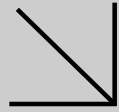




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WORK ORDER NUMBER: 15-03-0427

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Advanced Chemical Transport

Client Project Name: SIO

Attention: John Teasley
2010 Mission Road
Escondido, CA 92029-1119

Ranjit K. Clarke

Approved for release on 03/13/2015 by:
Ranjit Clarke
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.



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Work Order Number: 15-03-0427

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 03/05/15. They were assigned to Work Order 15-03-0427.

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.



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Sample Summary

Client: Advanced Chemical Transport	Work Order: 15-03-0427
2010 Mission Road	Project Name: SIO
Escondido, CA 92029-1119	PO Number:
	Date/Time Received: 03/05/15 19:48
	Number of Containers: 1

Attn: John Teasley

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
NUTRIENT SAMPLE #3	15-03-0427-1	03/05/15 10:00	1	Aqueous


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Analytical Report

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 3010A Total
Method: EPA 6010B
Units: mg/L

Project: SIO

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NUTRIENT SAMPLE #3	15-03-0427-1-A	03/05/15 10:00	Aqueous	ICP 7300	03/06/15	03/12/15 17:20	150306LA3

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Antimony	ND	0.0150	1.00	
Arsenic	ND	0.0100	1.00	
Barium	ND	0.0100	1.00	
Beryllium	ND	0.0100	1.00	
Cadmium	0.0613	0.0100	1.00	
Chromium	ND	0.0100	1.00	
Cobalt	ND	0.0100	1.00	
Copper	0.0597	0.0100	1.00	
Lead	ND	0.0100	1.00	
Molybdenum	ND	0.0100	1.00	
Nickel	ND	0.0100	1.00	
Selenium	ND	0.0150	1.00	
Silver	ND	0.00500	1.00	
Thallium	ND	0.0150	1.00	
Vanadium	ND	0.0100	1.00	
Zinc	0.0162	0.0100	1.00	


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



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Analytical Report

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 3010A Total
Method: EPA 6010B
Units: mg/L

Project: SIO

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	097-01-003-14911	N/A	Aqueous	ICP 7300	03/06/15	03/09/15 14:03	150306LA3

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.0150	1.00	
Arsenic	ND	0.0100	1.00	
Barium	ND	0.0100	1.00	
Beryllium	ND	0.0100	1.00	
Cadmium	ND	0.0100	1.00	
Chromium	ND	0.0100	1.00	
Cobalt	ND	0.0100	1.00	
Copper	ND	0.0100	1.00	
Lead	ND	0.0100	1.00	
Molybdenum	ND	0.0100	1.00	
Nickel	ND	0.0100	1.00	
Selenium	ND	0.0150	1.00	
Silver	ND	0.00500	1.00	
Thallium	ND	0.0150	1.00	
Vanadium	ND	0.0100	1.00	
Zinc	ND	0.0100	1.00	



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



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Analytical Report

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 7470A Total
Method: EPA 7470A
Units: mg/L

Project: SIO

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NUTRIENT SAMPLE #3	15-03-0427-1-I	03/05/15 10:00	Aqueous	Mercury 04	03/10/15	03/10/15 19:30	150310L04

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.000500	1.00	

Method Blank	099-04-008-7349	N/A	Aqueous	Mercury 04	03/10/15	03/10/15 17:20	150310L04
---------------------	------------------------	------------	----------------	-------------------	-----------------	---------------------------	------------------

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Mercury	ND	0.000500	1.00	



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



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Quality Control - Spike/Spike Duplicate

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 3010A Total
Method: EPA 6010B

Project: SIO

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
NUTRIENT SAMPLE #3	Sample	Aqueous	ICP 7300	03/06/15	03/12/15 17:20	150306SA3A				
NUTRIENT SAMPLE #3	Matrix Spike	Aqueous	ICP 7300	03/06/15	03/12/15 17:22	150306SA3A				
NUTRIENT SAMPLE #3	Matrix Spike Duplicate	Aqueous	ICP 7300	03/06/15	03/12/15 17:23	150306SA3A				
<u>Parameter</u>	<u>Sample Conc.</u>	<u>Spike Added</u>	<u>MS Conc.</u>	<u>MS %Rec.</u>	<u>MSD Conc.</u>	<u>MSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Antimony	ND	0.5000	0.5659	113	0.5789	116	72-132	2	0-10	
Arsenic	ND	0.5000	0.4931	99	0.4957	99	80-140	1	0-11	
Barium	ND	0.5000	0.5309	106	0.5281	106	87-123	1	0-6	
Beryllium	ND	0.5000	0.5205	104	0.5235	105	89-119	1	0-8	
Cadmium	0.06132	0.5000	0.5961	107	0.5997	108	82-124	1	0-7	
Chromium	ND	0.5000	0.5534	111	0.5507	110	86-122	0	0-8	
Cobalt	ND	0.5000	0.5485	110	0.5589	112	83-125	2	0-7	
Copper	0.05974	0.5000	0.5909	106	0.5939	107	78-126	1	0-7	
Lead	ND	0.5000	0.5323	106	0.5399	108	84-120	1	0-7	
Molybdenum	ND	0.5000	0.5189	104	0.5304	106	78-126	2	0-7	
Nickel	ND	0.5000	0.5435	109	0.5539	111	84-120	2	0-7	
Selenium	ND	0.5000	0.5014	100	0.5245	105	79-127	5	0-9	
Silver	ND	0.2500	0.2421	97	0.2416	97	86-128	0	0-7	
Thallium	ND	0.5000	0.5481	110	0.5530	111	79-121	1	0-8	
Vanadium	ND	0.5000	0.5341	107	0.5321	106	88-118	0	0-7	
Zinc	0.01618	0.5000	0.5775	112	0.6186	120	89-131	7	0-8	

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RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - Spike/Spike Duplicate

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 7470A Total
Method: EPA 7470A

Project: SIO

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-03-0677-1	Sample	Aqueous	Mercury 04	03/10/15	03/10/15 17:25	150310S04
15-03-0677-1	Matrix Spike	Aqueous	Mercury 04	03/10/15	03/10/15 17:27	150310S04
15-03-0677-1	Matrix Spike Duplicate	Aqueous	Mercury 04	03/10/15	03/10/15 17:29	150310S04

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.01000	0.005581	56	0.005402	54	57-141	3	0-10	3

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RPD: Relative Percent Difference. CL: Control Limits



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Quality Control - LCS

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 3010A Total
Method: EPA 6010B

Project: SIO

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
097-01-003-14911	LCS	Aqueous	ICP 7300	03/06/15	03/09/15 14:06	150306LA3	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Antimony		0.5000	0.4733	95	80-120	73-127	
Arsenic		0.5000	0.4661	93	80-120	73-127	
Barium		0.5000	0.4900	98	80-120	73-127	
Beryllium		0.5000	0.4914	98	80-120	73-127	
Cadmium		0.5000	0.5079	102	80-120	73-127	
Chromium		0.5000	0.5285	106	80-120	73-127	
Cobalt		0.5000	0.5326	107	80-120	73-127	
Copper		0.5000	0.4882	98	80-120	73-127	
Lead		0.5000	0.5106	102	80-120	73-127	
Molybdenum		0.5000	0.4476	90	80-120	73-127	
Nickel		0.5000	0.5385	108	80-120	73-127	
Selenium		0.5000	0.4790	96	80-120	73-127	
Silver		0.2500	0.2210	88	80-120	73-127	
Thallium		0.5000	0.5249	105	80-120	73-127	
Vanadium		0.5000	0.4913	98	80-120	73-127	
Zinc		0.5000	0.5194	104	80-120	73-127	

Total number of LCS compounds: 16

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS

Advanced Chemical Transport
2010 Mission Road
Escondido, CA 92029-1119

Date Received: 03/05/15
Work Order: 15-03-0427
Preparation: EPA 7470A Total
Method: EPA 7470A

Project: SIO

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-04-008-7349	LCS	Aqueous	Mercury 04	03/10/15	03/10/15 17:22	150310L04

<u>Parameter</u>	<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Mercury	0.01000	0.01027	103	85-121	

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RPD: Relative Percent Difference. CL: Control Limits

Sample Analysis Summary Report

Work Order: 15-03-0427

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6010B	EPA 3010A Total	935	ICP 7300	1
EPA 7470A	EPA 7470A Total	915	Mercury 04	1

Glossary of Terms and Qualifiers

Work Order: 15-03-0427

Page 1 of 1

<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/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.
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.

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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WORK ORDER #: **15-03-0427**

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: ACT

DATE: 03/05/15

TEMPERATURE: Thermometer ID: SC4 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.6 °C + 0.2 °C (CF) = 1.8 °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.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: Air Filter

Checked by: 671

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A

Sample _____ No (Not Intact) Not Present

Checked by: 671

Checked by: 681

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"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfides <input type="checkbox"/> Dissolved Oxygen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® TerraCores® _____

Aqueous: VOA VOA_h VOA_{na2} 125AGB 125AGB_h 125AGB_p 1AGB 1AGB_{na2} 1AGB_s

500AGB 500AGJ 500AGJ_s 250AGB 250CGB 250CGB_s 1PB 1PB_{na} 500PB

250PB 250PB_n 125PB 125PB_{znna} 100PJ 100PJ_{na2} 1PB_n _____ _____

Air: Tedlar® Canister Other: _____ Trip Blank Lot#: _____ Labeled/Checked by: 681

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 802

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure znna: ZnAc₂+NaOH f: Filtered Scanned by: 802

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