EnviroTech
Consultants, Inc.
5400 Rosedale Highway
Bakersfield, CA 93308

CMO, INC
RESPONSE TO RWQCB SECTION 13267 ORDER
POND INFORMATION AND SAMPLING RESULTS

CHICO-MARTINEZ OIL FIELD
MITCHEL LEASE
SECTION 35 T28S/R20E MDB&M

June 12, 2015

Prepared by:

EnviroTech Consultants, Inc.

M. Jane Ellis-McNaboe, PG

REGISTERED GEOLOGIST
M. JANE ELLIS-McNABOE
exp. 01/16
4127
STATE OF CALIFORNIA

June 11, 2015

Certification Statement

RWQCB Order 13267, Pond Sampling Technical Report
CMO, Inc.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine an imprisonment for knowing violations.

GEIR U. BERG
CEO

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1.0 IDENTIFICATION OF DISCHARGES OF PRODUCED WATER TO LAND

Three ponds were identified by the Regional Water Quality Control Board (RWQCB) containing discharges of produced water. A map of the ponds and surrounding lease is included as Attachment A.

Historic photographs indicate that ponds numbers 1 and 2 may have been present on the Mitchel lease since at least 1984. Pond number 3 was constructed in December 2013. CMO has operated the lease since 2010.

In 2014 CMO installed a water treatment plant and began recycling the lease produced water. Treated water is used for steam generation in CMO's enhanced oil recovery project. The amount of wastewater discharged to the ponds has decreased following installation of the water treatment plant.

2.0 POND SAMPLING

Representative samples of wastewater were collected by EnviroTech Consultants, Inc. (EnviroTech) from the pond on May 7, 2015 as required by Order 13267 dated April 1, 2015 (Attachment B). The three ponds are in series; one fluid sample was required. The samples were collected from the sample port on the wastewater tank, decanted into appropriate sampling containers and cooled with ice for storage and transportation to the laboratory under standard chain of custody procedures.

3.0 POND SAMPLING ANALYTICAL RESULTS

The samples were received by Test America Laboratories, Inc. on May 7, 2015. EnviroTech received the final laboratory analytical report on June 11, 2015. The analytical results are summarized in the following tables; complete laboratory reports are included in Attachment C.

Table 3-1: General Chemistry

Sample ID	Date Sampled	Total Dissolved Solids	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Strontium	Alkalinity as CaCO3	Bicarbonate ion as HCO3	Carbonate as CO3	Hydroxide as OH
EPA Analytical Method		2540C_Calcd	6010B							2320B			
Units		mg/L											
Reporting limit		Reporting limits vary, see full analytical report.											
Mitchel	5/7/2015	**Results**											
		4,400	**58**	**0.18**	**28**	**0.088**	**130**	**1,600**	**1.5**	**990**	**1,200**	<2.4	<1.4

Bold = Analyte detected at or above minimum reporting limit.

Table 3-2: Anions

Sample ID	Date Sampled	**Anions, Ion Chromatography**			
		Bromide	Chloride	Nitrate as NO3	Sulfate
EPA Analytical Method		300_ORGFM_28D		300_ORGFMS	300_ORGFM_28D
Units		mg/L			
Reporting Limit		Reporting limit varies, see full analytical report.			
Mitchel	5/7/2015	**20**	**1,800**	<10	**20**

Bold = Analyte detected at or above minimum reporting limit.

Table 3-3: Metals

Sample ID	Date Sampled	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead
EPA Analytical Method		6010B									
Units		mg/L									
Reporting Limit		Reporting limit varies by sample. See full analytical report.									
Mitchel	5/7/2015	<0.010	<0.010	**0.45**	<0.0020	**48**	<0.0050	<0.0050	<0.010	<0.010	<0.13

Sample ID	Date Sampled	Lithium	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc	Mercury
EPA Analytical Method		6010B									7470A
Units		mg/L									
Reporting Limit		Reporting limit varies by sample. See full analytical report.									
Mitchel	5/7/2015	**1.6**	<0.020	<0.010	<0.010	<0.010	**1.5**	<0.010	<0.010	<0.020	<0.00020

Bold = Analyte detected at or above minimum reporting limit.

Table 3-4: BTEX and TPH

Sample ID	Date Sampled	Benzene	Ethylbenzene	Toluene	Xylenes, Total	TPH as Crude Oil: Diesel and Gasoline Range Organics (DRO) (GC)		
						C4-C12	C13-C22	C23-C40
EPA Analytical Method		8260B				8015B-GRO	8015B - DRO	
nits		ug/L				ug/L	mg/L	
Reporting Limit		Varies, see laboratory report					2.5	
Mitchel	5/7/2015	<2.0	<2.0	<2.0	**2.2**	**340**	<2.5	<2.5

Bold = Analyte detected at or above minimum reporting limit.

Table 3-5: Semi-volatile Organic Compounds

Sample ID	Date Sampled	Acenaphthene	Acenaphthylene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[g,h,i]perylene	Benzo[k]fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene
EPA Analytical Method		8270C_SIM															
Units		ug/L															
Mitchel	5/7/2015	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.2**	<1.0

Bold = Analyte detected at or above minimum reporting limit.
Reporting limit varies by sample. See full analytic report.

Table 3-6: Radionuclides

Sample ID	Date Sampled	Gross Alpha	Gross Beta	Radium-226	Radium-228	Uranium
EPA Analytical Method		9310	Lab method Confidential	9315_Ra226	9320_Ra228	6020A
Units		pCi/L				
Regulatory Threshold*		15	- -	- -	5	20
Mitchel	5/7/2015	12.9 ± 27.4**	**61.9 ± 16.1****	**1.68 ± 0.307****	**0.694 ± 0.44****	<6.7

Bold = Analyte detected at or above minimum reporting limit.
Reporting limit varies by sample. See full analytic report.
* Title 22, Table 6443. MCL
-- No Regulatory Threshold
** = Used total 2σ± total uncertainty for radionuclides.

4.0 INFORMATION FOR EACH SURFACE IMPOUNDMENT

The following table contains the required information for the CMO, Inc Mitchel ponds.

Table 4-1: Surface Impoundment Information

Pond Identification	Surface Impoundment Dimensions (feet)			Location (NAD 83)	Assessor's Parcel Number of the Lease	Duration of discharge (months)
Pond #1	Length	Width	Depth	Latitude: 35.441716 Longitude: -119.789677°	085-150-24	unknown
	100'	95'	16'			
Pond #2	Length	Width	Depth	Latitude: 35.441807 Longitude: -119.789403°	085-150-24	unknown
	95'	45'	9'			
Pond #3	Length	Width	Depth	Latitude:°35.442183 Longitude: -119.788562	085-150-24	18 months
	190'	140'	16'			

The following table contains the discharge information during the time the lease was operated by CMO, Inc.

Table 4-2: Discharge Information

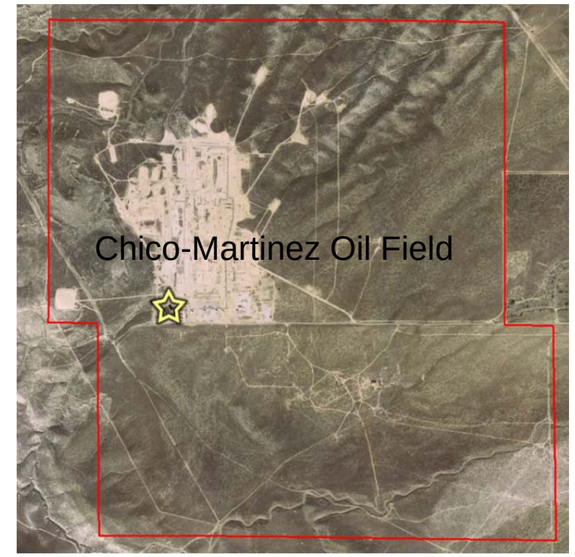
Year	Total Annual Barrels of Water Discharged		
2010	21,803	The water treatment system became operational on June 20th, 2014. Produced water is recycled and used for steam and drilling operations on the lease.	
2011	52,222		
2012	192,034		
2013	1,252,054		
2014	507,917	January – June 2014: 476,112	July – December 2014: 31,805
2015 (January – March)	14,190		

ATTACHMENT A

CMO, INC

MITCHEL PONDS MAP

CMO, Inc.



Legend

	Mitchel Lease	Pond #1: Length – 100' Width – 95' Depth –16'	Pond #2: Length – 95' Width – 45' Depth – 9'	Pond #3: Length-190' Width-140' Depth- 16'
	Mitchel Lease Ponds			

Prepared By:	**TITLE:**	Mitchel Lease Ponds
EnviroTech Consultants, Inc.	**FIELD:**	Chico-Martinez Oil Field
	COUNTY:	Kern
Section/Township/Range	**DRN BY:**	Kelsey Padilla
T28S/R20E – Section 35 MDB&M (SW ¼)	**DATE:**	May 27, 2015

ATTACHMENT B

CMO, INC

COPY OF RWQCB ORDER 13267, 1 APRIL, 2015

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

21 April 2015

Steven Gregory
CMO, Inc.
5001 California Avenue, Suite 105
Bakersfield, CA 93309

CERTIFIED MAIL
7014 1200 0000 3347 7197

CALIFORNIA WATER CODE DIRECTIVE PURSUANT TO SECTION 13267. You are legally obligated to respond to this Order. Please read this Order carefully.

CMO, Inc. (hereafter Discharger) has been identified as the owner or operator of petroleum production wastewater disposal ponds (ponds). A list of the ponds (and the leases and oil fields where they are located) that the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) identifies as under your control is presented in Attachment A. Ponds for the disposal of wastewater generated during the course of petroleum production have the potential to affect the quality of groundwater (a water of the State). Groundwater underlying the areas where your ponds are located have beneficial uses as identified in the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan).

This order requires the collection and analysis of wastewater samples collected from each of the ponds listed in Attachment A to characterize the discharge. Each sample is to be analyzed for each of the constituents listed in Attachment B. These data are needed to comprehensively characterize wastewater in each pond and provide data needed to evaluate the threat to the quality of waters of the State. If more than one pond is connected in series (i.e., one pond drains directly to the next with no other source of inflow) then only the upstream pond must be sampled. This order is not intended to require the collection of duplicative data. If during the 12 months (one year) prior to the date of this order, samples required by this order have been analyzed from one or more of the ponds for the required constituents, that data can be submitted for the appropriate order requirements.

This order also requires Discharger to identify any discharge(s) of oil field wastewater to land that is not identified in Attachment A. Discharger must also collect and analyze wastewater samples in accordance with Attachment B from any additionally identified discharge to characterize the discharge.

The Central Valley Water Board's authority to require technical reports derives from Section 13267 of the California Water Code, which specifies, in part, that:

(a) A regional Board ... in connection with any action relating to any plan or requirement authorized by this division, may investigate the quality of any waters of the State within its region.

(b)(1) In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefit to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The Central Valley Water Board is concerned about the potential impacts to water quality posed by the discharge of oil field produced waters in surface ponds. The technical information and reports required by this order are necessary to assess the potential threat to water quality. The need to understand the potential impacts to water quality justify the need for the information and reports required by this order. Based on the nature and possible consequences of the discharges of waste, the burden of providing the required information, including the reporting costs, bears a reasonable relationship to the need for the report, and the benefits to be obtained. Discharger is required to submit this information and reports because it is the operator of the ponds listed in Attachment A of this order.

The unauthorized discharge of waste containing oil field waste constituents to land, including unlined ponds, may result in the degradation of water quality and creates or threatens to create, a condition of pollution in groundwater. Significant concentrations of salinity (measured as TDS and EC), significant contributors to salinity such as chloride and sulfate, and boron are present in oil field wastewater. Other potential constituents such as, but not limited to, metals, radionuclides, and organic compounds pose a threat to water quality. The concentrations of these waste constituents in wastewater being discharged needs to be known to evaluate the threat. In addition, all locations where these discharges are occurring needs to be known.

Underlying groundwater can be degraded if mixed with oil field wastewater. Elevated concentrations of oil field waste constituents could impair the groundwater for municipal and domestic supply and agricultural supply uses.

Under the prescribed authority of California Water Code section 13267, the Central Valley Water Board directs Discharger to:

1. **By 7 July 2015**, submit a technical report containing the following information:

   A. Identification of any discharges of oil field produced waters to land, including but not limited to ponds, since April of 2014 that are not listed in Attachment A;

   B. Collect representative samples of wastewater within each of the ponds. Samples must be analyzed in accordance with the water quality analysis and reporting requirements contained in Attachment B to this Order;[1]

   If a representative sample cannot feasibly be collected from one or more of the sources discharging to a surface impoundment(s), then a comment will need to be added to the technical report required by this Order demonstrating that collection of a representative sample from a specific source is not feasible within the required timeframe, and propose an alternative sampling procedure and expeditious time schedule for obtaining a representative sample for each source. Alternative sampling procedures and time schedules are subject to approval by the Assistant Executive Officer of the Central Valley Regional Water Quality Control Board.

   C. All available information for each of the surface impoundment(s), including dimensions (i.e., length, width, and depth), latitude and longitude, Assessor's Parcel Numbers of the lease, duration of the discharge (in months), and the volume of wastewater discharged per year.

   D. A location map that includes the following information:

      i. All surface impoundment(s) at the Facility,
      ii. Include the boundary lines for all leases at the Facility, and
      iii. Legend with the name of the surface impoundment(s).

2. **By 6 May 2015**, Discharger needs to contact Dane S. Johnson of this office at (559) 445-5525 if you have received this Order and cannot collect the required samples.

[1] All previously obtained analytical data for oil field produced wastewater samples collected at the Facility, if any, with a description of the source and location for each analysis may be submitted in the alternative for re-running tests if the sample(s) was collected and analyzed within 12 months (one year) of the date of this order.

The technical report required by this Order must be submitted to the attention of:

Ronald Holcomb
Central Valley Water Board
1685 E Street
Fresno, CA 93706

Based on the information submitted in the technical report, additional information or action may be required.

With the report required by this Order, Discharger shall provide under penalty of perjury under the laws of California a "Certification" statement to the Central Valley Water Board. The "Certification" shall include the following signed statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The Central Valley Water Board reserves the right to issue a Notice of Violation or pursue enforcement for Discharger's activities after reviewing the documentation provided in response to this Order.

The Technical Report is to be signed and stamped by a California Professional Engineer (Registered as a Civil Engineer) or a registered California Professional Geologist. Any laboratory analyses shall be performed by an analytical laboratory certified by the State of California for the analyses performed. Submissions pursuant to this Order shall include a statement by Discharger, or an authorized representative of Discharger, certifying (as described above) that the information submitted is true, complete, and accurate.

The failure to furnish the required report, or the submission of a substantially incomplete report or false information, is a misdemeanor, and may result in additional enforcement actions being taken against Discharger, including issuance of an Administrative Civil Liability Complaint pursuant to California Water Code section 13268. Liability may be imposed pursuant to California Water Code section 13268 in an amount not to exceed one thousand dollars ($1,000) for each day in which the violation occurs. All discharges to unpermitted ponds should cease pending review and submission of the technical information sought by this order.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Water Code section 13320 and California Code of Regulations, title 23, sections

2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 days after the date of this directive, except that if the thirtieth day following the date of this directive falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

If you have any questions regarding this matter, please contact Doug Patteson of this office at (559) 445-5577 or at doug.patteson@waterboards.ca.gov.

FOR Clay L. Rodgers
Assistant Executive Officer

cc: Julie Macedo, Office of Enforcement, State Water Resources Control Board, Sacramento
Mike Toland, California Division of Oil, Gas, and Geothermal Resources, Bakersfield

ATTACHMENT A

The following table contains the names of oil fields and lease(s) and the corresponding number of ponds that the Central Valley Water Board has identified as active and under your control:

OPERATOR	OIL FIELD	LEASE	NO. OF PONDS
CMO, Inc.	Chico-Martinez	Mitchel	3

ATTACHMENT B

Water Quality Analysis

Wastewater samples collected from the ponds shall be analyzed by a laboratory certified by the Environmental Laboratory Accreditation Program using currently applicable United States Environmental Protection Agency-approved analytical methods for water for the following:

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 as crude oil;

E. Polynuclear aromatic hydrocarbons (including acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorine, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene);

F. Radionuclides listed under California Code of Regulations, title 22, Table 64442;

G. Major and minor cations (including sodium, potassium, magnesium, and calcium);

H. Major and minor anions (including nitrate, chloride, sulfate, carbonate, bicarbonate, and bromide);

I. Trace elements (including lithium, strontium, boron, iron, and manganese).

Reporting Requirements

Water Quality information shall be submitted in a technical report that includes at a minimum:

A. Site plan(s) with the location(s) of where the samples were collected;

B. A description of how the samples, representative of the pond contents, were collected;

Table(s) of analytical results organized by pond number with the data also submitted electronically as an Excel spreadsheet.

ATTACHMENT C

CMO, INC

LABORATORY ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-109149-1
TestAmerica SDG: Mitchel Lease, Chico Martinez Oil Field
Client Project/Site: RWQCB Pond Testing, 2015
Revision: 1

For:
Envirotech Consultants, Inc.
5400 Rosedale Highway
Bakersfield, California 93308

Attn: Jane McNaboe

Authorized for release by:
6/11/2015 10:37:48 AM

Janice Hsu, Project Manager I
(949)261-1022
janice.hsu@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-109149-1	Mitchel	Water	05/07/15 08:45	05/07/15 18:30
440-109149-2	TB	Water	05/07/15 00:01	05/07/15 18:30

Job ID: 440-109149-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-109149-1

Comments
No additional comments.

Receipt
The samples were received on 5/7/2015 6:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method(s) 8270C SIM: The internal standard response was below the 50% minimum QC limit for the following samples: Mitchel (440-109149-1). The chromatography showed some matrix interference that could have adversely affected the recovery of the affected internal standard. All affected target analytes were flagged with an asterisk (*). If the matrix effect is isolated to the internal standards, then the affect on the associated target analyte results are potentially biased high.

Method(s) 8270C SIM: The following sample was diluted due to the abundance of non-target analytes: Mitchel (440-109149-1). Elevated reporting limits (RLs) are provided.

Method(s) 8270C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-254413 and analytical batch 440-255228. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method(s) 300.0: The following sample was diluted for Nitrate due to the nature of the sample matrix: Mitchel (440-109149-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method(s) 8015B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 253724. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch. (LCS 440-253724/2-A)

Method(s) 8015B: The following samples required dilutions due to the nature of the sample matrix: Mitchel (440-109149-1). Because of these dilutions, the surrogate spike concentration in the samples were reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 440-109149-1 (Continued)

Laboratory: TestAmerica Irvine (Continued)

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Narrative

Job Narrative
440-109149-2

Comments
No additional comments.

Receipt
The samples were received on 5/7/2015 6:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4º C.

RAD
Method(s) 9310: Gross Alpha Beta Prep Batch 190445:
The gross alpha and beta detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: Mitchel (440-109149-1), (160-11674-A-3-B) and (160-11674-A-3-C DU). Analytical results are reported with the detection limit achieved.

Method(s) 9315: Ra-226 prep batch: 190226
The barium carrier recovery is above the 110% QC limit for the laboratory control sample duplicate (LCSD- 112 %) associated with 160-190226. The LCS/LCSD spike recoveries are within control limits, which demonstrates acceptable sample preparation and instrument performance. As such, this was an apparent anomaly in the sample preparation, isolated to the LCSD, which is not indicative of the entire batch. The samples have been truncated to 100% in order to minimize any potential bias a high carrier recovery may have on the results: Mitchel (440-109149-1), (LCS 160-190226/2-A), (LCSD 160-190226/3-A) and (MB 160-190226/1-A).

Method(s) 9320: Ra-228 prep batch: 190228
The barium carrier recovery is above the 110% QC limit for the laboratory control sample duplicate (LCSD- 112 %) associated with 160-190228. The LCS/LCSD spike recoveries are within control limits, which demonstrates acceptable sample preparation and instrument performance. As such, this was an apparent anomaly in the sample preparation, isolated to the LCSD, which is not indicative of the entire batch. The samples have been truncated to 100% in order to minimize any potential bias a high carrier recovery may have on the results: Mitchel (440-109149-1), (LCS 160-190228/2-A), (LCSD 160-190228/3-A) and (MB 160-190228/1-A).

Method(s) PrecSep-21, PrecSep_0: radium-228 batch 190228 and radium-226 batch 190226
A deviation from the Standard Operating Procedure (SOP) occurred. The following samples were oily and had a strong odor: Mitchel (440-109149-1). A 500 mL aliquot was taken to dryness, muffled, and digested with acid. 440-109121-1 and 109141-1 had a large amount of solid material remaining after muffling and digestion. The samples were refluxed with nitric and hydrochloric acid and transferred to a tube and centrifuged. The acid was decanted into a beaker and preparation continued per the normal SOP. Due to the matrix of the samples, a LCS/LCSD was performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 6020A: 190483 - water. A-batch - 191371.

The following samples were diluted due to the nature of the sample matrix. The samples were high in salts, which cause internal standard and QC failures when the samples are run at a lesser dilution: Mitchel (440-109149-1), (440-109149-S-1-B MS), (440-109149-S-1-C MSD) and (440-109149-S-1-A SD). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Client Sample ID: Mitchel

Date Collected: 05/07/15 08:45
Date Received: 05/07/15 18:30

Lab Sample ID: 440-109149-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/L			05/11/15 15:14	1
Ethylbenzene	ND		2.0		ug/L			05/11/15 15:14	1
m,p-Xylene	**2.2**		2.0		ug/L			05/11/15 15:14	1
o-Xylene	ND		2.0		ug/L			05/11/15 15:14	1
Toluene	ND		2.0		ug/L			05/11/15 15:14	1
Xylenes, Total	**2.2**		2.0		ug/L			05/11/15 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 128*		*05/11/15 15:14*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*05/11/15 15:14*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 132*		*05/11/15 15:14*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Acenaphthylene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Anthracene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Benzo[a]anthracene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Benzo[a]pyrene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Benzo[b]fluoranthene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Benzo[g,h,i]perylene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Benzo[k]fluoranthene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Chrysene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Dibenz(a,h)anthracene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Fluoranthene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Fluorene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Indeno[1,2,3-cd]pyrene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Naphthalene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Phenanthrene	**1.2**		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5
Pyrene	ND		1.0		ug/L		05/12/15 10:25	05/16/15 09:52	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*60*		*31 - 120*	*05/12/15 10:25*	*05/16/15 09:52*	*5*
Nitrobenzene-d5	*79*		*25 - 133*	*05/12/15 10:25*	*05/16/15 09:52*	*5*
Terphenyl-d14	*80*		*10 - 120*	*05/12/15 10:25*	*05/16/15 09:52*	*5*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**340**		50		ug/L			05/14/15 22:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*128*		*65 - 140*		*05/14/15 22:42*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C22	ND		2.5		mg/L		05/08/15 06:32	05/11/15 08:31	5
C23-C40	ND		2.5		mg/L		05/08/15 06:32	05/11/15 08:31	5
C13 - C40	**4.7**		2.5		mg/L		05/08/15 06:32	05/11/15 08:31	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*81*		*45 - 120*	*05/08/15 06:32*	*05/11/15 08:31*	*5*

Client Sample Results

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	**20**		10		mg/L			05/08/15 15:03	20
Nitrate as NO3	ND		10		mg/L			05/08/15 15:03	20
Chloride	**1800**		250		mg/L			05/08/15 15:18	500
Sulfate	**20**		10		mg/L			05/08/15 15:03	20

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Arsenic	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Barium	**0.45**		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Beryllium	ND		0.0020		mg/L		05/12/15 14:03	05/14/15 11:28	1
Cadmium	ND		0.0050		mg/L		05/12/15 14:03	05/14/15 11:28	1
Chromium	ND		0.0050		mg/L		05/12/15 14:03	05/14/15 11:28	1
Cobalt	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Copper	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Lead	ND		0.13		mg/L		05/12/15 14:03	05/14/15 12:34	25
Molybdenum	ND		0.020		mg/L		05/12/15 14:03	05/14/15 11:28	1
Nickel	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Selenium	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Thallium	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Vanadium	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Zinc	ND		0.020		mg/L		05/12/15 14:03	05/14/15 11:28	1
Silver	ND		0.010		mg/L		05/12/15 14:03	05/14/15 11:28	1
Lithium	**1.6**		1.3		mg/L		05/12/15 14:03	05/14/15 12:34	25
Potassium	**130**		0.50		mg/L		05/12/15 14:03	05/14/15 11:28	1
Manganese	**0.088**		0.020		mg/L		05/12/15 14:03	05/14/15 11:28	1
Magnesium	**28**		0.020		mg/L		05/12/15 14:03	05/14/15 11:28	1
Iron	**0.18**		0.040		mg/L		05/12/15 14:03	05/14/15 11:28	1
Strontium	**1.5**		0.020		mg/L		05/12/15 14:03	05/14/15 11:28	1
Sodium	**1600**		13		mg/L		05/12/15 14:03	05/14/15 12:34	25
Calcium	**58**		0.10		mg/L		05/12/15 14:03	05/14/15 11:28	1
Boron	**48**		1.3		mg/L		05/12/15 14:03	05/14/15 12:34	25

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	<10		10	2.3	ug/L		05/12/15 13:57	05/18/15 15:37	20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	<6.7		6.7	1.5	pCi/L		05/12/15 13:57	05/18/15 15:37	20

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		05/08/15 14:36	05/11/15 16:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**4400**		100		mg/L			05/14/15 07:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity as CaCO3	**990**		4.0		mg/L			05/11/15 06:32	1
Bicarbonate ion as HCO3	**1200**		4.8		mg/L			05/11/15 06:32	1
Carbonate as CO3	ND		2.4		mg/L			05/11/15 06:32	1
Hydroxide as OH	ND		1.4		mg/L			05/11/15 06:32	1

Client Sample Results

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Client Sample ID: Mitchel

Lab Sample ID: 440-109149-1
Date Collected: 05/07/15 08:45
Matrix: Water
Date Received: 05/07/15 18:30

Method: 9310 - Gross Alpha / Beta (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	12.9	U G	27.3	27.4	48.4	pCi/L	05/12/15 09:49	05/14/15 18:50	1
Gross Beta	**61.9**	**G**	14.9	16.1	17.4	pCi/L	05/12/15 09:49	05/14/15 18:50	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.68**		0.267	0.307	0.196	pCi/L	05/11/15 08:57	06/04/15 10:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/11/15 08:57*	*06/04/15 10:40*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.694**		0.436	0.440	0.665	pCi/L	05/11/15 09:04	05/29/15 12:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*05/11/15 09:04*	*05/29/15 12:03*	*1*
Y Carrier	*90.8*		*40 - 110*	*05/11/15 09:04*	*05/29/15 12:03*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**2.374**		0.510	0.537	0.665	pCi/L		06/10/15 01:06	1

Client Sample ID: TB

Lab Sample ID: 440-109149-2
Date Collected: 05/07/15 00:01
Matrix: Water
Date Received: 05/07/15 18:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/L			05/12/15 14:22	1
Ethylbenzene	ND		2.0		ug/L			05/12/15 14:22	1
m,p-Xylene	ND		2.0		ug/L			05/12/15 14:22	1
o-Xylene	ND		2.0		ug/L			05/12/15 14:22	1
Toluene	ND		2.0		ug/L			05/12/15 14:22	1
Xylenes, Total	ND		2.0		ug/L			05/12/15 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 128*		*05/12/15 14:22*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/12/15 14:22*	*1*
Dibromofluoromethane (Surr)	*106*		*76 - 132*		*05/12/15 14:22*	*1*

Method Summary

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV
6020A	Metals (ICP/MS)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL IRV
SM 2320B	Alkalinity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
9310	Gross Alpha / Beta (GFPC)	SW846	TAL SL
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Client Sample ID: Mitchel

Lab Sample ID: 440-109149-1
Date Collected: 05/07/15 08:45
Matrix: Water
Date Received: 05/07/15 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	254089	05/11/15 15:14	MM1	TAL IRV
Total/NA	Prep	3520C			1000 mL	1 mL	254413	05/12/15 10:25	IVA	TAL IRV
Total/NA	Analysis	8270C SIM		5	1000 mL	1 mL	255456	05/16/15 09:52	AI	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	255014	05/14/15 22:42	AT	TAL IRV
Total/NA	Prep	3510C			995 mL	1 mL	253724	05/08/15 06:32	AP	TAL IRV
Total/NA	Analysis	8015B		5	995 mL	1 mL	254151	05/11/15 08:31	KW	TAL IRV
Total/NA	Analysis	300.0		20	5 mL		253788	05/08/15 15:03	NN	TAL IRV
Total/NA	Analysis	300.0		20	5 mL		253789	05/08/15 15:03	NN	TAL IRV
Total/NA	Analysis	300.0		500	5 mL		253789	05/08/15 15:18	NN	TAL IRV
Total Recoverable	Prep	3005A			25 mL	25 mL	254489	05/12/15 14:03	APS	TAL IRV
Total Recoverable	Analysis	6010B		25	25 mL	25 mL	255128	05/14/15 12:34	EN	TAL IRV
Total Recoverable	Prep	3005A			25 mL	25 mL	254489	05/12/15 14:03	APS	TAL IRV
Total Recoverable	Analysis	6010B		1	25 mL	25 mL	255130	05/14/15 11:28	EN	TAL IRV
Total/NA	Prep	3010A			50 mL	50 mL	190483	05/12/15 13:57	DAS	TAL SL
Total/NA	Analysis	6020A		20	50 mL	50 mL	191371	05/18/15 15:37	CCB	TAL SL
Total/NA	Prep	7470A			20 mL	20 mL	253868	05/08/15 14:36	DB	TAL IRV
Total/NA	Analysis	7470A		1	20 mL	20 mL	254275	05/11/15 16:48	DB	TAL IRV
Total/NA	Analysis	SM 2320B		1			254117	05/11/15 06:32	YZ	TAL IRV
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	254980	05/14/15 07:41	XL	TAL IRV
Total/NA	Prep	Evaporation			11 mL	1.0 g	190445	05/12/15 09:49	SCB	TAL SL
Total/NA	Analysis	9310		1	11 mL		190768	05/14/15 18:50	MLK	TAL SL
Total/NA	Prep	PrecSep-21			500.48 mL	1.0 g	190226	05/11/15 08:57	LEM	TAL SL
Total/NA	Analysis	9315		1	500.48 mL		193519	06/04/15 10:40	MFM	TAL SL
Total/NA	Prep	PrecSep_0			500.48 mL	1.0 g	190228	05/11/15 09:04	LEM	TAL SL
Total/NA	Analysis	9320		1	500.48 mL		192829	05/29/15 12:03	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			194285	06/10/15 01:06	RTM	TAL SL

Client Sample ID: TB

Lab Sample ID: 440-109149-2
Date Collected: 05/07/15 00:01
Matrix: Water
Date Received: 05/07/15 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	254346	05/12/15 14:22	MM1	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-254089/4
Matrix: Water
Analysis Batch: 254089

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/L			05/11/15 08:10	1
Ethylbenzene	ND		2.0		ug/L			05/11/15 08:10	1
m,p-Xylene	ND		2.0		ug/L			05/11/15 08:10	1
o-Xylene	ND		2.0		ug/L			05/11/15 08:10	1
Toluene	ND		2.0		ug/L			05/11/15 08:10	1
Xylenes, Total	ND		2.0		ug/L			05/11/15 08:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 128*		*05/11/15 08:10*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*05/11/15 08:10*	*1*
Dibromofluoromethane (Surr)	*105*		*76 - 132*		*05/11/15 08:10*	*1*

Lab Sample ID: LCS 440-254089/5
Matrix: Water
Analysis Batch: 254089

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.9		ug/L		100	68 - 130
Ethylbenzene	25.0	25.3		ug/L		101	70 - 130
m,p-Xylene	25.0	26.7		ug/L		107	70 - 130
o-Xylene	25.0	26.2		ug/L		105	70 - 130
Toluene	25.0	24.4		ug/L		97	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*80 - 128*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*76 - 132*

Lab Sample ID: 440-109158-G-2 MS
Matrix: Water
Analysis Batch: 254089

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	25.6		ug/L		102	66 - 130
Ethylbenzene	ND		25.0	26.6		ug/L		106	70 - 130
m,p-Xylene	ND		25.0	28.2		ug/L		111	70 - 133
o-Xylene	ND		25.0	27.8		ug/L		111	70 - 133
Toluene	ND		25.0	25.3		ug/L		101	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 128*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*76 - 132*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-109158-G-2 MSD
Matrix: Water
Analysis Batch: 254089

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		25.0	27.1		ug/L		108	66 - 130	6	20
Ethylbenzene	ND		25.0	27.0		ug/L		108	70 - 130	2	20
m,p-Xylene	ND		25.0	29.2		ug/L		115	70 - 133	3	25
o-Xylene	ND		25.0	28.4		ug/L		114	70 - 133	2	20
Toluene	ND		25.0	26.3		ug/L		105	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*80 - 128*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*76 - 132*

Lab Sample ID: MB 440-254346/4
Matrix: Water
Analysis Batch: 254346

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/L			05/12/15 07:57	1
Ethylbenzene	ND		2.0		ug/L			05/12/15 07:57	1
m,p-Xylene	ND		2.0		ug/L			05/12/15 07:57	1
o-Xylene	ND		2.0		ug/L			05/12/15 07:57	1
Toluene	ND		2.0		ug/L			05/12/15 07:57	1
Xylenes, Total	ND		2.0		ug/L			05/12/15 07:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*80 - 128*		*05/12/15 07:57*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/12/15 07:57*	*1*
Dibromofluoromethane (Surr)	*107*		*76 - 132*		*05/12/15 07:57*	*1*

Lab Sample ID: LCS 440-254346/5
Matrix: Water
Analysis Batch: 254346

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	25.9		ug/L		104	68 - 130
Ethylbenzene	25.0	28.0		ug/L		112	70 - 130
m,p-Xylene	25.0	28.4		ug/L		114	70 - 130
o-Xylene	25.0	26.1		ug/L		105	70 - 130
Toluene	25.0	27.1		ug/L		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*80 - 128*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*76 - 132*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-109214-B-1 MS
Matrix: Water
Analysis Batch: 254346

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	25.3		ug/L		101	66 - 130
Ethylbenzene	ND		25.0	28.3		ug/L		113	70 - 130
m,p-Xylene	ND		25.0	28.1		ug/L		112	70 - 133
o-Xylene	ND		25.0	26.2		ug/L		105	70 - 133
Toluene	ND		25.0	27.4		ug/L		109	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 128*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*76 - 132*

Lab Sample ID: 440-109214-B-1 MSD
Matrix: Water
Analysis Batch: 254346

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		25.0	23.1		ug/L		92	66 - 130	9	20
Ethylbenzene	ND		25.0	25.7		ug/L		103	70 - 130	10	20
m,p-Xylene	ND		25.0	25.8		ug/L		103	70 - 133	9	25
o-Xylene	ND		25.0	24.0		ug/L		96	70 - 133	9	20
Toluene	ND		25.0	25.2		ug/L		101	70 - 130	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 128*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*76 - 132*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 440-254413/1-A
Matrix: Water
Analysis Batch: 255228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 254413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Acenaphthylene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Anthracene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Benzo[a]anthracene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Benzo[a]pyrene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Benzo[b]fluoranthene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Benzo[g,h,i]perylene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Benzo[k]fluoranthene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Chrysene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Dibenz(a,h)anthracene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Fluoranthene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Fluorene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Indeno[1,2,3-cd]pyrene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 440-254413/1-A
Matrix: Water
Analysis Batch: 255228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 254413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Phenanthrene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1
Pyrene	ND		0.20		ug/L		05/12/15 10:25	05/15/15 00:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*51*		*31 - 120*	*05/12/15 10:25*	*05/15/15 00:46*	*1*
Nitrobenzene-d5	*49*		*25 - 133*	*05/12/15 10:25*	*05/15/15 00:46*	*1*
Terphenyl-d14	*69*		*10 - 120*	*05/12/15 10:25*	*05/15/15 00:46*	*1*

Lab Sample ID: LCS 440-254413/2-A
Matrix: Water
Analysis Batch: 255228

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 254413

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	1.00	0.950		ug/L		95	47 - 103
Acenaphthylene	1.00	0.955		ug/L		96	45 - 102
Anthracene	1.00	0.964		ug/L		96	47 - 111
Benzo[a]anthracene	1.00	0.993		ug/L		99	56 - 110
Benzo[a]pyrene	1.00	0.937		ug/L		94	48 - 110
Benzo[b]fluoranthene	1.00	0.995		ug/L		100	53 - 116
Benzo[g,h,i]perylene	1.00	1.22		ug/L		122	44 - 130
Benzo[k]fluoranthene	1.00	1.03		ug/L		103	51 - 127
Chrysene	1.00	1.03		ug/L		103	52 - 118
Dibenz(a,h)anthracene	1.00	1.00		ug/L		100	44 - 125
Fluoranthene	1.00	1.04		ug/L		104	51 - 116
Fluorene	1.00	0.940		ug/L		94	50 - 106
Indeno[1,2,3-cd]pyrene	1.00	1.03		ug/L		103	41 - 127
Naphthalene	1.00	0.863		ug/L		86	40 - 100
Phenanthrene	1.00	1.04		ug/L		104	49 - 110
Pyrene	1.00	0.979		ug/L		98	41 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*92*		*31 - 120*
Nitrobenzene-d5	*88*		*25 - 133*
Terphenyl-d14	*93*		*10 - 120*

Lab Sample ID: LCSD 440-254413/3-A
Matrix: Water
Analysis Batch: 255228

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 254413

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	1.00	0.860		ug/L		86	47 - 103	10	35
Acenaphthylene	1.00	0.883		ug/L		88	45 - 102	8	35
Anthracene	1.00	0.904		ug/L		90	47 - 111	6	35
Benzo[a]anthracene	1.00	0.913		ug/L		91	56 - 110	8	35
Benzo[a]pyrene	1.00	0.873		ug/L		87	48 - 110	7	35
Benzo[b]fluoranthene	1.00	0.902		ug/L		90	53 - 116	10	35
Benzo[g,h,i]perylene	1.00	1.13		ug/L		113	44 - 130	7	35

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 440-254413/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 255228 — **Prep Batch: 254413**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[k]fluoranthene			1.00	0.927		ug/L		93	51 - 127	10	35
Chrysene			1.00	0.940		ug/L		94	52 - 118	9	35
Dibenz(a,h)anthracene			1.00	0.953		ug/L		95	44 - 125	5	35
Fluoranthene			1.00	0.906		ug/L		91	51 - 116	14	35
Fluorene			1.00	0.836		ug/L		84	50 - 106	12	35
Indeno[1,2,3-cd]pyrene			1.00	0.947		ug/L		95	41 - 127	9	35
Naphthalene			1.00	0.798		ug/L		80	40 - 100	8	35
Phenanthrene			1.00	0.936		ug/L		94	49 - 110	10	35
Pyrene			1.00	0.893		ug/L		89	41 - 115	9	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*88*		*31 - 120*
Nitrobenzene-d5	*82*		*25 - 133*
Terphenyl-d14	*88*		*10 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-255014/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 255014

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			05/14/15 10:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*65 - 140*		*05/14/15 10:59*	*1*

Lab Sample ID: LCS 440-255014/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 255014

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	837		ug/L		105	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*

Lab Sample ID: 440-109604-E-2 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 255014

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		800	876		ug/L		104	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: 440-109604-E-2 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 255014

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	851		ug/L		101	65 - 140	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*65 - 140*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 440-253724/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253826 — **Prep Batch: 253724**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C22	ND		0.50		mg/L		05/08/15 06:32	05/08/15 19:27	1
C23-C40	ND		0.50		mg/L		05/08/15 06:32	05/08/15 19:27	1
C13 - C40	ND		0.50		mg/L		05/08/15 06:32	05/08/15 19:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*82*		*45 - 120*	*05/08/15 06:32*	*05/08/15 19:27*	*1*

Lab Sample ID: LCS 440-253724/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253826 — **Prep Batch: 253724**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C28			1.00	0.768		mg/L		77	40 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*85*		*45 - 120*

Lab Sample ID: LCSD 440-253724/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253826 — **Prep Batch: 253724**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C28			1.00	0.793		mg/L		79	40 - 115	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane	*84*		*45 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-253788/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253788

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as NO3	ND		0.50		mg/L			05/08/15 11:46	1

Lab Sample ID: LCS 440-253788/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253788

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as NO3	5.00	4.82		mg/L		96	90 - 110

Lab Sample ID: 440-109178-B-4 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253788

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as NO3	ND		5.00	6.47		mg/L		86	80 - 120

Lab Sample ID: 440-109178-B-4 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253788

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as NO3	ND		5.00	6.18		mg/L		80	80 - 120	5	20

Lab Sample ID: MB 440-253789/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253789

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.50		mg/L			05/08/15 11:46	1
Chloride	ND		0.50		mg/L			05/08/15 11:46	1
Sulfate	ND		0.50		mg/L			05/08/15 11:46	1

Lab Sample ID: LCS 440-253789/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253789

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.80		mg/L		96	90 - 110
Chloride	5.00	4.61		mg/L		92	90 - 110
Sulfate	5.00	4.80		mg/L		96	90 - 110

Lab Sample ID: 440-109178-B-4 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 253789

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	ND		5.00	5.58		mg/L		112	80 - 120
Chloride	8.9		5.00	13.1		mg/L		84	80 - 120
Sulfate	45		5.00	50.4	4	mg/L		100	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-109178-B-4 MSD
Matrix: Water
Analysis Batch: 253789

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide	ND		5.00	5.50		mg/L		110	80 - 120	1	20
Chloride	8.9		5.00	13.0		mg/L		82	80 - 120	1	20
Sulfate	45		5.00	48.9	4	mg/L		70	80 - 120	3	20

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-254489/1-A
Matrix: Water
Analysis Batch: 254900

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 254489

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Arsenic	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Barium	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Beryllium	ND		0.0020		mg/L		05/12/15 14:03	05/13/15 19:23	1
Cadmium	ND		0.0050		mg/L		05/12/15 14:03	05/13/15 19:23	1
Chromium	ND		0.0050		mg/L		05/12/15 14:03	05/13/15 19:23	1
Cobalt	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Copper	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Lead	ND		0.0050		mg/L		05/12/15 14:03	05/13/15 19:23	1
Molybdenum	ND		0.020		mg/L		05/12/15 14:03	05/13/15 19:23	1
Nickel	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Selenium	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Thallium	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Vanadium	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Zinc	ND		0.020		mg/L		05/12/15 14:03	05/13/15 19:23	1
Silver	ND		0.010		mg/L		05/12/15 14:03	05/13/15 19:23	1
Lithium	ND		0.050		mg/L		05/12/15 14:03	05/13/15 19:23	1
Potassium	ND		0.50		mg/L		05/12/15 14:03	05/13/15 19:23	1
Manganese	ND		0.020		mg/L		05/12/15 14:03	05/13/15 19:23	1
Magnesium	ND		0.020		mg/L		05/12/15 14:03	05/13/15 19:23	1
Iron	ND		0.040		mg/L		05/12/15 14:03	05/13/15 19:23	1
Strontium	ND		0.020		mg/L		05/12/15 14:03	05/13/15 19:23	1
Sodium	ND		0.50		mg/L		05/12/15 14:03	05/13/15 19:23	1
Calcium	ND		0.10		mg/L		05/12/15 14:03	05/13/15 19:23	1
Boron	ND		0.050		mg/L		05/12/15 14:03	05/13/15 19:23	1

Lab Sample ID: LCS 440-254489/2-A
Matrix: Water
Analysis Batch: 254900

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 254489

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	1.00	1.01		mg/L		101	80 - 120
Arsenic	1.00	0.964		mg/L		96	80 - 120
Barium	1.00	0.997		mg/L		100	80 - 120
Beryllium	1.00	1.00		mg/L		100	80 - 120
Cadmium	1.00	1.00		mg/L		100	80 - 120
Chromium	1.00	0.997		mg/L		100	80 - 120

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-254489/2-A
Matrix: Water
Analysis Batch: 254900

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 254489

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	1.00	0.994		mg/L		99	80 - 120
Copper	1.00	0.975		mg/L		97	80 - 120
Lead	1.00	1.01		mg/L		101	80 - 120
Molybdenum	1.00	0.981		mg/L		98	80 - 120
Nickel	1.00	0.996		mg/L		100	80 - 120
Selenium	1.00	0.921		mg/L		92	80 - 120
Thallium	1.00	0.957		mg/L		96	80 - 120
Vanadium	1.00	1.02		mg/L		102	80 - 120
Zinc	1.00	0.959		mg/L		96	80 - 120
Silver	0.500	0.478		mg/L		96	80 - 120
Lithium	1.00	0.955		mg/L		96	80 - 120
Potassium	10.0	9.77		mg/L		98	80 - 120
Manganese	1.00	0.993		mg/L		99	80 - 120
Magnesium	5.00	4.71		mg/L		94	80 - 120
Iron	1.00	0.974		mg/L		97	80 - 120
Strontium	1.00	0.984		mg/L		98	80 - 120
Sodium	10.0	9.56		mg/L		96	80 - 120
Calcium	5.00	4.93		mg/L		99	80 - 120
Boron	1.00	0.926		mg/L		93	80 - 120

Lab Sample ID: 440-109370-K-1-B MS ^25
Matrix: Water
Analysis Batch: 254900

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 254489

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND	F1	1.00	1.39	F1	mg/L		139	75 - 125
Arsenic	ND		1.00	1.11		mg/L		111	75 - 125
Barium	ND	F1	1.00	1.31	F1	mg/L		131	75 - 125
Beryllium	ND		1.00	1.16		mg/L		116	75 - 125
Cadmium	ND		1.00	1.25		mg/L		125	75 - 125
Chromium	ND		1.00	1.21		mg/L		121	75 - 125
Cobalt	ND		1.00	1.18		mg/L		118	75 - 125
Copper	ND		1.00	1.11		mg/L		111	75 - 125
Lead	ND		1.00	1.24		mg/L		116	75 - 125
Molybdenum	ND		1.00	1.08		mg/L		108	75 - 125
Nickel	ND		1.00	1.21		mg/L		121	75 - 125
Selenium	ND		1.00	1.14		mg/L		114	75 - 125
Thallium	ND		1.00	1.17		mg/L		101	75 - 125
Vanadium	ND		1.00	1.16		mg/L		116	75 - 125
Zinc	ND	F1	1.00	1.27	F1	mg/L		127	75 - 125
Silver	ND		0.500	0.559		mg/L		112	75 - 125
Lithium	ND	F1	1.00	1.65	F1	mg/L		165	75 - 125
Potassium	260		10.0	289	4	mg/L		280	75 - 125
Manganese	1.3		1.00	2.44		mg/L		114	75 - 125
Magnesium	960		5.00	999	4	mg/L		757	75 - 125
Iron	4.6		1.00	5.92	4	mg/L		130	75 - 125
Strontium	5.6		1.00	7.03	4	mg/L		139	75 - 125
Sodium	7400		10.0	7750	4	mg/L		3449	75 - 125

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 440-109370-K-1-B MS ^25 — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 254900 — **Prep Batch: 254489**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	440		5.00	459	4	mg/L		468	75 - 125
Boron	2.9		1.00	4.04		mg/L		112	75 - 125

Lab Sample ID: 440-109370-K-1-C MSD ^25 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 254900 — **Prep Batch: 254489**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND	F1	1.00	1.25		mg/L		125	75 - 125	11	20
Arsenic	ND		1.00	1.04		mg/L		104	75 - 125	7	20
Barium	ND	F1	1.00	1.26	F1	mg/L		126	75 - 125	4	20
Beryllium	ND		1.00	1.15		mg/L		115	75 - 125	1	20
Cadmium	ND		1.00	1.18		mg/L		118	75 - 125	6	20
Chromium	ND		1.00	1.17		mg/L		117	75 - 125	3	20
Cobalt	ND		1.00	1.13		mg/L		113	75 - 125	4	20
Copper	ND		1.00	1.11		mg/L		111	75 - 125	0	20
Lead	ND		1.00	1.21		mg/L		113	75 - 125	2	20
Molybdenum	ND		1.00	1.04		mg/L		104	75 - 125	4	20
Nickel	ND		1.00	1.14		mg/L		114	75 - 125	6	20
Selenium	ND		1.00	1.05		mg/L		105	75 - 125	9	20
Thallium	ND		1.00	1.09		mg/L		93	75 - 125	8	20
Vanadium	ND		1.00	1.16		mg/L		116	75 - 125	0	20
Zinc	ND	F1	1.00	1.23		mg/L		123	75 - 125	3	20
Silver	ND		0.500	0.557		mg/L		111	75 - 125	0	20
Lithium	ND	F1	1.00	1.61	F1	mg/L		161	75 - 125	2	20
Potassium	260		10.0	274	4	mg/L		127	75 - 125	5	20
Manganese	1.3		1.00	2.39		mg/L		109	75 - 125	2	20
Magnesium	960		5.00	973	4	mg/L		240	75 - 125	3	20
Iron	4.6		1.00	5.71	4	mg/L		108	75 - 125	4	20
Strontium	5.6		1.00	6.70	4	mg/L		106	75 - 125	5	20
Sodium	7400		10.0	7470	4	mg/L		644	75 - 125	4	20
Calcium	440		5.00	437	4	mg/L		35	75 - 125	5	20
Boron	2.9		1.00	3.97		mg/L		105	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-190483/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 191371 — **Prep Batch: 190483**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	<1.0		1.0	0.23	ug/L		05/12/15 13:57	05/18/15 14:15	2

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	<0.67		0.67	0.15	pCi/L		05/12/15 13:57	05/18/15 14:15	2

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 160-190483/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 191371 — **Prep Batch: 190483**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	1000	1000		ug/L		100	80 - 120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	670	673		pCi/L		100	80 - 120

Lab Sample ID: 440-109149-1 MS — **Client Sample ID: Mitchel**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 191371 — **Prep Batch: 190483**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	<10		1000	963		ug/L		96	75 - 125

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	<6.7		670	645		pCi/L		96	75 - 125

Lab Sample ID: 440-109149-1 MSD — **Client Sample ID: Mitchel**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 191371 — **Prep Batch: 190483**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Uranium	<10		1000	995		ug/L		100	75 - 125	3	20

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Uranium	<6.7		670	667		pCi/L		100	75 - 125	3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 440-253868/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254275 — **Prep Batch: 253868**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		05/08/15 14:36	05/11/15 15:56	1

Lab Sample ID: LCS 440-253868/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254275 — **Prep Batch: 253868**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00800	0.00819		mg/L		102	80 - 120

Lab Sample ID: 580-49347-E-2-F MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254275 — **Prep Batch: 253868**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00082		0.0320	0.0332		mg/L		101	70 - 130

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 580-49347-E-2-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254275 — **Prep Batch: 253868**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00082		0.0320	0.0334		mg/L		102	70 - 130	1	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 440-254117/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254117

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity as CaCO3	ND		4.0		mg/L			05/11/15 04:55	1
Bicarbonate ion as HCO3	ND		4.8		mg/L			05/11/15 04:55	1
Carbonate as CO3	ND		2.4		mg/L			05/11/15 04:55	1
Hydroxide as OH	ND		1.4		mg/L			05/11/15 04:55	1

Lab Sample ID: LCS 440-254117/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254117

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity as CaCO3	85.4	84.9		mg/L		99	80 - 120

Lab Sample ID: 440-109178-B-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254117

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity as CaCO3	600		591		mg/L		2	20
Bicarbonate ion as HCO3	730		721		mg/L		2	20
Carbonate as CO3	ND		ND		mg/L		NC	20
Hydroxide as OH	ND		ND		mg/L		NC	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-254980/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254980

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			05/14/15 07:41	1

Lab Sample ID: LCS 440-254980/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254980

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	966		mg/L		97	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 440-109404-K-3 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 254980

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	770			755		mg/L				2	5

Method: 9310 - Gross Alpha / Beta (GFPC)

Lab Sample ID: MB 160-190445/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190766 — **Prep Batch: 190445**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.09621	U	0.635	0.636	1.26	pCi/L	05/12/15 09:49	05/14/15 15:36	1
Gross Beta	-0.1262	U	0.488	0.488	0.900	pCi/L	05/12/15 09:49	05/14/15 15:36	1

Lab Sample ID: LCS 160-190445/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190766 — **Prep Batch: 190445**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha			50.0	50.26		7.46		2.07	pCi/L	100	73 - 133		

Lab Sample ID: LCSB 160-190445/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190766 — **Prep Batch: 190445**

Analyte			Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits		
Gross Beta			95.1	95.52		10.1		1.04	pCi/L	100	75 - 125		

Lab Sample ID: 160-11674-A-3-D MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190766 — **Prep Batch: 190445**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha	20.9	G	90.2	93.08		14.0		3.09	pCi/L	80	60 - 140		

Lab Sample ID: 160-11674-A-3-E MSBT — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190766 — **Prep Batch: 190445**

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits		
Gross Beta	1.68	U	171	173.1		18.3		1.95	pCi/L	101	60 - 140		

Method: 9310 - Gross Alpha / Beta (GFPC) (Continued)

Lab Sample ID: 160-11674-A-3-C DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190766 — **Prep Batch: 190445**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)		MDC	Unit			RER	RER Limit
Gross Alpha	20.9	G		21.02	G	6.07		6.36	pCi/L			0.01	1
Gross Beta	1.68	U		3.085		1.50		1.95	pCi/L			0.49	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-190226/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 193522 — **Prep Batch: 190226**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0000	U	0.0794	0.0794	0.159	pCi/L	05/11/15 08:57	06/04/15 07:31	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*05/11/15 08:57*	*06/04/15 07:31*	*1*

Lab Sample ID: LCS 160-190226/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 193522 — **Prep Batch: 190226**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits		
Radium-226			22.3	24.33		2.39		0.208	pCi/L	109	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*

Lab Sample ID: LCSD 160-190226/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 193522 — **Prep Batch: 190226**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			22.3	23.92		2.36		0.198	pCi/L	107	68 - 137	0.09	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*112*	*X*	*40 - 110*

QC Sample Results

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-190228/1-A
Matrix: Water
Analysis Batch: 192829

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 190228

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2059	U	0.404	0.405	0.690	pCi/L	05/11/15 09:04	05/29/15 12:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*05/11/15 09:04*	*05/29/15 12:02*	*1*
Y Carrier	*91.2*		*40 - 110*	*05/11/15 09:04*	*05/29/15 12:02*	*1*

Lab Sample ID: LCS 160-190228/2-A
Matrix: Water
Analysis Batch: 192829

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 190228

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits		
Radium-228			6.81	5.981		0.948		0.663	pCi/L	88	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*
Y Carrier	*90.8*		*40 - 110*

Lab Sample ID: LCSD 160-190228/3-A
Matrix: Water
Analysis Batch: 192829

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 190228

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)		MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			6.81	6.656		1.00		0.643	pCi/L	98	56 - 140	0.35	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*112*	*X*	*40 - 110*
Y Carrier	*91.2*		*40 - 110*

QC Association Summary

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

GC/MS VOA

Analysis Batch: 254089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	8260B	
440-109158-G-2 MS	Matrix Spike	Total/NA	Water	8260B	
440-109158-G-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-254089/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-254089/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 254346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-2	TB	Total/NA	Water	8260B	
440-109214-B-1 MS	Matrix Spike	Total/NA	Water	8260B	
440-109214-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-254346/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-254346/4	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 254413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	3520C	
LCS 440-254413/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 440-254413/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 440-254413/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 255228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-254413/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	254413
LCSD 440-254413/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	254413
MB 440-254413/1-A	Method Blank	Total/NA	Water	8270C SIM	254413

Analysis Batch: 255456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	8270C SIM	254413

GC VOA

Analysis Batch: 255014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	8015B	
440-109604-E-2 MS	Matrix Spike	Total/NA	Water	8015B	
440-109604-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
LCS 440-255014/3	Lab Control Sample	Total/NA	Water	8015B	
MB 440-255014/5	Method Blank	Total/NA	Water	8015B	

GC Semi VOA

Prep Batch: 253724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	3510C	
LCS 440-253724/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 440-253724/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

GC Semi VOA (Continued)

Prep Batch: 253724 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-253724/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 253826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-253724/2-A	Lab Control Sample	Total/NA	Water	8015B	253724
LCSD 440-253724/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	253724
MB 440-253724/1-A	Method Blank	Total/NA	Water	8015B	253724

Analysis Batch: 254151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	8015B	253724

HPLC/IC

Analysis Batch: 253788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	300.0	
440-109178-B-4 MS	Matrix Spike	Total/NA	Water	300.0	
440-109178-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 440-253788/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-253788/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 253789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	300.0	
440-109149-1	Mitchel	Total/NA	Water	300.0	
440-109178-B-4 MS	Matrix Spike	Total/NA	Water	300.0	
440-109178-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 440-253789/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-253789/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 190483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	3010A	
440-109149-1 MS	Mitchel	Total/NA	Water	3010A	
440-109149-1 MSD	Mitchel	Total/NA	Water	3010A	
LCS 160-190483/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-190483/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 191371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	6020A	190483
440-109149-1 MS	Mitchel	Total/NA	Water	6020A	190483
440-109149-1 MSD	Mitchel	Total/NA	Water	6020A	190483
LCS 160-190483/2-A	Lab Control Sample	Total/NA	Water	6020A	190483
MB 160-190483/1-A	Method Blank	Total/NA	Water	6020A	190483

Metals (Continued)

Prep Batch: 253868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	7470A	
580-49347-E-2-F MS	Matrix Spike	Total/NA	Water	7470A	
580-49347-E-2-G MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	
LCS 440-253868/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 440-253868/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 254275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	7470A	253868
580-49347-E-2-F MS	Matrix Spike	Total/NA	Water	7470A	253868
580-49347-E-2-G MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	253868
LCS 440-253868/2-A	Lab Control Sample	Total/NA	Water	7470A	253868
MB 440-253868/1-A	Method Blank	Total/NA	Water	7470A	253868

Prep Batch: 254489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total Recoverable	Water	3005A	
440-109370-K-1-B MS ^25	Matrix Spike	Total Recoverable	Water	3005A	
440-109370-K-1-C MSD ^25	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
LCS 440-254489/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 440-254489/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 254900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109370-K-1-B MS ^25	Matrix Spike	Total Recoverable	Water	6010B	254489
440-109370-K-1-C MSD ^25	Matrix Spike Duplicate	Total Recoverable	Water	6010B	254489
LCS 440-254489/2-A	Lab Control Sample	Total Recoverable	Water	6010B	254489
MB 440-254489/1-A	Method Blank	Total Recoverable	Water	6010B	254489

Analysis Batch: 255128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total Recoverable	Water	6010B	254489

Analysis Batch: 255130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total Recoverable	Water	6010B	254489

General Chemistry

Analysis Batch: 254117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	SM 2320B	
440-109178-B-1 DU	Duplicate	Total/NA	Water	SM 2320B	
LCS 440-254117/2	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 440-254117/3	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 254980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	SM 2540C	
440-109404-K-3 DU	Duplicate	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 254980 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-254980/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-254980/1	Method Blank	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 190226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	PrecSep-21	
LCS 160-190226/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-190226/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	
MB 160-190226/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 190228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-109149-1	Mitchel	Total/NA	Water	PrecSep_0	
LCS 160-190228/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-190228/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	
MB 160-190228/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 190445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-11674-A-3-C DU	Duplicate	Total/NA	Water	Evaporation	
160-11674-A-3-D MS	Matrix Spike	Total/NA	Water	Evaporation	
160-11674-A-3-E MSBT	Matrix Spike	Total/NA	Water	Evaporation	
440-109149-1	Mitchel	Total/NA	Water	Evaporation	
LCS 160-190445/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-190445/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
MB 160-190445/1-A	Method Blank	Total/NA	Water	Evaporation	

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.
X	Carrier is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-16
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15 *
California	ELAP	9	2886	03-31-16
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-15 *
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	10-31-15
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	04080	06-30-15 *
Louisiana (DW)	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15 *
Nevada	State Program	9	MO000542013-1	07-31-15 *
New Jersey	NELAP	2	MO002	06-30-15 *
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-16
North Dakota	State Program	8	R207	06-30-15 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15 *
Texas	NELAP	6	T104704193-13-6	07-31-15 *
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15 *
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

America Irvine
Derian Ave
ite 100
Irvine, CA 92614
phone 949.261.1022 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other: RWQCB Orders

Client Contact	Project Manager: Jane McNaboe	Site Contact: Jane McNaboe	Date:	COC No:
EnviroTech Consultants, Inc.	Tel/Fax: 661-377-0073 X 11	Lab Contact: Janice Hsu	Carrier:	____ of ____ COCs
5400 Rosedale Highway	Analysis Turnaround Time			Sampler:
Bakersfield, CA 93308	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(661) 377-0073 Phone	TAT if different from Below ____			Walk-in Client:
(661) 377-0074 FAX	☐ 2 weeks			Lab Sampling:
Project Name: RWQCB Pond Testing, 2015	☐ 1 week			
Site: Mitchel Lease, Chico Martinez Oil Field	☐ 2 days			Job / SDG No.:
P O # : CMO175	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	SM 2540C TDS	6010B CAM Metals	7470A Mercury (CVAA)	8260B BTEX	8015B C13-C22/C23-C40(Crude oil	PAH List 8270C SIM SVOC	300.0 Chloride, Bromide, Sulfate	300.0 Nitrate NO3	SM 2320B Alkalinity all forms ioni	9310 Gross Alpha	9315 Rad226	9320 Rad 228	6020A Uranium	Ra226_RA228	8015B C4 - C12, TPH	Travel Blank (1) 8260		Sample Specific Notes: See Attached
Mitchel	5/7/2015	0845		Water	20	N	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

440-109149 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for____ Months

Special Instructions/QC Requirements & Comments: Please analyze the samples to meet the RWQCB requirements on the attached sheet. Please identify the 8015B resutls as crude oil.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 6.0 Corr'd: 4.4 | Therm ID No.: 7

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Richard Thaker	Envirotech	5-7-15 2:42	[illegible] Sam	TA Irvine	5-7-15
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[illegible]	TAI / DCS	5/7/15 0830			
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Ti
			[illegible]	TA-I	

Form No. CA-C-WI-002,

America Irvine
Derian Ave
ite 100
Irvine, CA 92614
phone 949.261.1022 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other: RWQCB Orders

Client Contact	Project Manager: Jane McNaboe	Site Contact: Jane McNaboe	Date:	COC No:
EnviroTech Consultants, Inc.	Tel/Fax: 661-377-0073 X 11	Lab Contact: Janice Hsu	Carrier:	____ of ____ COCs
5400 Rosedale Highway	Analysis Turnaround Time			Sampler:
Bakersfield, CA 93308	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(661) 377-0073 Phone	TAT if different from Below ____			Walk-in Client:
(661) 377-0074 FAX	☐ 2 weeks			Lab Sampling:
Project Name: RWQCB Pond Testing, 2015	☐ 1 week			
Site: Mitchel Lease, Chico Martinez Oil Field	☐ 2 days			Job / SDG No.:
P O # : CMO175	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	SM 2540C TDS	6010B CAM Metals	7470A Mercury (CVAA)	8260B BTEX	8015B C13-C22/C23-C40(Crude oil	PAH List 8270C SIM SVOC	300.0 Chloride, Bromide, Sulfate	300.0 Nitrate NO3	SM 2320B Alkalinity all forms ioni	9310 Gross Alpha	9315 Rad226	9320 Rad 228	6020A Uranium	Ra226_RA228	8015B C4 - C12, TPH	Travel Blank (1) 8260		Sample Specific Notes: See Attached
Mitchel	5/7/2015	0845		Water	20	N	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

440-109149 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for____ Months

Special Instructions/QC Requirements & Comments: Please analyze the samples to meet the RWQCB requirements on the attached sheet. Please identify the 8015B resutls as crude oil.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 6.0 Corr'd: 4.1 | Therm ID No.: 7

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Richard Thaler	Envirotech	5-7-15 1400	[illegible]	TA Irvine	5-7-15
[illegible]	TAI / DCS	5/7/15 1830			
			Received in Laboratory by: [illegible]	TA-I	

Form No. CA-C-WI-002,

ATTACHMENT B

Water Quality Analysis

Wastewater samples collected from the ponds shall be analyzed by a laboratory certified by the Environmental Laboratory Accreditation Program using currently applicable United States Environmental Protection Agency-approved analytical methods for water for the following:

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 as crude oil;

E. Polynuclear aromatic hydrocarbons (including acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorine, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene);

F. Radionuclides listed under California Code of Regulations, title 22, Table 64442;

G. Major and minor cations (including sodium, potassium, magnesium, and calcium);

H. Major and minor anions (including nitrate, chloride, sulfate, carbonate, bicarbonate, and bromide);

I. Trace elements (including lithium, strontium, boron, iron, and manganese).

Reporting Requirements

Water Quality information shall be submitted in a technical report that includes at a minimum:

A. Site plan(s) with the location(s) of where the samples were collected;

B. A description of how the samples, representative of the pond contents, were collected;

Table(s) of analytical results organized by pond number with the data also submitted electronically as an Excel spreadsheet.

Login Sample Receipt Checklist

Client: Envirotech Consultants, Inc.

Job Number: 440-109149-1
SDG Number: Mitchel Lease, Chico Martinez Oil Field

Login Number: 109149
List Number: 1
Creator: Kim, Guerry

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Envirotech Consultants, Inc.
Project/Site: RWQCB Pond Testing, 2015

TestAmerica Job ID: 440-109149-1
SDG: Mitchel Lease, Chico Martinez Oil Field

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**Ba (40-110)**							
440-109149-1	Mitchel	100							
LCS 160-190226/2-A	Lab Control Sample	108							
LCSD 160-190226/3-A	Lab Control Sample Dup	112 X							
MB 160-190226/1-A	Method Blank	109							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**Ba (40-110)**	**Y (40-110)**						
440-109149-1	Mitchel	100	90.8						
LCS 160-190228/2-A	Lab Control Sample	108	90.8						
LCSD 160-190228/3-A	Lab Control Sample Dup	112 X	91.2						
MB 160-190228/1-A	Method Blank	109	91.2						

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier