

# **EnviroTech**

## **Consultants, Inc.**

5400 Rosedale Highway  
Bakersfield, CA 93308

**MCLENNAN OIL  
RESPONSE TO RWQCB SECTION 13267 ORDER  
POND INFORMATION AND SAMPLING RESULTS**

**MIDWAY-SUNSET OIL FIELD**

**SECTION 32, T31S/R23E MDB&M**

**AUGUST 21, 2015**

**Prepared by:**

**EnviroTech Consultants, Inc.**

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L M Sawyer, PG  
CA PG License # 4450

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## ATTACHMENTS

ATTACHMENT A	McLennan Oil Pond Map
ATTACHMENT B	McLennan Oil Site Plan
ATTACHMENT C	Copy of RWQCB Order 13267, 1 April, 2015
ATTACHMENT D	Laboratory Analytical Report

## **1.0 IDENTIFICATION OF DISCHARGES OF PRODUCED WATER TO LAND**

Two ponds were identified containing discharges of produced water on the Midway-Sunset lease. A map of the ponds and surrounding lease is included as Attachment A.

## **2.0 POND SAMPLING**

Representative samples of wastewater were collected by McLennan Oil from Pond #1 (Attachment B) on April 17, 2015 as required by Order 13267 dated April 1, 2015 (Attachment C). The William K. McLennan ponds are in series, so only one data sample is needed. The samples were collected from the pond using a clean glass jar and then decanting fluid from the sampling jar into appropriate sampling containers. The samples were stored in a cooler containing ice and transported under standard Chain of Custody procedures.

## **3.0 POND SAMPLING ANALYTICAL RESULTS**

The samples were received by Zalco, Inc. on April 17, 2015. EnviroTech received the preliminary laboratory analytical report on May 12, 2015. The analytical results are summarized in the following tables; complete laboratory reports are included in Attachment D.

**Table 3-1: General Chemistry**

Sample ID	Date Sampled	Total Dissolved Solids	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Strontium	Alkalinity as CaCO <sub>3</sub>	Bicarbonate ion as HCO <sub>3</sub>	Carbonate as CO <sub>3</sub>	Hydroxide as OH
EPA Analytical Method		2540C	200.7						2320B				
Units	mg/L												
Reporting limit	Reporting limits vary, see full analytical report.												
<b>Results</b>													
Pond 1-1504196-01	4/17/2015	<b>38000</b>	<b>830</b>	<b>37</b>	<b>710</b>	<b>0.89</b>	<b>160</b>	<b>14000</b>	<b>15</b>	<b>620</b>	<b>620</b>	<10	<10

N/A – Not analyzed for this compound.

**Bold** = Analyte detected at or above minimum reporting limit.

\* Analyte was found in sample and blank \*

**Table 3-2: Anions**

Sample ID	Date Sampled	Anions, Ion Chromatography			
		Bromide	Chloride	Nitrate as NO <sub>3</sub>	Sulfate
EPA Analytical Method		300.0			
Units		mg/L			
Reporting Limit		Reporting limit varies, see full analytical report.			
Pond 1 - 1504196-01	4/17/2015	<b>190</b>	<b>22000</b>	<20.0	<b>79</b>

**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				200.7	6010B				
Units		mg/L									
Reporting Limit		Reporting limit varies by sample. See full analytical report.									
Pond 1 - 1504196-01	4/17/2015	<2.0	<0.20	<b>1.8</b>	<b>0.12</b>	<b>46*</b>	<0.10	<b>0.58</b>	<1.0	<b>0.69</b>	<b>0.57</b>

Sample ID	Date Sampled	Lithium	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc	Mercury
EPA Analytical Method		200.7	6010B			200.7	6010B			7470A	
Units		mg/L									
Reporting Limit		Reporting limit varies by sample. See full analytical report.									
Pond 1 - 1504196-01	4/17/2015	<b>6.7</b>	<1.0	<b>0.60</b>	<0.50	<0.20	<b>15</b>	<5.0	<1.0	<0.50	<0.0020

**Bold** = Analyte detected at or above minimum reporting limit.

\* = EPA Method 200.7 used

**Table 3-4: BTEX and TRPH**

Sample ID	Date Sampled	Benzene	Ethylbenzene	Toluene	Xylenes, Total	TRPH as Crude Oil: Diesel and Gasoline Range Organics (DRO) (GRO)
EPA Analytical Method		8260B				1664
Units		ug/L				ug/L
Reporting Limit		Varies, see laboratory report				
Pond 1 - 1504196-01	4/17/2015	<b>160</b>	<b>205</b>	<b>160</b>	<b>957</b>	<b>6.0</b>

N/A – Not analyzed for this compound.

**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[k]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																	
Units		ug/L																	
Pond 1 - 1504196-01	4/17/2015	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<b>20.7</b>	<10.0	<10.0	

**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	Radium-226	Radium-228	Uranium
<b>EPA Analytical Method</b>		900.0	903.0	Ra - 05	908.0
<b>Units</b>		pCi/L			
<b>Regulatory Threshold*</b>		15/5	3	2	20
Pond 1- 154196-01	4/17/2015	<b>8.99 ± 8.57</b>	<b>4.19 ± 0.608</b>	0.000 ± 0.795	0.000 ± 0.346

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

#### 4.0 INFORMATION FOR EACH SURFACE IMPOUNDMENT

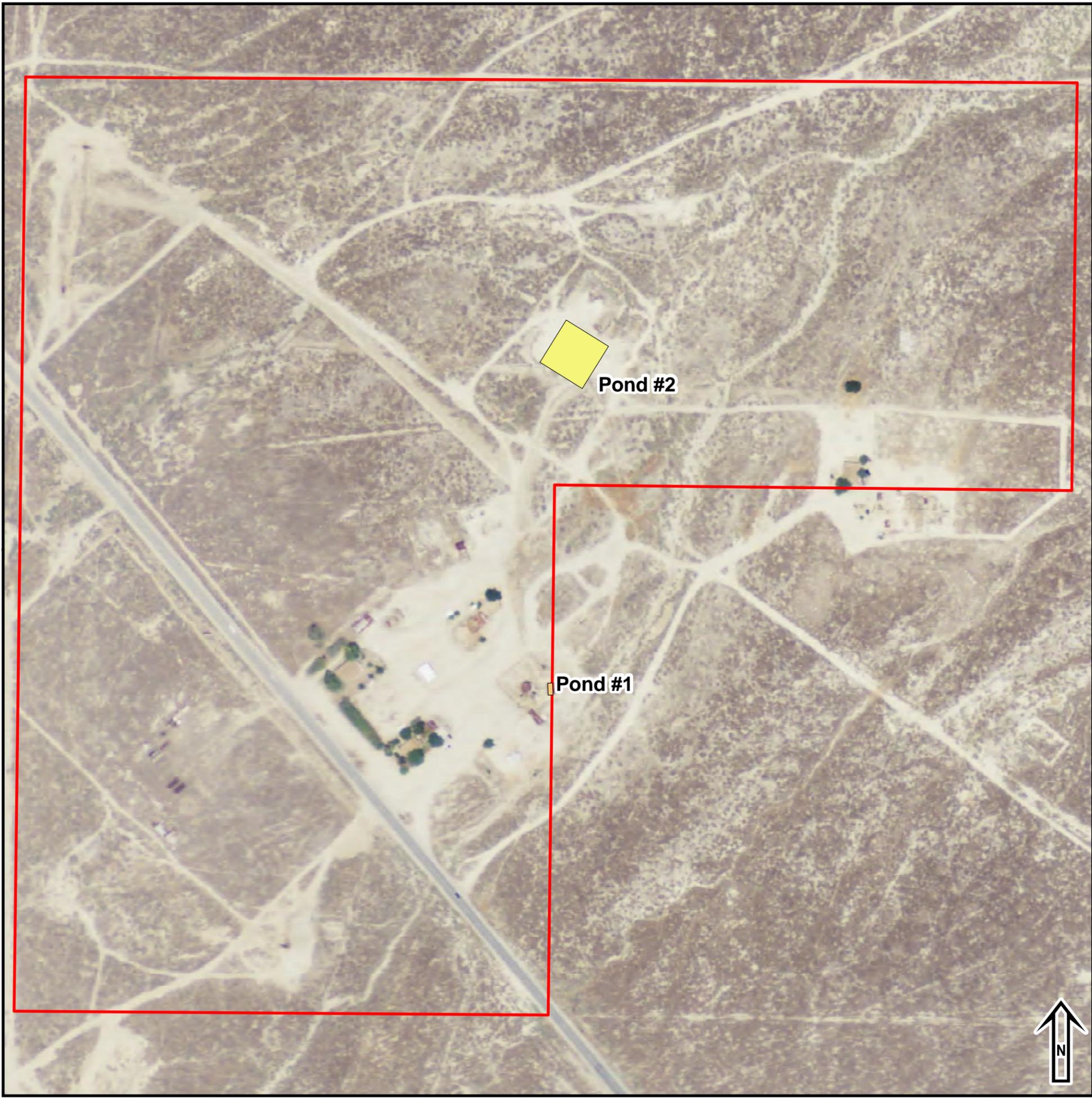
The following table contains the required information for the ponds.

**Table 4-1: Surface Impoundment Information**

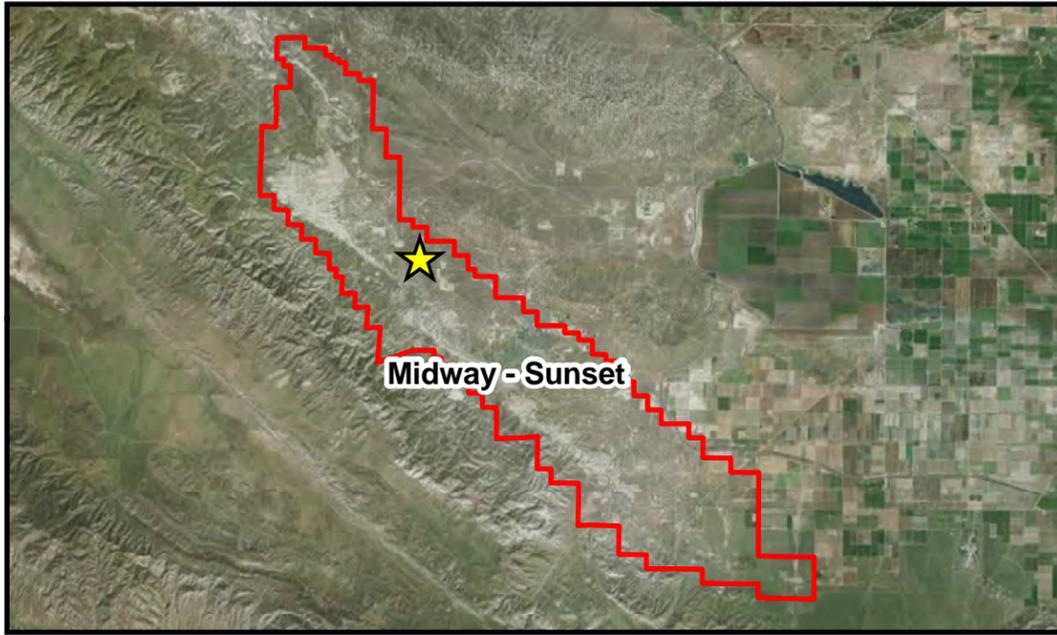
Surface Impoundment Dimensions (feet)				Location (NAD 83)	Assessor's Parcel Number of the Lease	Duration of Discharge (months)	Volume of Wastewater Discharged per year (bbls)
Pond #1	Length	Width	Depth	Latitude: 35.186007	298-060-23	Intermittent	Unknown
	12	30	5	Longitude: -119.531641			
Pond #2	Length	Width	Depth	Latitude: 35.188356	298-060-24	12	4,500
	125	125	5	Longitude: -119.53497			

ATTACHMENT A

MCLENNAN OIL POND MAP



# McLennan Oil Company

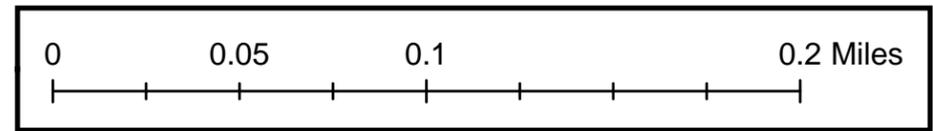


### Legend

William K. McLennan Lease

**Sumps**

	Pond #1	Pond #1: Length - 12' Width - 30' Depth - 5'	Pond #2: Length - 125' Width - 125' Depth - 5'
	Pond #2		



Prepared By: 	<b>TITLE:</b>	William K. McLennan Ponds
	<b>FIELD:</b>	Midway-Sunset Oil Field
	<b>COUNTY:</b>	Kern
<b>Section/Township/Range</b>	<b>DRN BY:</b>	Ashley Bylow
T31S/R23E - Section 32	<b>DATE:</b>	August 11, 2015
	<b>SCALE:</b>	1:3,100

ATTACHMENT B

MCLENNAN OIL SITE PLAN

# McLennan Oil Company

William K. McLennan



Google earth

© 2015 Google

Sample taken from sump



400 ft

ATTACHMENT C

MCLENNAN OIL

COPY OF RWQCB ORDER 13267, 1 APRIL 2015



EDMUND G. BROWN JR.  
GOVERNOR

MATTHEW RODRIGUEZ  
SECRETARY FOR  
ENVIRONMENTAL PROTECTION

## Central Valley Regional Water Quality Control Board

1 April 2015

William K. McLennan  
William K. McLennan  
5425 Toltec Drive  
Santa Barbara, CA. 93111

**CERTIFIED MAIL**  
7014 3490 0001 7023 0766

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

William K. McLennan (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 15 June 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;<sup>1</sup>

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 15 April 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.

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<sup>1</sup> 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](http://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](mailto:doug.patteson@waterboards.ca.gov).

*Original signed by:*

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:

<b>OPERATOR</b>	<b>OIL FIELD</b>	<b>LEASE</b>	<b>NO. Of Ponds</b>
William K. McLennan	Midway-Sunset		2

## 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 D

MCLENNAN OIL  
LABORATORY ANALYTICAL REPORT



ZALCO LABORATORIES, INC.

Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

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May 12, 2015

Dennis Walrath  
McLennan Oil Company  
11003 Artist Ct.  
Bakersfield, CA 93312

TEL: (805) 839-9229  
FAX: NONE

Project ID:  
RE: 1504196

Dear Dennis Walrath:

Zalco Laboratories, Inc. received 1 samples on 4/17/2015 for the analyses presented in the following report.

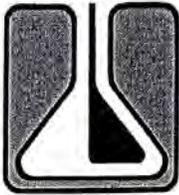
We appreciate your business and look forward to serving you in the future. Please feel free to call our office if you have any questions regarding these test results.

Sincerely,

Juan Magana  
Project Manager  
CC:

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTLC: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level \*: See Case Narrative  
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Note: Samples analyzed for regulatory purposes should be put on ice immediately after sampling and received by the laboratory at temperatures between 0-6°C. Microbiological analysis requires samples to be at least 4-10°C when received at the laboratory. For additional information regarding the limitations of the method(s) referred to, please call us at 661-395-0539.



**ZALCO LABORATORIES, INC.**  
Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

McLennan Oil Company 11003 Artist Ct. Bakersfield, CA 93312	Project: RWQCB Oilfield Ponds - 2Q2015 Project #: Attention: Dennis Walrath	Work Order No.: 1504196 Reported: 05/12/2015 Received: 04/17/2015 13:55
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Lab Sample ID: 1504196-01 Client Sample ID: Pond #1	Collected By: Justin Graves Date Collected: 4/17/2015 12:10:00PM
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Analyte	Results	PQL	Units	Flag	Method	Date Prepared	Date Analyzed	Init.
<b>Alkalinity</b>								
Total Alkalinity	620	10	mg/L		SM 2320B	4/17/15	4/17/15	SAM
Bicarbonate (HCO3)	620	10	mg/L		SM 2320B	4/17/15	4/17/15	SAM
Carbonate (CO3)	<10	10	mg/L		SM 2320B	4/17/15	4/17/15	SAM
Hydroxide (OH)	<10	10	mg/L		SM 2320B	4/17/15	4/17/15	SAM
<b>CAM, Toxicity (17 Metals)</b>								
			<i>TTL Limits</i>					
Antimony	<2.0	2.0	500	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Arsenic	<0.20	0.20	500	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Barium	1.8	1.0	10000	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Beryllium	0.12	0.10	75	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Cadmium	<0.10	0.10	100	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Chromium	0.58	0.50	2500	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Cobalt	<1.0	1.0	8000	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Copper	0.69	0.50	2500	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Lead	0.57	0.50	1000	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Mercury	<0.0020	0.0020	20	mg/L	SW846 7470A	4/23/15	4/23/15	SS
Molybdenum	<1.0	1.0	3500	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Nickel	0.60	0.50	2000	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Selenium	<0.50	0.50	100	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Silver	<0.20	0.20	500	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Thallium	<5.0	5.0	700	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Vanadium	<1.0	1.0	2400	mg/L	SW846 6010B	4/22/15	4/23/15	SS
Zinc	<0.50	0.50	5000	mg/L	SW846 6010B	4/22/15	4/23/15	SS
<b>General Chemistry</b>								
			<i>MCL Limits</i>					
Fluoride	2.2	1.0	2	mg/L	EPA 300.0	4/17/15	4/17/15	MSS
Nitrate as NO3	<20.0	20.0	45	mg/L	EPA 300.0	4/17/15	4/17/15	MSS
Electrical Conductivity	56	0.010		mmhos/cm	SM 2510B	4/20/15	4/20/15	SAM
Bromide	190	1.0		mg/L	EPA 300.0	4/17/15	4/17/15	MSS
Chloride	22000	1000		mg/L	EPA 300.0	4/17/15	4/17/15	MSS
pH	6.90			pH Units	EPA 150.1	4/17/15	4/17/15	SAM
Sulfate as SO4	79	5.0		mg/L	EPA 300.0	4/17/15	4/17/15	MSS
Total Dissolved Solids	38000	10		mg/L	SM 2540C	4/20/15	4/20/15	SAM
<b>Hardness</b>								

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTL: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level \* See Case Narrative  
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**ZALCO LABORATORIES, INC.**  
Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

McLennan Oil Company 11003 Artist Ct. Bakersfield, CA 93312	Project: RWQCB Oilfield Ponds - 2Q2015 Project #: Attention: Dennis Walrath	Work Order No.: 1504196 Reported: 05/12/2015 Received: 04/17/2015 13:55
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Lab Sample ID: 1504196-01 Client Sample ID: Pond #1	Collected By: Justin Graves Date Collected: 4/17/2015 12:10:00PM
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Analyte	Results	PQL	Units	Flag	Method	Date Prepared	Date Analyzed	Init.
<b>Hardness</b>								
Hardness (as CaCO3)	5000	2.0	mg/L		SM 2340B	4/21/15	4/21/15	SS
<b>Metals</b>								
Lithium	6.7	1.0	mg/L		EPA 200.7	4/21/15	4/22/15	SS
<b>Metals - As Received</b>								
Magnesium	710	0.50	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Potassium	160	5.0	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Sodium	14000	350	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Calcium	830	0.50	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Iron	37	1.0	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Boron	46	1.0	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Barium	1.3	1.0	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Copper	<0.50	0.50	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Silica (SiO2)	76	40	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Strontium	15	1.0	mg/L		EPA 200.7	4/21/15	4/21/15	SS
Manganese	0.89	0.30	mg/L		EPA 200.7	4/21/15	4/21/15	SS
<b>Oil &amp; Grease Testing</b>								
TRPH	6.00	5.00	mg/L		EPA 1664	4/29/15	4/29/15	BIG
<b>Semivolatile Organic Compounds</b>								
Indeno(1,2,3-cd)pyrene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Naphthalene	20.7	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Acenaphthylene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Acenaphthene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Fluorene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Phenanthrene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Anthracene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Fluoranthene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Pyrene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Benzo (a) anthracene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Chrysene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Benzo (b) fluoranthene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Benzo (k) fluoranthene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTL: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level \*: See Case Narrative  
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Note: Samples analyzed for regulatory purposes should be put on ice immediately after sampling and received by the laboratory at temperatures between 0-6°C. Microbiological analysis requires samples to be at least 4-10°C when received at the laboratory. For additional information regarding the limitations of the method(s) referred to, please call us at 661-395-0539.



# ZALCO LABORATORIES, INC.

Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

McLennan Oil Company 11003 Artist Ct. Bakersfield, CA 93312	Project: RWQCB Oilfield Ponds - 2Q2015 Project #: Attention: Dennis Walrath	Work Order No.: 1504196 Reported: 05/12/2015 Received: 04/17/2015 13:55
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Lab Sample ID: 1504196-01 Client Sample ID: Pond #1	Collected By: Justin Graves Date Collected: 4/17/2015 12:10:00PM
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Analyte	Results	PQL	Units	Flag	Method	Date Prepared	Date Analyzed	Init.
<b>Semivolatile Organic Compounds</b>								
Benzo (a) pyrene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Dibenz (a,h) anthracene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM
Benzo (g,h,i) perylene	<10.0	10.0	ug/L		SW846 8270C	4/17/15	4/20/15	JMM

Surrogates	% Recovery	Recovery Limits	Flag	Date
Nitrobenzene-d5	0.0700	0-95		4/20/15 14:56
2-Fluorobiphenyl	10.8	0-92		4/20/15 14:56
Terphenyl-d14	14.7	0-100		4/20/15 14:56

### Volatile Organic Compounds

Analyte	Results	PQL	Units	Flag	Method	Date Prepared	Date Analyzed	Init.
m,p-Xylene	415	25.0	ug/L		SW846 8260B	4/28/15	4/28/15	HLP
Benzene	180	25.0	ug/L		SW846 8260B	4/28/15	4/28/15	HLP
Xylenes, total	957		ug/L		SW846 8260B	4/28/15	4/28/15	HLP
Methyl tert-Butyl Ether	<5.00	5.00	ug/L		SW846 8260B	4/28/15	4/28/15	HLP
Ethylbenzene	205	25.0	ug/L		SW846 8260B	4/28/15	4/28/15	HLP
Toluene	160	25.0	ug/L		SW846 8260B	4/28/15	4/28/15	HLP
o-Xylene	542	25.0	ug/L		SW846 8260B	4/28/15	4/28/15	HLP

Surrogates	% Recovery	Recovery Limits	Flag	Date
1,2-Dichloroethane-d4	108	89-165		4/28/15 11:45
Toluene-d8	105	65-124		4/28/15 11:45
4-Bromofluorobenzene	113	94-114		4/28/15 11:45

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTL: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level \*: See Case Narrative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Note: Samples analyzed for regulatory purposes should be put on ice immediately after sampling and received by the laboratory at temperatures between 0-6°C. Microbiological analysis requires samples to be at least 4-10°C when received at the laboratory. For additional information regarding the limitations of the method(s) referred to, please call us at 661-395-0539.



**ENVIRONMENTAL AGRICULTURAL**  
Analytical Chemists

May 11, 2015

Lab ID : SP 1504319-001

Customer ID : 2-249

**Zalco Laboratories, Inc.**  
4309 Armour Avenue  
Bakersfield, CA 93308-4573

Sampled On : April 17, 2015-12:10

Sampled By : Not Available

Received On : April 21, 2015-09:30

Matrix : Water

Description : 1504196-01

Project : 1504196

**Sample Result - Radio**

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>Radio Chemistry<sup>P</sup></b>								
Gross Alpha	8.99 ± 8.57	11.1	pCi/L	15/5	900.0	04/24/15-08:30 2P1504759	900.0	04/27/15-12:00 2A1506417
Total Alpha Radium (226)	4.19 ± 0.608	0.363	pCi/L	3	903.0	04/24/15-18:45 2P1504812	903.0	04/30/15-09:20 2A1506495
Uranium	0.000 ± 0.346	0.300	pCi/L	20	908.0	04/30/15-07:05 2P1505004	908.0	04/30/15-18:27 2A1506488
Ra 228	0.000 ± 0.795	0.506	pCi/L	2	Ra - 05	05/06/15-18:20 2P1504811	Ra - 05	05/09/15-11:20 2A1506898

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives: N/A \* PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.

MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).

AV = Assigned Value(Gross Alpha Result + (0.84 x Error)) CCR Section 64442: Drinking Water Compliance Note: Do the following If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



