrogen)	ND		0.10	mg/L	1.0		1/16/2019
Nitrite (as Nitrogen)	ND		0.10	mg/L	1.0		1/16/2019

Test Name: Total Nitrogen

Reference: SM 4500-N, 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Nitrogen	ND		1.0	mg/L	1.0		1/30/2019

Test Name: Turbidity

Reference: EPA 180.1

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Turbidity	0.74		0.050	NTU	1.0		1/16/2019

Client Sample ID: Sample Site 3

Received: 1/15/2019

Lab ID: 1901274-03D

Collected: 1/15/2019 10:00

Test Name: Total Phosphate Phosphorus

Reference: SM 4500-PE, 1999. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Phosphate Phosphorus	ND		0.020	mg/L	1.0	1/21/2019	1/21/2019

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North Coast Laboratories, Ltd.

Date: 1/30/2019

CLIENT: A.M. Baird Engineering  
 Work Order: 1901274  
 Project:

**QC SUMMARY REPORT**

Method Blank

Sample ID	MBLK 011519	Batch ID: R98071	Test Code: ICNOW	Units: mg/L	Analysis Date	1/15/2019 8:07:25 PM	Prep Date					
Client ID:			Run ID: INIC2_190115B		SeqNo:	1394931						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrate (as Nitrogen)	ND	0.10										
Nitrite (as Nitrogen)	ND	0.10										
Sample ID	MBLANK WL-0118	Batch ID: R98122	Test Code: PO4TOW	Units: mg/L	Analysis Date	1/21/2019	Prep Date	1/21/2019				
Client ID:			Run ID: WC_190121D		SeqNo:	1395589						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Phosphate Phosphorus	ND	0.020										
Sample ID	MB-36943	Batch ID: 36943	Test Code: TPHDIW	Units: µg/L	Analysis Date	1/21/2019 6:21:56 PM	Prep Date	1/18/2019				
Client ID:			Run ID: ORGC14_190118A		SeqNo:	1395610						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
TPHC Diesel (C12-C22)	ND	50										
Surrogate: N-Tricosane	47.8	0.10	50.0	0	95.7%	72	126	0				

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

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North Coast Laboratories, Ltd.

Date: 1/30/2019

CLIENT: A.M. Baird Engineering

Work Order: 1901274

Project:

**QC SUMMARY REPORT**

Sample Matrix Spike

Sample ID	1901274-01D MS	Batch ID: R98122	Test Code: PO4TOW	Units: mg/L	Analysis Date 1/21/2019				Prep Date 1/21/2019		
Client ID:	Sample Site 1		Run ID: WC_190121D		SeqNo: 1395596						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Phosphate Phosphorus	0.5076	0.020	0.500	0	102%	85	115	0			

Sample ID	1901274-01D MSD	Batch ID: R98122	Test Code: PO4TOW	Units: mg/L	Analysis Date 1/21/2019				Prep Date 1/21/2019		
Client ID:	Sample Site 1		Run ID: WC_190121D		SeqNo: 1395597						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Phosphate Phosphorus	0.5117	0.020	0.500	0	102%	85	115	0.508	0.804%	10	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

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North Coast Laboratories, Ltd.

Date: 1/30/2019

CLIENT: A.M. Baird Engineering  
 Work Order: 1901274  
 Project:

## QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	LCS WL-011519-0	Batch ID: R98071	Test Code: ICNOW	Units: mg/L	Analysis Date	1/15/2019 8:24:04 PM	Prep Date				
Client ID:			Run ID: INIC2_190115B		SeqNo:	1394932					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as Nitrogen)	0.9535	0.10	1.00	0	95.3%	90	110	0			
Nitrite (as Nitrogen)	1.014	0.10	1.00	0	101%	90	110	0			
Sample ID	LCSD WL-011519-	Batch ID: R98071	Test Code: ICNOW	Units: mg/L	Analysis Date	1/15/2019 8:40:42 PM	Prep Date				
Client ID:			Run ID: INIC2_190115B		SeqNo:	1394933					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as Nitrogen)	0.9481	0.10	1.00	0	94.8%	90	110	0.954	0.562%	10	
Nitrite (as Nitrogen)	1.010	0.10	1.00	0	101%	90	110	1.01	0.387%	10	
Sample ID	LCS WL-01181907	Batch ID: R98122	Test Code: PO4TOW	Units: mg/L	Analysis Date	1/21/2019	Prep Date	1/21/2019			
Client ID:			Run ID: WC_190121D		SeqNo:	1395590					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Phosphate Phosphorus	0.5035	0.020	0.500	0	101%	85	115	0			
Sample ID	LCSD WL-011819	Batch ID: R98122	Test Code: PO4TOW	Units: mg/L	Analysis Date	1/21/2019	Prep Date	1/21/2019			
Client ID:			Run ID: WC_190121D		SeqNo:	1395591					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Phosphate Phosphorus	0.5046	0.020	0.500	0	101%	85	115	0.503	0.218%	10	
Sample ID	LCS-36943	Batch ID: 36943	Test Code: TPHDIW	Units: µg/L	Analysis Date	1/21/2019 6:59:45 PM	Prep Date	1/18/2019			
Client ID:			Run ID: ORGC14_190118A		SeqNo:	1395611					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	457.4	50	500	0	91.5%	73	125	0			
Surrogate: N-Tricosane	50.4	0.10	50.0	0	101%	72	126	0			

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

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CLIENT: A.M. Baird Engineering

Work Order: 1901274

Project:

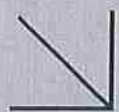
**QC SUMMARY REPORT**

Laboratory Control Spike Duplicate

Sample ID	LCSD-36943	Batch ID:	36943	Test Code:	TPHDIW	Units:	µg/L	Analysis Date	1/21/2019 7:37:39 PM	Prep Date	1/18/2019
Client ID:		Run ID:	ORGC14_190118A	SeqNo:	1395612						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	461.6	50	500	0	92.3%	73	125	457	0.907%	30	
Surrogate: N-Tricosane	50.5	0.10	50.0	0	101%	72	126	50.4	0.0664%	30	

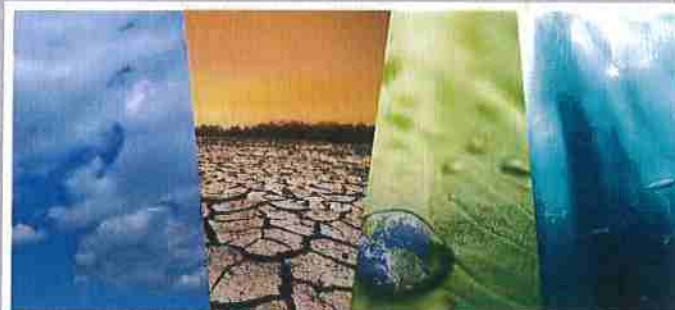
**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

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**WORK ORDER NUMBER: 19-01-1187**

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

**Analytical Report For**

**Client:** North Coast Laboratories, Ltd.

**Client Project Name:** 1901274

**Attention:** Roxanne Moore  
5680 West End Road  
Arcata, CA 95521-9202

A handwritten signature in black ink, appearing to read "L. Thompson".

Approved for release on 01/24/2019 by:  
Lori Thompson  
Project Manager

**ResultLink ▶**

**Email your PM ▶**

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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CA ELAP ID: 2044 | OSDIAC ID: 10109

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Work Order Number: 19-01-1187

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Work Order: 19-01-1187

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**Condition Upon Receipt:**

Samples were received under Chain-of-Custody (COC) on 01/18/19. They were assigned to Work Order 19-01-1187.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

**Additional Comments:**

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

**DoD Projects:**

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

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## Sample Summary

Client: North Coast Laboratories, Ltd.	Work Order:	19-01-1187
5680 West End Road	Project Name:	1901274
Arcata, CA 95521-9202	PO Number:	
	Date/Time Received:	01/18/19 10:20
	Number of Containers:	10

Attn: Roxanne Moore

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
1901274-01A / Sample Site 1	19-01-1187-1	01/15/19 10:00	3	Aqueous
1901274-02A / Sample Site 2	19-01-1187-2	01/15/19 10:00	3	Aqueous
1901274-03A / Sample Site 3	19-01-1187-3	01/15/19 10:00	3	Aqueous
Trip Blank	19-01-1187-4	01/15/19 00:00	1	Aqueous





## Analytical Report

North Coast Laboratories, Ltd.  
5680 West End Road  
Arcata, CA 95521-9202

Date Received: 01/18/19  
Work Order: 19-01-1187  
Preparation: EPA 5030C  
Method: EPA 8015B (M)  
Units: ug/L

Project: 1901274

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
1901274-01A / Sample Site 1	19-01-1187-1-C	01/15/19 10:00	Aqueous	GC 42	01/19/19	01/19/19 15:02	190119L013
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Gasoline		ND		100		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
1,4-Bromofluorobenzene		62		38-134			
1901274-02A / Sample Site 2	19-01-1187-2-C	01/15/19 10:00	Aqueous	GC 42	01/19/19	01/19/19 16:47	190119L013
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Gasoline		ND		100		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
1,4-Bromofluorobenzene		61		38-134			
1901274-03A / Sample Site 3	19-01-1187-3-C	01/15/19 10:00	Aqueous	GC 42	01/19/19	01/19/19 17:23	190119L013
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Gasoline		ND		100		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
1,4-Bromofluorobenzene		67		38-134			
Method Blank	099-15-704-2276	N/A	Aqueous	GC 42	01/19/19	01/19/19 14:27	190119L013
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Gasoline		ND		100		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
1,4-Bromofluorobenzene		64		38-134			

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Quality Control - Spike/Spike Duplicate

North Coast Laboratories, Ltd.  
5680 West End Road  
Arcata, CA 95521-9202

Date Received: 01/18/19  
Work Order: 19-01-1187  
Preparation: EPA 5030C  
Method: EPA 8015B (M)  
Page 1 of 1

Project: 1901274

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
1901274-01A / Sample Site 1	Sample	Aqueous	GC 42	01/19/19	01/19/19 15:02	190119S007
1901274-01A / Sample Site 1	Matrix Spike	Aqueous	GC 42	01/19/19	01/19/19 15:37	190119S007
1901274-01A / Sample Site 1	Matrix Spike Duplicate	Aqueous	GC 42	01/19/19	01/19/19 16:12	190119S007

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	ND	2000	1761	88	1856	93	68-122	5	0-18	



RPD: Relative Percent Difference. CL: Control Limits



# Quality Control - LCS/LCSD

North Coast Laboratories, Ltd.  
5680 West End Road  
Arcata, CA 95521-9202

Date Received: 01/18/19  
Work Order: 19-01-1187  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: 1901274

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-704-2276	LCS	Aqueous	GC 42	01/19/19	01/19/19 12:04	190119L013			
099-15-704-2276	LCSD	Aqueous	GC 42	01/19/19	01/19/19 13:27	190119L013			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	2000	1833	92	1798	90	78-120	2	0-10	



RPD: Relative Percent Difference. CL: Control Limits





## Sample Analysis Summary Report

Work Order: 19-01-1187

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8015B (M)	EPA 5030C	1161	GC 42	2

  
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Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

## Glossary of Terms and Qualifiers

Work Order: 19-01-1187

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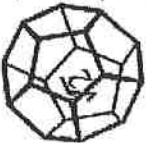
Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDS or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

  
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**NORTH COAST  
LABORATORIES LTD.**

**Subcontractor:** Calscience Environmental Labs  
7440 Lincoln Way  
Garden Grove, CA 92841  
Attn: SAMPLE RECEIVING

714 895-5494

**Send Results to:**

North Coast Labs  
5680 West End Road  
Arcata, CA 95521  
(707) 822-4649

Email: sub@northcoastlabs.com

**Sub-Contract Chain of Custody Record**

**Date Shipped:** 1/16/2019  
**PO #:** 1901274

**19-01-1187**

NCL Sample #	Collection Date	Matrix	State Form System	Sampler	Analysis
Sample ID	Bottle		Source	Employer	Remarks
1901274-01A Sample Site 1	1/15/2019 10:00 am 40 mL VOA vial, preserved-	Surface Water 1:1 HCl to p		Chase Cimrha	Subcontracted Analysis GAS by 8015
1901274-02A Sample Site 2	1/15/2019 10:00 am 40 mL VOA vial, preserved-	Surface Water 1:1 HCl to p		Chase Cimrha	Subcontracted Analysis GAS by 8015
1901274-03A Sample Site 3	1/15/2019 10:00 am 40 mL VOA vial, preserved-	Surface Water 1:1 HCl to p		Chase Cimrha	Subcontracted Analysis GAS by 8015

Relinquished by: <u>Jessie Diller</u>	Date/Time: <u>1/17/19 1400</u>
Relinquished by: _____	Date/Time: _____
Received by: _____	Date/Time: _____
Received by: <u>[Signature]</u>	Date/Time: <u>1/18/19 1020</u>

**Special Instructions:** Please include NCL Sample #, Sample ID, and QC data on all analytical work; include PO # on invoice.

1187

ORIGIN ID:EKAA  
SHIPPING/RECEIVING  
NORTH COAST LABORATORIES  
5680 WEST END RD

ARCATA, CA 955219202  
UNITED STATES US

SHIP DATE: 17JAN19  
ACTWGT: 22.00 LB MAN  
CAD: 0311778/CAFE3211

BILL SENDER

TO **SAMPLE RECEIVING**  
**CALSCIENCE ENVIRONMENTAL LABS**  
**7440 LINCOLN WAY**

**GARDEN GROVE CA 92841**

(530) 244-5227

REF:

DEPT:



TRK# 4576 4020 7000  
0201

FRI - 18 JAN 3:00P  
STANDARD OVERNIGHT

**92 APVA**

92841  
CA-US SNA

Part # 158148-434 RIT EXP 06/18



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## SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: North Coast

DATE: 01/18/2019

**TEMPERATURE:** (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: -0.5°C); Temperature (w/o CF): 2.9 °C (w/ CF): 2.4 °C; ☐ Blank ☒ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: IS

### CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: IS

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: IS

### SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample container label(s) consistent with COC .....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Container(s) for certain analysis free of headspace.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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### CONTAINER TYPE:

(Trip Blank Lot Number: \_\_\_\_\_)

**Aqueous:** ☐ VOA ☒ VOA<sub>h</sub> ☐ VOA<sub>na2</sub> ☐ 100PJ ☐ 100PJ<sub>na2</sub> ☐ 125AGB ☐ 125AGB<sub>h</sub> ☐ 125AGB<sub>p</sub> ☐ 125PB ☐ 125PB<sub>znna</sub> (pH\_\_9)  
☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH\_\_2) ☐ 250PB ☐ 250PB<sub>n</sub> (pH\_\_2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH\_\_2) ☐ 500PB  
☐ 1AGB ☐ 1AGB<sub>na2</sub> ☐ 1AGBs (pH\_\_2) ☐ 1AGBs (O&G) ☐ 1PB ☐ 1PB<sub>na</sub> (pH\_\_12) ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_  
**Solid:** ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (\_\_\_\_) ☐ EnCores® (\_\_\_\_) ☐ TerraCores® (\_\_\_\_) ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_  
**Air:** ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ \_\_\_\_\_ **Other Matrix** (\_\_\_\_): ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO<sub>3</sub>, na = NaOH, na<sub>2</sub> = Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, p = H<sub>3</sub>PO<sub>4</sub>,

Labeled/Checked by: IS

s = H<sub>2</sub>SO<sub>4</sub>, u = ultra-pure, x = Na<sub>2</sub>SO<sub>3</sub>+NaHSO<sub>4</sub>.H<sub>2</sub>O, znna = Zn (CH<sub>3</sub>CO<sub>2</sub>)<sub>2</sub> + NaOH

Reviewed by: IS



## SAMPLE ANOMALY REPORT

DATE: 01/18/2019

## SAMPLES, CONTAINERS, AND LABELS:

## Comments

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☒ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired (list client or ECI sample ID and analysis)
- ☐ Insufficient sample amount for requested analysis (list analysis)
- ☐ Improper container(s) used (list analysis)
- ☐ Improper preservative used (list analysis)
- ☐ pH outside acceptable range (list analysis)
- ☐ No preservative noted on COC or label (list analysis and notify lab)
- ☐ Sample container(s) not labeled
- ☐ Client sample label(s) illegible (list container type and analysis)
- ☐ Client sample label(s) do not match COC (comment)
- ☐ Project information
- ☐ Client sample ID
- ☐ Sampling date and/or time
- ☐ Number of container(s)
- ☐ Requested analysis
- ☐ Sample container(s) compromised (comment)
- ☐ Broken
- ☐ Water present in sample container
- ☐ Air sample container(s) compromised (comment)
- ☐ Flat
- ☐ Very low in volume
- ☐ Leaking (not transferred; duplicate bag submitted)
- ☐ Leaking (transferred into ECI Tedlar™ bags\*)
- ☐ Leaking (transferred into client's Tedlar™ bags\*)

\* Transferred at client's request.

## MISCELLANEOUS: (Describe)

## Comments

## HEADSPACE:

(Containers with bubble &gt; 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

ECI Sample ID	ECI Container ID	Total Number**	ECI Sample ID	ECI Container ID	Total Number**
-1	B, C				
-2	C				
-3	B, C				

(Containers with bubble for other analysis)

ECI Sample ID	ECI Container ID	Total Number**	Requested Analysis

Comments: \_\_\_\_\_

Reported by: 13

Reviewed by: [Signature]

\*\* Record the total number of containers (i.e., vials or bottles) for the affected sample.

**CALIFORNIA LABORATORY SERVICES***Committed. Responsive. Flexible.*

January 24, 2019

CLS Work Order #: 19A0833

COC #:

Ron Canady  
North Coast Laboratories  
5680 West End Road  
Arcata, CA 95521

**Project Name: 1901274**

Enclosed are the results of analyses for samples received by the laboratory on 01/17/19 08:50. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.  
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233



**NORTH COAST  
LABORATORIES LTD.**

## Sub-Contract Chain of Custody Record

Date Shipped: 1/16/2019  
PO #: 1901274

Subcontractor: CLS Laboratories  
3249 Fitzgerald Rd.  
Rancho Cordova, CA 95742

Attn: Sample Receiving (916) 638-7301

Send Results to: North Coast Labs  
5680 West End Road  
Arcata, CA 95521  
(707) 822-4649

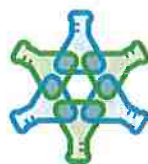
Email: sub@northcoastlabs.com

NCL Sample #	Collection Date	Matrix	State Form System	Sampler	Analysis
Sample ID	Bottle	Source	Employer	Remarks	
1901274-01E Sample Site 1	1/15/2019 10:00 am 250 mL HDPE, preserved-1:1 H2SO4 to	Surface Water		Chase Cimrha	Subcontracted Analysis TKN
1901274-02E Sample Site 2	1/15/2019 10:00 am 250 mL HDPE, preserved-1:1 H2SO4 to	Surface Water		Chase Cimrha	Subcontracted Analysis TKN
1901274-03E Sample Site 3	1/15/2019 10:00 am 250 mL HDPE, preserved-1:1 H2SO4 to	Surface Water		Chase Cimrha	Subcontracted Analysis TKN

0-7

Relinquished by: <u>Jessi Biler</u>	Date/Time: <u>1/16/19 1400</u>	Received by: <u>QC</u>	Date/Time: <u>1/17/19 0850</u>
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____

**Special Instructions:** Please Include NCL Sample #, Sample ID, and QC data on all analytical work; include PO # on invoice.



# CALIFORNIA LABORATORY SERVICES

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01/24/19 14:25

North Coast Laboratories  
5680 West End Road  
Arcata, CA 95521

Project: 1901274  
Project Number: [none]  
Project Manager: Ron Canady

CLS Work Order #: 19A0833  
COC #:

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
1901274-01E ; Sample Site 1 (19A0833-01) Surfacewater Sampled: 01/15/19 10:00 Received: 01/17/19 08:50									
Total Kjeldahl Nitrogen	ND	0.20	mg/L	1	1900460	01/18/19	01/18/19	SM4500-NH3F-1997	
1901274-02E ; Sample Site 2 (19A0833-02) Surfacewater Sampled: 01/15/19 10:00 Received: 01/17/19 08:50									
Total Kjeldahl Nitrogen	ND	0.20	mg/L	1	1900460	01/18/19	01/18/19	SM4500-NH3F-1997	
1901274-03E ; Sample Site 3 (19A0833-03) Surfacewater Sampled: 01/15/19 10:00 Received: 01/17/19 08:50									
Total Kjeldahl Nitrogen	ND	0.20	mg/L	1	1900460	01/18/19	01/18/19	SM4500-NH3F-1997	



# CALIFORNIA LABORATORY SERVICES

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01/24/19 14:25

North Coast Laboratories  
5680 West End Road  
Arcata, CA 95521

Project: 1901274  
Project Number: [none]  
Project Manager: Ron Canady

CLS Work Order #: 19A0833  
COC #:

## Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1900460 - General Preparation</b>										
<b>Blank (1900460-BLK1)</b>				Prepared & Analyzed: 01/18/19						
Total Kjeldahl Nitrogen	ND	0.20	mg/L							
<b>LCS (1900460-BS1)</b>				Prepared & Analyzed: 01/18/19						
Total Kjeldahl Nitrogen	0.551	0.20	mg/L	0.500		110	80-120			
<b>LCS Dup (1900460-BSD1)</b>				Prepared & Analyzed: 01/18/19						
Total Kjeldahl Nitrogen	0.558	0.20	mg/L	0.500		112	80-120	1	20	
<b>Matrix Spike (1900460-MS1)</b>				Source: 19A0833-03		Prepared & Analyzed: 01/18/19				
Total Kjeldahl Nitrogen	0.445	0.20	mg/L	0.500	0.0590	77	75-125			
<b>Matrix Spike Dup (1900460-MSD1)</b>				Source: 19A0833-03		Prepared & Analyzed: 01/18/19				
Total Kjeldahl Nitrogen	0.452	0.20	mg/L	0.500	0.0590	79	75-125	2	25	



# CALIFORNIA LABORATORY SERVICES

*Committed. Responsive. Flexible.*

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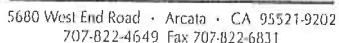
01/24/19 14:25

North Coast Laboratories 5680 West End Road Arcata, CA 95521	Project: 1901274 Project Number: [none] Project Manager: Ron Canady	CLS Work Order #: 19A0833 COC #:
--	---	-------------------------------------

## Notes and Definitions

<b>DET</b>	Analyte DETECTED
<b>ND</b>	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
<b>NR</b>	Not Reported
<b>dry</b>	Sample results reported on a dry weight basis
<b>RPD</b>	Relative Percent Difference





P. 1 of 27 of 27



**NORTH COAST  
LABORATORIES LTD.**

June 07, 2019

A.M. Baird Engineering  
P.O. Box 396  
Fortuna, CA 95540-0396

Attn: Allan Baird

Order No.: 1905447  
Invoice No.: 146809  
PO No.:  
ELAP No. 1247-Expires July 2020

RE:

**SAMPLE IDENTIFICATION**

Fraction	Client Sample Description
01A	POD Sample 1
01B	POD Sample 1
01C	POD Sample 1
01D	POD Sample 1
02A	Sample Site 2
02B	Sample Site 2
02C	Sample Site 2
02D	Sample Site 2

ND = Not Detected at the Reporting Limit

Limit = Reporting Limit

Flag = Explanation in Case Narrative

All solid results are expressed on a wet-weight basis unless otherwise noted.

Approved for release by:

Roxanne Moore, Project Manager

5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • [www.northcoastlabs.com](http://www.northcoastlabs.com)

**Date:** 07-Jun-2019

**WorkOrder:** 1905447

## CASE NARRATIVE

---

The samples were received on ice with a temperature above the EPA recommended temperature of less than or equal to 6° C.

Turbidity:

Due to laboratory error the sample was analyzed past the recommended hold time.

---

NORTH COAST LABORATORIES

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Date: 07-Jun-2019

WorkOrder: 1905447

## ANALYTICAL REPORT

Client Sample ID: POD Sample 1

Received: 5/23/2019

Lab ID: 1905447-01A

Collected: 5/23/2019 9:39

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		5/28/2019

Client Sample ID: POD Sample 1

Received: 5/23/2019

Lab ID: 1905447-01B

Collected: 5/23/2019 9:39

Test Name: TPH as Diesel

Reference: EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	5/31/2019	6/1/2019
Surrogate: N-Tricosane	96.0		71.8-126	% Rec	1.0	5/31/2019	6/1/2019

Client Sample ID: POD Sample 1

Received: 5/23/2019

Lab ID: 1905447-01C

Collected: 5/23/2019 9:39

Test Name: Nitrate and/or Nitrite

Reference: EPA 300.0 Rev 2.1 (1993)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrate (as Nitrogen)	ND		0.10	mg/L	1.0		5/23/2019
Nitrite (as Nitrogen)	ND		0.10	mg/L	1.0		5/23/2019

Test Name: Turbidity

Reference: EPA 180.1

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Turbidity	0.39		0.050	NTU	1.0		5/28/2019

Client Sample ID: POD Sample 1

Received: 5/23/2019

Lab ID: 1905447-01D

Collected: 5/23/2019 9:39

Test Name: Nitrogen - Total Kjeldahl

Reference: SM 4500-NH3 B,D 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrogen- Total Kjeldahl	ND		1.0	mg/L	1.0	6/4/2019	6/6/2019

Test Name: Total Nitrogen

Reference: SM 4500-N, 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Nitrogen	ND		1.0	mg/L	1.0		6/7/2019

Client Sample ID: Sample Site 2

Received: 5/23/2019

Lab ID: 1905447-02A

Collected: 5/23/2019 10:18

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		5/28/2019

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Date: 07-Jun-2019

WorkOrder: 1905447

## ANALYTICAL REPORT

Client Sample ID: Sample Site 2

Received: 5/23/2019

Lab ID: 1905447-02B

Collected: 5/23/2019 10:18

Test Name: TPH as Diesel

Reference: EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	5/31/2019	6/1/2019
Surrogate: N-Tricosane	94.5		71.8-126	% Rec	1.0	5/31/2019	6/1/2019

Client Sample ID: Sample Site 2

Received: 5/23/2019

Lab ID: 1905447-02C

Collected: 5/23/2019 10:18

Test Name: Nitrate and/or Nitrite

Reference: EPA 300.0 Rev 2.1 (1993)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrate (as Nitrogen)	ND		0.10	mg/L	1.0		5/23/2019
Nitrite (as Nitrogen)	ND		0.10	mg/L	1.0		5/23/2019

Test Name: Turbidity

Reference: EPA 180.1

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Turbidity	0.80		0.050	NTU	1.0		5/28/2019

Client Sample ID: Sample Site 2

Received: 5/23/2019

Lab ID: 1905447-02D

Collected: 5/23/2019 10:18

Test Name: Nitrogen - Total Kjeldahl

Reference: SM 4500-NH3 B,D 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Nitrogen- Total Kjeldahl	ND		1.0	mg/L	1.0	6/4/2019	6/6/2019

Test Name: Total Nitrogen

Reference: SM 4500-N, 1997. Revs 2011

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Total Nitrogen	ND		1.0	mg/L	1.0		6/7/2019

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North Coast Laboratories, Ltd.

Date: 6/7/2019

CLIENT: A.M. Baird Engineering  
 Work Order: 1905447  
 Project:

## QC SUMMARY REPORT

Method Blank

Sample ID	MB 052819	Batch ID: R99582	Test Code: GASW-MS	Units: µg/L		Analysis Date	5/28/2019 12:23:00 PM	Prep Date				
Client ID:			Run ID: ORGCMS3_190528A			SeqNo:	1416302					
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline		ND	50									

Sample ID	MB-052319	Batch ID: R99535	Test Code: ICNOW	Units: mg/L		Analysis Date	5/23/2019 6:26:44 PM	Prep Date				
Client ID:			Run ID: INIC2_190523D			SeqNo:	1415728					
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as Nitrogen)		ND	0.10									
Nitrite (as Nitrogen)		ND	0.10									

Sample ID	MBLANK	Batch ID: R99696	Test Code: NKJEW	Units: mg/L		Analysis Date	6/6/2019	Prep Date 6/4/2019				
Client ID:			Run ID: WC_190606D			SeqNo:	1417962					
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen- Total Kjeldahl		ND	1.0									

Sample ID	MB-37423	Batch ID: 37423	Test Code: TPHDIW	Units: µg/L		Analysis Date	5/31/2019 9:00:19 PM	Prep Date 5/31/2019				
Client ID:			Run ID: ORGC14_190531A			SeqNo:	1417115					
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)		ND	50									
Surrogate: N-Tricosane		49.5	0.10	50.0	0	99.0%	72	126	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

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North Coast Laboratories, Ltd.

Date: 6/7/2019

CLIENT: A.M. Baird Engineering

Work Order: 1905447

Project:

## QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1905447-01AMS	Batch ID: R99582	Test Code: GASW-MS	Units: µg/L	Analysis Date 5/28/2019 7:03:00 PM				Prep Date		
Client ID:	POD Sample 1		Run ID: ORGCMS3_190528A		SeqNo: 1416308						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	1,111	50	1,000	0	111%	74	125	0			
Sample ID	1905447-01CMS	Batch ID: R99535	Test Code: ICNOW	Units: mg/L	Analysis Date 5/23/2019 7:16:39 PM				Prep Date		
Client ID:	POD Sample 1		Run ID: INIC2_190523D		SeqNo: 1415731						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as Nitrogen)	1.847	0.10	2.00	0	92.3%	80	120	0			
Nitrite (as Nitrogen)	1.844	0.10	2.00	0	92.2%	80	120	0			
Sample ID	1905447-02D	Batch ID: R99696	Test Code: NKJEW	Units: mg/L	Analysis Date 6/6/2019				Prep Date 6/4/2019		
Client ID:	Sample Site 2		Run ID: WC_190606D		SeqNo: 1417967						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen- Total Kjeldahl	9,700	1.0	10.0	0	97.0%	85	115	0			
Sample ID	1905447-02BMS	Batch ID: 37423	Test Code: TPHDIW	Units: µg/L	Analysis Date 5/31/2019 11:04:35 PM				Prep Date 5/31/2019		
Client ID:	Sample Site 2		Run ID: ORGC14_190531A		SeqNo: 1417118						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	441.5	50	500	12.6	85.8%	73	125	0			
Surrogate: N-Tricosane	48.8	0.10	50.0	0	97.5%	72	126	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

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North Coast Laboratories, Ltd.

Date: 6/7/2019

CLIENT: A.M. Baird Engineering

Work Order: 1905447

Project:

## QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	LCS-19122	Batch ID: R99582	Test Code: GASW-MS	Units: µg/L	Analysis Date	5/28/2019 10:25:00 AM	Prep Date				
Client ID:			Run ID: ORGCMS3_190528A		SeqNo:	1416300					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	1,081	50	1,000	0	108%	74	125	0			
Sample ID	LCSD-19122	Batch ID: R99582	Test Code: GASW-MS	Units: µg/L	Analysis Date	5/28/2019 10:54:00 AM	Prep Date				
Client ID:			Run ID: ORGCMS3_190528A		SeqNo:	1416301					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	1,241	50	1,000	0	124%	74	125	1,080	13.7%	20	
Sample ID	LCS-WL-052319-0	Batch ID: R99535	Test Code: ICNOW	Units: mg/L	Analysis Date	5/23/2019 6:43:22 PM	Prep Date				
Client ID:			Run ID: INIC2_190523D		SeqNo:	1415729					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as Nitrogen)	0.9171	0.10	1.00	0	91.7%	90	110	0			
Nitrite (as Nitrogen)	0.9333	0.10	1.00	0	93.3%	90	110	0			
Sample ID	LCSD-WL-052319-	Batch ID: R99535	Test Code: ICNOW	Units: mg/L	Analysis Date	5/23/2019 7:00:01 PM	Prep Date				
Client ID:			Run ID: INIC2_190523D		SeqNo:	1415730					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as Nitrogen)	0.9146	0.10	1.00	0	91.5%	90	110	0.917	0.270%	10	
Nitrite (as Nitrogen)	0.9368	0.10	1.00	0	93.7%	90	110	0.933	0.376%	10	
Sample ID	BLKSPK	Batch ID: R99696	Test Code: NKJEW	Units: mg/L	Analysis Date	6/6/2019	Prep Date	6/4/2019			
Client ID:			Run ID: WC_190606D		SeqNo:	1417963					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen- Total Kjeldahl	9.117	1.0	10.0	0	91.2%	85	115	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

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CLIENT: A.M. Baird Engineering  
 Work Order: 1905447  
 Project:

**QC SUMMARY REPORT**  
 Laboratory Control Spike Duplicate

Sample ID	BLKSPK	Batch ID: R99696	Test Code: NKJEW	Units: mg/L	Analysis Date: 6/6/2019				Prep Date: 6/4/2019		
Client ID:		Run ID: WC_190606D			SeqNo: 1417964						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen- Total Kjeldahl	8.835	1.0	10.0	0	88.4%	85	115	9.12	3.14%	20	

Sample ID	LCS-37423	Batch ID: 37423	Test Code: TPHDIW	Units: µg/L	Analysis Date	5/31/2019 9:42:21 PM	Prep Date	5/31/2019			
Client ID:		Run ID: ORGC14_190531A			SeqNo:	1417116					
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	415.0	50	500	0	83.0%	73	125	0			
Surrogate: N-Tricosane	48.0	0.10	50.0	0	95.9%	72	126	0			

Sample ID	LCSD-37423	Batch ID: 37423	Test Code: TPHDIW	Units: µg/L	Analysis Date 5/31/2019 10:23:41 PM			Prep Date 5/31/2019			
Client ID:		Run ID: ORGC14_190531A			SeqNo: 1417117						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	438.6	50	500	0	87.7%	73	125	415	5.54%	30	
Surrogate: N-Tricosane	48.4	0.10	50.0	0	96.8%	72	126	48.0	0.975%	30	

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

Page 2 of 2

## Chain of Custody

1905 447

LABORATORY NUMBER:

Attention: Baird Engineering  
Results & Invoice to:  
Address: 1257 Main Street  
Porter Co  
Phone: \_\_\_\_\_  
Copies of Report to: Chase  
ambaird@suddenlink.net, com  
Sampler (Sign & Print): [Signature] Chase Chirba

## PROJECT INFORMATION

Project Number: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Purchase Order Number: \_\_\_\_\_

[illegible][illegible]

TAT: ☐ STD (2-3 wk) ☐ Other: \_\_\_\_\_  
PRIOR AUTHORIZATION IS REQUIRED FOR  
RUSH SAMPLES.



### REPORTING REQUIREMENTS:

☐ State Forms  
☐ Geotracker ☐ SWAMP ☐ Other EDD:  
☐ Final Report PDF ☐ FAX By:

**CONTAINER CODES:** 1—½ gal. pl; 2—250 ml pl;  
3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG;  
6—500 ml BG; 7—1 L BG; 8—40 ml VOA;  
9—60 ml VOA; 10—125 ml VOA; 11—4 oz glass jar;  
12—8 oz glass jar; 13—brass tube; 14—other

**PRESERVATIVE CODES:** a—HNO<sub>3</sub>; b—HCl; c—H<sub>2</sub>SO<sub>4</sub>;  
d—Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>; e—NaOH; f—C<sub>2</sub>H<sub>5</sub>OCl; g—other

SPECIAL INSTRUCTIONS	SAMPLE CONDITION
only 2 sites	Temperature 12-2 °C
12	Received On Ice? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N
	Samples Intact? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N
	Preserved? Y / <input checked="" type="checkbox"/> N
	Preserved @ NCL?
	Y / N / <input checked="" type="checkbox"/> NA

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
	5/23/19 (LX)		5/23/19

## SAMPLE DISPOSAL

☐ NCL Disposal of Non-Contaminated  
☐ Return ☐ Pickup

CHAIN OF CUSTODY SEALS Y/N/NA  
SHIPPED VIA: UPS Fed-Ex Hand

\***MATRIX:** DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; WW= Waste Water; S=Soil; O= Other.

ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT