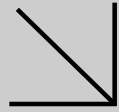




Calscience



WORK ORDER NUMBER: 16-01-1686

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: GT Analytical

Client Project Name: J-1

Attention: Darryl Tchon
1396 East 28th Street
Signal Hill, CA 90755-1840

Approved for release on 02/09/2016 by:
Lori Thompson
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC 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.

Contents

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Work Order Number: 16-01-1686

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/26/16. They were assigned to Work Order 16-01-1686.

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 ≤ 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.

Sample Summary

Client: GT Analytical	Work Order: 16-01-1686
1396 East 28th Street	Project Name: J-1
Signal Hill, CA 90755-1840	PO Number:
	Date/Time Received: 01/26/16 14:45
	Number of Containers: 8

Attn: Darryl Tchon

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
J-1	16-01-1686-1	01/25/16 12:45	8	Aqueous



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Analytical Report

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: J-1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-A	01/25/16 12:45	Aqueous	GC 61	N/A	01/27/16 17:30	160127L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Methane	7400	40.0	40.0	

Method Blank	099-12-663-2545	N/A	Aqueous	GC 61	N/A	01/27/16 11:43	160127L01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Methane	ND	1.00	1.00	

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

Analytical Report

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: EPA 300.0
Units: mg/L

Project: J-1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-C	01/25/16 12:45	Aqueous	IC 15	N/A	01/26/16 19:35	160126L01

Comment(s): - The reporting limit is elevated resulting from matrix interference.
- Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Bromide	160	4.0	2.3	40.0	
Nitrate (as N)	ND	4.0	2.1	40.0	
Sulfate	12	40	11	40.0	J

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-C	01/25/16 12:45	Aqueous	IC 15	N/A	01/27/16 03:39	160126L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chloride	16000	200	100	200	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-906-6421	N/A	Aqueous	IC 15	N/A	01/26/16 11:01	160126L01

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Chloride	ND	1.0	0.52	1.00	
Bromide	ND	0.10	0.058	1.00	
Nitrate (as N)	ND	0.10	0.053	1.00	
Sulfate	ND	1.0	0.27	1.00	

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

Analytical Report

GT Analytical
 1396 East 28th Street
 Signal Hill, CA 90755-1840

Date Received: 01/26/16
 Work Order: 16-01-1686
 Preparation: N/A
 Method: SM 2320B
 Units: mg/L

Project: J-1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-E	01/25/16 12:45	Aqueous	PH1/BUR03	N/A	01/28/16 17:45	G0128ALKB1

Parameter	Result	RL	DF	Qualifiers
Alkalinity, Total (as CaCO ₃)	1190	10.0	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-859-926	N/A	Aqueous	PH1/BUR03	N/A	01/28/16 17:45	G0128ALKB1

Parameter	Result	RL	DF	Qualifiers
Alkalinity, Total (as CaCO ₃)	ND	1.0	1.00	



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Analytical Report

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: SM 2540 C
Units: mg/L

Project: J-1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-H	01/25/16 12:45	Aqueous	SC 2	01/28/16	01/28/16 17:00	G0128TDSL1

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Solids, Total Dissolved	28000	100	1.00	

Method Blank	099-12-180-4936	N/A	Aqueous	SC 2	01/28/16	01/28/16 17:00	G0128TDSL1
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Solids, Total Dissolved	ND	1.0	1.00	

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



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Analytical Report

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: EPA 3510C
Method: EPA 8015B (M)
Units: ug/L

Project: J-1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-F	01/25/16 12:45	Aqueous	GC 48	01/28/16	01/29/16 11:58	160128B06

Parameter	Result	RL	DF	Qualifiers
TPH as Crude Oil	180000	13000	50.0	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	114	68-140	

Method Blank	099-15-314-63	N/A	Aqueous	GC 48	01/28/16	01/28/16 16:29	160128B06
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Parameter	Result	RL	DF	Qualifiers
TPH as Crude Oil	ND	250	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	88	68-140	

Return to Contents

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



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Analytical Report

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: EPA 200.7
Units: mg/L

Project: J-1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-E	01/25/16 12:45	Aqueous	ICP 7300	01/27/16	02/01/16 16:58	160127LA5A

Parameter	Result	RL	DF	Qualifiers
Lithium	2.70	0.0500	1.00	
Calcium	437	0.100	1.00	
Iron	193	0.100	1.00	
Magnesium	86.0	0.100	1.00	
Manganese	3.58	0.00500	1.00	
Potassium	215	0.500	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-E	01/25/16 12:45	Aqueous	ICP 7300	01/27/16	02/01/16 16:45	160127LA5A

Parameter	Result	RL	DF	Qualifiers
Sodium	9270	50.0	100	
Strontium	50.9	3.00	100	
Boron	40.4	2.00	100	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	097-01-012-6454	N/A	Aqueous	ICP 7300	01/27/16	01/28/16 14:03	160127LA5A

Parameter	Result	RL	DF	Qualifiers
Lithium	ND	0.0500	1.00	
Calcium	ND	0.100	1.00	
Iron	ND	0.100	1.00	
Magnesium	ND	0.100	1.00	
Manganese	ND	0.00500	1.00	
Potassium	ND	0.500	1.00	
Sodium	ND	0.500	1.00	
Strontium	ND	0.0300	1.00	
Boron	ND	0.0200	1.00	

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



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Analytical Report

GT Analytical
 1396 East 28th Street
 Signal Hill, CA 90755-1840

Date Received: 01/26/16
 Work Order: 16-01-1686
 Preparation: EPA 625
 Method: EPA 625
 Units: ug/L

Project: J-1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
J-1	16-01-1686-1-G	01/25/16 12:45	Aqueous	GC/MS SS	01/27/16	01/28/16 13:09	160127L05

Parameter	Result	RL	DF	Qualifiers
Naphthalene	ND	99	10.0	
Acenaphthylene	ND	99	10.0	
Acenaphthene	ND	99	10.0	
Fluorene	ND	99	10.0	
Phenanthrene	ND	99	10.0	
Anthracene	ND	99	10.0	
Fluoranthene	ND	99	10.0	
Pyrene	ND	99	10.0	
Benzo (a) Anthracene	ND	99	10.0	
Chrysene	ND	99	10.0	
Benzo (k) Fluoranthene	ND	99	10.0	
Benzo (b) Fluoranthene	ND	99	10.0	
Benzo (a) Pyrene	ND	99	10.0	
Benzo (g,h,i) Perylene	ND	99	10.0	
Indeno (1,2,3-c,d) Pyrene	ND	99	10.0	
Dibenz (a,h) Anthracene	ND	99	10.0	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorophenol	73	15-138	
Phenol-d6	89	17-141	
Nitrobenzene-d5	84	56-123	
2-Fluorobiphenyl	90	45-120	
2,4,6-Tribromophenol	85	32-143	
p-Terphenyl-d14	107	46-133	

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

Analytical Report

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: EPA 625
Method: EPA 625
Units: ug/L

Project: J-1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-026-317	N/A	Aqueous	GC/MS SS	01/27/16	01/28/16 10:45	160127L05

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Naphthalene	ND	10	1.00	
Acenaphthylene	ND	10	1.00	
Acenaphthene	ND	10	1.00	
Fluorene	ND	10	1.00	
Phenanthrene	ND	10	1.00	
Anthracene	ND	10	1.00	
Fluoranthene	ND	10	1.00	
Pyrene	ND	10	1.00	
Benzo (a) Anthracene	ND	10	1.00	
Chrysene	ND	10	1.00	
Benzo (k) Fluoranthene	ND	10	1.00	
Benzo (b) Fluoranthene	ND	10	1.00	
Benzo (a) Pyrene	ND	10	1.00	
Benzo (g,h,i) Perylene	ND	10	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	10	1.00	
Dibenz (a,h) Anthracene	ND	10	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
2-Fluorophenol	51	15-138	
Phenol-d6	33	17-141	
Nitrobenzene-d5	97	56-123	
2-Fluorobiphenyl	81	45-120	
2,4,6-Tribromophenol	66	32-143	
p-Terphenyl-d14	91	46-133	

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



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Quality Control - Spike/Spike Duplicate

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: EPA 300.0

Project: J-1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-01-1693-14	Sample	Aqueous	IC 15	N/A	01/26/16 21:06	160126S01
16-01-1693-14	Matrix Spike	Aqueous	IC 15	N/A	01/26/16 21:25	160126S01
16-01-1693-14	Matrix Spike Duplicate	Aqueous	IC 15	N/A	01/26/16 21:43	160126S01

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Chloride	83.64	50.00	152.6	138	157.9	148	80-120	3	0-20	3
Bromide	0.4861	5.000	4.994	90	5.468	100	80-120	9	0-20	
Nitrate (as N)	6.546	5.000	11.72	103	12.24	114	80-120	4	0-20	
Sulfate	234.0	50.00	349.1	230	355.2	242	80-120	2	0-20	3


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RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: EPA 200.7

Project: J-1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-01-1696-1	Sample	Aqueous	ICP 7300	01/27/16	01/28/16 14:15	160127SA5
16-01-1696-1	Matrix Spike	Aqueous	ICP 7300	01/27/16	01/28/16 14:17	160127SA5
16-01-1696-1	Matrix Spike Duplicate	Aqueous	ICP 7300	01/27/16	01/28/16 14:18	160127SA5

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lithium	ND	0.5000	0.1988	40	0.1851	37	80-120	7	0-20	3
Calcium	327.4	0.5000	319.0	4X	310.2	4X	80-120	4X	0-20	Q
Iron	0.1224	0.5000	0.6321	102	0.6211	100	80-120	2	0-20	
Magnesium	104.7	0.5000	100.5	4X	101.0	4X	80-120	4X	0-20	Q
Manganese	0.007066	0.5000	0.5286	104	0.5120	101	80-120	3	0-20	
Potassium	13.58	5.000	18.38	96	17.82	85	80-120	3	0-20	
Sodium	323.4	5.000	315.2	4X	302.0	4X	80-120	4X	0-20	Q
Strontium	3.087	0.5000	3.510	4X	3.345	4X	80-120	4X	0-20	Q
Boron	2.391	0.5000	2.830	4X	2.829	4X	80-120	4X	0-20	Q

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Sample Duplicate

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: SM 2320B

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
16-01-1705-2	Sample	Aqueous	PH1/BUR03	N/A	01/28/16 17:45	G0128ALKD1
16-01-1705-2	Sample Duplicate	Aqueous	PH1/BUR03	N/A	01/28/16 17:45	G0128ALKD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO ₃)	247.0	242.0	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Sample Duplicate

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: SM 2540 C

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
16-01-1491-4	Sample	Aqueous	SC 2	01/28/16 00:00	01/28/16 17:00	G0128TDSD1
16-01-1491-4	Sample Duplicate	Aqueous	SC 2	01/28/16 00:00	01/28/16 17:00	G0128TDSD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	1025	1105	8	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS/LCSD

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: RSK-175M

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-663-2545	LCS	Aqueous	GC 61	N/A	01/27/16 10:22	160127L01			
099-12-663-2545	LCSD	Aqueous	GC 61	N/A	01/27/16 11:20	160127L01			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Methane	102.0	99.91	98	100.6	99	80-120	1	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: EPA 300.0

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-906-6421	LCS	Aqueous	IC 15	N/A	01/26/16 11:19	160126L01
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Chloride		50.00	47.53	95	90-110	
Bromide		5.000	4.822	96	90-110	
Nitrate (as N)		5.000	4.848	97	90-110	
Sulfate		50.00	48.60	97	90-110	



Calscience

Quality Control - LCS/LCSD

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: SM 2320B

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-859-926	LCS	Aqueous	PH1/BUR03	N/A	01/28/16 17:45	G0128ALKB1
099-15-859-926	LCSD	Aqueous	PH1/BUR03	N/A	01/28/16 17:45	G0128ALKB1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Alkalinity, Total (as CaCO3)	100.0	98.00	98	99.00	99	80-120	1	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: SM 2540 C

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-180-4936	LCS	Aqueous	SC 2	01/28/16	01/28/16 17:00	G0128TDSL1			
099-12-180-4936	LCSD	Aqueous	SC 2	01/28/16	01/28/16 17:00	G0128TDSL1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Solids, Total Dissolved	100.0	90.00	90	85.00	85	80-120	6	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

GT Analytical	Date Received:	01/26/16
1396 East 28th Street	Work Order:	16-01-1686
Signal Hill, CA 90755-1840	Preparation:	EPA 3510C
Project: J-1	Method:	EPA 8015B (M)

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-314-63	LCS	Aqueous	GC 48	01/28/16	01/28/16 16:45	160128B06
099-15-314-63	LCSD	Aqueous	GC 48	01/28/16	01/28/16 17:00	160128B06

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Crude Oil	2000	2275	114	2271	114	75-117	0	0-13	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: N/A
Method: EPA 200.7

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-012-6454	LCS	Aqueous	ICP 7300	01/27/16	01/28/16 14:04	160127LA5A
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Lithium		0.5000	0.4507	90	85-115	
Calcium		0.5000	0.5045	101	85-115	
Iron		0.5000	0.4984	100	85-115	
Magnesium		0.5000	0.5156	103	85-115	
Manganese		0.5000	0.5044	101	85-115	
Potassium		5.000	5.023	100	85-115	
Sodium		5.000	5.201	104	85-115	
Strontium		0.5000	0.5274	105	85-115	
Boron		0.5000	0.4507	90	85-115	

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

GT Analytical
1396 East 28th Street
Signal Hill, CA 90755-1840

Date Received: 01/26/16
Work Order: 16-01-1686
Preparation: EPA 625
Method: EPA 625

Project: J-1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-026-317	LCS	Aqueous	GC/MS SS	01/27/16	01/28/16 11:04	160127L05			
099-15-026-317	LCSD	Aqueous	GC/MS SS	01/27/16	01/28/16 11:30	160127L05			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Naphthalene	100.0	80.01	80	79.66	80	21-133	0	0-20	
Acenaphthylene	100.0	82.77	83	81.49	81	33-145	2	0-20	
Acenaphthene	100.0	85.73	86	85.13	85	51-137	1	0-11	
Fluorene	100.0	85.21	85	84.15	84	59-121	1	0-20	
Pyrene	100.0	86.46	86	83.27	83	45-135	4	0-20	


 Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Sample Analysis Summary Report

Work Order: 16-01-1686

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 200.7	N/A	935	ICP 7300	1
EPA 300.0	N/A	969	IC 15	1
EPA 625	EPA 625	923	GC/MS SS	1
EPA 8015B (M)	EPA 3510C	974	GC 48	1
RSK-175M	N/A	1045	GC 61	2
SM 2320B	N/A	685	PH1/BUR03	1
SM 2540 C	N/A	1009	SC 2	1

Glossary of Terms and Qualifiers

Work Order: 16-01-1686

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<u>Qualifiers</u>	<u>Definition</u>
*	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/PDSD 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.

GT Analytical Services Inc.

1396 E. 28th Street
 Signal Hill, CA 90755
 Tel: (310) 991-4882 Fax: (562) 424-0430

CHAIN OF CUSTODY RECORD

Customer		J-1		LOG NUMBER	
Address				16-01-1686	
City, State, Zip				ANALYSIS REQUIRED	
Collector's Name		Drew Riley		See attached list	
Telephone Number					
Sample Number	Date Sampled	Time Sampled	Type: Composite or Grab	Sample Identification	Number of Containers
1	1/25/2016		G	J-1	1
2					
3					
4					
5					
6					
7					
8					
9					
10					
Remarks				Report to: dtchon@verizon.net	

Relinquished By	SIGNATURE	COMPANY	DATE	TIME
	<i>[Signature]</i>	GT	1/26/16	10:59 AM
Received By	<i>[Signature]</i>	EC	1/26/16	10:59
Relinquished By	<i>[Signature]</i>	EC	1/26/16	1445
Received By	<i>[Signature]</i>	EC	01/26/16	1445
Relinquished By				
Received By				

1686

ATTACHMENT A

Water Quality Analysis

Groundwater samples collected from wells and injection zones shall be analyzed by a laboratory certified by the Environmental Laboratory Accreditation Program, using current applicable EPA-approved analytical methods for water for the following:

- Do Not*
Do
- A. Total dissolved solids
 - B. Metals listed in California Code of Regulations, Title 22, Section 66261.24, Subdivision (a)(2)(A)
 - C. Benzene, toluene, ethylbenzene, and xylenes
 - D. Total petroleum hydrocarbons for crude oil
 - E. Polynuclear aromatic hydrocarbons (including acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene)
 - F. Radionuclides listed under California Code of Regulations, Title 22, Table 64442
 - G. Methane
 - H. Major and minor cations (including sodium, potassium, magnesium, and calcium)
 - I. Major and minor anions (including nitrate, chloride, sulfate, alkalinity, and bromide)
 - J. Trace elements (including lithium, strontium, boron, iron, and manganese)

Water Quality Reporting

Water quality information shall include, at a minimum:

- A. Site plan with locations of well(s) sampled.
- B. Description of field sampling procedures.
- C. Table(s) of analytical results organized by well number (including API number).
- D. Copies of analytical laboratory reports, including quality assurance/quality control procedures and analytical test methods.

Container Request

1686

Requested By: Don Burley

Date: 1/21/2016 9:14:45 AM

Project: Groundwater

Client: GT Analytical

Delivery Method: GSO

Delivery Date: 1/22/2016

Time: N/A

Deliver To: GT Analytical (Default)

Address: 1396 East 28th Street

Signal Hill, CA 90755-1840

Attention: Darryl Tchon

Phone: 310-991-4882

Note:

Containers

Test	Description	Preservation	Quantity	Unit
Anions	125ml HDPE	None	1	Each
Chromium VI, Hexavalent Chromium	250ml HDPE	None	1	Each
TPH-Diesel/Motor Oil/Carbon Chain	500ml amber glass	None	1	Each
PAHs	1L amber glass	None	1	Each
Methane/Ethane/Ethene	2-40ml VOA vials	HCl	1	Set
Alkalinity	250ml HDPE	None	1	Each
Solids, Total Dissolved (TDS)	1L HDPE	None	1	Each

Others

Description	Quantity	Unit
Blank Labels	0	Each
Generic COCs	1	Each
Coolers (Medium)	1	Each
Temp Blanks	1	Each
Packing Material	0	Each

Unused sample containers cannot be returned to Calscience for reuse due to possible contamination issues. If unused containers are returned, a \$100 minimum disposal fee applies.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: G T ANALYTICAL SERVICE INC.

DATE: 01 / 26 / 2016

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

Thermometer ID: SC4B (CF: +0.3°C); Temperature (w/o CF): 2.0°C (w/ CF): 2.3°C; [x] 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: 676

CUSTODY SEAL:

Cooler [] Present and Intact [] Present but Not Intact [x] Not Present [] N/A

Checked by: 676

Sample(s) [] Present and Intact [] Present but Not Intact [x] Not Present [] N/A

Checked by: 1053

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples [x] Yes [] No [] N/A

COC document(s) received complete [] Yes [x] No [] N/A

[] Sampling date [x] Sampling time [x] Matrix [] Number of containers

[] No analysis requested [] Not relinquished [] No relinquished date [] No relinquished time

Sampler's name indicated on COC [x] Yes [] No [] N/A

Sample container label(s) consistent with COC [x] Yes [] No [] N/A

Sample container(s) intact and in good condition [x] Yes [] No [] N/A

Proper containers for analyses requested [x] Yes [] No [] N/A

Sufficient volume/mass for analyses requested [x] Yes [] No [] N/A

Samples received within holding time [x] Yes [] No [] N/A

Aqueous samples for certain analyses received within 15-minute holding time

[] pH [] Residual Chlorine [] Dissolved Sulfide [] Dissolved Oxygen [] Yes [] No [x] N/A

Proper preservation chemical(s) noted on COC and/or sample container [x] Yes [] No [] N/A

Unpreserved aqueous sample(s) received for certain analyses

[] Volatile Organics [x] Total Metals [] Dissolved Metals

Container(s) for certain analysis free of headspace [x] Yes [] No [] N/A

[] Volatile Organics [x] Dissolved Gases (RSK-175) [] Dissolved Oxygen (SM 4500)

[] Carbon Dioxide (SM 4500) [] Ferrous Iron (SM 3500) [] Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation [] Yes [] No [x] N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: [] VOA [x] VOAh [] VOAna2 [] 100PJ [] 100PJna2 [] 125AGB [] 125AGBh [] 125AGBp [x] 125PB

[] 125PBzanna [] 250AGB [] 250CGB [] 250CGBs [x] 250PB [] 250PBn [] 500AGB [x] 500AGJ [] 500AGJs

[] 500PB [x] 1AGB [] 1AGBna2 [] 1AGBs [x] 1PB [] 1PBna [] _____ [] _____ [] _____ [] _____

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 = HNO3, na = NaOH, na2 = Na2S2O3, p = H3PO4, Labeled/Checked by: 1053

s = H2SO4, u = ultra-pure, zanna = Zn(CH3CO2)2 + NaOH Reviewed by: 679

* Collection time per label is 12:45 (v2) 1/26/16

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SAMPLE ANOMALY REPORT

DATE: 01 / 26 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- 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)
- 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)

HEADSPACE:

(Containers with bubble > 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**

Comments

(-1) Received 8 containers instead of 1.
 1 x 1-L Plastic bottle
 1 x 1-L Amber glass bottle
 1 x 500 Amber glass Jar
 2 x 250 Plastic bottle
 1 x 125 Plastic bottle
 2 x vials preserved with HCl.

Comments

(Containers with bubble for other analysis)

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

Comments: _____

Reported by: LOS3
 Reviewed by: BS9

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

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