REH

TECHNICAL REPORT – POTENTIAL DISCHARGES TO LAND, NORTH BELRIDGE OIL FIELD

Aera Energy LLC

Kern County, California

Prepared for:

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
1281 East Alluvial Avenue, Suite 101
Fresno, California 93720
(559) 264-2535

June 11, 2015

Project FR15160780

REH

AERA

June 11, 2015

Ronald Holcomb
Central Valley Region
Water Quality Control Board
1685 East E Street
Fresno, CA 93706

SUBJECT: INFORMATION REQUESTED BY SECTION 13267 ORDER
NORTH BELRIDGE OIL FIELD

Dear Mr. Holcomb:

In a letter dated April 1, 2015, the Regional Water Quality Control Board (RWQCB) requested laboratory analyses of locations previously identified by RWQCB staff and an inventory of other potential discharge locations not previously identified. The attached report prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. includes the requested information covering Aera Energy LLC's (Aera) operations within the North Belridge Oil Field.

Aera has provided as much information as possible within the short timeframe specified by the RWQCB. Existing equipment databases were queried and experienced personnel were engaged to prepare the inventory. Even taking into account these measures, it is possible that some minor discharge locations were overlooked.

In addition, Aera continues to install new or modify existing equipment that could be classified as a potential discharge point. Pressure relief valves are needed to protect personnel and equipment from catastrophic failures or a new steam injection well, approved by the Division of Oil, Gas and Geothermal Resources, may be drilled to support existing operations. Aera understands that the RWQCB is re-evaluating the regulatory framework that encompasses this type of equipment. When the evaluation is complete, the attached report may need to be supplemented to include added discharge locations or delete locations that have been abandoned.

The sampling of the fluids has been proceeding expeditiously. However, many of the locations do not contain fluids or sufficient fluids to collect the required samples. Where fluids are available, extensive safety planning must be implemented in order to ensure

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the well-being of the personnel performing the work. Further, some of the laboratory methods requested by the RQWCB take several weeks to complete. Accordingly, laboratory analytical results will be submitted as they are received by Aera.

If you have any questions or require additional information, please contact Ron Chambers at (661) 665-5641 or John Haley at (661) 665-5279.

CERTIFICATION:

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.

W. D. Anderson
Vice President
Belridge Asset

cc: Ron Chambers, Aera
John Haley, Aera
William Pipes, Amec
Alex Olsen, Amec

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June 11, 2015

Project FR15160780

Mr. John Haley
Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

Subject: **Technical Report – Potential Discharges to Land, North Belridge Oil Field**
Aera Energy LLC, Kern County, California

Dear Mr. Haley:

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), is pleased to provide this technical report to Aera Energy LLC (Aera), presenting the sampling and analytical results for the recent review of potential discharges to land conducted at the North Belridge Oil Field in Kern County, California. The sampling was conducted to comply with the Central Valley Regional Water Quality Control Board's (RWQCB) Section 13267 Order (Order) dated April 1, 2015 (Appendix A). The order requested that potential discharges of wastewater to land be identified and where possible analytical results of wastewater samples collected be submitted in a technical report to the RWQCB by June 15, 2015.

DISCHARGE LOCATIONS

The RWQCB Order identified 2 impoundments located at the North Belridge Oil Field that are operated by Aera. In addition to the impoundments listed in the Order, Aera has identified an additional 389 potential discharge points. An Inventory List, provided by Aera, of potential discharge points with their intended use is included in Appendix B. The locations of each discharge point are shown on Figures 1 through 13 included in Appendix B.

WASTEWATER SAMPLING

Of the 391 potential discharge point's identified, Area was able to collect samples from 2. Samples could not be collected from the majority of the discharge points due to the locations being dry, the locations are only used during an emergency (i.e pressure relief valve), the discharge location was not in operation, or samples could not be collected safely (e.g. high temperatures associated with steam). Aera is in the process of collecting samples as conditions allow and evaluating the potential for collecting representative samples from the remaining locations with Amec Foster Wheeler.

The following paragraphs describe the sampling method and analysis.

Sampling Method

Wastewater samples were collected by BC Laboratories Inc. (BC Labs), of Bakersfield, California under direct contract with Aera on May 19 and May 21, 2015. Wastewater samples were collected by slowly lowering a new clean disposable bailer or new clean dipping cup into the liquid and then decanting the sample into the appropriate containers.

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Sample Analysis

The wastewater samples were delivered to BC Labs for chemical analysis. Wastewater samples were labeled with pertinent information including sample identification, the date and time the samples were collected, and the name of the individual collecting the sample. The samples collected for laboratory analysis were transported in ice-cooled chests under chain-of-custody procedures.

Samples were analyzed for the analytes listed in Attachment B of the Order. The analytes and analytical methods are summarized in Table 1.

ANALYTICAL RESULTS

Analytical results for the samples collected are summarized in Tables 2 through 5. The analytical reports and chain-of-custody documentation are provided in Appendix C.

General Chemistry

General chemistry results are summarized in Table 2.

Total Metals

Total metals results are summarized in Table 3.

Radionuclides

Radionuclide analytical results are summarized in Table 4.

Volatile Organic Compounds, Polynuclear Aromatic Hydrocarbons, and Total Petroleum Hydrocarbons

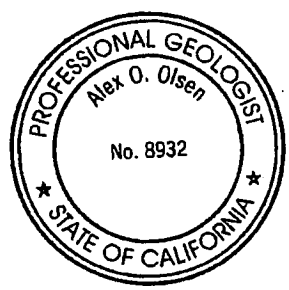
The volatile organic compounds (VOCs), polynuclear aromatic hydrocardons (PAH), and total petroleum hydrocarbons results are summarized in Table 5. Only the detected VOCs and PAHs are summarized in this table.

CERTIFICATION

This letter was prepared by Amec Foster Wheeler staff under the supervision of the Professional Geologist whose seal and signature appear hereon. The findings, recommendations, specifications, or professional opinions presented in this letter were prepared in accordance with generally accepted professional geologic practices and within the scope of this project. No other warranty, express or implied, is provided.

Amec Foster Wheeler is pleased to be of service to Aera. Please call if you have any questions or require additional information.

Sincerely yours,
Amec Foster Wheeler Environment & Infrastructure, Inc.



Alex O. Olsen Jr., PG
Senior Geologist

Attachments:

Table 1 – Summary of Chemical Analysis
Table 2 – Analytical Results – General Chemistry
Table 3 – Analytical Results – Total Metals
Table 4 – Analytical Results – Radionuclides
Table 5 – Analytical Results – Volatile Organic Compounds, Polynuclear Aromatic Hydrocarbons, and Total Petroleum Hydrocarbons
Appendix A – April 1, 2015, California Water Code Directive Pursuant to Section 13267
Appendix B – Inventory List and North Belridge Potential Discharge Location Points
Appendix C – Analytical Reports and Chain-of-Custody Documentation

cc: Ron Chambers, Aera Energy LLC

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TABLE 1

SUMMARY OF CHEMICAL ANALYSIS

Aera North Belridge Discharge Sampling
North Belridge Oil Field, Kern County, California

Constituents	Analytical Method[1]
Volatile Organic Compounds	
Benzene	EPA-8260B
Ethylbenzene	EPA-8260B
Toluene	EPA-8260B
Total Xylenes	EPA-8260B
Polynuclear Aromatic Hydrocarbons	
Acenaphthene	EPA-8270C-SIM
Acenaphthylene	EPA-8270C-SIM
Anthracene	EPA-8270C-SIM
Benzo[a]anthracene	EPA-8270C-SIM
Benzo[b]fluoranthene	EPA-8270C-SIM
Benzo[k]fluoranthene	EPA-8270C-SIM
Benzo[a]pyrene	EPA-8270C-SIM
Benzo[g,h,i]perylene	EPA-8270C-SIM
Chrysene	EPA-8270C-SIM
Dibenzo[a,h]anthracene	EPA-8270C-SIM
Fluoranthene	EPA-8270C-SIM
Fluorene	EPA-8270C-SIM
Indeno[1,2,3-cd]pyrene	EPA-8270C-SIM
Naphthalene	EPA-8270C-SIM
Phenanthrene	EPA-8270C-SIM
Pyrene	EPA-8270C-SIM
Metals	
Total Antimony	EPA-6010B
Total Arsenic	EPA-6010B
Total Barium	EPA-6010B
Total Beryllium	EPA-6010B
Total Cadmium	EPA-6010B
Total Chromium	EPA-6010B
Total Cobalt	EPA-6010B
Total Copper	EPA-6010B
Total Lead	EPA-6010B
Total Mercury	EPA-7470A

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TABLE 1

SUMMARY OF CHEMICAL ANALYSIS

Constituents	Analytical Method[1]
Metals (continued)	
Total Molybdenum	EPA-6010B
Total Nickel	EPA-6010B
Total Selenium	EPA-6010B
Total Silver	EPA-6010B
Total Thallium	EPA-6010B
Total Vanadium	EPA-6010B
Total Zinc	EPA-6010B
Hexavalent Chromium	EPA-7196
Total Boron	EPA-6010B
Total Iron	EPA-6010B
Total Lithium	EPA-6010B
Total Strontium	EPA-6010B
Total Calcium	EPA-6010B
Total Magnesium	EPA-6010B
Total Manganese	EPA-6010B
Total Sodium	EPA-6010B
Total Potassium	EPA-6010B
Radionuclides	
Gross Alpha	EPA 00-02
Radium 226	EPA 903.1
Radium 228	EPA 904.0
Total Recoverable Uranium	EPA-200.8
General Chemistry	
Bromide	EPA-300.0
Chloride	EPA-300.0
Nitrate as NO3	EPA-300.0
Sulfate	EPA-300.0
Alkalinity	SM 2320B
Total Dissolved Solids	SM 2540C
Other	
Total Petroleum Hydrocarbons, Crude Oil	EPA-8015M

1. "--" = not applicable, EPA = Environmental Protection Agency, and SM = Standard Method.

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TABLE 2

ANALYTICAL RESULTS - GENERAL CHEMISTRY

Aera North Belridge Discharge Sampling
North Belridge Oil Field, Kern County, California

Sample ID[2]	Discharge Location	Sample Date	Analyte and Result[1]								
			Bicarbonate Alkalinity as $CaCO_3$	Carbonate Alkalinity as $CaCO_3$	Hydroxide Alkalinity as $CaCO_3$	Total Alkalinity as $CaCO_3$	Bromide	Chloride	Nitrate as NO_3	Sulfate	Total Dissolved Solids @ 180 °C
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BL12	Sub-terrainian drain tank T49-12	05/19/15	930	ND	ND	930	3.2	610	ND	5.9 J	3,400
BL1807	Wet LACT Sump	05/21/15	240	ND	ND	240	4.6	670	ND	12	2,200

1. $CaCO_3$ = calcium carbonate, mg/L = milligrams per liter, NO_3 = Nitrogen, s.u. = standard pH units, °C = degrees Celsius, µmhos/cm = micromhos per centimeter, ND = not detected, J = trace or estimated concentration with a value greater than the method detection limit but less than the practical quantitation limit.
2. Sample locations are shown on Figures 6 and 10 in Appendix B.

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TABLE 3

ANALYTICAL RESULTS
TOTAL METALS

Aera North Belridge Discharge Sampling
North Belridge Oil Field, Kern County, California

Sample ID[2]	Discharge Location	Sample Date	Analyte and Result[1]																												
			Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Iron	Lead	Lithium	Manganese	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Strontium	Thallium	Vanadium	Zinc		
			ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	mg/L	ug/L	ug/L	ug/L		
BL12	Sub-terrainian drain tank T49-12	05/19/15	ND	ND	170	ND	2.2	32	220	290	ND	62 J	72	43	23 J	0.086	1.5	13	6.7	86 J	130	34	ND	ND	700	0.87	ND	82	2,000		
BL1807	Wet LACT Sump	05/21/15	ND	ND	370	ND	2.9	ND	100	19 J	ND	10 J	22	7.0	ND	0.26	0.68	10	0.048 J	5.8 J	100	18	ND	ND	360	1.1	ND	56	51 J		

1. µg/L = micrograms per liter, mg/L = milligrams per liter, ND = not detected, J = trace or estimated concentration with a value greater than the method detection limit but less than the practical quantitation limit.
2. Sample locations are shown on Figures 6 and 10 in Appendix B.

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TABLE 4

ANALYTICAL RESULTS - RADIONUCLIDES

Aera North Belridge Discharge Sampling
North Belridge Oil Field, Kern County, California

Sample ID[2]	Discharge Location	Sample Date	Analyte and Result[1]			
			Gross Alpha	Radium 226	Radium 228	Total Recoverable Uranium
			pCi/L	pCi/L	pCi/L	pCi/L
BL12	Sub-terrainian drain tank T49-12	05/19/15	ND	-2.855	1.6	3.2 J
BL1807	Wet LACT Sump	05/21/15	ND	3.28	3.6	0.74 J

1. pCi/L = picocuries per liter, ND = not detected, J = trace or estimated concentration with a value greater than the **method detection limit** but less than the practical quantitation limit.
2. Sample locations are shown on Figures 6 and 10 in Appendix B.

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TABLE 5

ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS, POLYNUCLEAR AROMATIC HYDROCARBONS, AND TOTAL PETROLEUM HYDROCARBONS

Aera North Belridge Discharge Sampling
North Belridge Oil Field, Kern County, California

			Analyte and Result[1]														
			Volatile Organic Compounds				Polynuclear Aromatic Hydrocarbons										
Sample ID[2]	Discharge Location	Sample Date	Benzene	Ethylbenzene	Toluene	Xylenes, Total	Acenaphthene	Acenaphthylene	Benzo[a]anthracene	Benzo[b]fluoranthene	Chrysene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Petroleum Hydrocarbons - Crude Oil
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
BL12	Sub-terrainian drain tank T49-12	05/19/15	220	30	360	540	7.7	<0.47	0.29 J	<0.4	<0.22	1.1	0.41 J	8.1	0.82 J	0.67 J	630,000
BL1807	Wet LACT Sump	05/21/15	9.5	3.0	22	49	10	4.9	0.76 J	1.9	6.1	2.3	33	30	60	8.1	160,000

1. µg/L = micrograms per liter, mg/L = milligrams per liter, < = less than the method detection limit (MDL), J = trace or estimated concentration with a value greater than the MDL but less than the practical quantitation limit, and "--" = not analyzed.
2. Sample locations are shown on Figures 6 and 10 in Appendix B.

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APPENDIX A

April 1, 2015, California Water Code Directive Pursuant to Section 13267

1 April 2015

Megan Graves
Aera Energy LLC
10000 Ming Avenue
Bakersfield, CA 93389

CERTIFIED MAIL
7014 3490 0001 7023 0025

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

Aera Energy LLC (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:

(b) 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;[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 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.

[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.

Clay L. Rodgers

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
Aera Energy LLC	Belridge, North		1
	Belridge, North	Belridge A	1
	Belridge, South	Aera Energy	20
		Belridge V	3
	Coalinga	CMS-Aztec	2
		Penn-Zier	7
		Sec26	9
	Lost Hills	Lost Hills One	1
		Lost Hills Two	2
	Midway-Sunset	Fulton	1
		Lockwood	1
		Moco 35	3
		National USL	2
		Section 8	1
		Shale 14	1
		Vedder	1
		W & S	1
		Wier	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.

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APPENDIX B

Inventory List and North Belridge Potential Discharge Location Points

Aera Energy LLC - North Belridge Oil Field

Potential Discharge Locations

Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged [bbl/yr]	Category
BL5	2	North Belridge	Belridge A	Old secondary containment for abandoned tank battery	South of well 3-22 (267')	Belridge A, Pond 1	22	27S	20E	MD	35.56059	-119.81293	068-200-16	Other	45	175	7	Earthen	Inactive	1		Out of Service	0	Secondary Containment
BL6	4	North Belridge		LOTS 2764 Pit	LOTS 2764	Section 27, L2764	27	27S	20E	MD	35.54360	-119.79724	068-220-01	Oil & Water	30	30	6	HDPE	Active	1		Pond used in upset conditions and as PRV relief pond	<10	Drain Pit
BL7	4	North Belridge	North Properties	LOTS 277t1 Pit	LOTS 0277t1 Pit	Section 27, L277	27	27S	20E	MD	35.55681	-119.81161	068-220-01	Oil & Water	54	25	6	Earthen	Active	1		Pond used in upset conditions and as PRV relief pond	<10	Emer. Basin
BL8	6	North Belridge		Drain Pit North of Compressor Station 49	Compressor Station 49	Section 35, Pond 1	35	27S	20E	MD	35.53405	-119.78276	068-220-13	Oil & Water	25	20	6	HDPE	Active	1		Used as containment for Gas Compressor Lube oil leakage (90' north of compressors)	400 bbls/yr	Drain Pit
BL9	6	North Belridge		LOTS 3535t1 Pit	LOTS 3535t1	Section 35, Pond 2	35	27S	20E	MD	35.53503	-119.78417	068-220-13	Oil & Water	25	20	6	Earthen	Active	1		Pond used in upset conditions and as PRV relief pond	<10	Drain Pit
BL10	6	North Belridge	North Properties	Valve box (not a discharge location)	LOTS 3543t1	Section 35, Pond 3	35	27S	20E	MD	35.53464	-119.78209	068-220-13	Other	16	16	1	Earthen	Inactive	1		Pipeline Valve Box	0	Other
BL11	6	North Belridge	North Properties	LOTs 3521t1 Pit	LOTS 3521t1	Section 35, Pond 4	35	27S	20E	MD	35.53861	-119.78884	068-220-13	Oil & Water	25	25	6	HDPE	Active	1		Pond used in upset conditions and as PRV relief pond	<10	Emer. Basin
BL12	6	North Belridge	North Properties	Sub-terrainian drain tank T49-12	Compressor Station 49	Section 35, Pond 5	35	27S	20E	MD	35.53413	-119.78302	068-220-13	Oil & Water	25	20	10	HDPE	Active	1		Tank below grade in gunite sloped pit used as drains tank	<100	Secondary Containment
BL117	11	North Belridge	Emily Hopkins	Compressor Station 26 Secondary Containment	Comp 26 Secondary Containment	N/A	13	28S	20E	MD	35.49506	-119.76118	085-130-08	Other	190	135		Earthen	Active			Secondary Containment		Secondary Containment
BL142	6	North Belridge	Emily Hopkins	Compressor Station 49 Secondary Containment	Comp 49 Secondary Containment	N/A	35	27S	20E	MD	35.53356	-119.78168	068-220-13	Other	393	285		Earthen	Active			Secondary Containment		Secondary Containment
BL720	4	North Belridge	_	L2764T1 Catch basin	L2764T1	N/A	27N	27S	20E	MD	35.54370	-119.79746	068-220-01	Oil & Water	24'	24'	4'	HDPE	Active	2		(2)PRV relief in emergency conditions & (2) pump drain.	<1	Emer. Basin
BL722	6	North Belridge	_	L3535T1 Catch basin	L3535T1	N/A	35N	27S	20E	MD	35.53513	-119.78431	068-220-13	Oil & Water	35'	32'	6'	Earthen	Inactive	4		(3) PRV relief in emergency conditions/ test & group vessel drain. OUT OF SERVICE.	<1	Emer. Basin
BL723	6	North Belridge	_	L3534T1 Drain pit	L3534T1	N/A	35N	27S	20E	MD	35.53469	-119.78273	068-220-13	Oil & Water	5'	5'	4'	Metal	Active	6		Group & test vessel drain & (4) pump drain.	<5	Drain Pit
BL724	6	North Belridge	_	L3534T1 Group vessel PRV	L3534T1	N/A	35N	27S	20E	MD	35.53484	-119.78277	068-220-13	Oil & Water	_	_	_	Metal	Active	1		PRV relief in emergency conditions to atmosphere.	<1	PRV
BL725	6	North Belridge	_	L3550T1 Drain pit	L3550T1	N/A	35N	27S	20E	MD	35.53119	-119.78178	068-220-13	Oil & Water	5'	5'	4'	Metal	Active	7		Group & test vessel drain & (5) pump drain.	<5	Drain Pit
BL726	6	North Belridge	_	L3550T1 Group vessel PRV	L3550T1	N/A	35N	27S	20E	MD	35.53120	-119.78213	068-220-13	Oil & Water	_	_	_	Metal	Active	1		PRV relief in emergency conditions to atmosphere.	<1	PRV
BL727	6	North Belridge	_	L3549T1 Catch basin	L3549T1	N/A	35N	27S	20E	MD	35.53124	-119.77997	068-220-13	Oil & Water	25'	24'	4'	HDPE	Inactive	4		(2) PRV relief in emergency conditions/ test & group vessel drain. OUT OF SERVICE.	<1	Emer. Basin
BL728	7	North Belridge	_	L3657T1 drain pit	L3657T1	N/A	36N	27S	20E	MD	35.52840	-119.77654	068-220-08	Oil & Water	5'	5'	4'	Metal	Active	7		(2) PRV relief in emergency conditions & (5) pump drains.	<5	Drain Pit
BL729	9	North Belridge	_	L0112T1 Drain pit	L0112T1	N/A	1N	28S	20E	MD	35.52628	-119.77706	085-110-50	Oil & Water	5'	5'	4'	Metal	Active	2		PRV relief in emergency conditions & test vessel drain.	<5	Drain Pit
BL730	9	North Belridge	_	L0122T1 Catch basin	L0122T1	N/A	1N	28S	20E	MD	35.52469	-119.77644	085-110-50	Oil & Water	25'	25'	6'	Gunite	Inactive	1		PRV relief in emergency conditions. OUT OF SERVICE.	<1	Emer. Basin
BL731	9	North Belridge	_	L0155T1 Catch basin	L0155T1	N/A	1N	28S	20E	MD	35.52137	-119.77055	085-110-50	Oil & Water	23'	23'	5'	Earthen	Active	9		(2) PRV relief in emergency conditions/ group & test vessel drain & (5) pump drain.	<5	Emer. Basin
BL732	10	North Belridge	_	L1278T1 Catch basin	L1278T1	N/A	12	28S	20E	MD	35.49954	-119.76416	085-110-16	Oil & Water	25'	24'	5'	HDPE	Active	4		PRV relief in emergency conditions & (3) pump drains.	<5	Emer. Basin
BL733	11	North Belridge	_	L1383T1 Catch basin	L1383T1	N/A	13	28S	20E	MD	35.49447	-119.76421	085-130-08	Oil & Water	25'	25'	5'	Earthen	Inactive	3		Test vessel drain & (2) pump drain.	<1	Emer. Basin
BL734	12	North Belridge	_	L1827T1 Catch basin	L1827T1	N/A	18	28S	21E	MD	35.48727	-119.75702	085-210-43	Oil & Water	23'	24'	5'	Earthen	Active	7		PRV relief in emergency conditions / test drain & (5) pump drain.	<5	Emer. Basin
BL735	12	North Belridge	_	L1817T1 Catch basin	L1817T1	N/A	18	28S	21E	MD	35.48856	-119.75949	085-210-43	Oil & Water	25'	23'	5'	Earthen	Active	2		Group & test vessel drain. OUT OF SERVICE.	<1	Emer. Basin
BL758	1	North Belridge	_	Well# 43-21N	43-21N	N/A	21N	27S	20E	MD	35.56040	-119.82179	068-210-18	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL759	1	North Belridge	_	Well# 31-21N	31-21N	N/A	21N	27S	20E	MD	35.55857	-119.81995	068-210-18	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL760	3	North Belridge	_	Well# 1Y-28N	1Y-28N	N/A	28N	27S	20E	MD	35.55611	-119.81556	068-230-04	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL761	3	North Belridge	_	Well# 1-28N	1-28N	N/A	28N	27S	20E	MD	35.55633	-119.81529	068-230-04	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL762	1	North Belridge	_	Well# 102R-21N	102R-21N	N/A	21N	27S	20E	MD	35.55959	-119.81542	068-210-18	Oil & Water	6'	6'	6'	Metal	Inactive	1		Production capture during stuffing box failure.	<1	Well Cellar
BL763	4	North Belridge	_	Well# 8-27N	8-27N	N/A	27N	27S	20E	MD	35.55639	-119.81370	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL764	4	North Belridge	_	Well# 7-27N	7-27N	N/A	27N	27S	20E	MD	35.55624	-119.81136	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL765	4	North Belridge	_	Well# 6-27N	6-27N	N/A	27N	27S	20E	MD	35.55626	-119.80915	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL766	3	North Belridge	_	Well# 15-28N	15-28N	N/A	28N	27S	20E	MD	35.55460	-119.81760	068-230-04	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL767	3	North Belridge	_	Well# 17-28N	17-28N	N/A	28N	27S	20E	MD	35.55266	-119.81530	068-230-04	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL768	4	North Belridge	_	Well# 24-27N	24-27N	N/A	27N	27S	20E	MD	35.55244	-119.81336	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar

Aera Energy LLC - North Belridge Oil Field

Potential Discharge Locations

Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged (bbl/yr)	Category
BL769	3	North Belridge	_	Well# 16-28N	16-28N	N/A	28N	27S	20E	MD	35.55434	-119.81536	068-230-04	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL770	4	North Belridge	_	Well# 9-27N	9-27N	N/A	27N	27S	20E	MD	35.55426	-119.81335	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL771	4	North Belridge	_	Well# 11R-27N	11R-27N	N/A	27N	27S	20E	MD	35.55430	-119.80891	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL772	4	North Belridge	_	Well# 50X-27N	50X-27N	N/A	27N	27S	20E	MD	35.54586	-119.81136	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL773	4	North Belridge	_	Well# 51-27N	51-27N	N/A	27N	27S	20E	MD	35.54616	-119.80300	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL774	4	North Belridge	_	Well# 27R-27N	27R-27N	N/A	27N	27S	20E	MD	35.55064	-119.80893	068-220-01	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL775	6	North Belridge	_	Well# 23X-35N	23X-35N	N/A	35N	27S	20E	MD	35.53804	-119.79308	068-220-13	Oil & Water	6'	6'	6'	Metal	Active	1		Production capture during stuffing box failure.	<1	Well Cellar
BL1363	7	North Belridge	Versal	Strainer Blowdown	NOSS	N/A	36N	27S	20E	MD	35.54080	-119.77751	068-220-37	Steam					Active	1		Depressurization of Line	< 1	Blowdown
BL1364	9	North Belridge	Emily Hopkins	135 Gen	NOSS	N/A	1N	28S	20E	MD	35.52645	-119.77464	085-110-50	Steam					Active	9		Bleeds x9 and Wheatley pump bleed	< 1	Blowdown
BL1365	9	North Belridge	Emily Hopkins	SGS-135 Wheatley Pump Drain Pit	NOSS	N/A	1N	28S	20E	MD	35.52635	-119.77465	085-110-50	Soft Water	2	2	8	Concrete	Active	1		Purge from Wheatley	< 1	Drain Pit
BL1366	10	North Belridge	Patrino	666G-12	NOSS	N/A	12	28S	20E	MD	35.50435	-119.76614	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1367	10	North Belridge	Patrino	675-12	NOSS	N/A	12	28S	20E	MD	35.50552	-119.76383	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1368	10	North Belridge	Patrino	675J-12	NOSS	N/A	12	28S	20E	MD	35.50548	-119.76559	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1369	10	North Belridge	Patrino	676D-12	NOSS	N/A	12	28S	20E	MD	35.50315	-119.76402	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1370	10	North Belridge	Patrino	676F-12	NOSS	N/A	12	28S	20E	MD	35.50433	-119.76467	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1371	10	North Belridge	Patrino	676R-12	NOSS	N/A	12	28S	20E	MD	35.50319	-119.76549	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1372	10	North Belridge	Patrino	685H-12	NOSS	N/A	12	28S	20E	MD	35.50552	-119.76214	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1373	10	North Belridge	Patrino	686E-12	NOSS	N/A	12	28S	20E	MD	35.50434	-119.76298	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1374	10	North Belridge	Patrino	686H-12	NOSS	N/A	12	28S	20E	MD	35.50446	-119.76132	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1375	10	North Belridge	Patrino	686S-12	NOSS	N/A	12	28S	20E	MD	35.50320	-119.76214	085-110-32	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1428	5	North Belridge	Emily Hopkins	628A-25N	NOSS	N/A	25N	27S	20E	MD	35.54297	-119.77578	068-220-71	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1430	7	North Belridge	Virsal	621-36N	NOSS	N/A	36N	27S	20E	MD	35.54217	-119.77485	068-220-38	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1431	7	North Belridge	Virsal	621J-36N	NOSS	N/A	36N	27S	20E	MD	35.54216	-119.77671	068-220-38	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1432	7	North Belridge	Virsal	621MR-36N	NOSS	N/A	36N	27S	20E	MD	35.54139	-119.77577	068-220-38	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1433	7	North Belridge	Virsal	622C-36N	NOSS	N/A	36N	27S	20E	MD	35.53982	-119.77588	068-220-37	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1434	7	North Belridge	Virsal	622E-36N	NOSS	N/A	36N	27S	20E	MD	35.54042	-119.77664	068-220-37	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1435	7	North Belridge	Virsal	622HR2-36N	NOSS	N/A	36N	27S	20E	MD	35.54058	-119.77473	068-220-38	Steam					Active	6		2" Energy Control Bleed point x3 and 3/4" Energy Control Bleed point x3	< 1	Steam Injector
BL1800	6	North Belridge	North Belridge	Containment for Compressor CS-49. Drains to T-49-12	CS49	N/A	5	27S	20E	MD	35.53371	-119.78331	068-220-13	Oil & Water	60'	30'	6"	Concrete	Active	18		Capture Oil & Water		Drain Pad
BL1801	6	North Belridge	North Belridge	Containment for Compressor 49-8. Drains to lined sump	CS49	N/A	5	27S	20E	MD	35.53363	-119.78227	068-220-13	Oil & Water	30'	25'	4'	Concrete	Active	2		Capture Oil & Water		Drain Pad
BL1802	6	North Belridge	North Belridge	Containment for Compressor 49-9. Drains to lined sump	CS49	N/A	5	27S	20E	MD	35.53345	-119.78218	068-220-13	Oil & Water	30'	25'	4'	Concrete	Active	2		Capture Oil & Water		Drain Pad
BL1803	6	North Belridge	North Belridge	Containment for Compressor 49-4. Drains to lined sump	CS49	N/A	5	27S	20E	MD	35.53326	-119.78182	068-220-13	Oil & Water	40'	20'	4"	Concrete	Active	2		Capture Oil & Water		Drain Pad
BL1804	6	North Belridge	North Belridge	Containment for Flare Scrubber pump.	NB Flare	N/A	5	27S	20E	MD	35.52857	-119.78394	068-220-13	Oil & Water	9'	9'	4"	Concrete	Active	2		Capture Oil & Water		Drain Pad
BL1805	6	North Belridge	North Belridge	Flare drain pot which collects fluides from flare scrubber	NB Flare	N/A	5	27S	20E	MD	35.52857	-119.78394	068-220-13	Oil & Water	4" Dia			HDPE	Active	1		Capture Oil & Water		Drain Pit
BL1806	6	North Belridge	North Belridge	Drain pit from line coming from NB Flare scrubber pump	NB Flare	N/A	5	27S	20E	MD	35.52857	-119.78394	068-220-13	Oil & Water	4" Dia			Concrete	Active	1		Capture Oil & Water		Drain Pad
BL1807	10	North Belridge	Patrino	Wet LACT Sump	Patrino	N/A	12	28S	20E	MD	35.49966	-119.76424	085-110-16	Oil & Water	40'	24'	10'	HDPE	Active	1		Capture Oil & Water		Emer. Basin

Aera Energy LLC - North Belridge Oil Field

Potential Discharge Locations

Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged (bbl/yr)	Category
BL1808	10	North Belridge	Patrino	LACT proving LOOP containment	Patrino	N/A	12	28S	20E	MD	35.49956	-119.76403	085-110-16	Oil & Water	3'	2'	8"	Metal	Active	2		Capture Oil & Water		Drain Pit
BL1809	12	North Belridge	Middle Belridge	Containment for sulfa-treat drying pad	CS26	N/A	13	28S	20E	MD	35.49471	-119.76105	085-210-43	Other	24'	12'	6"	Concrete	Active	1		Capture Oil & Water		Drain Pad
BL1810	12	North Belridge	Middle Belridge	containment for Compressor 26-2	CS26	N/A	13	28S	20E	MD	35.49512	-119.76114	085-210-43	Oil & Water	45'	24'	6"	Concrete	Active	2		Capture Oil & Water		Drain Pad
BL1811	11	North Belridge	Middle Belridge	containment for Compressor 26-1	CS26	N/A	13	28S	20E	MD	35.49530	-119.76138	085-130-08	Oil & Water	22'	16'	6"	Concrete	Active	2		Capture Oil & Water		Drain Pad
BL1812	11	North Belridge	Middle Belridge	Catch basin for 26-1	CS26	N/A	13	28S	20E	MD	35.49524	-119.76130	085-130-08	Oil & Water	4'	4'	8"	Concrete	Active	1		Capture Oil & Water		Drain Pit
BL2705	13	North Belridge	North Belridge	Dwi North belridge pig launcher	North Belridge	N/A	18	28S	21E	MD	35.48737	-119.74271	085-210-42	Produced Water	45'	15'	6"	Gunite	Active	4		Pig launcher	< 10 barrels	Drain Pad
BL2707	9	North Belridge	Belridge	133 wims	North Belridge	N/A	1	28S	20E	MD	35.52373	-119.77270	085-110-50	Produced Water					Active	13		meter run	< 1 barrel	Other
BL2708	9	North Belridge	Belridge	144 wims	North Belridge	N/A	1	28S	20E	MD	35.52138	-119.77122	085-110-50	Produced Water					Active	11		meter run	< 1 barrel	Other
BL2709	9	North Belridge	Belridge	166 Wims	North Belridge	N/A	1	28S	20E	MD	35.51882	-119.76650	085-110-50	Produced Water					Active	1		Supply water	< 1 barrel	Other
BL2711	9	North Belridge	Belridge	north belridge Jumper supply line	North Belridge	N/A	1	28S	20E	MD	35.52174	-119.77132	085-110-50	Produced Water					Active	1		Supply water	< 1 Barrel	Other
BL2716	10	North Belridge	Belridge	Patrino meter run where wellhead is away	North Belridge	N/A	12	28S	20E	MD	35.50782	-119.76541	085-110-32	Produced Water					Active	2		Meter run	< 1 barrel	Other
BL2717	10	North Belridge	Belridge	DWI Patrino	North Belridge	N/A	12	28S	20E	MD	35.50487	-119.76652	085-110-32	Produced Water					Active	2		Supply water	< 1 barrel	Other
BL2719	10	North Belridge	Belridge	Patrino Trunk line	North Belridge	N/A	12	28S	20E	MD	35.50390	-119.76192	085-110-32	produced water					Active	1		supply water	< 1 barrel	Other
BL2720	10	North Belridge	Belridge	Patrino Trunk line	North Belridge	N/A	12	28S	20E	MD	35.50254	-119.76476	085-110-16	produced water					Active	1		supply water	< 1 barrel	Other
BL2723	10	North Belridge	Belridge	patrino trunk line	North Belridge	N/A	12	28S	20E	MD	35.50250	-119.76472	085-110-16	Produced Water					Active	1		supply water	< 1 barrel	Other
BL2724	10	North Belridge	Belridge	Patrino Trunk line	North Belridge	N/A	12	28S	20E	MD	35.50030	-119.76472	085-110-16	Produced Water					Active	1		Supply water	< 1 barrel	Other
BL2726	13	North Belridge	Belridge	north belridge Jumper supply line	North Belridge	N/A	18	28S	21E	MD	35.48545	-119.74258	085-210-43	Produced Water					Active	4		supply water	< 1 barrel	Other
BL2728	12	North Belridge	Belridge	north belridge supply line	North Belridge	N/A	18	28S	21E	MD	35.49250	-119.74732	085-210-40	Produced Water					Active	1		Supply water	< 1 barrel	Other
BL2729		North Belridge	Belridge	north belridge Patrino Tie in	North Belridge	N/A	18	28S	21E	MD				Produced Water					Active	1		Supply water	< 1 barrel	Other
BL2865	7	North Belridge	Belridge	557M1-36N	North Belridge	N/A	36	27S	20E	MD	35.52895	-119.77798	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2878	6	North Belridge	Belridge	564H3-35N	North Belridge	N/A	35	27S	20E	MD	35.52976	-119.77926	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2879	12	North Belridge	Belridge	928DR-18	North Belridge	N/A	18	28S	21E	MD	35.48542	-119.75727	085-210-43	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2885	12	North Belridge	Belridge	948ER-18	North Belridge	N/A	18	28S	21E	MD	35.48590	-119.75435	085-210-43	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2890	6	North Belridge	Belridge	550K4-35N	North Belridge	N/A	35	27S	20E	MD	35.53131	-119.78155	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2891	6	North Belridge	Belridge	535M2-35N	North Belridge	N/A	35	27S	20E	MD	35.53426	-119.78472	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2892	6	North Belridge	Belridge	550A4-35N	North Belridge	N/A	35	27S	20E	MD	35.53035	-119.78291	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2904	7	North Belridge	Belridge	555R4-36N	North Belridge	N/A	36	27S	20E	MD	35.53010	-119.77661	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2911	7	North Belridge	Belridge	557K3-36N	North Belridge	N/A	36	27S	20E	MD	35.52933	-119.77758	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2913	12	North Belridge	Belridge	917D-18	North Belridge	N/A	18	28S	21E	MD	35.48801	-119.75946	085-210-43	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2925	12	North Belridge	Belridge	919D-18	North Belridge	N/A	18	28S	21E	MD	35.48471	-119.75935	085-210-43	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2944	10	North Belridge	Belridge	301B-12	North Belridge	N/A	12	28S	20E	MD	35.50365	-119.76706	085-110-32	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2950	10	North Belridge	Belridge	308A-12	North Belridge	N/A	12	28S	20E	MD	35.50319	-119.76735	085-110-32	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2952	6	North Belridge	Belridge	547P3-35N	North Belridge	N/A	35	27S	20E	MD	35.53251	-119.78157	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2954	9	North Belridge	Belridge	521H1-1N	North Belridge	N/A	1	28S	20E	MD	35.52803	-119.77480	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2959	12	North Belridge	Belridge	928AR-18	North Belridge	N/A	18	28S	21E	MD	35.48638	-119.75835	085-210-43	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2960	7	North Belridge	Belridge	555J3-36N	North Belridge	N/A	36	27S	20E	MD	35.53079	-119.77664	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2961	7	North Belridge	Belridge	559J1-36N	North Belridge	N/A	36	27S	20E	MD	35.52918	-119.77467	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2963	8	North Belridge	Belridge	501J4-2N	North Belridge	N/A	2	28S	20E	MD	35.52732	-119.78078	085-110-10	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2965	9	North Belridge	Belridge	566G5-1N	North Belridge	N/A	1	28S	20E	MD	35.51910	-119.76666	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2975	6	North Belridge	Belridge	564C6-35N	North Belridge	N/A	35	27S	20E	MD	35.52948	-119.78033	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2977	6	North Belridge	Belridge	548S3-35N	North Belridge	N/A	35	27S	20E	MD	35.53190	-119.77988	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2978	6	North Belridge	Belridge	550P5-35N	North Belridge	N/A	35	27S	20E	MD	35.53038	-119.78173	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2980	9	North Belridge	Belridge	521F2-1N	North Belridge	N/A	1	28S	20E	MD	35.52802	-119.77560	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2982	9	North Belridge	Belridge	521A1-1N	North Belridge	N/A	1	28S	20E	MD	35.52666	-119.77628	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector

Aera Energy LLC - North Belridge Oil Field

Potential Discharge Locations

Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged (bbl/yr)	Category
BL2983	9	North Belridge	Belridge	566K3-1N	North Belridge	N/A	1	28S	20E	MD	35.51813	-119.76647	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2990	6	North Belridge	Belridge	531M5-35N	North Belridge	N/A	35	27S	20E	MD	35.53626	-119.78240	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2991	6	North Belridge	Belridge	534G5-35N	North Belridge	N/A	35	27S	20E	MD	35.53491	-119.78183	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2992	6	North Belridge	Belridge	548G4-35N	North Belridge	N/A	35	27S	20E	MD	35.53311	-119.77966	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2993	6	North Belridge	Belridge	564M4-35N	North Belridge	N/A	35	27S	20E	MD	35.52856	-119.77978	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL2996	12	North Belridge	Belridge	948CR-18	North Belridge	N/A	18	28S	21E	MD	35.48621	-119.75395	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3001	12	North Belridge	Belridge	937C-18	North Belridge	N/A	18	28S	21E	MD	35.48693	-119.75612	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3002	6	North Belridge	Belridge	549H3-35N	North Belridge	N/A	35	27S	20E	MD	35.53161	-119.77924	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3004	6	North Belridge	Belridge	535K2-35N	north Belridge	N/A	35	27S	20E	MD	35.53451	-119.78454	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3008	6	North Belridge	Belridge	531R5-35N	North Belridge	N/A	35	27S	20E	MD	35.53539	-119.78347	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3011	7	North Belridge	Belridge	558F3-36N	North Belridge	N/A	36	27S	20E	MD	35.52942	-119.77624	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3012	10	North Belridge	Belridge	568K2-12	North Belridge	N/A	12	28S	20E	MD	35.50033	-119.76645	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3014	10	North Belridge	Belridge	253A-12	North Belridge	N/A	12	28S	20E	MD	35.50699	-119.76687	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3017	12	North Belridge	Belridge	927CR-18	North Belridge	N/A	18	28S	21E	MD	35.48721	-119.75847	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3018	9	North Belridge	Belridge	565C3-1N	North Belridge	N/A	1	28S	20E	MD	35.52040	-119.76723	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3020	9	North Belridge	Belridge	533A-1N	North Belridge	N/A	1	28S	20E	MD	35.52321	-119.77403	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3026	7	North Belridge	Belridge	558H3-36N	North Belridge	N/A	36	27S	20E	MD	35.52941	-119.77512	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3043	7	North Belridge	Belridge	556M3-36N	North Belridge	N/A	36	27S	20E	MD	35.53054	-119.77821	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3045	6	North Belridge	Belridge	546P4-35N	North Belridge	N/A	35	27S	20E	MD	35.53243	-119.78375	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3046	12	North Belridge	Belridge	938AR-18	North Belridge	N/A	18	28S	21E	MD	35.48640	-119.75576	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3048	10	North Belridge	Belridge	568F1-12	North Belridge	N/A	12	28S	20E	MD	35.50079	-119.76725	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3049	10	North Belridge	Belridge	577L2-12	North Belridge	N/A	12	28S	20E	MD	35.50165	-119.76552	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3071	9	North Belridge	Belridge	521J3-1N	North Belridge	N/A	1	28S	20E	MD	35.52722	-119.77675	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3087	8	North Belridge	Belridge	501K3-2N	North Belridge	N/A	2	28S	20E	MD	35.52733	-119.77995	085-110-10	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3091	12	North Belridge	Belridge	916Z-18	North Belridge	N/A	18	28S	21E	MD	35.48907	-119.75948	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3093	6	North Belridge	Belridge	550K5-35N	North Belridge	N/A	35	27S	20E	MD	35.53074	-119.78243	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3094	6	North Belridge	Belridge	550H4-35N	North Belridge	N/A	35	27S	20E	MD	35.53148	-119.78152	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3101	12	North Belridge	Belridge	937GR-18	North Belridge	N/A	18	28S	21E	MD	35.48776	-119.75568	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3116	6	North Belridge	Belridge	533N3-35N	North Belridge	N/A	35	27S	20E	MD	35.53397	-119.77968	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3124	10	North Belridge	Belridge	838-12	North Belridge	N/A	12	28S	20E	MD	35.50739	-119.76703	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3127	6	North Belridge	Belridge	548M2-35N	North Belridge	N/A	35	27S	20E	MD	35.53248	-119.78026	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3130	6	North Belridge	Belridge	548F3-35N	North Belridge	N/A	35	27S	20E	MD	35.53311	-119.78063	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3132	12	North Belridge	Belridge	927N-18	North Belridge	N/A	18	28S	21E	MD	35.48689	-119.75792	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3133	12	North Belridge	Belridge	939D-18	North Belridge	N/A	18	28S	21E	MD	35.48468	-119.75487	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3139	7	North Belridge	Belridge	557H3-36N	North Belridge	N/A	36	27S	20E	MD	35.52965	-119.77720	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3140	6	North Belridge	Belridge	549F3-35N	North Belridge	N/A	35	27S	20E	MD	35.53160	-119.78061	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3148	6	North Belridge	Belridge	546H2-35N	North Belridge	N/A	35	27S	20E	MD	35.53341	-119.78357	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3149	12	North Belridge	Belridge	926ER-18	North Belridge	N/A	18	28S	21E	MD	35.48956	-119.75887	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3151	12	North Belridge	Belridge	927Z-18	North Belridge	N/A	18	28S	21E	MD	35.48731	-119.75730	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3154	12	North Belridge	Belridge	917Z-18	North Belridge	N/A	18	28S	21E	MD	35.48721	-119.75958	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3157	6	North Belridge	Belridge	534M3-35N	North Belridge	N/A	35	27S	20E	MD	35.53447	-119.78312	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3158	7	North Belridge	Belridge	557J2-36N	North Belridge	N/A	36	27S	20E	MD	35.52925	-119.77854	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3173	9	North Belridge	Belridge	511S4-1N	North Belridge	N/A	1	28S	20E	MD	35.52661	-119.77775	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3177	8	North Belridge	Belridge	502H5-2N	North Belridge	N/A	2	29S	21E	MD	35.52776	-119.78163	085-110-10	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector

Aera Energy LLC - North Belridge Oil Field

Potential Discharge Locations

Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged [bbl/yr]	Category
BL3178	6	North Belridge	Belridge	535F3-35N	North Belridge	N/A	35	27S	20E	MD	35.53501	-119.78482	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3179	10	North Belridge	Belridge	240A-12	north Belridge	N/A	12	28S	20E	MD	35.50737	-119.76560	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3192	7	North Belridge	Belridge	557P3-36N	North Belridge	N/A	36	27S	20E	MD	35.52884	-119.77704	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL3199	6	North Belridge	Belridge	532R3-35N	North Belridge	N/A	35	27S	20E	MD	35.53599	-119.78072	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4708	6	North Belridge	Belridge	546F2-35N	North Belridge	N/A	35	27S	20E	MD	35.53343	-119.78481	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4710		South Belridge	Belridge	926ZR-18	North Belridge	N/A	18	28S	21E	MD	35.48912	-119.75722		Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4712	9	North Belridge	Belridge	576E5-1N	North Belridge	N/A	1	28S	20E	MD	35.51894	-119.76559	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4719	12	North Belridge	Belridge	938Z-18	North Belridge	N/A	18	28S	21E	MD	35.48526	-119.75497	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4723	9	North Belridge	Belridge	511F6-1N	North Belridge	N/A	1	28S	20E	MD	35.52751	-119.77836	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4724	6	North Belridge	Belridge	564D2-35N	North Belridge	N/A	35	27S	20E	MD	35.52846	-119.77942	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4728	6	North Belridge	Belridge	564E5-35N	North Belridge	N/A	35	27S	20E	MD	35.52978	-119.78149	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4731	12	North Belridge	Belridge	938LR-18	North Belridge	N/A	18	28S	21E	MD	35.48503	-119.75666	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
8L4744	10	North Belridge	Belridge	287A-12	North Belridge	N/A	12	28S	20E	MD	35.50435	-119.76671	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4747	9	North Belridge	Belridge	556J2-1N	North Belridge	N/A	1	28S	20E	MD	35.51815	-119.76953	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4748	7	North Belridge	Belridge	555M3-36N	North Belridge	N/A	36	27S	20E	MD	35.53054	-119.77625	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4754	6	North Belridge	Belridge	533D6-35N	North Belridge	N/A	35	27S	20E	MD	35.53358	-119.77933	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4757	8	North Belridge	Belridge	501F6-2N	North Belridge	N/A	2	28S	20E	MD	35.52763	-119.78027	085-110-10	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4758	6	North Belridge	Belridge	530S3-35N	North Belridge	N/A	35	27S	20E	MD	35.53554	-119.78457	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4759	10	North Belridge	Belridge	568P2-12	North Belridge	N/A	12	28S	20E	MD	35.49962	-119.76600	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4760	6	North Belridge	Belridge	531A3-35N	North Belridge	N/A	35	27S	20E	MD	35.53549	-119.78259	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4761	6	North Belridge	Belridge	533K2-35N	North Belridge	N/A	35	27S	20E	MD	35.53473	-119.77985	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4762	10	North Belridge	Belridge	568Z2-12	North Belridge	N/A	12	28S	20E	MD	35.50008	-119.76584	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4764	9	North Belridge	Belridge	511K10-1N	North Belridge	N/A	1	28S	20E	MD	35.52722	-119.77791	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4769	12	North Belridge	Belridge	937ZR-18	North Belridge	N/A	18	28S	21E	MD	35.48717	-119.75517	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4783	6	North Belridge	Belridge	547H4-35N	North Belridge	N/A	35	27S	20E	MD	35.53339	-119.78146	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4784	10	North Belridge	Belridge	567N4-12	North Belridge	N/A	12	28S	20E	MD	35.50152	-119.76667	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4785	6	North Belridge	Belridge	534K3-35N	North Belridge	N/A	35	27S	20E	MD	35.53470	-119.78176	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4786	10	North Belridge	Belridge	253D-12	North Belridge	N/A	12	28S	20E	MD	35.50700	-119.76598	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
8L4796	8	North Belridge	Belridge	516H4-2N	North Belridge	N/A	2	28S	20E	MD	35.52596	-119.77932	085-110-10	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4809	12	North Belridge	Belridge	936C-18	North Belridge	N/A	18	28S	21E	MD	35.48899	-119.75628	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4818	12	North Belridge	Belridge	916CR-18	North Belridge	N/A	18	28S	21E	MD	35.48918	-119.76039	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4822	6	North Belridge	Belridge	564U5-35N	North Belridge	N/A	35	27S	20E	MD	35.52942	-119.77936	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4828	12	North Belridge	Belridge	926A-18	North Belridge	N/A	18	28S	21E	MD	35.48990	-119.75844	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4829	12	North Belridge	Belridge	948GR-18	North Belridge	N/A	18	28S	21E	MD	35.48588	-119.75305	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4834	11	North Belridge	Belridge	987B-13	North Belridge	N/A	13	28S	20E	MD	35.48778	-119.76129	085-130-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4838	6	North Belridge	Belridge	549R4-35N	North Belridge	N/A	35	27S	20E	MD	35.53030	-119.78064	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4839	6	North Belridge	Belridge	531R6-35N	North Belridge	N/A	35	27S	20E	MD	35.53590	-119.78316	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4840	6	North Belridge	Belridge	547F2-35N	North Belridge	N/A	35	27S	20E	MD	35.53299	-119.78242	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4841	12	North Belridge	Belridge	949A-18	North Belridge	N/A	18	28S	21E	MD	35.48467	-119.75379	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4843	7	North Belridge	Belridge	556H5-36N	North Belridge	N/A	36	27S	20E	MD	35.53109	-119.77716	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4845	9	North Belridge	Belridge	511P5-1N	North Belridge	N/A	1	28S	20E	MD	35.52671	-119.77692	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4848	9	North Belridge	Belridge	566R2-1N	North Belridge	N/A	1	28S	20E	MD	35.51750	-119.76745	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4850	7	North Belridge	Belridge	555S3-36N	North Belridge	N/A	36	27S	20E	MD	35.53006	-119.77558	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4851	8	North Belridge	Belridge	501S3-2N	North Belridge	N/A	2	29S	21E	MD	35.52637	-119.77974	085-110-10	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector

Aera Energy LLC - North Belridge Oil Field

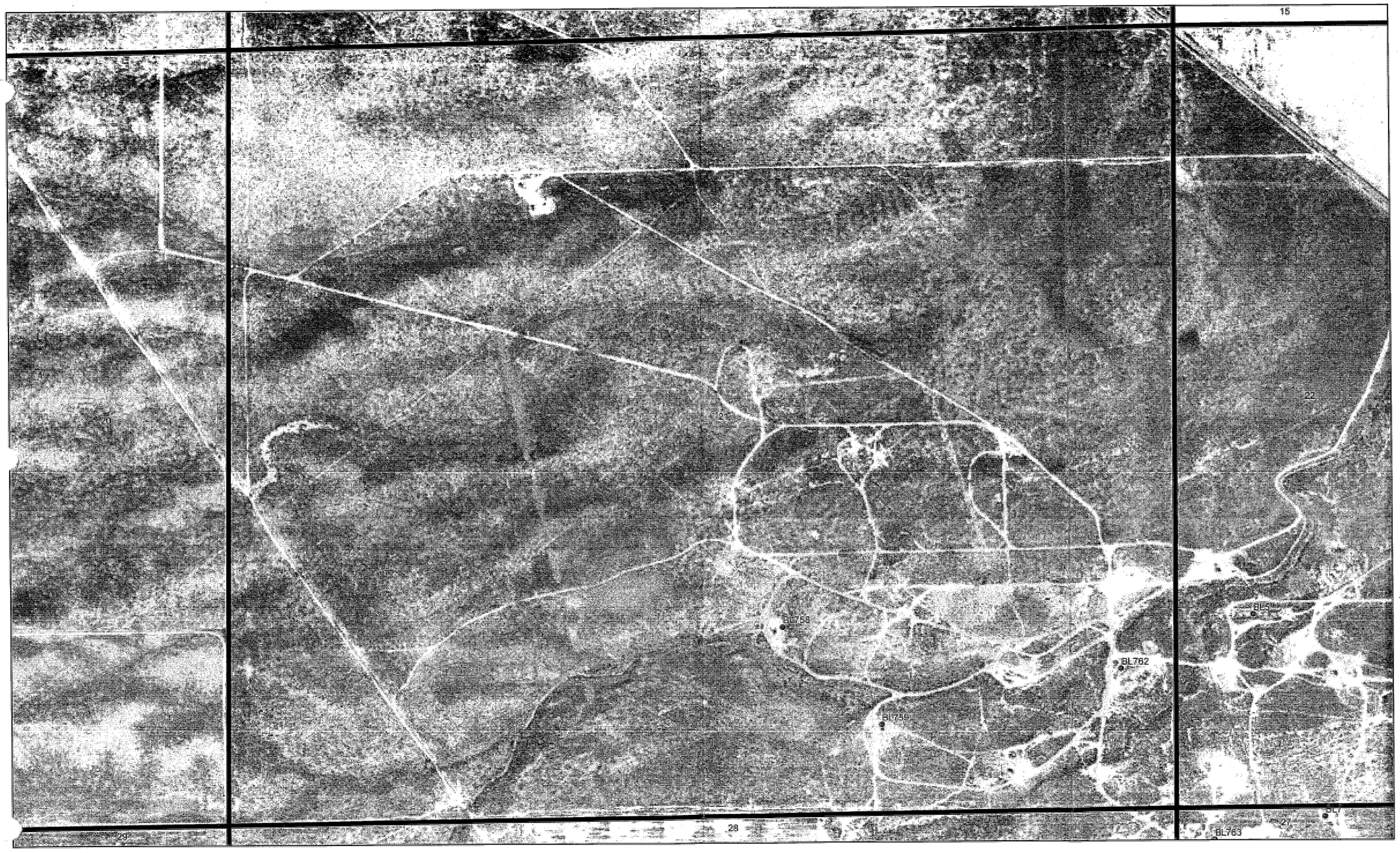
Potential Discharge Locations

Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged [bbl/yr]	Category
BL4852	9	North Belridge	Belridge	521M2-1N	North Belridge	N/A	1	28S	20E	MD	35.52713	-119.77552	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4858	6	North Belridge	Belridge	549S3-35N	North Belridge	N/A	35	27S	20E	MD	35.53017	-119.77998	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4860	6	North Belridge	Belridge	564R4-35N	North Belridge	N/A	35	27S	20E	MD	35.52827	-119.78129	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4877	12	North Belridge	Belridge	938DR-18	North Belridge	N/A	18	28S	21E	MD	35.48635	-119.75479	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4882	6	North Belridge	Belridge	549K3-35N	North Belridge	N/A	35	27S	20E	MD	35.53080	-119.78008	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4883	6	North Belridge	Belridge	549M2-35N	North Belridge	N/A	35	27S	20E	MD	35.53060	-119.78063	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4884	6	North Belridge	Belridge	548R3-35N	North Belridge	N/A	35	27S	20E	MD	35.53179	-119.78071	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4889	6	North Belridge	Belridge	534S3-35N	North Belridge	N/A	35	27S	20E	MD	35.53379	-119.78337	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4911	7	North Belridge	Belridge	555F3-36N	North Belridge	N/A	36	27S	20E	MD	35.53110	-119.77606	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4919	12	North Belridge	Belridge	928DR2-18	North Belridge	N/A	18	28S	21E	MD	35.48624	-119.75718	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4929	7	North Belridge	Belridge	558J3-36N	North Belridge	N/A	36	27S	20E	MD	35.52920	-119.77662	068-220-08	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4939	6	North Belridge	Belridge	533R2-35N	North Belridge	N/A	35	27S	20E	MD	35.53361	-119.78063	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4960	9	North Belridge	Belridge	544C-1N	North Belridge	N/A	1	28S	20E	MD	35.52221	-119.77183	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4968	9	North Belridge	Belridge	533C-1N	North Belridge	N/A	1	28S	20E	MD	35.52401	-119.77404	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4974	6	North Belridge	Belridge	531N4-35N	North Belridge	N/A	35	27S	20E	MD	35.53587	-119.78179	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4977	6	North Belridge	Belridge	546A3-35N	North Belridge	N/A	35	27S	20E	MD	35.53169	-119.78461	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4978	6	North Belridge	Belridge	550S5-35N	North Belridge	N/A	35	27S	20E	MD	35.52994	-119.78220	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4979	10	North Belridge	Belridge	301C-12	North Belridge	N/A	12	28S	20E	MD	35.50338	-119.76628	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4980	10	North Belridge	Belridge	578E3-12	North Belridge	N/A	12	28S	20E	MD	35.50041	-119.76548	085-110-16	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4981	9	North Belridge	Belridge	555K3-1N	North Belridge	N/A	1	28S	20E	MD	35.52009	-119.76873	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4983	10	North Belridge	Belridge	274B-12	North Belridge	N/A	12	28S	20E	MD	35.50514	-119.76610	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4984	12	North Belridge	Belridge	916DR-18	North Belridge	N/A	18	28S	21E	MD	35.48992	-119.75955	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4985	12	North Belridge	Belridge	926NR-18	North Belridge	N/A	18	28S	21E	MD	35.48874	-119.75755	085-210-43	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4986	9	North Belridge	Belridge	565J4-1N	North Belridge	N/A	1	28S	20E	MD	35.52002	-119.76767	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4987	9	North Belridge	Belridge	566F4-1N	North Belridge	N/A	1	28S	20E	MD	35.51868	-119.76712	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4990	6	North Belridge	Belridge	530P2-35N	North Belridge	N/A	35	27S	20E	MD	35.53587	-119.78405	068-220-13	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4991	10	North Belridge	Belridge	273A-12	North Belridge	N/A	12	28S	20E	MD	35.50542	-119.76695	085-110-32	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4992	9	North Belridge	Belridge	566S4-1N	North Belridge	N/A	1	28S	20E	MD	35.51747	-119.76630	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL4993	9	North Belridge	Belridge	566P5-1N	North Belridge	N/A	1	28S	20E	MD	35.51777	-119.76581	085-110-50	Produced Water					active	4		Well - Water Injection	< 1 barrel	Water Injector
BL5459	9	North Belridge	Belridge	Generator Bank SG121 Wheatley	Belridge	N/A	1	28S	20E	MD	35.52643	-119.77468	085-110-50	Steam				Metal	Active	3		Wheatley catch pan	< 1	Drain Pad
BL5460	9	North Belridge	Belridge	Generator Bank SG121 Tank T121	Belridge	N/A	1	28S	20E	MD	35.52261	-119.77384	085-110-50	Steam	12	12	20	Metal	Active	1		Water from the weatley	< 1	Secondary Containment
BL5461	9	North Belridge	Belridge	Generator Bank SG121 Trunk Blow Down Stack	Belridge	N/A	1	28S	20E	MD	35.52261	-119.77384	085-110-50	Steam					Active	1		2" stack on trunk line used as a blow down	< 1	Blowdown
BL5462	7	North Belridge	Belridge	SS-3601-36N	Versal	N/A	36N	27S	20E	MD	35.54072	-119.77518	068-220-38	Steam					Active	12		23 blow down points used for energy control	< 1	Blowdown
BL5490	7	North Belridge	Versal	Steam Splitter 3601	Versal	N/A	36N	27S	20E	MD	35.54072	-119.77518	068-220-38	Steam					Active	12		12 blow down points used for energy control	< 1	Blowdown
BL5491	7	North Belridge	Versal	Steam Splitter Versal 3602	Versal	N/A	36N	27S	20E	MD	35.54199	-119.77450	068-220-38	Steam					Active	12		12 blow down points used for energy control	< 1	Blowdown
BL5556	10	North Belridge	Belridge SOSS	Strainer NOSS S-S1275-01	NOSS	N/A	12	28S	20E	MD	35.50593	-119.76337	085-110-32	Steam					Active	5		5 blow down points used for energy control	< 1	Blowdown
BL5557	10	North Belridge	Belridge SOSS	Strainer NOSS S-S1275-02	NOSS	N/A	12	28S	20E	MD	35.50402	-119.76344	085-110-32	Steam					Active	5		5 blow down points used for energy control	< 1	Blowdown
BL5558	10	North Belridge	Belridge SOSS	Strainer NOSS S-S1275-03	NOSS	N/A	12	28S	20E	MD	35.50307	-119.76334	085-110-32	Steam					Active	5		5 blow down points used for energy control	< 1	Blowdown
BL6205	12	North Belridge	Belridge	939A-18	North Belridge	N/A	18	28S	21E	MD	35.48467	-119.75611	085-210-43	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6211	6	North Belridge	Belridge	564L5-35N	North Belridge	N/A	35	27S	20E	MD	35.52893	-119.78109	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6212	6	North Belridge	Belridge	563P4-35N	North Belridge	N/A	35	27S	20E	MD	35.52829	-119.78160	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6229	10	North Belridge	Belridge	567D4-12	North Belridge	N/A	12	28S	20E	MD	35.50135	-119.76580	085-110-16	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6230	10	North Belridge	Belridge	567K3-12	North Belridge	N/A	12	28S	20E	MD	35.50213	-119.76607	085-110-16	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6232	9	North Belridge	Belridge	555P2-1N	North Belridge	N/A	1	28S	20E	MD	35.51955	-119.76826	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector

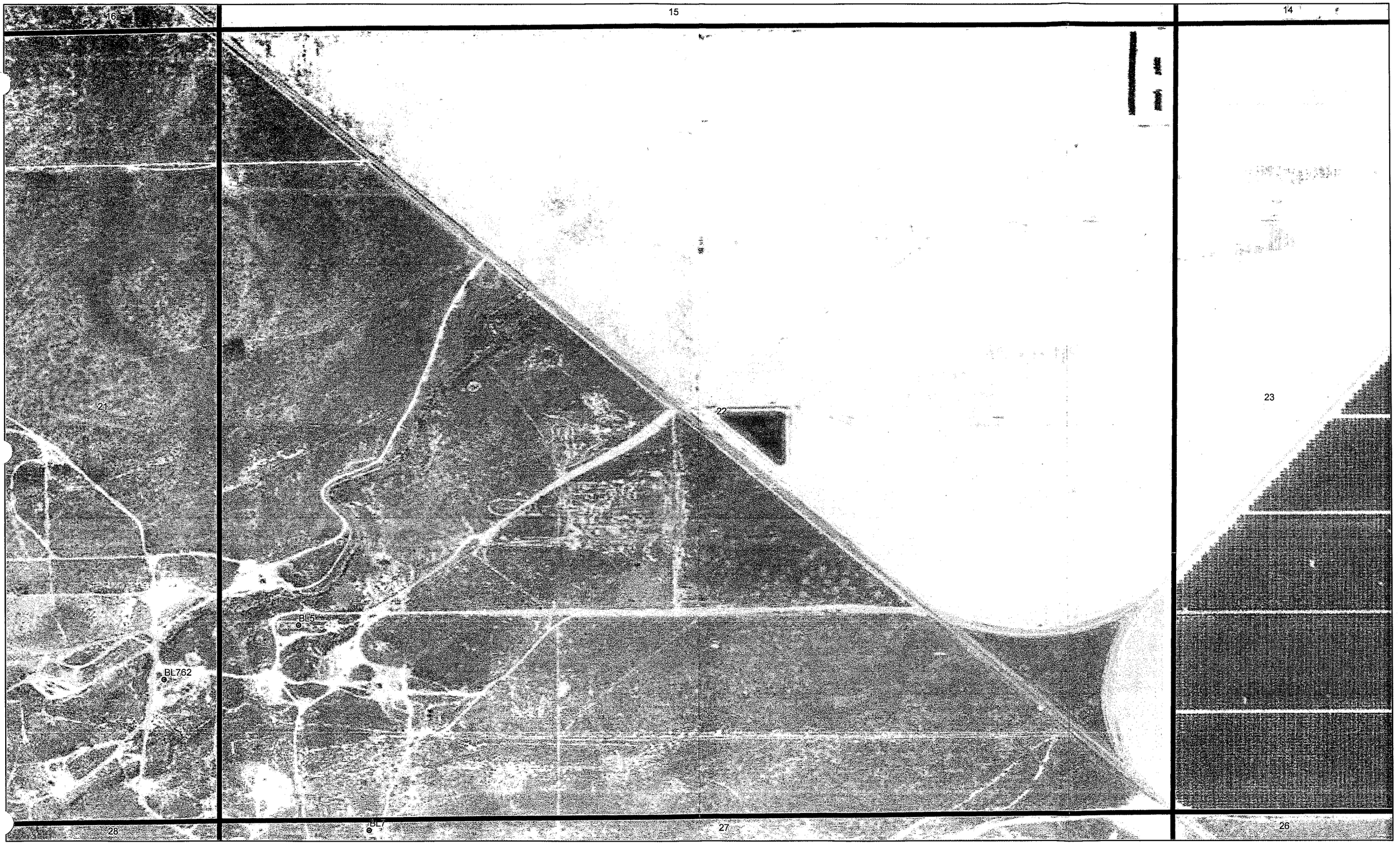
Aera Energy LLC - North Belridge Oil Field

Potential Discharge Locations

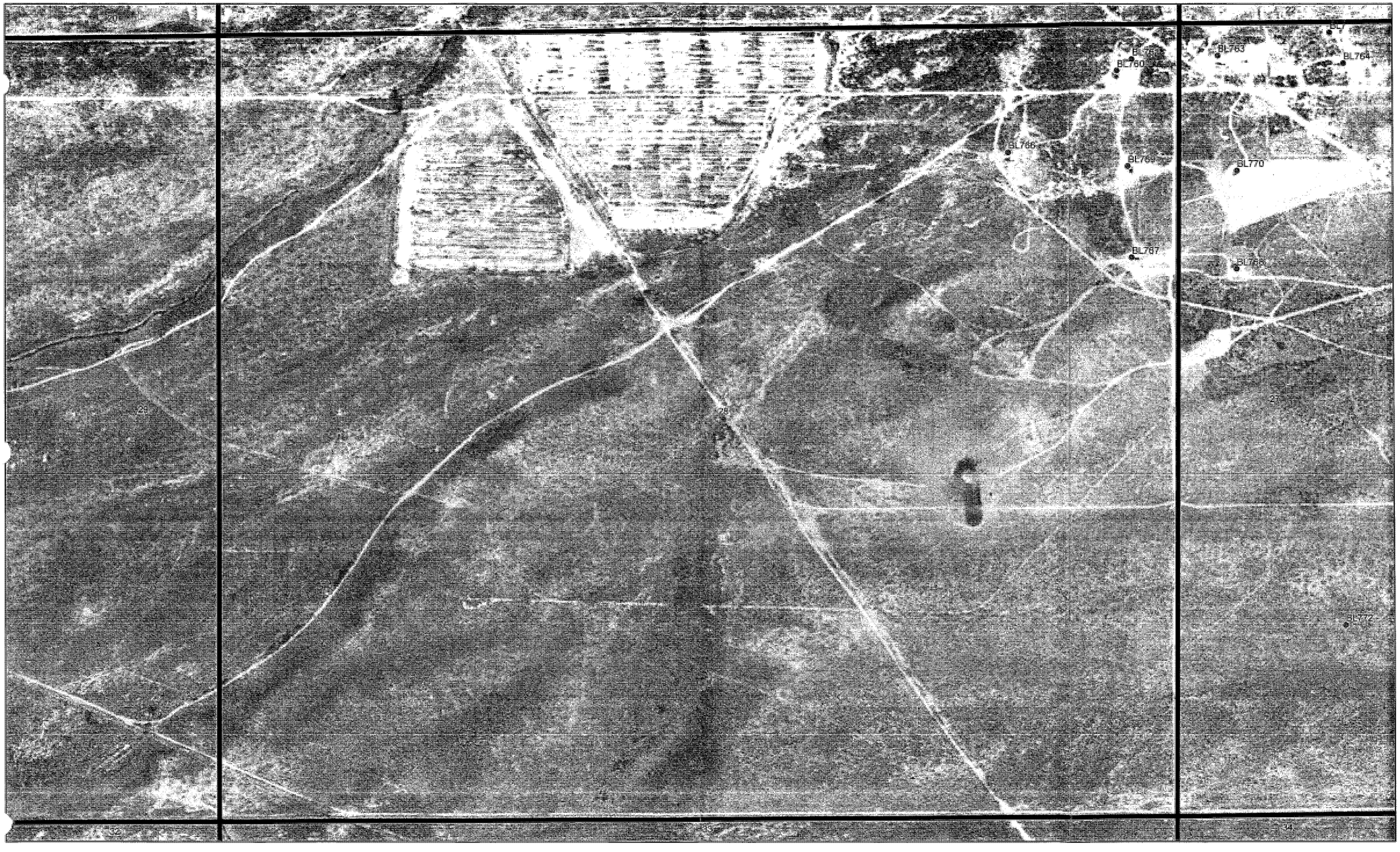
Short Identifier	Map Page Number	Field	Lease	Description/Name	Location	RWQCB Name	Sec.	T	R	BM	Latitude	Longitude	APN	Potential Fluid	L	W	D	Construction	Status	Number of Discharge Points	Additional Comments	Intended Use	Volume Discharged [bbl/yr]	Category
BL6730	9	North Belridge	Belridge	521Y-1N	North Belridge	N/A	1	28S	20E	MD	35.52747	-119.77530	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6731	9	North Belridge	Belridge	556N2-1N	North Belridge	N/A	1	28S	20E	MD	35.51853	-119.76861	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6732	7	North Belridge	Belridge	556P4-36N	North Belridge	N/A	36	27S	20E	MD	35.53047	-119.77717	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6733	9	North Belridge	Belridge	556Q2-1N	North Belridge	N/A	1	28S	20E	MD	35.51881	-119.76897	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6734	7	North Belridge	Belridge	558K4-36N	North Belridge	N/A	36	27S	20E	MD	35.52922	-119.77557	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6735	7	North Belridge	Belridge	558R2-36N	North Belridge	N/A	36	27S	20E	MD	35.52880	-119.77668	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6736	6	North Belridge	Belridge	564D6-35N	North Belridge	N/A	35	27S	20E	MD	35.52820	-119.78034	068-220-13	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6737	9	North Belridge	Belridge	566S5-1N	North Belridge	N/A	1	28S	20E	MD	35.51783	-119.76692	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6743	9	North Belridge	Belridge	511J6-1N	North Belridge	N/A	1	28S	20E	MD	35.52739	-119.77862	085-110-50	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6744	7	North Belridge	Belridge	557R4-36N	North Belridge	N/A	36	27S	20E	MD	35.52864	-119.77856	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6792	8	North Belridge	Belridge	501P6-2N	North Belridge	N/A	2	28S	20E	MD	35.52674	-119.77942	085-110-10	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector
BL6800	7	North Belridge	Belridge	557A6-36N	North Belridge	N/A	36	27S	20E	MD	35.52820	-119.77780	068-220-08	Produced Water					Active	4		Well - Water Injection	< 1 barrel	Water Injector



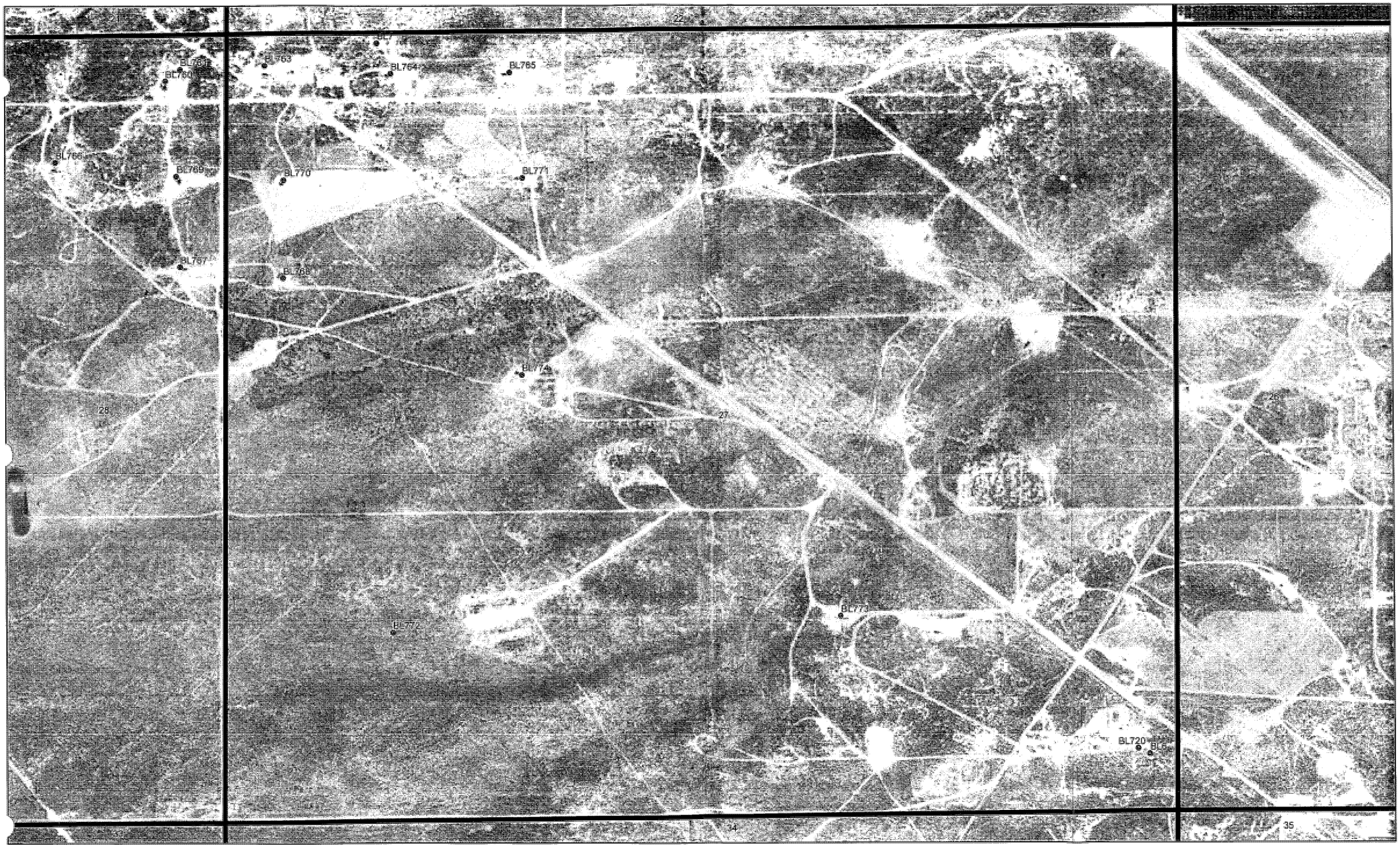
North Belridge Potential Discharge Location Points 21, T27S, R20E



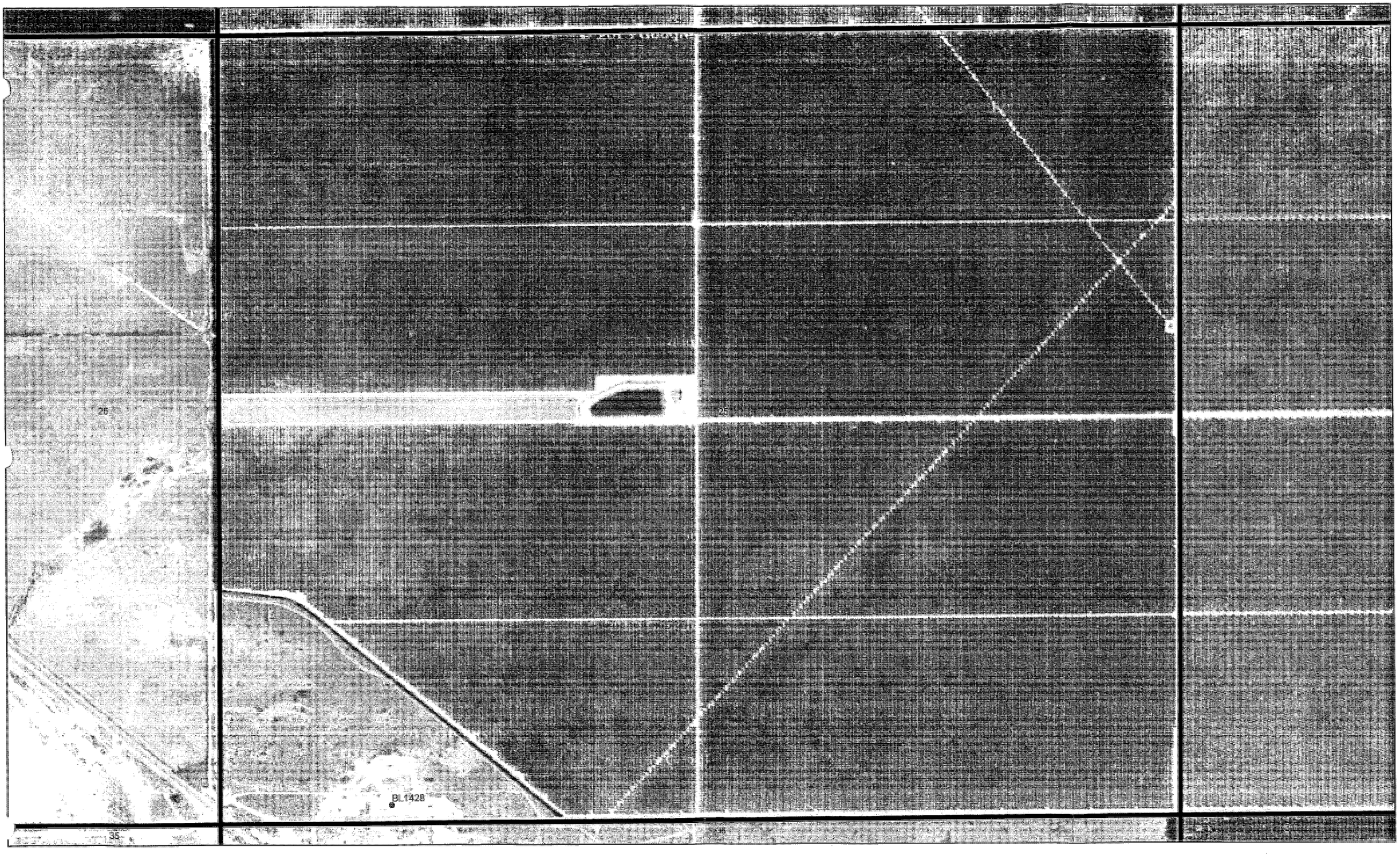
North Belridge Potential Discharge Location Points 22, T27S, R20E



North Belridge Potential Discharge Location Points 28, T27S, R20E

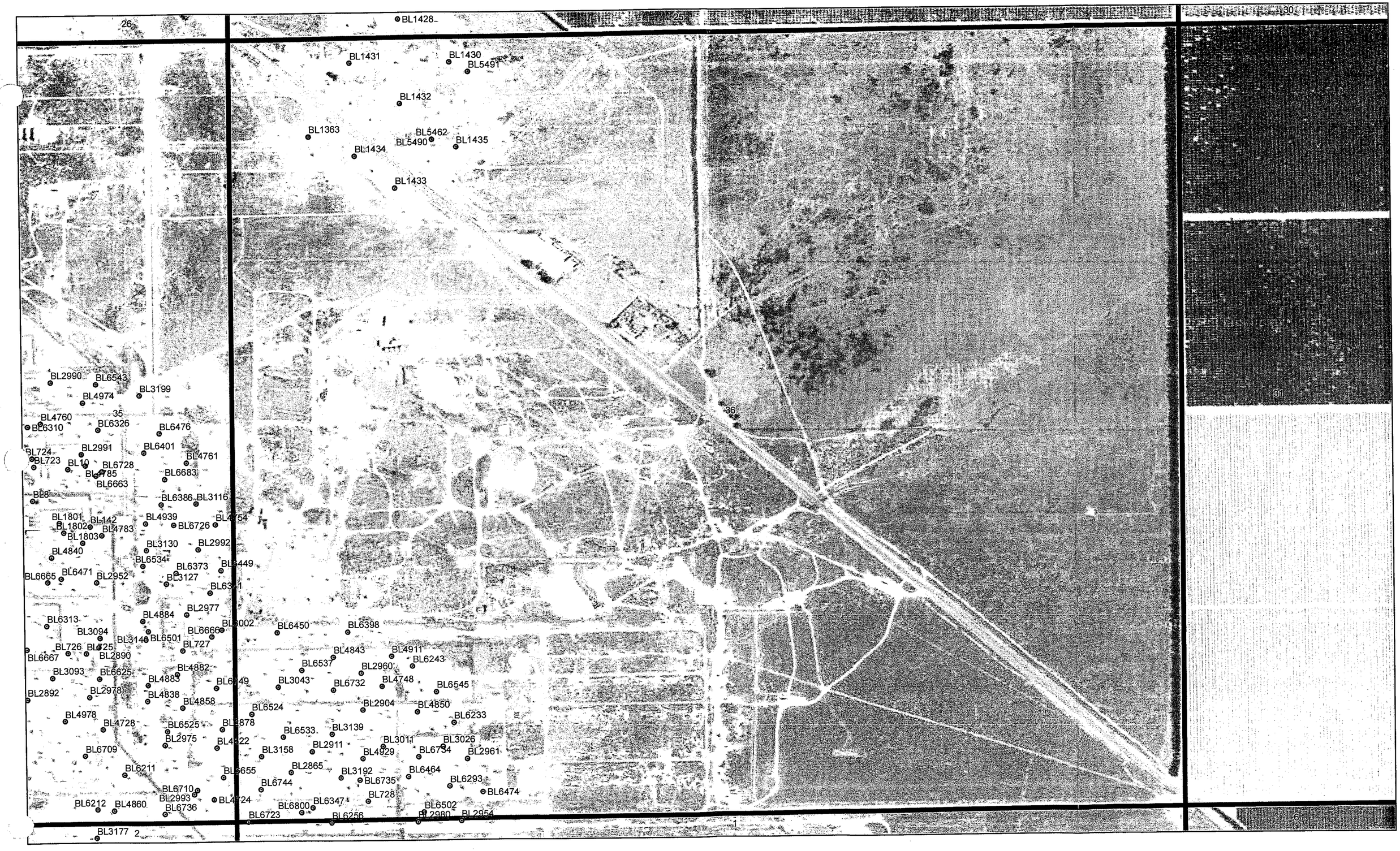


North Belridge Potential Discharge Location Points 27, T27S, R20E



AERA North Belridge Potential Discharge Location Points 25, T27S, R20E

North Belridge Potential Discharge Location Points 35, T27S, R20E



North Belridge Potential Discharge Location Points 36, T27S, R20E

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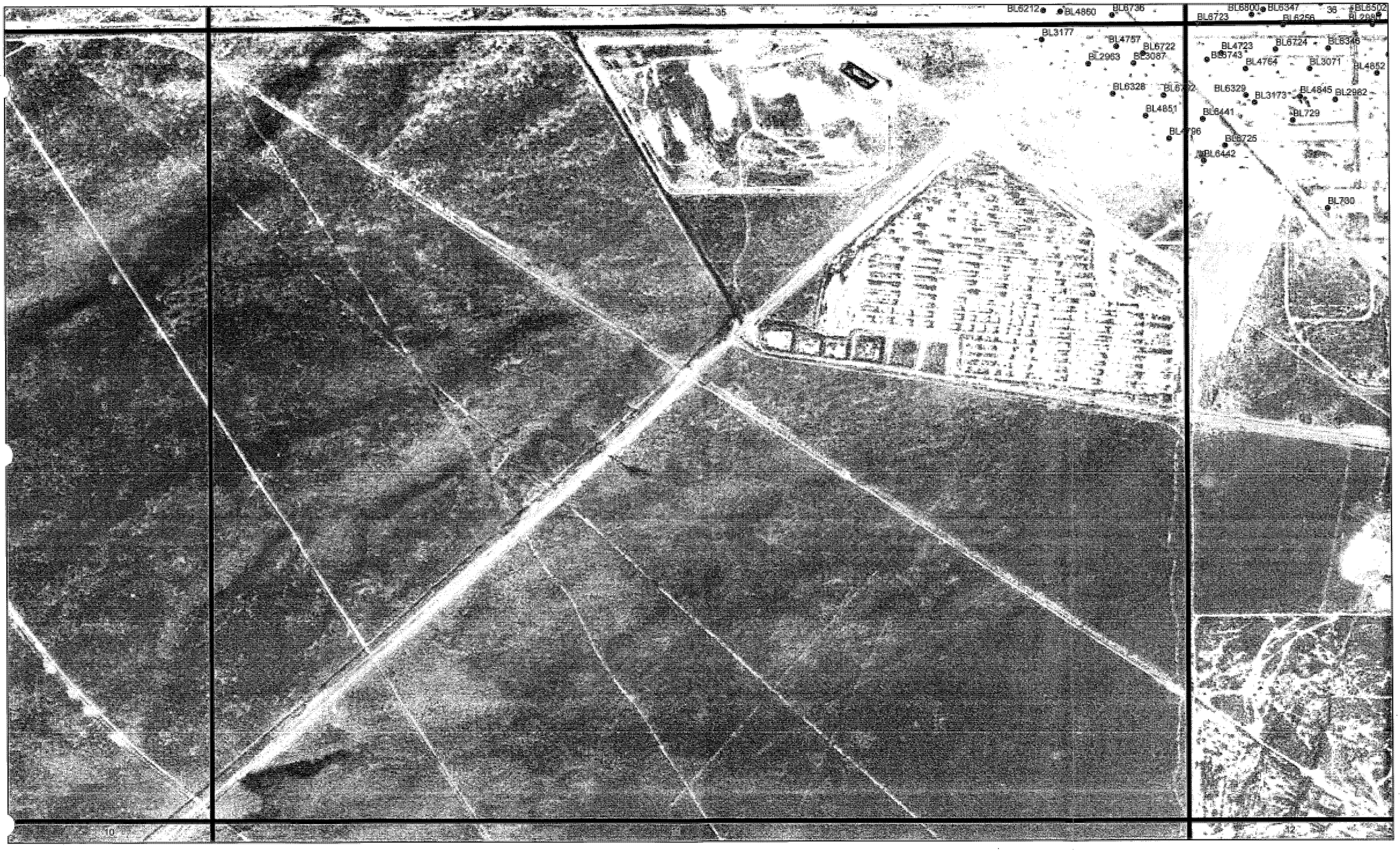
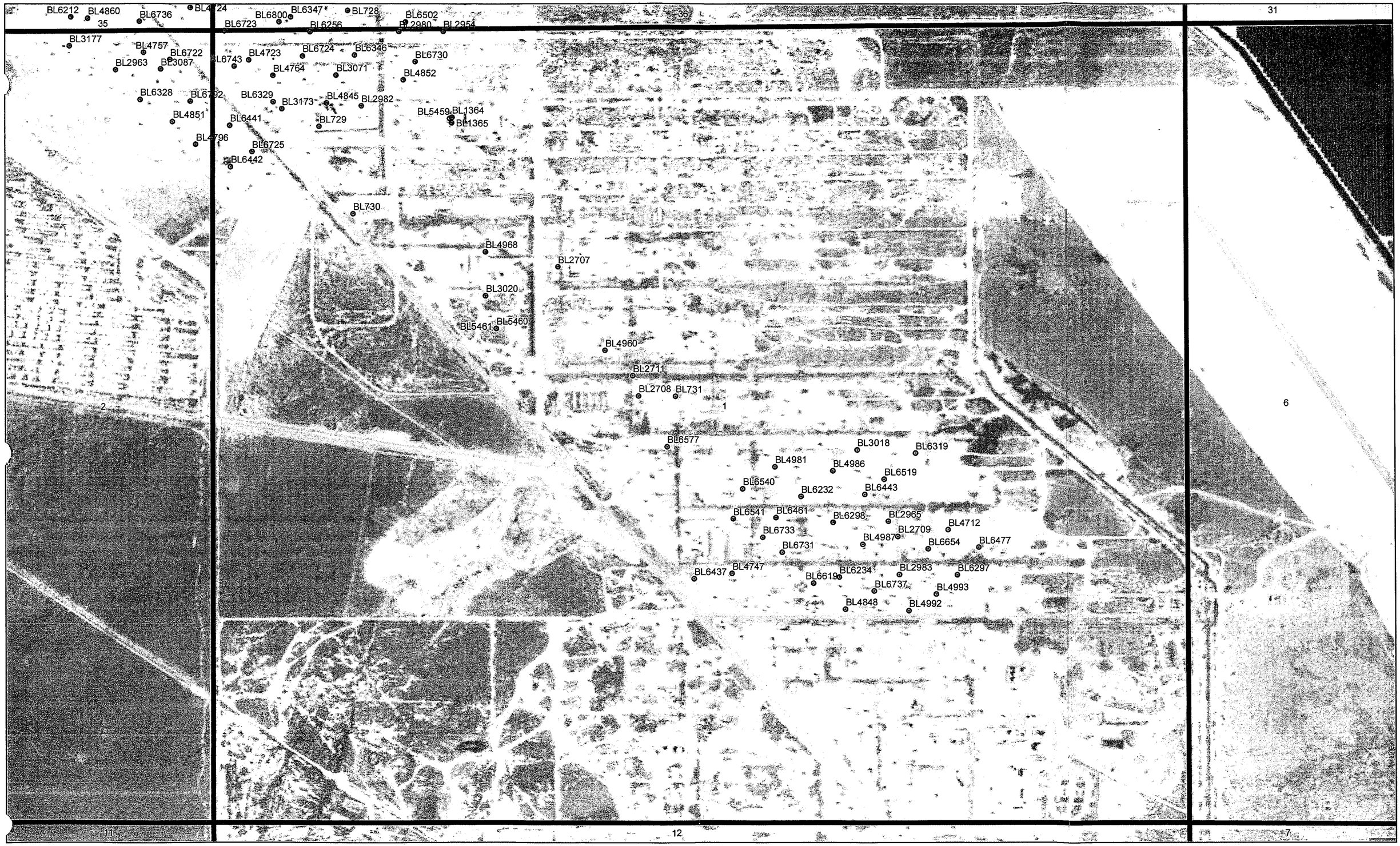


AERA North Belridge Potential Discharge Location Points 2, T28S, R20E



AERA North Belridge Potential Discharge Location Points 1, T28S, R20E

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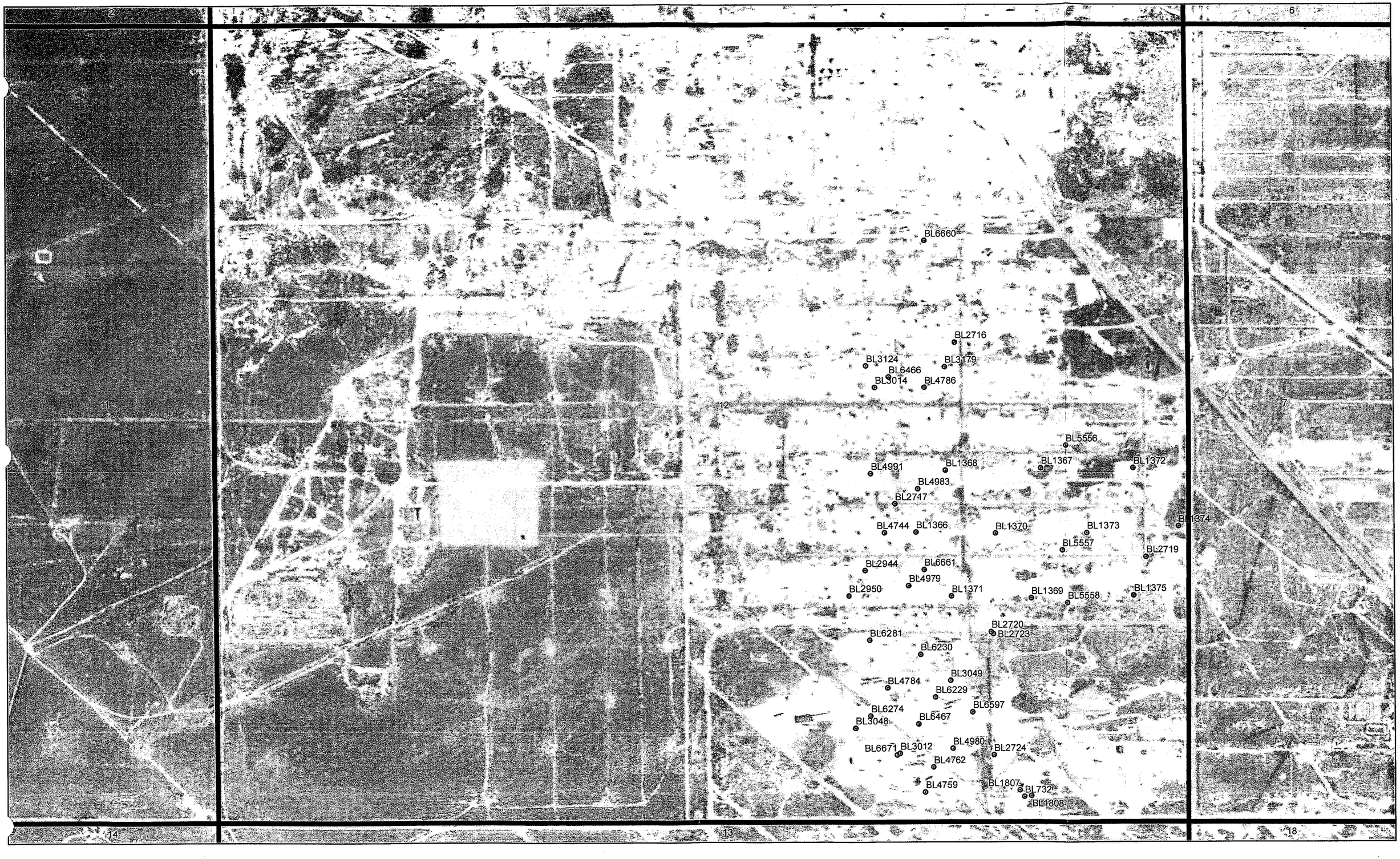
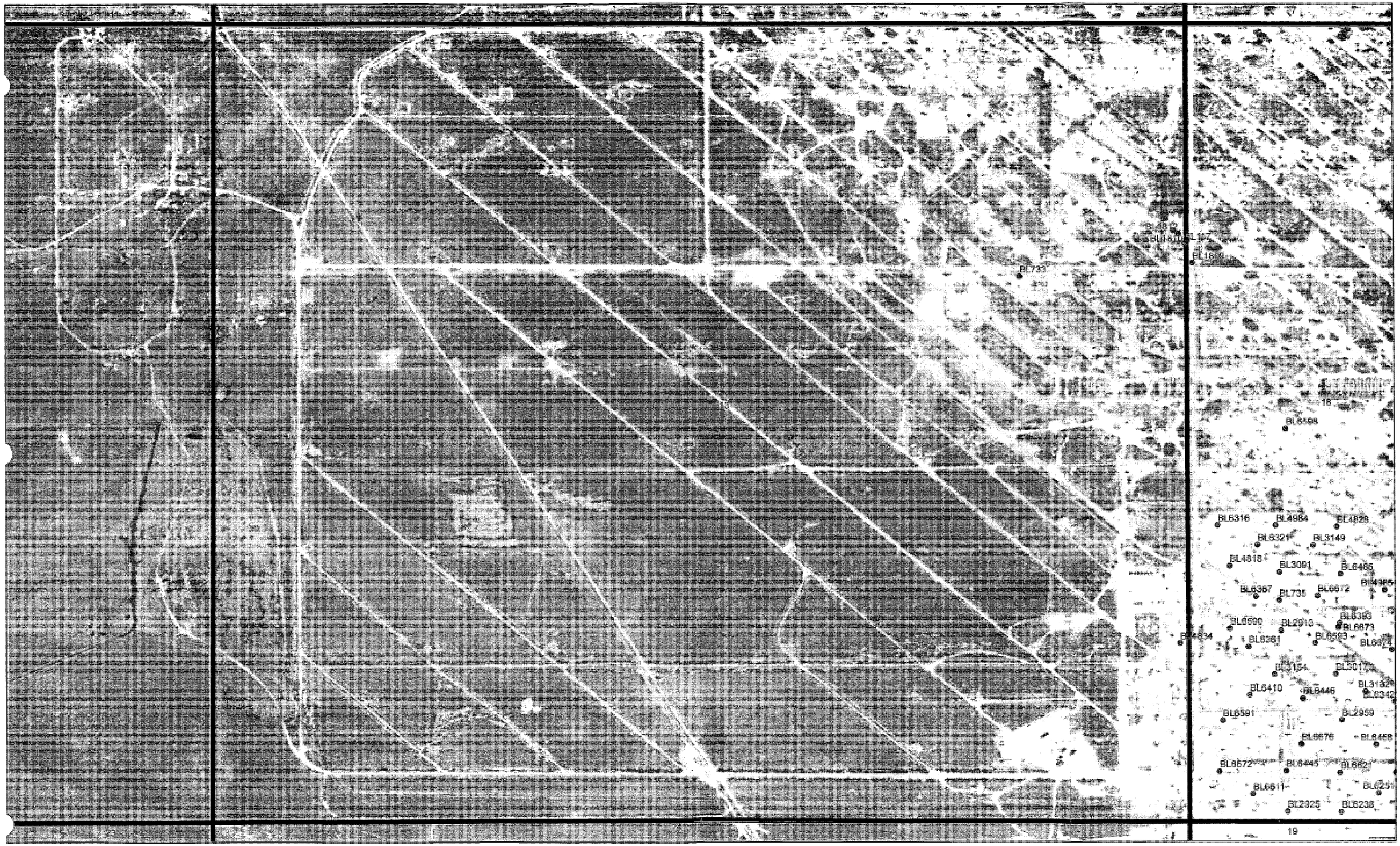
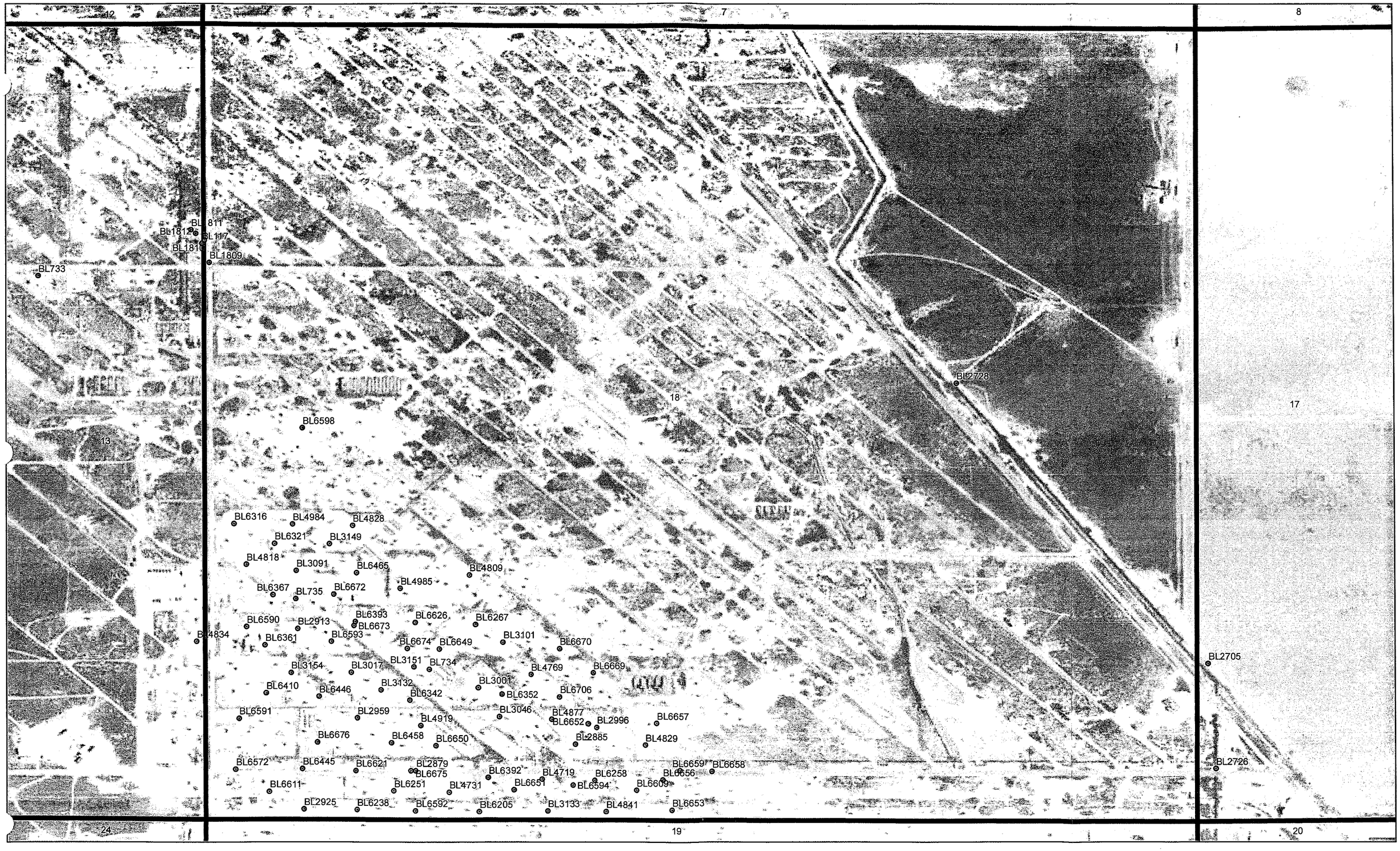


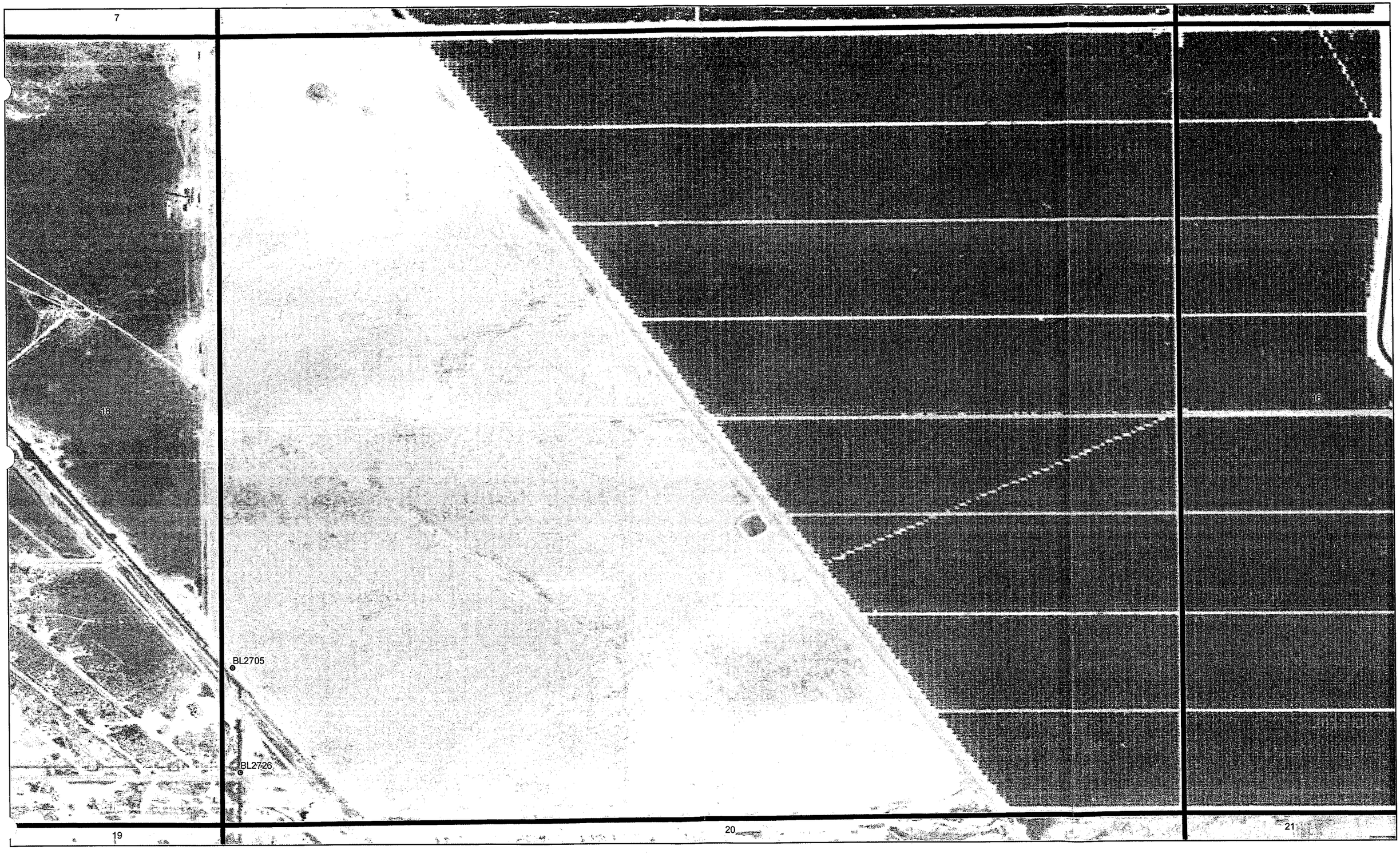
North Belridge Potential Discharge Location Points 12, T28S, R20E



North Belridge Potential Discharge Location Points 13, T28S, R20E



North Belridge Potential Discharge Location Points 18, T28S, R21E



North Belridge Potential Discharge Location Points 17, T28S, R21E

amec
foster
wheeler

APPENDIX C

Analytical Reports and Chain-of-Custody Documentation

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 06/03/2015

Rod Bowyer

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Client Project:	[none]
BCL Project:	Oilfield Produced Water Pond Testing
BCL Work Order:	1512258
Invoice ID:	B204782

Enclosed are the results of analyses for samples received by the laboratory on 5/19/2015. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerrie S. Vaughan

Contact Person: Kerrie Vaughan
Client Services

Authorized Signature

BC Laboratories, Inc.

Chain of Custody Form

Page ____ of ____

Report To:	
Client: Aera	Project #:
Attn: Rod Bowyer	Project Name:
Street Address:	
City, State, Zip:	Sampler(s): J. Enriquez
Phone: Fax:	
Email Address:	
Work Order #: 15-12258	

Sample #	Description	Date Sampled	Time Sampled
-1	BL12 Energy L3543 (1)	5/19/15	1325

Analysis Requested

X See Attached

Please refer to the back of this page for completion instructions and method legend.

Comments:

Sample Matrix: Soil, Sludge, Drinking Water, Ground Water, Waste Water, Other (1)

Turnaround # of work days*: 5

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☐ No

* Standard Turnaround = 10 work days

Notes

CHK BY: M

DISTRIBUTION: EDF EDT FAX MAIL SUB OUT X

OK? SHORT HOLDING TIME

(Cr+6) NO_2 (NO_3) OP SS

DO Cl_2 BOD MBAS COT

Billing

☐ Same as above

Client: ____

Address: ____

City: ____ State ____ Zip ____

Attn: ____

PO#: ____

EDF Required? Geotracker ☐ Yes ☐ No

Send Copy to State of CA? (EDT) ☐ Yes ☐ No

Global ID (Needed for EDF)

System # (Needed for EDT)

	Relinquished By	Date	Time	Received By	Date	Time
1.	J Enriquez	5/19/15	~~1570~~ 1710	Kathleen Burg	5/19/15	1720
2.		Date	Time	2. Received By	Date	Time
3.	Relinquished By	Date	Time	3. Received By	Date	Time

BC Laboratories, Inc. – 4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1512258 Page 3 of 3

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 18 09/04/14 Page 1 Of 1

Submission #: 15-12258

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Federal Express ☐ UPS ☐ Hand Delivery ☐ BC Lab Field Service ☒ Other ☐ (Specify)_____	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.95 Container: Amber Thermometer ID: 208 Date/Time: 5/19/15

Temperature: (A) Kbf 1.9 °C / (C) 2.0 °C Analyst Init KMB 1708

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL	C									
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS	DEF									
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	AB	AKLM SMMS								
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz Amber EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M	G									
QT AMBER 8270	H									
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
Summa Canister										

Comments:

Sample Numbering Completed By: KMB Date/Time: 5/19/15 1903 [S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC]

A = Actual / C = Corrected

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**220**	**ug/L**	**25**	**4.2**	**EPA-8260B**	ND	**A01,Z1**	1
Ethylbenzene	**30**	**ug/L**	**25**	**4.9**	**EPA-8260B**	ND	**A01,Z1**	1
Toluene	**360**	**ug/L**	**25**	**4.6**	**EPA-8260B**	ND	**A01,Z1**	1
Total Xylenes	**540**	**ug/L**	**50**	**18**	**EPA-8260B**	ND	**A01,Z1**	1
p- & m-Xylenes	**460**	**ug/L**	**25**	**14**	**EPA-8260B**	ND	**A01,Z1**	1
o-Xylene	**79**	**ug/L**	**25**	**4.1**	**EPA-8260B**	ND	**A01,Z1**	1
1,2-Dichloroethane-d4 (Surrogate)	94.8	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	96.5	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	105	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	05/22/15	05/23/15 05:25	SE1	MS-V12	50	BYE2090

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Crude Oil	**630000**	**ug/L**	**50000**	**14000**	**EPA-8015B/FFP**	ND	**A01**	1
Tetracosane (Surrogate)	0	%	37 - 134 (LCL - UCL)		EPA-8015B/FFP		A01,A17	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	05/22/15	05/27/15 14:23	MWB	GC-13	100	BYE2282

Vera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	TTLC Limits	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	10	3.5	EPA-7196		A07	1
Total Antimony	ND	ug/L	200	17	EPA-6010B	500000	A07	2
Total Arsenic	ND	ug/L	100	16	EPA-6010B	500000	A07	2
Total Barium	**170**	**ug/L**	**20**	**7.0**	**EPA-6010B**	10000000	**A07**	2
Total Beryllium	ND	ug/L	20	1.0	EPA-6010B	75000	A07	2
Total Boron	**2.2**	**mg/L**	**0.20**	**0.026**	**EPA-6010B**		**A07**	2
Total Cadmium	**32**	**ug/L**	**20**	**2.2**	**EPA-6010B**	100000	**A07**	2
Total Chromium	**290**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Cobalt	**62**	**ug/L**	**100**	**2.6**	**EPA-6010B**	8000000	**J,A07**	2
Total Copper	**72**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Iron	**43**	**mg/L**	**0.10**	**0.060**	**EPA-6010B**		**A07**	2
Total Lead	**23**	**ug/L**	**100**	**8.0**	**EPA-6010B**	1000000	**J,A07**	2
Total Lithium	**0.086**	**mg/L**	**0.040**	**0.012**	**EPA-6010B**		**A07**	2
tal Manganese	**1.5**	**mg/L**	**0.020**	**0.0080**	**EPA-6010B**		**A07**	2
Total Mercury	**6.7**	**ug/L**	**0.80**	**0.13**	**EPA-7470A**	20000	**A07**	3
Total Molybdenum	**86**	**ug/L**	**100**	**2.4**	**EPA-6010B**	3500000	**J,A07**	2
Total Nickel	**130**	**ug/L**	**20**	**4.0**	**EPA-6010B**	2000000	**A07**	2
Total Selenium	ND	ug/L	200	30	EPA-6010B	100000	A07	2
Total Silver	ND	ug/L	20	3.8	EPA-6010B	500000	A07	2
Total Strontium	**0.87**	**mg/L**	**0.020**	**0.0020**	**EPA-6010B**		**A07**	2
Total Thallium	ND	ug/L	200	48	EPA-6010B	700000	A07	2
Total Vanadium	**82**	**ug/L**	**20**	**4.4**	**EPA-6010B**	2400000	**A07**	2
Total Zinc	**2000**	**ug/L**	**100**	**4.6**	**EPA-6010B**	5000000	**A07**	2
Total Recoverable Uranium	**3.2**	**pCi/L**	**6.7**	**0.67**	**EPA-200.8**		**J,A07**	4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7196	05/20/15	05/20/15 07:04	TDC	KONE-1	5	BYE1781
2	EPA-6010B	05/21/15	05/21/15 14:25	ARD	PE-OP3	2	BYE1918
3	EPA-7470A	05/21/15	05/22/15 14:51	MEV	CETAC1	4	BYE1923
4	EPA-200.8	05/22/15	05/22/15 18:27	SRM	PE-EL2	10	BYE2030

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2090										
Benzene	BYE2090-BS1	LCS	25.730	25.000	ug/L	103		70 - 130		
Toluene	BYE2090-BS1	LCS	24.730	25.000	ug/L	98.9		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BYE2090-BS1	LCS	9.7100	10.000	ug/L	97.1		75 - 125		
Toluene-d8 (Surrogate)	BYE2090-BS1	LCS	9.5200	10.000	ug/L	95.2		80 - 120		
4-Bromofluorobenzene (Surrogate)	BYE2090-BS1	LCS	10.280	10.000	ug/L	103		80 - 120		

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2168						
Acenaphthene	BYE2168-BLK1	ND	ug/L	0.10	0.055	
Acenaphthylene	BYE2168-BLK1	ND	ug/L	0.10	0.047	
Anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.017	
Benzo[a]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[b]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.040	
Benzo[k]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.051	
Benzo[a]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[g,h,i]perylene	BYE2168-BLK1	ND	ug/L	0.10	0.043	
Chrysene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Dibenzo[a,h]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.012	
Fluorene	BYE2168-BLK1	ND	ug/L	0.10	0.030	
Indeno[1,2,3-cd]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Naphthalene	BYE2168-BLK1	ND	ug/L	0.10	0.077	
Phenanthrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Nitrobenzene-d5 (Surrogate)	**BYE2168-BLK1**	**91.8**	%	**40 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**BYE2168-BLK1**	**93.1**	%	**50 - 120 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**BYE2168-BLK1**	**126**	%	**40 - 130 (LCL - UCL)**		

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2168	Used client sample: N										
Acenaphthene	MS	**1511019-28**	**ND**	**1.1763**	**1.0000**	**ug/L**		**118**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0913**	**1.0000**	**ug/L**	**7.5**	**109**	**30**	**60 - 110**	
Acenaphthylene	MS	**1511019-28**	**ND**	**1.3083**	**1.0000**	**ug/L**		**131**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1879**	**1.0000**	**ug/L**	**9.7**	**119**	**30**	**60 - 120**	
Anthracene	MS	**1511019-28**	**ND**	**1.4025**	**1.0000**	**ug/L**		**140**		**60 - 130**	**Q03**
	MSD	**1511019-28**	**ND**	**1.3073**	**1.0000**	**ug/L**	**7.0**	**131**	**30**	**60 - 130**	**Q03**
Benzo[a]anthracene	MS	**1511019-28**	**ND**	**1.2480**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1594**	**1.0000**	**ug/L**	**7.4**	**116**	**30**	**60 - 120**	
Benzo[b]fluoranthene	MS	1511019-28	ND	1.1310	1.0000	ug/L		113		50 - 130	
	MSD	1511019-28	ND	1.0752	1.0000	ug/L	5.1	108	30	50 - 130	
Benzo[k]fluoranthene	MS	**1511019-28**	**ND**	**1.2472**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1434**	**1.0000**	**ug/L**	**8.7**	**114**	**30**	**60 - 120**	
Benzo[a]pyrene	MS	**1511019-28**	**ND**	**1.2360**	**1.0000**	**ug/L**		**124**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0911**	**1.0000**	**ug/L**	**12.5**	**109**	**30**	**60 - 120**	
Benzo[g,h,i]perylene	MS	1511019-28	ND	1.0647	1.0000	ug/L		106		40 - 120	
	MSD	1511019-28	ND	0.97751	1.0000	ug/L	8.5	97.8	30	40 - 120	
Chrysene	MS	**1511019-28**	**ND**	**1.2087**	**1.0000**	**ug/L**		**121**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1388**	**1.0000**	**ug/L**	**6.0**	**114**	**30**	**60 - 110**	**Q03**
Dibenzo[a,h]anthracene	MS	1511019-28	ND	0.78144	1.0000	ug/L		78.1		40 - 120	
	MSD	1511019-28	ND	0.69146	1.0000	ug/L	12.2	69.1	30	40 - 120	
Fluoranthene	MS	1511019-28	ND	1.0666	1.0000	ug/L		107		60 - 120	
	MSD	1511019-28	ND	1.0141	1.0000	ug/L	5.0	101	30	60 - 120	
Fluorene	MS	**1511019-28**	**ND**	**1.2329**	**1.0000**	**ug/L**		**123**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1270**	**1.0000**	**ug/L**	**9.0**	**113**	**30**	**60 - 120**	
Indeno[1,2,3-cd]pyrene	MS	1511019-28	ND	1.2781	1.0000	ug/L		128		40 - 130	
	MSD	1511019-28	ND	1.0352	1.0000	ug/L	21.0	104	30	40 - 130	
Naphthalene	MS	1511019-28	ND	1.0556	1.0000	ug/L		106		60 - 110	
	MSD	1511019-28	ND	0.99619	1.0000	ug/L	5.8	99.6	30	60 - 110	
Phenanthrene	MS	1511019-28	ND	1.1471	1.0000	ug/L		115		60 - 120	
	MSD	1511019-28	ND	1.0638	1.0000	ug/L	7.5	106	30	60 - 120	
Pyrene	MS	**1511019-28**	**ND**	**1.7749**	**1.0000**	**ug/L**		**177**		**50 - 125**	**Q03**
	MSD	**1511019-28**	**ND**	**1.6037**	**1.0000**	**ug/L**	**10.1**	**160**	**30**	**50 - 125**	**Q03**
Nitrobenzene-d5 (Surrogate)	MS	1511019-28	ND	4.0540	4.0000	ug/L		101		40 - 130	
	MSD	1511019-28	ND	3.7488	4.0000	ug/L	7.8	93.7		40 - 130	
2-Fluorobiphenyl (Surrogate)	MS	1511019-28	ND	4.3117	4.0000	ug/L		108		50 - 120	
	MSD	1511019-28	ND	3.9075	4.0000	ug/L	9.8	97.7		50 - 120	

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2282						
TPH - Diesel (FFP)	BYE2282-BLK1	ND	ug/L	200	34	
TPH - Crude Oil	BYE2282-BLK1	ND	ug/L	500	140	
Tetracosane (Surrogate)	**BYE2282-BLK1**	**91.6**	%	**37 - 134 (LCL - UCL)**		

Vera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2282	Used client sample: N										
TPH - Diesel (FFP)	MS	1511019-59	ND	1902.7	2500.0	ug/L		76.1		50 - 127	
	MSD	1511019-59	ND	2030.1	2500.0	ug/L	6.5	81.2	24	50 - 127	
Tetracosane (Surrogate)	MS	1511019-59	ND	89.695	100.00	ug/L		89.7		37 - 134	
	MSD	1511019-59	ND	91.645	100.00	ug/L	2.2	91.6		37 - 134	

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE1749										
Bromide	BYE1749-BS1	LCS	2.1550	2.0000	mg/L	108		90 - 110		
Chloride	BYE1749-BS1	LCS	51.338	50.000	mg/L	103		90 - 110		
Nitrate as NO3	BYE1749-BS1	LCS	22.935	22.134	mg/L	104		90 - 110		
Sulfate	BYE1749-BS1	LCS	100.04	100.00	mg/L	100		90 - 110		
QC Batch ID: BYE1852										
Total Alkalinity as CaCO3	BYE1852-BS3	LCS	98.580	100.00	mg/L	98.6		90 - 110		
QC Batch ID: BYE2059										
Total Dissolved Solids @ 180 C	BYE2059-BS1	LCS	590.00	586.00	mg/L	101		90 - 110		
QC Batch ID: BYF0090										
Total Calcium	BYF0090-BS1	LCS	10.436	10.000	mg/L	104		85 - 115		
Total Magnesium	BYF0090-BS1	LCS	10.754	10.000	mg/L	108		85 - 115		
Total Sodium	BYF0090-BS1	LCS	10.575	10.000	mg/L	106		85 - 115		
Total Potassium	BYF0090-BS1	LCS	10.430	10.000	mg/L	104		85 - 115		

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE1781						
Hexavalent Chromium	BYE1781-BLK1	ND	ug/L	2.0	0.70	
QC Batch ID: BYE1918						
Total Antimony	BYE1918-BLK1	ND	ug/L	100	8.5	
Total Arsenic	BYE1918-BLK1	ND	ug/L	50	7.8	
Total Barium	BYE1918-BLK1	ND	ug/L	10	3.5	
Total Beryllium	BYE1918-BLK1	ND	ug/L	10	0.50	
Total Boron	**BYE1918-BLK1**	**0.051217**	**mg/L**	**0.10**	**0.013**	**J**
Total Cadmium	BYE1918-BLK1	ND	ug/L	10	1.1	
Total Chromium	BYE1918-BLK1	ND	ug/L	10	1.1	
Total Cobalt	BYE1918-BLK1	ND	ug/L	50	1.3	
Total Copper	BYE1918-BLK1	ND	ug/L	10	1.1	
Total Iron	BYE1918-BLK1	ND	mg/L	0.050	0.030	
Total Lead	BYE1918-BLK1	ND	ug/L	50	4.0	
Total Lithium	BYE1918-BLK1	ND	mg/L	0.020	0.0062	
Total Manganese	BYE1918-BLK1	ND	mg/L	0.010	0.0040	
Total Molybdenum	BYE1918-BLK1	ND	ug/L	50	1.2	
Total Nickel	BYE1918-BLK1	ND	ug/L	10	2.0	
Total Selenium	BYE1918-BLK1	ND	ug/L	100	15	
Total Silver	BYE1918-BLK1	ND	ug/L	10	1.9	
Total Strontium	BYE1918-BLK1	ND	mg/L	0.010	0.0010	
Total Thallium	BYE1918-BLK1	ND	ug/L	100	24	
Total Vanadium	BYE1918-BLK1	ND	ug/L	10	2.2	
Total Zinc	**BYE1918-BLK1**	**4.4850**	**ug/L**	**50**	**2.3**	**J**
QC Batch ID: BYE1923						
Total Mercury	BYE1923-BLK1	ND	ug/L	0.20	0.033	
QC Batch ID: BYE2030						
Total Recoverable Uranium	BYE2030-BLK1	ND	pCi/L	0.67	0.067	

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE1781	Used client sample: Y - Description: Well #7310F-2, API #04030-52549, 05/19/2015 08:33										
Hexavalent Chromium	DUP	**1512255-01**	**ND**	**ND**		**ug/L**			**10**		
	MS	**1512255-01**	**ND**	**183.86**	**263.16**	**ug/L**		**69.9**		**85 - 115**	**Q03**
	MSD	**1512255-01**	**ND**	**185.81**	**263.16**	**ug/L**	**1.1**	**70.6**	**10**	**85 - 115**	**Q03**
QC Batch ID: BYE1918	Used client sample: N										
Total Antimony	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	411.94	400.00	ug/L		103		75 - 125	
	MSD	1512260-28	ND	428.75	400.00	ug/L	4.0	107	20	75 - 125	
Total Arsenic	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	202.74	200.00	ug/L		101		75 - 125	
	MSD	1512260-28	ND	211.04	200.00	ug/L	4.0	106	20	75 - 125	
Total Barium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	453.29	400.00	ug/L		113		75 - 125	
	MSD	1512260-28	ND	451.23	400.00	ug/L	0.5	113	20	75 - 125	
al Beryllium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	208.23	200.00	ug/L		104		75 - 125	
	MSD	1512260-28	ND	215.32	200.00	ug/L	3.3	108	20	75 - 125	
Total Boron	DUP	**1512260-28**	**0.055543**	**0.042400**		**mg/L**	**26.8**		**20**		**J,A02**
	MS	**1512260-28**	**0.055543**	**1.1062**	**1.0000**	**mg/L**		**105**		**75 - 125**	
	MSD	**1512260-28**	**0.055543**	**1.1533**	**1.0000**	**mg/L**	**4.2**	**110**	**20**	**75 - 125**	
Total Cadmium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	211.69	200.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	224.13	200.00	ug/L	5.7	112	20	75 - 125	
Total Chromium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	211.44	200.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	220.02	200.00	ug/L	4.0	110	20	75 - 125	
Total Cobalt	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	206.78	200.00	ug/L		103		75 - 125	
	MSD	1512260-28	ND	218.05	200.00	ug/L	5.3	109	20	75 - 125	
Total Copper	DUP	1512260-28	2.2946	2.0769		ug/L	10.0		20		J
	MS	1512260-28	2.2946	401.24	400.00	ug/L		99.7		75 - 125	
	MSD	1512260-28	2.2946	418.56	400.00	ug/L	4.2	104	20	75 - 125	
Total Iron	DUP	1512260-28	0.047723	0.050511		mg/L	5.7		20		
	MS	1512260-28	0.047723	1.1917	1.0000	mg/L		114		75 - 125	
	MSD	1512260-28	0.047723	1.1837	1.0000	mg/L	0.7	114	20	75 - 125	
Total Lead	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	422.26	400.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	446.35	400.00	ug/L	5.5	112	20	75 - 125	

BSK Associates
Engineers & Laboratories

BSK Associates Fresno
1414 Stanislaus St
Fresno, CA93706
559-497-2888 (Main)
559-485-6935 (FAX)

A5E1777
5/27/2015
Invoice: A510756

Kerrie Vaughan
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for A5E1777 General: Project Manager-Kerrie Vaughan

Dear Kerrie Vaughan,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 5/20/2015. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Stephane Maupas , at (800) 877-8310 or (559) 497-2888 x212.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Stephane Maupas, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

BSK Associates Engineers & Laboratories

A5E1777

General: Project Manager-Kerrie Vaughan
1512258

Certificate of Analysis

Sample ID: A5E1777-01
Sampled By: Client
Sample Description: 1512258-01

Sample Date - Time: 05/19/15 - 13:25
Matrix: Water
Sample Type: Grab

BSK Associates Fresno

Radiological

Analyte	Method	Result	Units	Batch	Prepared	Analyzed	Qual
Gross Alpha	EPA 00-02	ND	pCi/L	A505699	05/22/15	05/26/15	
1.65 Sigma Uncertainty		0.110	±				
MDA95		536	pCi/L				

A5E1777 FINAL 05272015 1410
Printed: 05/27/2015
QA-RP-0001-10 Final.rpt

www.BSKAssociates.com

Page 3 of 8

BSK Associates Engineers & Laboratories

A5E1777

General: Project Manager-Kerrie Vaughan

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occuring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method , all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAC program for the following parameters: ****NA****

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792015-1	State of Oregon - NELAC	4021
EPA - UCMR3	CA00079	State of Washington	C997-15

Sacramento

State of California - ELAP	2435

Vancouver

State of Oregon - NELAC	WA100008	State of Washington	C824-14a

A5E1777 05/20/2015
BCLab4911 4

4.1

SUBCONTRACT ORDER

BC Laboratories

1512258

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Kerrie Vaughan

RECEIVING LABORATORY:

BSK Analytical Labs $BSKSA
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1512258-01	**Water**	**Sampled:05/19/15 13:25**		
om900.0w Gross Alpha BSKSA	05/27/15 17:00	11/16/15 13:25		Results needed by 5/27/2015.
Containers Supplied:				

Meegan Bayer 5/20/15 — Released By / Date
BJF 5-20-15 — Received By / Date
BJF 5-20-15 — Released By / Date
John Hew 5/20/15 15:40 — Received By / Date

Page 7 of 8

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

June 03, 2015

Ms. Kerrie Vaughan
BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308

RE: Project: 1512258
Pace Project No.: 30148652

Dear Ms. Vaughan:
Enclosed are the analytical results for sample(s) received by the laboratory on May 21, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 1512258
Pace Project No.: 30148652

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30148652001	1512258-01	Water	05/19/15 13:25	05/21/15 10:00

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 1512258
Pace Project No.: 30148652

Method: EPA 903.1
Description: 903.1 Radium 226
Client: BC Laboratories
Date: June 03, 2015

General Information:
1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1512258
Pace Project No.: 30148652

Sample: 1512258-01 Lab ID: **30148652001** Collected: 05/19/15 13:25 Received: 05/21/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments:
- Sample collection dates and times were not present on the sample containers.
- Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.
- Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-2.855 ± 7.23 (13.4) C:NA T:79%**	pCi/L	06/01/15 12:12	13982-63-3	
Radium-228	EPA 904.0	**1.60 ± 6.09 (13.8) C:86% T:58%**	pCi/L	06/01/15 16:58	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1512258
Pace Project No.: 30148652

QC Batch: RADC/24592 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30148652001

METHOD BLANK: 898957 Matrix: Water
Associated Lab Samples: 30148652001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.000 ± 0.379 (0.842) C:85% T:85%	pCi/L	06/01/15 17:02	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

SUBCONTRACT ORDER

BC Laboratories

1512258

RUSH!

30148652

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Kerrie Vaughan

RECEIVING LABORATORY:

PACE Analytical $PACEA
1638 Roseytown Road, Ste 2,3 &4
Greensburg, PA 15601
Phone :(724) 850-5600
Fax: (724) 850-5601

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1512258-01	**Water**	**Sampled:05/19/15 13:25**	[redacted]	001
om904.0w Radium228 PACEA	05/27/15 17:00	11/16/15 13:25		Results needed by 5/27/2015.
om903.1w Radium226 PACEA	05/27/15 17:00	11/16/15 13:25		Results needed by 5/27/2015.
Containers Supplied:				

Meagen Boyles 5/20/15 — Alma R. Mucheney | PACE 5/21/15 0900 1000

Released By — Date — Received By — Date

Released By — Date — Received By — Date

AM 5/21/15

Page 2 of 2

												Item No.
											WT	Matrix Code
												Glass Jar (120 / 250 / 500 / 1L)
												Soil kit (2 SB, 1M, soil jar)
												Chemistry (250 / 500 / 1L)
												Organics (1L)
												Nutrient (250 / 500)
												Phenolics (250 ml)
												TOC (40 ml / 250 ml)
												TOX (250 ml)
												Total Metals
												Dissolved Metals preserved Y N
												O & G (1L)
												TPH (1L)
												VOA (40 ml 30 ml)
												Cyanide (250 ml)
												Sulfide (500 ml)
												Bacteria (120 ml)
												Wipes / swipe/ smear/ filter
											1-1L 1-500	Radchem Nalgene (125 / 250 / 500 / 1L)
												Radchem Nalgene (1/2 gal. / 1 gal.L)
												Cubitainer (500 ml / 4L)
												Ziploc
												Other
												Other

001

SCURF Back (C016-4 15May2012).xls

Pace Analytical

page 2

Project Number: 30148652

Client Name: BC Labs

Page 13 of 13

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 06/08/2015

Rod Bowyer

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Client Project:	DOW
BCL Project:	Oilfield Produced Water Pond Testing
BCL Work Order:	1512508
Invoice ID:	B205096

Enclosed are the results of analyses for samples received by the laboratory on 5/21/2015. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerrie S. Vaughan

Contact Person: Kerrie Vaughan
Client Services

Authorized Signature

Chain of Custody Form

BC Laboratories, Inc.

RUSH!

Page 1 of 1

Report To: Client: Aera	Project #:
Attn: Rod Bowyer	Project Name:
Street Address:	
City, State, Zip:	Sampler(s):
Phone: Fax:	
Email Address:	
Work Order #: 15.12508	

Analysis Requested

See Attached — Please refer to the back of this page for completion instructions and method legend.

Comments:

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Turnaround # of work days*	Notes
-1	BL1847 DOW DHy 2 ③	5/21/19	1034				X			5	JCE X ③
-2	BL1807 DOW Sec. 12 ④	↓	1340				X			5	④

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☐ No

* Standard Turnaround = 10 work days

SHORT HOLDING TIME
Cr-6 NO_2 NO_3 OP SS
DO Cl_2 BOD MBAS COT

CHK BY

DISTRIBUTION

SUB-OUT

Billing		EDF Required? Geotracker	Global ID (Needed for EDF)	System # (Needed for EDT)
☐ Same as above		☐ Yes ☐ No		
Client:				
Address:		Send Copy to State of CA? (EDT)		
City: State Zip		☐ Yes ☐ No		
Attn:				
PO#:				

	Relinquished By	Date	Time	Received By	Date	Time
1.	NC Enviro	5/21/19	1555	MM	5/21	1555
2.						
3.						

Chain of Custody and Cooler Receipt Form for 1512508 Page 3 of 4

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 18 09/04/14 Page 1 Of 2

Submission #: 15-12508

SHIPPING INFORMATION
Federal Express ☐ UPS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)_____

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)_____

FREE LIQUID
YES ☐ NO ☐

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

☑ COC Received ☐ YES ☐ NO

Emissivity: 0.95 Container: DG Thermometer ID: 208

Temperature: (A) 0.6 °C / (C) 0.7 °C

Date/Time 5'21'15

Analyst Init MVB 1555

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL	C									
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS	DEFJ									
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	AB									
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz Amber EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M	H									
QT AMBER 8270	I									
8 OZ. JAR										
32 OZ. JAR	G									
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
Summa Canister										

Comments:
Sample Numbering Completed By: KLB Date/Time: 5/21/15 1743 [S:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMREC]
A = Actual / C = Corrected

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Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1512508-01	**COC Number:**	---	**Receive Date:**	05/21/2015 15:55
	Project Number:	---	**Sampling Date:**	05/21/2015 10:34
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BL1847 DOW DHy 2	**Lab Matrix:**	Water
	Sampled By:	Juan Enriquez	**Sample Type:**	Wastewater
1512508-02	**COC Number:**	---	**Receive Date:**	05/21/2015 15:55
	Project Number:	---	**Sampling Date:**	05/21/2015 13:40
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BL1807 DOW Sec. 12	**Lab Matrix:**	Water
	Sampled By:	Juan Enriquez	**Sample Type:**	Wastewater

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Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	0.20	0.11	EPA-8270C-SIM	ND		1
Acenaphthylene	ND	ug/L	0.20	0.093	EPA-8270C-SIM	ND		1
Anthracene	**0.035**	**ug/L**	**0.20**	**0.034**	**EPA-8270C-SIM**	ND	J	1
Benzo[a]anthracene	ND	ug/L	0.20	0.051	EPA-8270C-SIM	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.20	0.079	EPA-8270C-SIM	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.20	0.10	EPA-8270C-SIM	ND		1
Benzo[a]pyrene	ND	ug/L	0.20	0.051	EPA-8270C-SIM	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.20	0.085	EPA-8270C-SIM	ND		1
Chrysene	ND	ug/L	0.20	0.044	EPA-8270C-SIM	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.20	0.087	EPA-8270C-SIM	ND		1
Fluoranthene	**0.26**	**ug/L**	**0.20**	**0.024**	**EPA-8270C-SIM**	ND		1
Fluorene	ND	ug/L	0.20	0.059	EPA-8270C-SIM	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.20	0.087	EPA-8270C-SIM	ND		1
Naphthalene	**0.16**	**ug/L**	**0.20**	**0.15**	**EPA-8270C-SIM**	ND	J	1
Phenanthrene	**0.29**	**ug/L**	**0.20**	**0.044**	**EPA-8270C-SIM**	ND		1
Pyrene	ND	ug/L	0.20	0.044	EPA-8270C-SIM	ND		1
Nitrobenzene-d5 (Surrogate)	108	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM			1
2-Fluorobiphenyl (Surrogate)	75.1	%	50 - 120 (LCL - UCL)		EPA-8270C-SIM			1
p-Terphenyl-d14 (Surrogate)	14.6	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM		S09	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8270C-SIM	05/22/15	05/27/15 21:39	MK1	MS-B4	1.980	BYE2168

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Water Analysis (General Chemistry)

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Calcium	**41**	mg/L	0.20	0.030	EPA-6010B	0.053	A07	1
Total Magnesium	**1.1**	mg/L	0.10	0.038	EPA-6010B	ND	A07	1
Total Sodium	**1200**	mg/L	1.0	0.10	EPA-6010B	ND	A07	1
Total Potassium	**9.0**	mg/L	2.0	0.26	EPA-6010B	ND	A07	1
Bicarbonate Alkalinity as CaCO3	**500**	mg/L	8.2	8.2	EPA-310.1	ND		2
Carbonate Alkalinity as CaCO3	**260**	mg/L	8.2	8.2	EPA-310.1	ND		2
Hydroxide Alkalinity as CaCO3	ND	mg/L	8.2	8.2	EPA-310.1	ND		2
Total Alkalinity as CaCO3	**750**	mg/L	8.2	8.2	EPA-310.1	ND		2
Bromide	**1.2**	mg/L	1.0	0.35	EPA-300.0	ND	A07	3
Chloride	**350**	mg/L	1.0	0.12	EPA-300.0	ND	A07	4
Nitrate as NO3	**18**	mg/L	4.4	0.78	EPA-300.0	ND	A07	3
Sulfate	**360**	mg/L	2.0	0.20	EPA-300.0	ND	A07	4
Total Dissolved Solids @ 180 C	**4500**	mg/L	200	200	EPA-160.1	ND		5

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-6010B	05/26/15	05/27/15 10:57	ARD	PE-OP3	2	BYE2179
2	EPA-310.1	05/26/15	05/26/15 13:47	RML	MET-1	2	BYE2035
3	EPA-300.0	05/22/15	05/22/15 12:04	OLH	IC5	10	BYE2119
4	EPA-300.0	06/01/15	06/01/15 23:18	BMW	IC5	2	BYF0131
5	EPA-160.1	05/23/15	05/23/15 11:30	CAD	MANUAL	20	BYE2095

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Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**9.5**	**ug/L**	**2.5**	**0.42**	**EPA-8260B**	ND	**A01,Z1**	1
Ethylbenzene	**3.0**	**ug/L**	**2.5**	**0.49**	**EPA-8260B**	ND	**A01,Z1**	1
Toluene	**22**	**ug/L**	**2.5**	**0.46**	**EPA-8260B**	ND	**A01,Z1**	1
Total Xylenes	**49**	**ug/L**	**5.0**	**1.8**	**EPA-8260B**	ND	**A01,Z1**	1
p- & m-Xylenes	**42**	**ug/L**	**2.5**	**1.4**	**EPA-8260B**	ND	**A01,Z1**	1
o-Xylene	**7.1**	**ug/L**	**2.5**	**0.41**	**EPA-8260B**	ND	**A01,Z1**	1
1,2-Dichloroethane-d4 (Surrogate)	95.2	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	96.9	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	97.4	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	05/22/15	05/27/15 03:24	SE1	MS-V12	5	BYE2091

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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Crude Oil	**160000**	**ug/L**	**10000**	**2800**	**EPA-8015B/FFP**	ND	**A01**	1
Tetracosane (Surrogate)	75.6	%	37 - 134 (LCL - UCL)		EPA-8015B/FFP		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	05/22/15	05/28/15 09:15	MWB	GC-13	20	BYE2282

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Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	TTLC Limits	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	40	14	EPA-7196		A07	1
Total Antimony	ND	ug/L	200	17	EPA-6010B	500000	A07	2
Total Arsenic	ND	ug/L	100	16	EPA-6010B	500000	A07	2
Total Barium	**370**	**ug/L**	**20**	**7.0**	**EPA-6010B**	10000000	**A07**	2
Total Beryllium	ND	ug/L	20	1.0	EPA-6010B	75000	A07	2
Total Boron	**2.9**	**mg/L**	**0.20**	**0.026**	**EPA-6010B**		**A07**	2
Total Cadmium	ND	ug/L	20	2.2	EPA-6010B	100000	A07	2
Total Chromium	**19**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**J,A07**	2
Total Cobalt	**10**	**ug/L**	**100**	**2.6**	**EPA-6010B**	8000000	**J,A07**	2
Total Copper	**22**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Iron	**7.0**	**mg/L**	**0.10**	**0.060**	**EPA-6010B**		**A07**	2
Total Lead	ND	ug/L	100	8.0	EPA-6010B	1000000	A07	2
Total Lithium	**0.26**	**mg/L**	**0.040**	**0.012**	**EPA-6010B**		**A07**	2
Total Manganese	**0.68**	**mg/L**	**0.020**	**0.0080**	**EPA-6010B**		**A07**	2
Total Mercury	**0.048**	**ug/L**	**0.20**	**0.033**	**EPA-7470A**	20000	**J**	3
Total Molybdenum	**5.8**	**ug/L**	**100**	**2.4**	**EPA-6010B**	3500000	**J,A07**	2
Total Nickel	**100**	**ug/L**	**20**	**4.0**	**EPA-6010B**	2000000	**A07**	2
Total Selenium	ND	ug/L	200	30	EPA-6010B	100000	A07	2
Total Silver	ND	ug/L	20	3.8	EPA-6010B	500000	A07	2
Total Strontium	**1.1**	**mg/L**	**0.020**	**0.0020**	**EPA-6010B**		**A07**	2
Total Thallium	ND	ug/L	200	48	EPA-6010B	700000	A07	2
Total Vanadium	**56**	**ug/L**	**20**	**4.4**	**EPA-6010B**	2400000	**A07**	2
Total Zinc	**51**	**ug/L**	**100**	**4.6**	**EPA-6010B**	5000000	**J,A07**	2
Total Recoverable Uranium	**0.74**	**pCi/L**	**6.7**	**0.67**	**EPA-200.8**		**J,A07**	4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7196	05/22/15	05/22/15 08:14	BMW	KONE-1	20	BYE2071
2	EPA-6010B	05/26/15	05/27/15 10:59	ARD	PE-OP3	2	BYE2179
3	EPA-7470A	05/27/15	05/27/15 16:12	MEV	CETAC1	1	BYE2261
4	EPA-200.8	05/26/15	05/26/15 22:10	SRM	PE-EL2	10	BYE2185

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Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2091										
Benzene	BYE2091-BS1	LCS	23.600	25.000	ug/L	94.4		70 - 130		
Toluene	BYE2091-BS1	LCS	23.290	25.000	ug/L	93.2		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BYE2091-BS1	LCS	9.0200	10.000	ug/L	90.2		75 - 125		
Toluene-d8 (Surrogate)	BYE2091-BS1	LCS	9.4400	10.000	ug/L	94.4		80 - 120		
4-Bromofluorobenzene (Surrogate)	BYE2091-BS1	LCS	10.050	10.000	ug/L	100		80 - 120		

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2168						
Acenaphthene	BYE2168-BLK1	ND	ug/L	0.10	0.055	
Acenaphthylene	BYE2168-BLK1	ND	ug/L	0.10	0.047	
Anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.017	
Benzo[a]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[b]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.040	
Benzo[k]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.051	
Benzo[a]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[g,h,i]perylene	BYE2168-BLK1	ND	ug/L	0.10	0.043	
Chrysene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Dibenzo[a,h]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.012	
Fluorene	BYE2168-BLK1	ND	ug/L	0.10	0.030	
Indeno[1,2,3-cd]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Naphthalene	BYE2168-BLK1	ND	ug/L	0.10	0.077	
Phenanthrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Nitrobenzene-d5 (Surrogate)	**BYE2168-BLK1**	**91.8**	%	**40 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**BYE2168-BLK1**	**93.1**	%	**50 - 120 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**BYE2168-BLK1**	**126**	%	**40 - 130 (LCL - UCL)**		

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2168	Used client sample: N										
Acenaphthene	MS	**1511019-28**	**ND**	**1.1763**	**1.0000**	**ug/L**		**118**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0913**	**1.0000**	**ug/L**	**7.5**	**109**	**30**	**60 - 110**	
Acenaphthylene	MS	**1511019-28**	**ND**	**1.3083**	**1.0000**	**ug/L**		**131**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1879**	**1.0000**	**ug/L**	**9.7**	**119**	**30**	**60 - 120**	
Anthracene	MS	**1511019-28**	**ND**	**1.4025**	**1.0000**	**ug/L**		**140**		**60 - 130**	**Q03**
	MSD	**1511019-28**	**ND**	**1.3073**	**1.0000**	**ug/L**	**7.0**	**131**	**30**	**60 - 130**	**Q03**
Benzo[a]anthracene	MS	**1511019-28**	**ND**	**1.2480**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1594**	**1.0000**	**ug/L**	**7.4**	**116**	**30**	**60 - 120**	
Benzo[b]fluoranthene	MS	1511019-28	ND	1.1310	1.0000	ug/L		113		50 - 130	
	MSD	1511019-28	ND	1.0752	1.0000	ug/L	5.1	108	30	50 - 130	
Benzo[k]fluoranthene	MS	**1511019-28**	**ND**	**1.2472**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1434**	**1.0000**	**ug/L**	**8.7**	**114**	**30**	**60 - 120**	
Benzo[a]pyrene	MS	**1511019-28**	**ND**	**1.2360**	**1.0000**	**ug/L**		**124**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0911**	**1.0000**	**ug/L**	**12.5**	**109**	**30**	**60 - 120**	
Benzo[g,h,i]perylene	MS	1511019-28	ND	1.0647	1.0000	ug/L		106		40 - 120	
	MSD	1511019-28	ND	0.97751	1.0000	ug/L	8.5	97.8	30	40 - 120	
Chrysene	MS	**1511019-28**	**ND**	**1.2087**	**1.0000**	**ug/L**		**121**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1388**	**1.0000**	**ug/L**	**6.0**	**114**	**30**	**60 - 110**	**Q03**
Dibenzo[a,h]anthracene	MS	1511019-28	ND	0.78144	1.0000	ug/L		78.1		40 - 120	
	MSD	1511019-28	ND	0.69146	1.0000	ug/L	12.2	69.1	30	40 - 120	
Fluoranthene	MS	1511019-28	ND	1.0666	1.0000	ug/L		107		60 - 120	
	MSD	1511019-28	ND	1.0141	1.0000	ug/L	5.0	101	30	60 - 120	
Fluorene	MS	**1511019-28**	**ND**	**1.2329**	**1.0000**	**ug/L**		**123**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1270**	**1.0000**	**ug/L**	**9.0**	**113**	**30**	**60 - 120**	
Indeno[1,2,3-cd]pyrene	MS	1511019-28	ND	1.2781	1.0000	ug/L		128		40 - 130	
	MSD	1511019-28	ND	1.0352	1.0000	ug/L	21.0	104	30	40 - 130	
Naphthalene	MS	1511019-28	ND	1.0556	1.0000	ug/L		106		60 - 110	
	MSD	1511019-28	ND	0.99619	1.0000	ug/L	5.8	99.6	30	60 - 110	
Phenanthrene	MS	1511019-28	ND	1.1471	1.0000	ug/L		115		60 - 120	
	MSD	1511019-28	ND	1.0638	1.0000	ug/L	7.5	106	30	60 - 120	
Pyrene	MS	**1511019-28**	**ND**	**1.7749**	**1.0000**	**ug/L**		**177**		**50 - 125**	**Q03**
	MSD	**1511019-28**	**ND**	**1.6037**	**1.0000**	**ug/L**	**10.1**	**160**	**30**	**50 - 125**	**Q03**
Nitrobenzene-d5 (Surrogate)	MS	1511019-28	ND	4.0540	4.0000	ug/L		101		40 - 130	
	MSD	1511019-28	ND	3.7488	4.0000	ug/L	7.8	93.7		40 - 130	
2-Fluorobiphenyl (Surrogate)	MS	1511019-28	ND	4.3117	4.0000	ug/L		108		50 - 120	
	MSD	1511019-28	ND	3.9075	4.0000	ug/L	9.8	97.7		50 - 120	

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Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2282						
TPH - Diesel (FFP)	BYE2282-BLK1	ND	ug/L	200	34	
TPH - Crude Oil	BYE2282-BLK1	ND	ug/L	500	140	
Tetracosane (Surrogate)	**BYE2282-BLK1**	**91.6**	%	**37 - 134 (LCL - UCL)**		

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Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2282	Used client sample: N										
TPH - Diesel (FFP)	MS	1511019-59	ND	1902.7	2500.0	ug/L		76.1		50 - 127	
	MSD	1511019-59	ND	2030.1	2500.0	ug/L	6.5	81.2	24	50 - 127	
Tetracosane (Surrogate)	MS	1511019-59	ND	89.695	100.00	ug/L		89.7		37 - 134	
	MSD	1511019-59	ND	91.645	100.00	ug/L	2.2	91.6		37 - 134	

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2035										
Total Alkalinity as CaCO3	BYE2035-BS3	LCS	104.52	100.00	mg/L	105		90 - 110		
QC Batch ID: BYE2095										
Total Dissolved Solids @ 180 C	BYE2095-BS1	LCS	545.00	586.00	mg/L	93.0		90 - 110		
QC Batch ID: BYE2119										
Bromide	BYE2119-BS1	LCS	2.1190	2.0000	mg/L	106		90 - 110		
Chloride	BYE2119-BS1	LCS	51.277	50.000	mg/L	103		90 - 110		
Nitrate as NO3	BYE2119-BS1	LCS	23.272	22.134	mg/L	105		90 - 110		
Sulfate	BYE2119-BS1	LCS	99.431	100.00	mg/L	99.4		90 - 110		
QC Batch ID: BYE2179										
Total Calcium	BYE2179-BS1	LCS	10.137	10.000	mg/L	101		85 - 115		
Total Magnesium	BYE2179-BS1	LCS	9.7663	10.000	mg/L	97.7		85 - 115		
al Sodium	BYE2179-BS1	LCS	10.282	10.000	mg/L	103		85 - 115		
Total Potassium	BYE2179-BS1	LCS	10.119	10.000	mg/L	101		85 - 115		
QC Batch ID: BYF0131										
Chloride	BYF0131-BS1	LCS	51.651	50.000	mg/L	103		90 - 110		
Sulfate	BYF0131-BS1	LCS	99.638	100.00	mg/L	99.6		90 - 110		

Vera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYF0131	Used client sample: N										
Sulfate	DUP	1512133-01	25.504	25.457		mg/L	0.2		10		
	MS	1512133-01	25.504	131.00	101.01	mg/L		104		80 - 120	
	MSD	1512133-01	25.504	130.71	101.01	mg/L	0.2	104	10	80 - 120	

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2071										
Hexavalent Chromium	BYE2071-BS1	LCS	50.584	50.000	ug/L	101		85 - 115		
QC Batch ID: BYE2179										
Total Antimony	BYE2179-BS1	LCS	399.71	400.00	ug/L	99.9		85 - 115		
Total Arsenic	BYE2179-BS1	LCS	192.10	200.00	ug/L	96.1		85 - 115		
Total Barium	BYE2179-BS1	LCS	398.95	400.00	ug/L	99.7		85 - 115		
Total Beryllium	BYE2179-BS1	LCS	192.09	200.00	ug/L	96.0		85 - 115		
Total Boron	BYE2179-BS1	LCS	0.98260	1.0000	mg/L	98.3		85 - 115		
Total Cadmium	BYE2179-BS1	LCS	196.42	200.00	ug/L	98.2		85 - 115		
Total Chromium	BYE2179-BS1	LCS	196.11	200.00	ug/L	98.1		85 - 115		
Total Cobalt	BYE2179-BS1	LCS	194.91	200.00	ug/L	97.5		85 - 115		
Total Copper	BYE2179-BS1	LCS	367.56	400.00	ug/L	91.9		85 - 115		
Total Iron	BYE2179-BS1	LCS	1.0050	1.0000	mg/L	101		85 - 115		
Total Lead	BYE2179-BS1	LCS	400.69	400.00	ug/L	100		85 - 115		
Total Lithium	BYE2179-BS1	LCS	0.20705	0.20000	mg/L	104		85 - 115		
Total Manganese	BYE2179-BS1	LCS	0.48210	0.50000	mg/L	96.4		85 - 115		
Total Molybdenum	BYE2179-BS1	LCS	199.00	200.00	ug/L	99.5		85 - 115		
Total Nickel	BYE2179-BS1	LCS	390.17	400.00	ug/L	97.5		85 - 115		
Total Selenium	BYE2179-BS1	LCS	198.93	200.00	ug/L	99.5		85 - 115		
Total Silver	BYE2179-BS1	LCS	93.826	100.00	ug/L	93.8		85 - 115		
Total Strontium	BYE2179-BS1	LCS	0.50808	0.50000	mg/L	102		85 - 115		
Total Thallium	BYE2179-BS1	LCS	428.86	400.00	ug/L	107		85 - 115		
Total Vanadium	BYE2179-BS1	LCS	197.03	200.00	ug/L	98.5		85 - 115		
Total Zinc	BYE2179-BS1	LCS	468.95	500.00	ug/L	93.8		85 - 115		
QC Batch ID: BYE2185										
Total Recoverable Uranium	BYE2185-BS1	LCS	24.756	26.800	pCi/L	92.4		85 - 115		
QC Batch ID: BYE2261										
Total Mercury	BYE2261-BS1	LCS	1.0175	1.0000	ug/L	102		85 - 115		

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2179	Used client sample: N										
Total Lithium	DUP	1510960-01	0.21533	0.22364		mg/L	3.8		20		
	MS	1510960-01	0.21533	0.45282	0.20000	mg/L		119		75 - 125	
	MSD	1510960-01	0.21533	0.42539	0.20000	mg/L	6.2	105	20	75 - 125	
Total Manganese	DUP	1510960-01	ND	ND		mg/L			20		
	MS	1510960-01	ND	0.51797	0.50000	mg/L		104		75 - 125	
	MSD	1510960-01	ND	0.47831	0.50000	mg/L	8.0	95.7	20	75 - 125	
Total Molybdenum	DUP	1510960-01	8.3033	7.2074		ug/L	14.1		20		J
	MS	1510960-01	8.3033	231.11	200.00	ug/L		111		75 - 125	
	MSD	1510960-01	8.3033	204.37	200.00	ug/L	12.3	98.0	20	75 - 125	
Total Nickel	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	409.38	400.00	ug/L		102		75 - 125	
	MSD	1510960-01	ND	382.82	400.00	ug/L	6.7	95.7	20	75 - 125	
Total Selenium	DUP	1510960-01	ND	15.363		ug/L			20		J
	MS	1510960-01	ND	220.13	200.00	ug/L		110		75 - 125	
	MSD	1510960-01	ND	187.79	200.00	ug/L	15.9	93.9	20	75 - 125	
Total Silver	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	103.36	100.00	ug/L		103		75 - 125	
	MSD	1510960-01	ND	94.787	100.00	ug/L	8.7	94.8	20	75 - 125	
Total Strontium	DUP	**1510960-01**	**0.77319**	**0.80121**		**mg/L**	**3.6**		**20**		
	MS	**1510960-01**	**0.77319**	**1.4218**	**0.50000**	**mg/L**		**130**		**75 - 125**	**Q03**
	MSD	**1510960-01**	**0.77319**	**1.3199**	**0.50000**	**mg/L**	**7.4**	**109**	**20**	**75 - 125**	
Total Thallium	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	448.15	400.00	ug/L		112		75 - 125	
	MSD	1510960-01	ND	407.79	400.00	ug/L	9.4	102	20	75 - 125	
Total Vanadium	DUP	1510960-01	12.199	13.466		ug/L	9.9		20		
	MS	1510960-01	12.199	228.10	200.00	ug/L		108		75 - 125	
	MSD	1510960-01	12.199	211.37	200.00	ug/L	7.6	99.6	20	75 - 125	
Total Zinc	DUP	1510960-01	3.7957	ND		ug/L			20		
	MS	1510960-01	3.7957	517.49	500.00	ug/L		103		75 - 125	
	MSD	1510960-01	3.7957	478.12	500.00	ug/L	7.9	94.9	20	75 - 125	
QC Batch ID: BYE2185	Used client sample: N										
Total Recoverable Uranium	DUP	1512150-01	1.9423	1.7380		pCi/L	11.1		20		
	MS	1512150-01	1.9423	30.339	26.800	pCi/L		106		70 - 130	
	MSD	1512150-01	1.9423	28.584	26.800	pCi/L	6.0	99.4	20	70 - 130	
QC Batch ID: BYE2261	Used client sample: N										
Total Mercury	DUP	1512525-01	ND	ND		ug/L			20		
	MS	1512525-01	ND	1.0050	1.0000	ug/L		100		70 - 130	
	MSD	1512525-01	ND	1.0100	1.0000	ug/L	0.5	101	20	70 - 130	

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

Case Narrative

Project and Report Details		Invoice Details	
Client:	BC Laboratories	**Invoice To:**	BC Laboratories
Report To:	Kerrie Vaughan	**Invoice Attn:**	Kerrie Vaughan
Project #:	1512508	**Project PO#:**	-
Received:	5/22/2015 - 15:40		
Report Due:	5/29/2015		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 4.0

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

MS1.0 Matrix spike recoveries exceed control limits.

Report Distribution

Recipient(s)	Report Format	CC:
Kerrie Vaughan	FINAL.RPT	

A5E2039 FINAL 05292015 0844
Printed: 05/29/2015
QA-RP-0001-10 Final.rpt

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

1512508

Certificate of Analysis

Sample ID: A5E2039-02
Sampled By: Client
Sample Description: 1512508-02

Sample Date - Time: 05/21/15 - 13:40
Matrix: Water
Sample Type: Grab

BSK Associates Fresno

Radiological

Analyte	Method	Result	Units	Batch	Prepared	Analyzed	Qual
Gross Alpha	EPA 00-02	ND	pCi/L	A505797	05/27/15	05/28/15	
1.65 Sigma Uncertainty		0.110	±				
MDA95		536	pCi/L				

A5E2039 FINAL 05292015 0844
Printed: 05/29/2015
QA-RP-0001-10 Final.rpt

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

BSK Associates Fresno

Radiological Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 00-02 - Quality Control											
Batch: A505797										Prepared: 05/27/2015	
Prep Method: EPA 00-02										Analyst: NYY	
Matrix Spike Dup (A505797-MSD1), Source: A5E1557-01											
Matrix Spike Dup (A505797-MSD2), Source: A5E1676-01											
Gross Alpha	107	3	pCi/L	120	ND	89	70-130	3	50	05/28/15	

A5E2039

05222015

BCLab4911

Turnaround: Standard
Due Date: 5/29/2015

BC Laboratories

Printed: 5/22/1

BSK Associates SR-FL-0002-13

A5E2039 05/22/2015
BCLab4911 4

Sample Integrity

BSK Bottles: Yes (No) Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 10°C	(Yes) No NA	Were correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received?	(Yes) No
Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Was PM notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1-2					
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—						
Cr6 (P) Br. Green Label $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH ~ 8	Y N						
Cr6 (P) Pink Label Hex Chrome Buffer DW	pH 9-9.5	Y N						
Cr6 (P) Pink Label Hex Chrome Buffer WW	pH 9.3-9.7	Y N						
HNO_3 (P) Red Cap	—	—	1C					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH ~ 2	Y N						
NaOH (P) Green Cap	Cl, pH >10	Y N						
NaOH + ZnAc (P)	pH > 9	Y N				5-22-15		
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321 8151, 8270,	—	—					NC	
HCl (AG) Lt. Blue Label O&G, Diesel	—	—						
Na_2O_3S+HCl (AG) Lt. Pink Label 525	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 547, 515, 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH ~ 3	Y N						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
None (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Other:								
Asbestos 1 Liter Plastic w/ Foil	—	—						
Low Level Hg / Metals Double Baggie	—	—						
Bottled Water	—	—						
Clear Glass Jar: 250 / 500 / 1 Liter	—	—						
Soil Tube: Brass / Steel / Plastic	—	—						
Tedlar Bag / Plastic Bag	—	—						

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: MW @ 16:47 Labels checked by: JVD @ 16:49 RUSH Paged by: Page 10 of 10

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 1512508
Pace Project No.: 30148945

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 1512508
Pace Project No.: 30148945

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30148945001	1512508-01	EPA 903.1	JC2	1
		EPA 904.0	JLW	1
30148945002	1512508-02	EPA 903.1	JC2	1
		EPA 904.0	JLW	1

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Greensburg, PA 15601
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PROJECT NARRATIVE

Project: 1512508
Pace Project No.: 30148945

Method: EPA 904.0
Description: 904.0 Radium 228
Client: BC Laboratories
Date: June 03, 2015

General Information:
2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1512508
Pace Project No.: 30148945

QC Batch: RADC/24595 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30148945001, 30148945002

METHOD BLANK: 898960 Matrix: Water
Associated Lab Samples: 30148945001, 30148945002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.419 (0.853) C:NA T:87%	pCi/L	06/02/15 10:46	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1512508
Pace Project No.: 30148945

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Act - Activity
Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)
(MDC) - Minimum Detectable Concentration
Trac - Tracer Recovery (%)
Carr - Carrier Recovery (%)
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

Date: 06/03/2015 02:11 PM

Sample Condition Upon Receipt

Pace Analytical Client Name: Bc Labs Project # 30148945

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____
Tracking #: 1Z9653760162273811

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals Intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap X Bubble Bags ____ None ____ Other _____

Thermometer Used NA Type of Ice: Wet Blue (None) ☐ Samples on Ice, cooling process has begun

Cooler Temp.: Observed Temp.:____°C Correction Factor: ____°C Final Temp:____°C

Temp should be above freezing to 6°C

Date and initials of person examining contents: SRA 5-26-15

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☒No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☒Yes ☐No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☒No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☐Yes ☒No ☐N/A	12. No date or time on Samples
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	13. Added 3 ml HNO3 to Sample # 1 @ 1026 SRA 5-26-15
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☒No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes ☒No	Initial when completed SRA / Lot # of added preservative DL15-0433
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☒No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Carrie Sessions **Date:** 5/26/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

J:\QAQC\Master\Document Management\Sample Mgt\SCURF\FALLC003-09 SCUR Front 3March2015 Page 12 of 13

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A01	Detection and quantitation limits are raised due to sample dilution.
A02	The difference between duplicate readings is less than the quantitation limit.
A03	The sample concentration is more than 4 times the spike level.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
Z1	50uL of antifoamer added to sample VOA.

amec
foster
wheeler

APPENDIX C

Analytical Reports and Chain-of-Custody Documentation

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 06/03/2015

Rod Bowyer

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Client Project:	[none]
BCL Project:	Oilfield Produced Water Pond Testing
BCL Work Order:	1512258
Invoice ID:	B204782

Enclosed are the results of analyses for samples received by the laboratory on 5/19/2015. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerrie S. Vaughan

Contact Person: Kerrie Vaughan
Client Services

Authorized Signature

Table of Contents

BC Laboratories, Inc.

Chain of Custody Form

Report To:	
Client: Aera	Project #:
Attn: Rod Bowyer	Project Name:
Street Address:	
City, State, Zip:	Sampler(s): J. Enriquez
Phone: Fax:	
Email Address:	
Work Order #: 15-12258	

Analysis Requested: See Attached

Please refer to the back of this page for completion instructions and method legend.

Page ___ of ___

Comments:

Sample #	Description	Date Sampled	Time Sampled	Analysis Requested	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Turnaround # of work days*	Notes
-1	BL12 Energy L3543 (1)	5/19/15	1325	X				X			5	

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☐ No

* Standard Turnaround = 10 work days

CHK BY: N | DISTRIBUTION | SUB OUT ☒

SHORT HOLDING TIME: Cr+6, NO_2, NO_3, OP, SS, DO, Cl_2, BOD, MBAS, COT

Billing ☐ Same as above
Client:
Address:
City: State Zip
Attn:
PO#:

EDF Required? Geotracker ☐ Yes ☐ No

Send Copy to State of CA? (EDT) ☐ Yes ☐ No

Global ID (Needed for EDF)

System # (Needed for EDT)

Relinquished By	Date	Time	Received By	Date	Time
1. J. Enriquez	5/19/15	~~1520~~ 1720	1. Kathie Berg	5/19/15	1720
2.			2.		
3.			3.		

BC Laboratories, Inc. – 4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.bclabs.com

15-12258

BC LABORATORIES, INC
4100 Atlas Ct. Bakersfield, Ca. 93308 Tel: (800) 878 - 4911 Website: www.bclabs.com

Aera - OIL FIELD PRODUCED WATER POND TESTING

CALIFORNIA WATER CODE DIRECTIVE PURSUANT TO SECTION 13267
CHARACTERIZATION OF WASTEWATER FOR DISCHARGE

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]

List of Analyses as per Attachment B

- A. Total Dissolved Solids
- B. Metals, CCR title 22, section 66261.24. subdivision (a)(2)(A) (antimony, arsenic, barium, beryllium, cadmium, chromium, chromium (VI), cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, zinc)
- C. benzene, toluene, ethylbenzene, xylenes
- D. Total Petroleum Hydrocarbons as Crude Oil
- E. Polynuclear Aromatic Hydrocarbons (PAH)
- F. Radionuclides (Radium226, Radium 228, Gross Alpha, Uranium)
- G. Major and Minor Cations (sodium, potassium, magnesium, calcium)
- H. Major and Minor Anions (nitrate, chloride, sulfate, carbonate, bicarbonate, bromide)
- I. Trace Elements (lithium, strontium, boron, iron, manganese)

Total Price $624

Electronic results available as an Excel spreadsheet upon request.

Field Service	
Sampling	$50 per hour
Vehicle	$0.60 per mile

[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.

4100 Atlas Ct. Bakersfield, CA 93308 (800) 878-4911 www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1512258 Page 3 of 3

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 18 09/04/14 Page 1 Of 1

Submission #: 15-12258

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Federal Express ☐ UPS ☐ Hand Delivery ☐ BC Lab Field Service ☒ Other ☐ (Specify)_____	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.95 Container: Amber Thermometer ID: 208 Date/Time 5/19/15

Temperature: (A) 1.9 1.9 °C / (C) 2.0 °C Analyst Init KIB 1708

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL	C									
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS	DEF									
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	AB	AKIB 5/19/15								
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz Amber EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M	G									
QT AMBER 8270	H									
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
Summa Canister										

Comments:

Sample Numbering Completed By: KIB Date/Time: 5/19/15 1903 [S:\WP5oc\WordPerfect\LAB_DOCS\FORMS\SAMREC]

A = Actual / C = Corrected

Aera Energy	**Reported:** 06/03/2015 17:00
10000 Ming Ave	Project: Oilfield Produced Water Pond Testing
Bakersfield, CA 93311	Project Number: [none]
	Project Manager: Rod Bowyer

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1512258-01	**COC Number:**	---	**Receive Date:**	05/19/2015 17:20
	Project Number:	---	**Sampling Date:**	05/19/2015 13:25
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BL12 Energy L3543	**Lab Matrix:**	Water
	Sampled By:	Juan Enriquez	**Sample Type:**	Wastewater

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**220**	**ug/L**	**25**	**4.2**	**EPA-8260B**	ND	**A01,Z1**	1
Ethylbenzene	**30**	**ug/L**	**25**	**4.9**	**EPA-8260B**	ND	**A01,Z1**	1
Toluene	**360**	**ug/L**	**25**	**4.6**	**EPA-8260B**	ND	**A01,Z1**	1
Total Xylenes	**540**	**ug/L**	**50**	**18**	**EPA-8260B**	ND	**A01,Z1**	1
p- & m-Xylenes	**460**	**ug/L**	**25**	**14**	**EPA-8260B**	ND	**A01,Z1**	1
o-Xylene	**79**	**ug/L**	**25**	**4.1**	**EPA-8260B**	ND	**A01,Z1**	1
1,2-Dichloroethane-d4 (Surrogate)	94.8	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	96.5	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	105	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	05/22/15	05/23/15 05:25	SE1	MS-V12	50	BYE2090

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	**7.7**	**ug/L**	**1.0**	**0.55**	**EPA-8270C-SIM**	ND	**A01**	1
Acenaphthylene	ND	ug/L	1.0	0.47	EPA-8270C-SIM	ND	A01	1
Anthracene	ND	ug/L	1.0	0.17	EPA-8270C-SIM	ND	A01	1
Benzo[a]anthracene	**0.29**	**ug/L**	**1.0**	**0.26**	**EPA-8270C-SIM**	ND	**J,A01**	1
Benzo[b]fluoranthene	ND	ug/L	1.0	0.40	EPA-8270C-SIM	ND	A01	1
Benzo[k]fluoranthene	ND	ug/L	1.0	0.51	EPA-8270C-SIM	ND	A01	1
Benzo[a]pyrene	ND	ug/L	1.0	0.26	EPA-8270C-SIM	ND	A01	1
Benzo[g,h,i]perylene	ND	ug/L	1.0	0.43	EPA-8270C-SIM	ND	A01	1
Chrysene	ND	ug/L	1.0	0.22	EPA-8270C-SIM	ND	A01	1
Dibenzo[a,h]anthracene	ND	ug/L	1.0	0.44	EPA-8270C-SIM	ND	A01	1
Fluoranthene	**1.1**	**ug/L**	**1.0**	**0.12**	**EPA-8270C-SIM**	ND	**A01**	1
Fluorene	**0.41**	**ug/L**	**1.0**	**0.30**	**EPA-8270C-SIM**	ND	**J,A01**	1
Indeno[1,2,3-cd]pyrene	ND	ug/L	1.0	0.44	EPA-8270C-SIM	ND	A01	1
Naphthalene	**8.1**	**ug/L**	**1.0**	**0.77**	**EPA-8270C-SIM**	ND	**A01**	1
Phenanthrene	**0.82**	**ug/L**	**1.0**	**0.22**	**EPA-8270C-SIM**	ND	**J,A01**	1
Pyrene	**0.67**	**ug/L**	**1.0**	**0.22**	**EPA-8270C-SIM**	ND	**J,A01**	1
Nitrobenzene-d5 (Surrogate)	115	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM		A01	1
2-Fluorobiphenyl (Surrogate)	51.4	%	50 - 120 (LCL - UCL)		EPA-8270C-SIM		A01	1
p-Terphenyl-d14 (Surrogate)	51.3	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8270C-SIM	05/22/15	05/27/15 13:15	MK1	MS-B4	10	BYE2168

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Crude Oil	**630000**	**ug/L**	**50000**	**14000**	**EPA-8015B/FFP**	ND	**A01**	1
Tetracosane (Surrogate)	0	%	37 - 134 (LCL - UCL)		EPA-8015B/FFP		A01,A17	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	05/22/15	05/27/15 14:23	MWB	GC-13	100	BYE2282

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Water Analysis (General Chemistry)

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Calcium	**220**	**mg/L**	**0.20**	**0.030**	**EPA-6010B**	0.034		1
Total Magnesium	**13**	**mg/L**	**0.10**	**0.038**	**EPA-6010B**	ND		1
Total Sodium	**700**	**mg/L**	**1.0**	**0.10**	**EPA-6010B**	0.12		1
Total Potassium	**34**	**mg/L**	**2.0**	**0.26**	**EPA-6010B**	ND		1
Bicarbonate Alkalinity as CaCO3	**930**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Carbonate Alkalinity as CaCO3	ND	mg/L	8.2	8.2	EPA-310.1	ND		2
Hydroxide Alkalinity as CaCO3	ND	mg/L	8.2	8.2	EPA-310.1	ND		2
Total Alkalinity as CaCO3	**930**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Bromide	**3.2**	**mg/L**	**1.0**	**0.35**	**EPA-300.0**	ND	**A07**	3
Chloride	**610**	**mg/L**	**5.0**	**0.61**	**EPA-300.0**	ND	**A07**	3
Nitrate as NO3	ND	mg/L	4.4	0.78	EPA-300.0	ND	A07	3
Sulfate	**5.9**	**mg/L**	**10**	**1.0**	**EPA-300.0**	ND	**J,A07**	3
Total Dissolved Solids @ 180 C	**3400**	**mg/L**	**100**	**100**	**EPA-160.1**	ND		4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-6010B	06/01/15	06/02/15 12:28	ARD	PE-OP3	2	BYF0090
2	EPA-310.1	05/20/15	05/20/15 19:54	RML	MET-1	2	BYE1852
3	EPA-300.0	05/19/15	05/20/15 03:00	OLH	IC2	10	BYE1749
4	EPA-160.1	05/22/15	05/22/15 13:30	CAD	MANUAL	10	BYE2059

era Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

BCL Sample ID: 1512258-01 | **Client Sample Name:** BL12 Energy L3543, 5/19/2015 1:25:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	TTLC Limits	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	10	3.5	EPA-7196		A07	1
Total Antimony	ND	ug/L	200	17	EPA-6010B	500000	A07	2
Total Arsenic	ND	ug/L	100	16	EPA-6010B	500000	A07	2
Total Barium	**170**	**ug/L**	**20**	**7.0**	**EPA-6010B**	10000000	**A07**	2
Total Beryllium	ND	ug/L	20	1.0	EPA-6010B	75000	A07	2
Total Boron	**2.2**	**mg/L**	**0.20**	**0.026**	**EPA-6010B**		**A07**	2
Total Cadmium	**32**	**ug/L**	**20**	**2.2**	**EPA-6010B**	100000	**A07**	2
Total Chromium	**290**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Cobalt	**62**	**ug/L**	**100**	**2.6**	**EPA-6010B**	8000000	**J,A07**	2
Total Copper	**72**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Iron	**43**	**mg/L**	**0.10**	**0.060**	**EPA-6010B**		**A07**	2
Total Lead	**23**	**ug/L**	**100**	**8.0**	**EPA-6010B**	1000000	**J,A07**	2
Total Lithium	**0.086**	**mg/L**	**0.040**	**0.012**	**EPA-6010B**		**A07**	2
tal Manganese	**1.5**	**mg/L**	**0.020**	**0.0080**	**EPA-6010B**		**A07**	2
Total Mercury	**6.7**	**ug/L**	**0.80**	**0.13**	**EPA-7470A**	20000	**A07**	3
Total Molybdenum	**86**	**ug/L**	**100**	**2.4**	**EPA-6010B**	3500000	**J,A07**	2
Total Nickel	**130**	**ug/L**	**20**	**4.0**	**EPA-6010B**	2000000	**A07**	2
Total Selenium	ND	ug/L	200	30	EPA-6010B	100000	A07	2
Total Silver	ND	ug/L	20	3.8	EPA-6010B	500000	A07	2
Total Strontium	**0.87**	**mg/L**	**0.020**	**0.0020**	**EPA-6010B**		**A07**	2
Total Thallium	ND	ug/L	200	48	EPA-6010B	700000	A07	2
Total Vanadium	**82**	**ug/L**	**20**	**4.4**	**EPA-6010B**	2400000	**A07**	2
Total Zinc	**2000**	**ug/L**	**100**	**4.6**	**EPA-6010B**	5000000	**A07**	2
Total Recoverable Uranium	**3.2**	**pCi/L**	**6.7**	**0.67**	**EPA-200.8**		**J,A07**	4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7196	05/20/15	05/20/15 07:04	TDC	KONE-1	5	BYE1781
2	EPA-6010B	05/21/15	05/21/15 14:25	ARD	PE-OP3	2	BYE1918
3	EPA-7470A	05/21/15	05/22/15 14:51	MEV	CETAC1	4	BYE1923
4	EPA-200.8	05/22/15	05/22/15 18:27	SRM	PE-EL2	10	BYE2030

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2090						
Benzene	BYE2090-BLK1	ND	ug/L	0.50	0.083	
Ethylbenzene	BYE2090-BLK1	ND	ug/L	0.50	0.098	
Toluene	BYE2090-BLK1	ND	ug/L	0.50	0.093	
Total Xylenes	BYE2090-BLK1	ND	ug/L	1.0	0.36	
p- & m-Xylenes	BYE2090-BLK1	ND	ug/L	0.50	0.28	
o-Xylene	BYE2090-BLK1	ND	ug/L	0.50	0.082	
1,2-Dichloroethane-d4 (Surrogate)	**BYE2090-BLK1**	**95.6**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**BYE2090-BLK1**	**97.3**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**BYE2090-BLK1**	**94.4**	%	**80 - 120 (LCL - UCL)**		

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2090										
Benzene	BYE2090-BS1	LCS	25.730	25.000	ug/L	103		70 - 130		
Toluene	BYE2090-BS1	LCS	24.730	25.000	ug/L	98.9		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BYE2090-BS1	LCS	9.7100	10.000	ug/L	97.1		75 - 125		
Toluene-d8 (Surrogate)	BYE2090-BS1	LCS	9.5200	10.000	ug/L	95.2		80 - 120		
4-Bromofluorobenzene (Surrogate)	BYE2090-BS1	LCS	10.280	10.000	ug/L	103		80 - 120		

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2090	Used client sample: N										
Benzene	MS	1511019-37	ND	24.680	25.000	ug/L		98.7		70 - 130	
	MSD	1511019-37	ND	26.710	25.000	ug/L	7.9	107	20	70 - 130	
Toluene	MS	1511019-37	ND	23.840	25.000	ug/L		95.4		70 - 130	
	MSD	1511019-37	ND	26.160	25.000	ug/L	9.3	105	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1511019-37	ND	9.6800	10.000	ug/L		96.8		75 - 125	
	MSD	1511019-37	ND	9.8200	10.000	ug/L	1.4	98.2		75 - 125	
Toluene-d8 (Surrogate)	MS	1511019-37	ND	9.5100	10.000	ug/L		95.1		80 - 120	
	MSD	1511019-37	ND	9.5400	10.000	ug/L	0.3	95.4		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	1511019-37	ND	9.8600	10.000	ug/L		98.6		80 - 120	
	MSD	1511019-37	ND	9.7800	10.000	ug/L	0.8	97.8		80 - 120	

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Project: Oilfield Produced Water Pond Testing
Project Number: [none]
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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2168						
Acenaphthene	BYE2168-BLK1	ND	ug/L	0.10	0.055	
Acenaphthylene	BYE2168-BLK1	ND	ug/L	0.10	0.047	
Anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.017	
Benzo[a]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[b]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.040	
Benzo[k]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.051	
Benzo[a]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[g,h,i]perylene	BYE2168-BLK1	ND	ug/L	0.10	0.043	
Chrysene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Dibenzo[a,h]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.012	
Fluorene	BYE2168-BLK1	ND	ug/L	0.10	0.030	
eno[1,2,3-cd]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
aphthalene	BYE2168-BLK1	ND	ug/L	0.10	0.077	
Phenanthrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Nitrobenzene-d5 (Surrogate)	**BYE2168-BLK1**	**91.8**	%	**40 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**BYE2168-BLK1**	**93.1**	%	**50 - 120 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**BYE2168-BLK1**	**126**	%	**40 - 130 (LCL - UCL)**		

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2168										
Acenaphthene	BYE2168-BS1	LCS	1.0861	1.0000	ug/L	109		60 - 110		
Acenaphthylene	BYE2168-BS1	LCS	1.2020	1.0000	ug/L	120		60 - 120		
Anthracene	BYE2168-BS1	LCS	1.2952	1.0000	ug/L	130		60 - 130		
Benzo[a]anthracene	BYE2168-BS1	LCS	1.1582	1.0000	ug/L	116		60 - 130		
Benzo[b]fluoranthene	BYE2168-BS1	LCS	1.0318	1.0000	ug/L	103		50 - 130		
Benzo[k]fluoranthene	BYE2168-BS1	LCS	1.1474	1.0000	ug/L	115		60 - 120		
Benzo[a]pyrene	BYE2168-BS1	LCS	1.1756	1.0000	ug/L	118		60 - 120		
Benzo[g,h,i]perylene	BYE2168-BS1	LCS	0.92832	1.0000	ug/L	92.8		40 - 120		
Chrysene	BYE2168-BS1	LCS	1.0666	1.0000	ug/L	107		60 - 110		
Dibenzo[a,h]anthracene	BYE2168-BS1	LCS	0.66352	1.0000	ug/L	66.4		40 - 120		
Fluoranthene	BYE2168-BS1	LCS	0.96748	1.0000	ug/L	96.7		60 - 120		
Fluorene	BYE2168-BS1	LCS	1.1357	1.0000	ug/L	114		60 - 120		
Indeno[1,2,3-cd]pyrene	BYE2168-BS1	LCS	1.1326	1.0000	ug/L	113		40 - 130		
Naphthalene	BYE2168-BS1	LCS	0.99890	1.0000	ug/L	99.9		60 - 110		
Phenanthrene	BYE2168-BS1	LCS	1.0604	1.0000	ug/L	106		60 - 120		
Pyrene	BYE2168-BS1	LCS	1.6547	1.0000	ug/L	165		50 - 125		L01
Nitrobenzene-d5 (Surrogate)	BYE2168-BS1	LCS	3.8161	4.0000	ug/L	95.4		40 - 130		
2-Fluorobiphenyl (Surrogate)	BYE2168-BS1	LCS	4.0934	4.0000	ug/L	102		50 - 120		
p-Terphenyl-d14 (Surrogate)	BYE2168-BS1	LCS	4.9744	4.0000	ug/L	124		40 - 130		

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2168	Used client sample: N										
Acenaphthene	MS	**1511019-28**	**ND**	**1.1763**	**1.0000**	**ug/L**		**118**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0913**	**1.0000**	**ug/L**	**7.5**	**109**	**30**	**60 - 110**	
Acenaphthylene	MS	**1511019-28**	**ND**	**1.3083**	**1.0000**	**ug/L**		**131**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1879**	**1.0000**	**ug/L**	**9.7**	**119**	**30**	**60 - 120**	
Anthracene	MS	**1511019-28**	**ND**	**1.4025**	**1.0000**	**ug/L**		**140**		**60 - 130**	**Q03**
	MSD	**1511019-28**	**ND**	**1.3073**	**1.0000**	**ug/L**	**7.0**	**131**	**30**	**60 - 130**	**Q03**
Benzo[a]anthracene	MS	**1511019-28**	**ND**	**1.2480**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1594**	**1.0000**	**ug/L**	**7.4**	**116**	**30**	**60 - 120**	
Benzo[b]fluoranthene	MS	1511019-28	ND	1.1310	1.0000	ug/L		113		50 - 130	
	MSD	1511019-28	ND	1.0752	1.0000	ug/L	5.1	108	30	50 - 130	
Benzo[k]fluoranthene	MS	**1511019-28**	**ND**	**1.2472**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1434**	**1.0000**	**ug/L**	**8.7**	**114**	**30**	**60 - 120**	
Benzo[a]pyrene	MS	**1511019-28**	**ND**	**1.2360**	**1.0000**	**ug/L**		**124**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0911**	**1.0000**	**ug/L**	**12.5**	**109**	**30**	**60 - 120**	
Benzo[g,h,i]perylene	MS	1511019-28	ND	1.0647	1.0000	ug/L		106		40 - 120	
	MSD	1511019-28	ND	0.97751	1.0000	ug/L	8.5	97.8	30	40 - 120	
Chrysene	MS	**1511019-28**	**ND**	**1.2087**	**1.0000**	**ug/L**		**121**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1388**	**1.0000**	**ug/L**	**6.0**	**114**	**30**	**60 - 110**	**Q03**
Dibenzo[a,h]anthracene	MS	1511019-28	ND	0.78144	1.0000	ug/L		78.1		40 - 120	
	MSD	1511019-28	ND	0.69146	1.0000	ug/L	12.2	69.1	30	40 - 120	
Fluoranthene	MS	1511019-28	ND	1.0666	1.0000	ug/L		107		60 - 120	
	MSD	1511019-28	ND	1.0141	1.0000	ug/L	5.0	101	30	60 - 120	
Fluorene	MS	**1511019-28**	**ND**	**1.2329**	**1.0000**	**ug/L**		**123**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1270**	**1.0000**	**ug/L**	**9.0**	**113**	**30**	**60 - 120**	
Indeno[1,2,3-cd]pyrene	MS	1511019-28	ND	1.2781	1.0000	ug/L		128		40 - 130	
	MSD	1511019-28	ND	1.0352	1.0000	ug/L	21.0	104	30	40 - 130	
Naphthalene	MS	1511019-28	ND	1.0556	1.0000	ug/L		106		60 - 110	
	MSD	1511019-28	ND	0.99619	1.0000	ug/L	5.8	99.6	30	60 - 110	
Phenanthrene	MS	1511019-28	ND	1.1471	1.0000	ug/L		115		60 - 120	
	MSD	1511019-28	ND	1.0638	1.0000	ug/L	7.5	106	30	60 - 120	
Pyrene	MS	**1511019-28**	**ND**	**1.7749**	**1.0000**	**ug/L**		**177**		**50 - 125**	**Q03**
	MSD	**1511019-28**	**ND**	**1.6037**	**1.0000**	**ug/L**	**10.1**	**160**	**30**	**50 - 125**	**Q03**
Nitrobenzene-d5 (Surrogate)	MS	1511019-28	ND	4.0540	4.0000	ug/L		101		40 - 130	
	MSD	1511019-28	ND	3.7488	4.0000	ug/L	7.8	93.7		40 - 130	
2-Fluorobiphenyl (Surrogate)	MS	1511019-28	ND	4.3117	4.0000	ug/L		108		50 - 120	
	MSD	1511019-28	ND	3.9075	4.0000	ug/L	9.8	97.7		50 - 120	

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2168	Used client sample: N										
p-Terphenyl-d14 (Surrogate)	MS	1511019-28	ND	5.3878	4.0000	ug/L		135		40 - 130	S09
	MSD	1511019-28	ND	4.9525	4.0000	ug/L	8.4	124		40 - 130	

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Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2282						
TPH - Diesel (FFP)	BYE2282-BLK1	ND	ug/L	200	34	
TPH - Crude Oil	BYE2282-BLK1	ND	ug/L	500	140	
Tetracosane (Surrogate)	**BYE2282-BLK1**	**91.6**	%	**37 - 134 (LCL - UCL)**		

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Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2282										
TPH - Diesel (FFP)	BYE2282-BS1	LCS	2127.6	2500.0	ug/L	85.1		52 - 128		
Tetracosane (Surrogate)	BYE2282-BS1	LCS	97.390	100.00	ug/L	97.4		37 - 134		

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Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2282	Used client sample: N										
TPH - Diesel (FFP)	MS	1511019-59	ND	1902.7	2500.0	ug/L		76.1		50 - 127	
	MSD	1511019-59	ND	2030.1	2500.0	ug/L	6.5	81.2	24	50 - 127	
Tetracosane (Surrogate)	MS	1511019-59	ND	89.695	100.00	ug/L		89.7		37 - 134	
	MSD	1511019-59	ND	91.645	100.00	ug/L	2.2	91.6		37 - 134	

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Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE1749						
Bromide	BYE1749-BLK1	ND	mg/L	0.10	0.035	
Chloride	BYE1749-BLK1	ND	mg/L	0.50	0.061	
Nitrate as NO3	BYE1749-BLK1	ND	mg/L	0.44	0.078	
Sulfate	BYE1749-BLK1	ND	mg/L	1.0	0.10	
QC Batch ID: BYE1852						
Bicarbonate Alkalinity as CaCO3	BYE1852-BLK1	ND	mg/L	4.1	4.1	
Carbonate Alkalinity as CaCO3	BYE1852-BLK1	ND	mg/L	4.1	4.1	
Hydroxide Alkalinity as CaCO3	BYE1852-BLK1	ND	mg/L	4.1	4.1	
Total Alkalinity as CaCO3	BYE1852-BLK1	ND	mg/L	4.1	4.1	
QC Batch ID: BYE2059						
Total Dissolved Solids @ 180 C	BYE2059-BLK1	ND	mg/L	6.7	6.7	
QC Batch ID: BYF0090						
Total Calcium	**BYF0090-BLK1**	**0.017248**	**mg/L**	**0.10**	**0.015**	**J**
Total Magnesium	BYF0090-BLK1	ND	mg/L	0.050	0.019	
Total Sodium	**BYF0090-BLK1**	**0.061666**	**mg/L**	**0.50**	**0.051**	**J**
Total Potassium	BYF0090-BLK1	ND	mg/L	1.0	0.13	

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE1749										
Bromide	BYE1749-BS1	LCS	2.1550	2.0000	mg/L	108		90 - 110		
Chloride	BYE1749-BS1	LCS	51.338	50.000	mg/L	103		90 - 110		
Nitrate as NO3	BYE1749-BS1	LCS	22.935	22.134	mg/L	104		90 - 110		
Sulfate	BYE1749-BS1	LCS	100.04	100.00	mg/L	100		90 - 110		
QC Batch ID: BYE1852										
Total Alkalinity as CaCO3	BYE1852-BS3	LCS	98.580	100.00	mg/L	98.6		90 - 110		
QC Batch ID: BYE2059										
Total Dissolved Solids @ 180 C	BYE2059-BS1	LCS	590.00	586.00	mg/L	101		90 - 110		
QC Batch ID: BYF0090										
Total Calcium	BYF0090-BS1	LCS	10.436	10.000	mg/L	104		85 - 115		
Total Magnesium	BYF0090-BS1	LCS	10.754	10.000	mg/L	108		85 - 115		
al Sodium	BYF0090-BS1	LCS	10.575	10.000	mg/L	106		85 - 115		
Total Potassium	BYF0090-BS1	LCS	10.430	10.000	mg/L	104		85 - 115		

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE1749	Used client sample: N										
Bromide	DUP	**1512245-01**	**0.48300**	**0.55500**		**mg/L**	**13.9**		**10**		**A02**
	MS	**1512245-01**	**0.48300**	**3.4737**	**2.0202**	**mg/L**		**148**		**80 - 120**	**Q03**
	MSD	**1512245-01**	**0.48300**	**3.5556**	**2.0202**	**mg/L**	**2.3**	**152**	**10**	**80 - 120**	**Q03**
Chloride	DUP	1512245-01	113.78	113.44		mg/L	0.3		10		
	MS	1512245-01	113.78	167.12	50.505	mg/L		106		80 - 120	
	MSD	1512245-01	113.78	167.21	50.505	mg/L	0.1	106	10	80 - 120	
Nitrate as NO3	DUP	1512245-01	ND	ND		mg/L			10		
	MS	1512245-01	ND	23.645	22.358	mg/L		106		80 - 120	
	MSD	1512245-01	ND	23.940	22.358	mg/L	1.2	107	10	80 - 120	
Sulfate	DUP	1512245-01	2.6560	2.7300		mg/L	2.7		10		
	MS	1512245-01	2.6560	103.67	101.01	mg/L		100		80 - 120	
	MSD	1512245-01	2.6560	103.95	101.01	mg/L	0.3	100	10	80 - 120	
QC Batch ID: BYE1852	Used client sample: N										
Bicarbonate Alkalinity as CaCO3	DUP	1512262-01	487.74	481.04		mg/L	1.4		10		
Carbonate Alkalinity as CaCO3	DUP	1512262-01	ND	ND		mg/L			10		
Hydroxide Alkalinity as CaCO3	DUP	1512262-01	ND	ND		mg/L			10		
Total Alkalinity as CaCO3	DUP	1512262-01	487.74	481.04		mg/L	1.4		10		
QC Batch ID: BYE2059	Used client sample: N										
Total Dissolved Solids @ 180 C	DUP	1512234-02	7250.0	7300.0		mg/L	0.7		10		
QC Batch ID: BYF0090	Used client sample: N										
Total Calcium	DUP	**I512400-01RE1**	**22.672**	**22.768**		**mg/L**	**0.4**		**20**		
	MS	**I512400-01RE1**	**22.672**	**35.375**	**10.000**	**mg/L**		**127**		**75 - 125**	**Q03**
	MSD	**I512400-01RE1**	**22.672**	**34.685**	**10.000**	**mg/L**	**2.0**	**120**	**20**	**75 - 125**	
Total Magnesium	DUP	512400-01RE'	3.2185	3.1284		mg/L	2.8		20		
	MS	512400-01RE'	3.2185	13.647	10.000	mg/L		104		75 - 125	
	MSD	512400-01RE'	3.2185	13.827	10.000	mg/L	1.3	106	20	75 - 125	
Total Sodium	DUP	**I512400-01RE1**	**429.10**	**420.52**		**mg/L**	**2.0**		**20**		
	MS	**I512400-01RE1**	**429.10**	**472.49**	**10.000**	**mg/L**		**434**		**75 - 125**	**A03**
	MSD	**I512400-01RE1**	**429.10**	**469.57**	**10.000**	**mg/L**	**0.6**	**405**	**20**	**75 - 125**	**A03**
Total Potassium	DUP	512400-01RE'	3.2781	3.4690		mg/L	5.7		20		
	MS	512400-01RE'	3.2781	14.333	10.000	mg/L		111		75 - 125	
	MSD	512400-01RE'	3.2781	14.379	10.000	mg/L	0.3	111	20	75 - 125	

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Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE1781						
Hexavalent Chromium	BYE1781-BLK1	ND	ug/L	2.0	0.70	
QC Batch ID: BYE1918						
Total Antimony	BYE1918-BLK1	ND	ug/L	100	8.5	
Total Arsenic	BYE1918-BLK1	ND	ug/L	50	7.8	
Total Barium	BYE1918-BLK1	ND	ug/L	10	3.5	
Total Beryllium	BYE1918-BLK1	ND	ug/L	10	0.50	
Total Boron	**BYE1918-BLK1**	**0.051217**	**mg/L**	**0.10**	**0.013**	**J**
Total Cadmium	BYE1918-BLK1	ND	ug/L	10	1.1	
Total Chromium	BYE1918-BLK1	ND	ug/L	10	1.1	
Total Cobalt	BYE1918-BLK1	ND	ug/L	50	1.3	
Total Copper	BYE1918-BLK1	ND	ug/L	10	1.1	
Total Iron	BYE1918-BLK1	ND	mg/L	0.050	0.030	
al Lead	BYE1918-BLK1	ND	ug/L	50	4.0	
Total Lithium	BYE1918-BLK1	ND	mg/L	0.020	0.0062	
Total Manganese	BYE1918-BLK1	ND	mg/L	0.010	0.0040	
Total Molybdenum	BYE1918-BLK1	ND	ug/L	50	1.2	
Total Nickel	BYE1918-BLK1	ND	ug/L	10	2.0	
Total Selenium	BYE1918-BLK1	ND	ug/L	100	15	
Total Silver	BYE1918-BLK1	ND	ug/L	10	1.9	
Total Strontium	BYE1918-BLK1	ND	mg/L	0.010	0.0010	
Total Thallium	BYE1918-BLK1	ND	ug/L	100	24	
Total Vanadium	BYE1918-BLK1	ND	ug/L	10	2.2	
Total Zinc	**BYE1918-BLK1**	**4.4850**	**ug/L**	**50**	**2.3**	**J**
QC Batch ID: BYE1923						
Total Mercury	BYE1923-BLK1	ND	ug/L	0.20	0.033	
QC Batch ID: BYE2030						
Total Recoverable Uranium	BYE2030-BLK1	ND	pCi/L	0.67	0.067	

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE1781										
Hexavalent Chromium	BYE1781-BS1	LCS	50.695	50.000	ug/L	101		85 - 115		
QC Batch ID: BYE1918										
Total Antimony	BYE1918-BS1	LCS	398.94	400.00	ug/L	99.7		85 - 115		
Total Arsenic	BYE1918-BS1	LCS	190.73	200.00	ug/L	95.4		85 - 115		
Total Barium	BYE1918-BS1	LCS	432.17	400.00	ug/L	108		85 - 115		
Total Beryllium	BYE1918-BS1	LCS	200.13	200.00	ug/L	100		85 - 115		
Total Boron	BYE1918-BS1	LCS	1.0948	1.0000	mg/L	109		85 - 115		
Total Cadmium	BYE1918-BS1	LCS	202.66	200.00	ug/L	101		85 - 115		
Total Chromium	BYE1918-BS1	LCS	204.27	200.00	ug/L	102		85 - 115		
Total Cobalt	BYE1918-BS1	LCS	197.92	200.00	ug/L	99.0		85 - 115		
Total Copper	BYE1918-BS1	LCS	385.36	400.00	ug/L	96.3		85 - 115		
Total Iron	BYE1918-BS1	LCS	1.0886	1.0000	mg/L	109		85 - 115		
Total Lead	BYE1918-BS1	LCS	404.04	400.00	ug/L	101		85 - 115		
Total Lithium	BYE1918-BS1	LCS	0.20879	0.20000	mg/L	104		85 - 115		
Total Manganese	BYE1918-BS1	LCS	0.50367	0.50000	mg/L	101		85 - 115		
Total Molybdenum	BYE1918-BS1	LCS	204.87	200.00	ug/L	102		85 - 115		
Total Nickel	BYE1918-BS1	LCS	411.46	400.00	ug/L	103		85 - 115		
Total Selenium	BYE1918-BS1	LCS	193.02	200.00	ug/L	96.5		85 - 115		
Total Silver	BYE1918-BS1	LCS	98.536	100.00	ug/L	98.5		85 - 115		
Total Strontium	BYE1918-BS1	LCS	0.51872	0.50000	mg/L	104		85 - 115		
Total Thallium	BYE1918-BS1	LCS	431.72	400.00	ug/L	108		85 - 115		
Total Vanadium	BYE1918-BS1	LCS	206.94	200.00	ug/L	103		85 - 115		
Total Zinc	BYE1918-BS1	LCS	502.74	500.00	ug/L	101		85 - 115		
QC Batch ID: BYE1923										
Total Mercury	BYE1923-BS1	LCS	0.99750	1.0000	ug/L	99.8		85 - 115		
QC Batch ID: BYE2030										
Total Recoverable Uranium	BYE2030-BS1	LCS	24.024	26.800	pCi/L	89.6		85 - 115		

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE1781	Used client sample: Y - Description: Well #7310F-2, API #04030-52549, 05/19/2015 08:33										
Hexavalent Chromium	DUP	**1512255-01**	**ND**	**ND**		**ug/L**			**10**		
	MS	**1512255-01**	**ND**	**183.86**	**263.16**	**ug/L**		**69.9**		**85 - 115**	**Q03**
	MSD	**1512255-01**	**ND**	**185.81**	**263.16**	**ug/L**	**1.1**	**70.6**	**10**	**85 - 115**	**Q03**
QC Batch ID: BYE1918	Used client sample: N										
Total Antimony	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	411.94	400.00	ug/L		103		75 - 125	
	MSD	1512260-28	ND	428.75	400.00	ug/L	4.0	107	20	75 - 125	
Total Arsenic	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	202.74	200.00	ug/L		101		75 - 125	
	MSD	1512260-28	ND	211.04	200.00	ug/L	4.0	106	20	75 - 125	
Total Barium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	453.29	400.00	ug/L		113		75 - 125	
	MSD	1512260-28	ND	451.23	400.00	ug/L	0.5	113	20	75 - 125	
al Beryllium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	208.23	200.00	ug/L		104		75 - 125	
	MSD	1512260-28	ND	215.32	200.00	ug/L	3.3	108	20	75 - 125	
Total Boron	DUP	**1512260-28**	**0.055543**	**0.042400**		**mg/L**	**26.8**		**20**		**J,A02**
	MS	**1512260-28**	**0.055543**	**1.1062**	**1.0000**	**mg/L**		**105**		**75 - 125**	
	MSD	**1512260-28**	**0.055543**	**1.1533**	**1.0000**	**mg/L**	**4.2**	**110**	**20**	**75 - 125**	
Total Cadmium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	211.69	200.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	224.13	200.00	ug/L	5.7	112	20	75 - 125	
Total Chromium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	211.44	200.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	220.02	200.00	ug/L	4.0	110	20	75 - 125	
Total Cobalt	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	206.78	200.00	ug/L		103		75 - 125	
	MSD	1512260-28	ND	218.05	200.00	ug/L	5.3	109	20	75 - 125	
Total Copper	DUP	1512260-28	2.2946	2.0769		ug/L	10.0		20		J
	MS	1512260-28	2.2946	401.24	400.00	ug/L		99.7		75 - 125	
	MSD	1512260-28	2.2946	418.56	400.00	ug/L	4.2	104	20	75 - 125	
Total Iron	DUP	1512260-28	0.047723	0.050511		mg/L	5.7		20		
	MS	1512260-28	0.047723	1.1917	1.0000	mg/L		114		75 - 125	
	MSD	1512260-28	0.047723	1.1837	1.0000	mg/L	0.7	114	20	75 - 125	
Total Lead	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	422.26	400.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	446.35	400.00	ug/L	5.5	112	20	75 - 125	

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE1918	Used client sample: N										
Total Lithium	DUP	1512260-28	ND	ND		mg/L			20		
	MS	1512260-28	ND	0.22063	0.20000	mg/L		110		75 - 125	
	MSD	1512260-28	ND	0.22824	0.20000	mg/L	3.4	114	20	75 - 125	
Total Manganese	DUP	1512260-28	ND	ND		mg/L			20		
	MS	1512260-28	ND	0.52541	0.50000	mg/L		105		75 - 125	
	MSD	1512260-28	ND	0.54478	0.50000	mg/L	3.6	109	20	75 - 125	
Total Molybdenum	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	215.96	200.00	ug/L		108		75 - 125	
	MSD	1512260-28	ND	229.18	200.00	ug/L	5.9	115	20	75 - 125	
Total Nickel	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	425.99	400.00	ug/L		106		75 - 125	
	MSD	1512260-28	ND	442.73	400.00	ug/L	3.9	111	20	75 - 125	
Total Selenium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	202.26	200.00	ug/L		101		75 - 125	
	MSD	1512260-28	ND	222.53	200.00	ug/L	9.5	111	20	75 - 125	
Total Silver	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	102.67	100.00	ug/L		103		75 - 125	
	MSD	1512260-28	ND	104.56	100.00	ug/L	1.8	105	20	75 - 125	
Total Strontium	DUP	1512260-28	ND	ND		mg/L			20		
	MS	1512260-28	ND	0.54376	0.50000	mg/L		109		75 - 125	
	MSD	1512260-28	ND	0.55301	0.50000	mg/L	1.7	111	20	75 - 125	
Total Thallium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	441.16	400.00	ug/L		110		75 - 125	
	MSD	1512260-28	ND	473.95	400.00	ug/L	7.2	118	20	75 - 125	
Total Vanadium	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	214.79	200.00	ug/L		107		75 - 125	
	MSD	1512260-28	ND	222.51	200.00	ug/L	3.5	111	20	75 - 125	
Total Zinc	DUP	1512260-28	4.8990	4.6892		ug/L	4.4		20		J
	MS	1512260-28	4.8990	528.59	500.00	ug/L		105		75 - 125	
	MSD	1512260-28	4.8990	533.42	500.00	ug/L	0.9	106	20	75 - 125	
QC Batch ID: BYE1923	Used client sample: N										
Total Mercury	DUP	1512260-28	ND	ND		ug/L			20		
	MS	1512260-28	ND	0.99750	1.0000	ug/L		99.8		70 - 130	
	MSD	1512260-28	ND	1.0000	1.0000	ug/L	0.3	100	20	70 - 130	
QC Batch ID: BYE2030	Used client sample: N										
Total Recoverable Uranium	DUP	1512029-01	ND	0.067000		pCi/L			20		J
	MS	1512029-01	ND	26.103	26.800	pCi/L		97.4		70 - 130	
	MSD	1512029-01	ND	26.068	26.800	pCi/L	0.1	97.3	20	70 - 130	

BSK Associates Engineers & Laboratories

BSK Associates Fresno
1414 Stanislaus St
Fresno, CA93706
559-497-2888 (Main)
559-485-6935 (FAX)

A5E1777
5/27/2015
Invoice: A510756

Kerrie Vaughan
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for A5E1777 General: Project Manager-Kerrie Vaughan

Dear Kerrie Vaughan,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 5/20/2015. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Stephane Maupas , at (800) 877-8310 or (559) 497-2888 x212.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Stephane Maupas, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

BSK Associates Engineers & Laboratories

A5E1777

General: Project Manager-Kerrie Vaughan

Case Narrative

Project and Report Details		Invoice Details	
Client:	BC Laboratories	Invoice To:	BC Laboratories
Report To:	Kerrie Vaughan	Invoice Attn:	Kerrie Vaughan
Project #:	1512258	Project PO#:	-
Received:	5/20/2015 - 15:41		
Report Due:	5/27/2015		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 4.1

Containers Intact
COC/Labels Agree
Received On Wet Ice
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

MS1.0 Matrix spike recoveries exceed control limits.

Report Distribution

Recipient(s)	Report Format	CC:
Kerrie Vaughan	FINAL.RPT	

A5E1777 FINAL 05272015 1410
Printed: 05/27/2015
QA-RP-0001-10 Final.rpt

www.BSKAssociates.com

Page 2 of 8

BSK Associates Engineers & Laboratories

A5E1777

General: Project Manager-Kerrie Vaughan

1512258

Certificate of Analysis

Sample ID: A5E1777-01
Sampled By: Client
Sample Description: 1512258-01

Sample Date - Time: 05/19/15 - 13:25
Matrix: Water
Sample Type: Grab

BSK Associates Fresno

Radiological

Analyte	Method	Result	Units	Batch	Prepared	Analyzed	Qual
Gross Alpha	EPA 00-02	ND	pCi/L	A5E0009	05/22/15	05/26/15	
1.65 Sigma Uncertainty		0.110	±				
MDA95		536	pCi/L				

A5E1777 FINAL 05272015 1410
Printed: 05/27/2015
QA-RP-0001-10 Final.rpt

BSK Associates Engineers & Laboratories

A5E1777

General: Project Manager-Kerrie Vaughan

BSK Associates Fresno

Radiological Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 00-02 - Quality Control											
Batch: A505699										Prepared: 05/22/2015	
Prep Method: EPA 00-02										Analyst: SAB	
Blank (A505699-BLK1)											
1.65 Sigma Uncertainty	ND		±							05/26/15	
Gross Alpha	ND	3	pCi/L							05/26/15	
MDA95	ND	0.00	pCi/L							05/26/15	
Blank Spike (A505699-BS1)											
Gross Alpha	27.8	3	pCi/L	30		92	80-120			05/26/15	
Blank Spike Dup (A505699-BSD1)											
Gross Alpha	29.1	3	pCi/L	30		97	80-120	5	50	05/26/15	
Matrix Spike (A505699-MS1), Source: A5E1255-01											
Gross Alpha	83.8	3	pCi/L	120	ND	69	70-130			05/26/15	MS1.0 Low
Matrix Spike (A505699-MS2), Source: A5E1300-01											
Gross Alpha	100	3	pCi/L	120	ND	81	70-130			05/26/15	
Matrix Spike Dup (A505699-MSD1), Source: A5E1255-01											
Gross Alpha	89.9	3	pCi/L	120	ND	74	70-130	7	50	05/26/15	
Matrix Spike Dup (A505699-MSD2), Source: A5E1300-01											
Gross Alpha	82.8	3	pCi/L	120	ND	67	70-130	19	50	05/26/15	MS1.0 Low

BSK Associates Engineers & Laboratories

A5E1777

General: Project Manager-Kerrie Vaughan

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAC program for the following parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792015-1	State of Oregon - NELAC	4021
EPA - UCMR3	CA00079	State of Washington	C997-15

Sacramento

State of California - ELAP	2435

Vancouver

State of Oregon - NELAC	WA100008	State of Washington	C824-14a

A5E1777

05202015

BCLab4911

Turnaround: Standard
Due Date: 5/27/2015

BC Laboratories

Printed: 5/20/1

A5E1777 05/20/2015
BCLab4911 4

4.1

SUBCONTRACT ORDER
BC Laboratories
1512258

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Kerrie Vaughan

RECEIVING LABORATORY:

BSK Analytical Labs $BSKSA
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1512258-01	**Water**	**Sampled:05/19/15 13:25**	[redacted]	
om900.0w Gross Alpha BSKSA	05/27/15 17:00	11/16/15 13:25		Results needed by 5/27/2015.
Containers Supplied:				

Released By Megan Bayer 5/20/15 Date — Received By — Date 5-20-15

Released By — Date 5-20-15 — Received By John Hew 5/20/15 15:40 Date

Page 7 of 8

BSK Associates SR-FL-0002-13

A5E1777 05/20/2015
BCLab4911 4

Sample Integrity

BSK Bottles: Yes (No) Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 10°C	(Yes) No NA	Were correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received?	(Yes) No
Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Was PM notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received "-" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?						
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—						
Cr6 (P) Br. Green Label NH4OH(NH4)2SO4 DW	Cl, pH ~ 8	Y N						
Cr6 (P) Pink Label Hex Chrome Buffer DW	pH 9-9.5	Y N						
Cr6 (P) Pink Label Hex Chrome Buffer WW	pH 9.3-9.7	Y N						
HNO_3 (P) Red Cap	—	—	1C					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N						
NaOH (P) Green Cap	Cl, pH >10	Y N						
NaOH + ZnAc (P)	pH > 9	Y N			JH			
Dissolved Oxygen 300ml (g)	—	—			5/20/15			
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—						
HCl (AG) Lt. Blue Label O&G, Diesel	—	—						
Na_2O_3S+HCl (AG) Lt. Pink Label 525	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 547,515,548,THM,524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
None (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Other:								
Asbestos 1Liter Plastic w/ Foil	—	—						
Low Level Hg / Metals Double Baggie	—	—						
Bottled Water	—	—						
Clear Glass Jar: 250 / 500 / 1 Liter	—	—						
Soil Tube Brass / Steel / Plastic	—	—						
Tedlar Bag / Plastic Bag	—	—						

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: JHD @ 17:04 Labels checked by: NR @ 1707 RUSH Paged by: @

Page 8 of 8

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

June 03, 2015

Ms. Kerrie Vaughan
BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308

RE: Project: 1512258
Pace Project No.: 30148652

Dear Ms. Vaughan:
Enclosed are the analytical results for sample(s) received by the laboratory on May 21, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 1512258
Pace Project No.: 30148652

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 1512258
Pace Project No.: 30148652

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30148652001	1512258-01	Water	05/19/15 13:25	05/21/15 10:00

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 1512258
Pace Project No.: 30148652

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30148652001	1512258-01	EPA 903.1	JC2	1
		EPA 904.0	JLW	1

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 1512258
Pace Project No.: 30148652

Method: EPA 903.1
Description: 903.1 Radium 226
Client: BC Laboratories
Date: June 03, 2015

General Information:
1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 1512258
Pace Project No.: 30148652

Method: EPA 904.0
Description: 904.0 Radium 228
Client: BC Laboratories
Date: June 03, 2015

General Information:
1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1512258
Pace Project No.: 30148652

Sample: 1512258-01 Lab ID: 30148652001 Collected: 05/19/15 13:25 Received: 05/21/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments:
- Sample collection dates and times were not present on the sample containers.
- Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.
- Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-2.855 ± 7.23 (13.4) C:NA T:79%**	pCi/L	06/01/15 12:12	13982-63-3	
Radium-228	EPA 904.0	**1.60 ± 6.09 (13.8) C:86% T:58%**	pCi/L	06/01/15 16:58	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1512258
Pace Project No.: 30148652

QC Batch: RADC/24590 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30148652001

METHOD BLANK: 898955 Matrix: Water
Associated Lab Samples: 30148652001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.167 ± 0.464 (0.900) C:NA T:90%	pCi/L	06/01/15 11:42	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1512258
Pace Project No.: 30148652

QC Batch: RADC/24592 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30148652001

METHOD BLANK: 898957 Matrix: Water
Associated Lab Samples: 30148652001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.000 ± 0.379 (0.842) C:85% T:85%	pCi/L	06/01/15 17:02	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 1512258
Pace Project No.: 30148652

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Act - Activity
Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval), Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)
(MDC) - Minimum Detectable Concentration
Trac - Tracer Recovery (%)
Carr - Carrier Recovery (%)
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

SUBCONTRACT ORDER

BC Laboratories

1512258

RUSH!

30148652

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Kerrie Vaughan

RECEIVING LABORATORY:

PACE Analytical $PACEA
1638 Roseytown Road, Ste 2,3 &4
Greensburg, PA 15601
Phone :(724) 850-5600
Fax: (724) 850-5601

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1512258-01	**Water**	**Sampled:05/19/15 13:25**		001
om904.0w Radium228 PACEA	05/27/15 17:00	11/16/15 13:25		Results needed by 5/27/2015.
om903.1w Radium226 PACEA	05/27/15 17:00	11/16/15 13:25		Results needed by 5/27/2015.
Containers Supplied:				

Meagen Bayles 5/22/15 — Alma R. Muchmey | PACE 5/21/15 0900 1000
Released By Date Received By Date

Released By Date Received By Date
AM 5/21/15

Page 2 of 2

Sample Condition Upon Receipt

Pace Analytical

Client Name: BC LABS Project #30148652

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 1Z9105370301618581

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ✓ Bubble Bags ___ None ___ Other _____

Thermometer Used N/A Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: N/A °C Correction Factor: N/A °C Final Temp: N/A °C

Date and initials of person examining contents: ARM 5/21/15

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A
Sampler Name & Signature on COC:	☐Yes	☑No	☐N/A
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A
Rush Turn Around Time Requested:	☑Yes	☐No	☐N/A
Sufficient Volume:	☑Yes	☐No	☐N/A
Correct Containers Used:	☑Yes	☐No	☐N/A
-Pace Containers Used:	☐Yes	☑No	☐N/A
Containers Intact:	☑Yes	☐No	☐N/A
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A
Sample Labels match COC:	☐Yes	☑No	☐N/A
-Includes date/time/ID/Analysis Matrix: WT			
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A
All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes	☑No	
Samples checked for dechlorination:	☐Yes	☐No	☑N/A
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A
Trip Blank Present:	☐Yes	☐No	☑N/A
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A
Pace Trip Blank Lot # (if purchased):			

1.
2.
3.
4.
5.
6.
7.
8. Low volume
9.
10.
11.
12. No time/date on sample bottles
13. added 3mL HNO3 to each sample bottle. pH<2. ARM. 5/21/15 1100

Initial when completed: ARM Lot # of added preservative: DL15-0433

14.
15.
16.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Carrie Sears Date: 5/21/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

J:\QAQC\Master\Document Management\Sample Mgt\SCURF\FALLC003-09 SCUR Front 3March2015 Page 12 of 13

Pace Analytical

Item No.	001
Matrix Code	WT
Glass Jar (120 / 250 / 500 / 1L)	
Soil kit (2 SB, 1M, soil jar)	
Chemistry (250 / 500 / 1L)	
Organics (1L)	
Nutrient (250 / 500)	
Phenolics (250 ml)	
TOC (40 ml / 250 ml)	
TOX (250 ml)	
Total Metals	
Dissolved Metals preserved Y N	
O & G (1L)	
TPH (1L)	
VOA (40 ml 30 ml)	
Cyanide (250 ml)	
Sulfide (500 ml)	
Bacteria (120 ml)	
Wipes / swipe/ smear/ filter	
Radchem Nalgene (125 / 250 / 500 / 1L)	1-1L 1-500
Radchem Nalgene (1/2 gal. / 1 gal.L)	
Cubitainer (500 ml / 4L)	
Ziploc	
Other	
Other	

SCURF Back (C016-4 15May2012).xls

page 2

Project Number: 30148652

Client Name: BC Labs

Page 13 of 13

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/03/2015 17:00
Project: Oilfield Produced Water Pond Testing
Project Number: [none]
Project Manager: Rod Bowyer

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A01	Detection and quantitation limits are raised due to sample dilution.
A02	The difference between duplicate readings is less than the quantitation limit.
A03	The sample concentration is more than 4 times the spike level.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
A17	Surrogate not reportable due to sample dilution.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
Z1	50 ul of antifoam added to the sample to avoid foaming of the sample.

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 06/08/2015

Rod Bowyer

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Client Project:	DOW
BCL Project:	Oilfield Produced Water Pond Testing
BCL Work Order:	1512508
Invoice ID:	B205096

Enclosed are the results of analyses for samples received by the laboratory on 5/21/2015. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerrie S. Vaughan

Contact Person: Kerrie Vaughan
Client Services

Authorized Signature

Table of Contents

Chain of Custody Form

RUSH!

BC Laboratories, Inc.

Page 1 of 1

Report To: Client: Aerc	Project #:
Attn: Rod Bowyer	Project Name:
Street Address:	
City, State, Zip:	Sampler(s):
Phone: Fax:	
Email Address:	
Work Order #: 15.12508	

Analysis Requested

See Attached Please refer to the back of this page for completion instructions and method legend.

Comments:

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Turnaround # of work days*	Notes
-1	BL1847 DOW DHy 2 ③	5/21/19	1034				X			5	JCE X ③
-2	BL1807 DOW Sec. 12 ④	↓	1340				X			5	④

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☐ No

* Standard Turnaround = 10 work days

96

SHORT HOLDING TIME

Cr+6 NO2 NO3 OP SS

DO Cl2 BOD MBAS COT

CHK BY: N

DISTRIBUTIONS PER SUMMARY SHEET

SUB-OUT NA

Billing ☐ Same as above

Client:

Address:

City: State Zip

Attn:

PO#:

EDF Required? Geotracker ☐ Yes ☐ No

Send Copy to State of CA? (EDT) ☐ Yes ☐ No

Global ID (Needed for EDF)

System # (Needed for EDT)

	Relinquished By	Date	Time	Received By	Date	Time
1.	IC Emergency	5/21/15	1555	MM	5/21	1555
2.						
3.						

BC Laboratories, Inc. – 4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.bclabs.com

BC LABORATORIES, INC
4100 Atlas Ct. Bakersfield, Ca. 93308 Tel: (800) 878 - 4911 Website: www.bclabs.com

15.12508

OIL FIELD PRODUCED WATER POND TESTING

CALIFORNIA WATER CODE DIRECTIVE PURSUANT TO SECTION 13267
CHARACTERIZATION OF WASTEWATER FOR DISCHARGE

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]

List of Analyses as per Attachment B

A. Total Dissolved Solids

B. Metals, CCR title 22, section 66261.24. subdivision (a)(2)(A) (antimony, arsenic, barium, beryllium, cadmium, chromium, chromium (VI), cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, zinc)

C. benzene, toluene, ethylbenzene, xylenes

D. Total Petroleum Hydrocarbons as Crude Oil

E. Polynuclear Aromatic Hydrocarbons (PAH)

F. Radionuclides (Radium226, Radium 228, Gross Alpha, Uranium)

G. Major and Minor Cations (sodium, potassium, magnesium, calcium)

H. Major and Minor Anions (nitrate, chloride, sulfate, carbonate, bicarbonate, bromide)

I. Trace Elements (lithium, strontium, boron, iron, manganese)

Total Price $734

Electronic results available as an Excel spreadsheet upon request.

Field Service	
Sampling	$60 per hour
Vehicle	$0.60 per mile

[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.

4100 Atlas Ct. Bakersfield, CA 93308 (800) 878-4911 www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1512508 Page 3 of 4

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 18 09/04/14 Page 1 Of 2

Submission #: 15-12508

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Federal Express ☐ UPS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)_____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: PG Thermometer ID: 208 Date/Time 5'21'15

Temperature: (A) 0.6 °C / (C) 0.7 °C Analyst Init MVB 1555

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL	C									
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS	DEFJ									
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	AB									
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz Amber EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M	H									
QT AMBER 8270	I									
8 OZ. JAR										
32 OZ. JAR	G									
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
Summa Canister										

Comments:_____

Sample Numbering Completed By: KWB Date/Time: 5/21/15 1743 [S:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMREC]

A = Actual / C = Corrected

Chain of Custody and Cooler Receipt Form for 1512508 Page 4 of 4

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 18 09/04/14 Page 2 Of 2

Submission #: 15-12508

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Federal Express ☐ UPS ☐ Hand Delivery ☐ BC Lab Field Service ☐ Other ☐ (Specify)_____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☒ No ☐

☑ COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: PB Thermometer ID: 208 Date/Time 5'21'15

Temperature: (A) 0.7 °C / (C) 0.8 °C Analyst Init MVB 1555

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL		C								
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS		DEFJ								
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL		AB								
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz Amber EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M		H								
QT AMBER 9270		I								
8 OZ. JAR										
32 OZ. JAR		G								
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
Summa Canister										

Comments:_____

Sample Numbering Completed By: KMB Date/Time: 5/21/15 1743 [S:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMREC]

A = Actual / C = Corrected

era Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1512508-01	**COC Number:**	---	**Receive Date:**	05/21/2015 15:55
	Project Number:	---	**Sampling Date:**	05/21/2015 10:34
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BL1847 DOW DHy 2	**Lab Matrix:**	Water
	Sampled By:	Juan Enriquez	**Sample Type:**	Wastewater
1512508-02	**COC Number:**	---	**Receive Date:**	05/21/2015 15:55
	Project Number:	---	**Sampling Date:**	05/21/2015 13:40
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	BL1807 DOW Sec. 12	**Lab Matrix:**	Water
	Sampled By:	Juan Enriquez	**Sample Type:**	Wastewater

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.083	EPA-8260B	ND		1
Ethylbenzene	ND	ug/L	0.50	0.098	EPA-8260B	ND		1
Toluene	ND	ug/L	0.50	0.093	EPA-8260B	ND		1
Total Xylenes	ND	ug/L	1.0	0.36	EPA-8260B	ND		1
p- & m-Xylenes	ND	ug/L	0.50	0.28	EPA-8260B	ND		1
o-Xylene	ND	ug/L	0.50	0.082	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	95.0	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	96.1	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	91.8	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	05/22/15	05/23/15 20:46	SE1	MS-V12	1	BYE2091

Aera Energy
0000 Ming Ave
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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	0.20	0.11	EPA-8270C-SIM	ND		1
Acenaphthylene	ND	ug/L	0.20	0.093	EPA-8270C-SIM	ND		1
Anthracene	**0.035**	**ug/L**	**0.20**	**0.034**	**EPA-8270C-SIM**	ND	J	1
Benzo[a]anthracene	ND	ug/L	0.20	0.051	EPA-8270C-SIM	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.20	0.079	EPA-8270C-SIM	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.20	0.10	EPA-8270C-SIM	ND		1
Benzo[a]pyrene	ND	ug/L	0.20	0.051	EPA-8270C-SIM	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.20	0.085	EPA-8270C-SIM	ND		1
Chrysene	ND	ug/L	0.20	0.044	EPA-8270C-SIM	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.20	0.087	EPA-8270C-SIM	ND		1
Fluoranthene	**0.26**	**ug/L**	**0.20**	**0.024**	**EPA-8270C-SIM**	ND		1
Fluorene	ND	ug/L	0.20	0.059	EPA-8270C-SIM	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.20	0.087	EPA-8270C-SIM	ND		1
aphthalene	**0.16**	**ug/L**	**0.20**	**0.15**	**EPA-8270C-SIM**	ND	J	1
Phenanthrene	**0.29**	**ug/L**	**0.20**	**0.044**	**EPA-8270C-SIM**	ND		1
Pyrene	ND	ug/L	0.20	0.044	EPA-8270C-SIM	ND		1
Nitrobenzene-d5 (Surrogate)	108	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM			1
2-Fluorobiphenyl (Surrogate)	75.1	%	50 - 120 (LCL - UCL)		EPA-8270C-SIM			1
p-Terphenyl-d14 (Surrogate)	14.6	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM		S09	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8270C-SIM	05/22/15	05/27/15 21:39	MK1	MS-B4	1.980	BYE2168

Aera Energy
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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Crude Oil	**40000**	**ug/L**	**10000**	**2800**	**EPA-8015B/FFP**	ND	**A01**	1
Tetracosane (Surrogate)	69.5	%	37 - 134 (LCL - UCL)		EPA-8015B/FFP		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	05/22/15	05/27/15 19:18	MWB	GC-13	20	BYE2282

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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Water Analysis (General Chemistry)

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Calcium	**41**	**mg/L**	**0.20**	**0.030**	**EPA-6010B**	0.053	**A07**	1
Total Magnesium	**1.1**	**mg/L**	**0.10**	**0.038**	**EPA-6010B**	ND	**A07**	1
Total Sodium	**1200**	**mg/L**	**1.0**	**0.10**	**EPA-6010B**	ND	**A07**	1
Total Potassium	**9.0**	**mg/L**	**2.0**	**0.26**	**EPA-6010B**	ND	**A07**	1
Bicarbonate Alkalinity as CaCO3	**500**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Carbonate Alkalinity as CaCO3	**260**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Hydroxide Alkalinity as CaCO3	ND	mg/L	8.2	8.2	EPA-310.1	ND		2
Total Alkalinity as CaCO3	**750**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Bromide	**1.2**	**mg/L**	**1.0**	**0.35**	**EPA-300.0**	ND	**A07**	3
Chloride	**350**	**mg/L**	**1.0**	**0.12**	**EPA-300.0**	ND	**A07**	4
Nitrate as NO3	**18**	**mg/L**	**4.4**	**0.78**	**EPA-300.0**	ND	**A07**	3
Sulfate	**360**	**mg/L**	**2.0**	**0.20**	**EPA-300.0**	ND	**A07**	4
Total Dissolved Solids @ 180 C	**4500**	**mg/L**	**200**	**200**	**EPA-160.1**	ND		5

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-6010B	05/26/15	05/27/15 10:57	ARD	PE-OP3	2	BYE2179
2	EPA-310.1	05/26/15	05/26/15 13:47	RML	MET-1	2	BYE2035
3	EPA-300.0	05/22/15	05/22/15 12:04	OLH	IC5	10	BYE2119
4	EPA-300.0	06/01/15	06/01/15 23:18	BMW	IC5	2	BYF0131
5	EPA-160.1	05/23/15	05/23/15 11:30	CAD	MANUAL	20	BYE2095

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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

BCL Sample ID: 1512508-01 | **Client Sample Name:** BL1847 DOW DHy 2, 5/21/2015 10:34:00AM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	TTLC Limits	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	10	3.5	EPA-7196		A07	1
Total Antimony	ND	ug/L	200	17	EPA-6010B	500000	A07	2
Total Arsenic	ND	ug/L	100	16	EPA-6010B	500000	A07	2
Total Barium	**35**	**ug/L**	**20**	**7.0**	**EPA-6010B**	10000000	**A07**	2
Total Beryllium	ND	ug/L	20	1.0	EPA-6010B	75000	A07	2
Total Boron	**1.3**	**mg/L**	**0.20**	**0.026**	**EPA-6010B**		**A07**	2
Total Cadmium	ND	ug/L	20	2.2	EPA-6010B	100000	A07	2
Total Chromium	**33**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Cobalt	ND	ug/L	100	2.6	EPA-6010B	8000000	A07	2
Total Copper	ND	ug/L	20	2.2	EPA-6010B	2500000	A07	2
Total Iron	**0.83**	**mg/L**	**0.10**	**0.060**	**EPA-6010B**		**A07**	2
Total Lead	ND	ug/L	100	8.0	EPA-6010B	1000000	A07	2
Total Lithium	**0.017**	**mg/L**	**0.040**	**0.012**	**EPA-6010B**		**J,A07**	2
Total Manganese	**0.099**	**mg/L**	**0.020**	**0.0080**	**EPA-6010B**		**A07**	2
Total Mercury	**0.88**	**ug/L**	**0.20**	**0.033**	**EPA-7470A**	20000		3
Total Molybdenum	ND	ug/L	100	2.4	EPA-6010B	3500000	A07	2
Total Nickel	ND	ug/L	20	4.0	EPA-6010B	2000000	A07	2
Total Selenium	ND	ug/L	200	30	EPA-6010B	100000	A07	2
Total Silver	ND	ug/L	20	3.8	EPA-6010B	500000	A07	2
Total Strontium	**0.20**	**mg/L**	**0.020**	**0.0020**	**EPA-6010B**		**A07**	2
Total Thallium	ND	ug/L	200	48	EPA-6010B	700000	A07	2
Total Vanadium	**63**	**ug/L**	**20**	**4.4**	**EPA-6010B**	2400000	**A07**	2
Total Zinc	**170**	**ug/L**	**100**	**4.6**	**EPA-6010B**	5000000	**A07**	2
Total Recoverable Uranium	ND	pCi/L	6.7	0.67	EPA-200.8		A07	4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7196	05/21/15	05/21/15 20:56	BMW	KONE-1	5	BYE2071
2	EPA-6010B	05/26/15	05/27/15 10:57	ARD	PE-OP3	2	BYE2179
3	EPA-7470A	05/27/15	05/27/15 16:06	MEV	CETAC1	1	BYE2261
4	EPA-200.8	05/26/15	05/26/15 22:07	SRM	PE-EL2	10	BYE2185

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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	**9.5**	**ug/L**	**2.5**	**0.42**	**EPA-8260B**	ND	**A01,Z1**	1
Ethylbenzene	**3.0**	**ug/L**	**2.5**	**0.49**	**EPA-8260B**	ND	**A01,Z1**	1
Toluene	**22**	**ug/L**	**2.5**	**0.46**	**EPA-8260B**	ND	**A01,Z1**	1
Total Xylenes	**49**	**ug/L**	**5.0**	**1.8**	**EPA-8260B**	ND	**A01,Z1**	1
p- & m-Xylenes	**42**	**ug/L**	**2.5**	**1.4**	**EPA-8260B**	ND	**A01,Z1**	1
o-Xylene	**7.1**	**ug/L**	**2.5**	**0.41**	**EPA-8260B**	ND	**A01,Z1**	1
1,2-Dichloroethane-d4 (Surrogate)	95.2	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	96.9	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	97.4	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	05/22/15	05/27/15 03:24	SE1	MS-V12	5	BYE2091

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10000 Ming Ave
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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	**10**	**ug/L**	**1.0**	**0.55**	**EPA-8270C-SIM**	ND	**A01**	1
Acenaphthylene	**4.9**	**ug/L**	**1.0**	**0.47**	**EPA-8270C-SIM**	ND	**A01**	1
Anthracene	ND	ug/L	1.0	0.17	EPA-8270C-SIM	ND	A01	1
Benzo[a]anthracene	**0.76**	**ug/L**	**1.0**	**0.26**	**EPA-8270C-SIM**	ND	**J,A01**	1
Benzo[b]fluoranthene	**1.9**	**ug/L**	**1.0**	**0.40**	**EPA-8270C-SIM**	ND	**A01**	1
Benzo[k]fluoranthene	ND	ug/L	1.0	0.51	EPA-8270C-SIM	ND	A01	1
Benzo[a]pyrene	ND	ug/L	1.0	0.26	EPA-8270C-SIM	ND	A01	1
Benzo[g,h,i]perylene	ND	ug/L	1.0	0.43	EPA-8270C-SIM	ND	A01	1
Chrysene	**6.1**	**ug/L**	**1.0**	**0.22**	**EPA-8270C-SIM**	ND	**A01**	1
Dibenzo[a,h]anthracene	ND	ug/L	1.0	0.44	EPA-8270C-SIM	ND	A01	1
Fluoranthene	**2.3**	**ug/L**	**1.0**	**0.12**	**EPA-8270C-SIM**	ND	**A01**	1
Fluorene	**33**	**ug/L**	**5.0**	**1.5**	**EPA-8270C-SIM**	ND	**A01**	2
Indeno[1,2,3-cd]pyrene	ND	ug/L	1.0	0.44	EPA-8270C-SIM	ND	A01	1
Naphthalene	**30**	**ug/L**	**5.0**	**3.8**	**EPA-8270C-SIM**	ND	**A01**	2
Phenanthrene	**60**	**ug/L**	**5.0**	**1.1**	**EPA-8270C-SIM**	ND	**A01**	2
Pyrene	**8.1**	**ug/L**	**1.0**	**0.22**	**EPA-8270C-SIM**	ND	**A01**	1
Nitrobenzene-d5 (Surrogate)	99.9	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM		A01	1
2-Fluorobiphenyl (Surrogate)	87.0	%	50 - 120 (LCL - UCL)		EPA-8270C-SIM		A01	1
p-Terphenyl-d14 (Surrogate)	70.8	%	40 - 130 (LCL - UCL)		EPA-8270C-SIM		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8270C-SIM	05/22/15	05/27/15 14:35	MK1	MS-B4	10	BYE2168
2	EPA-8270C-SIM	05/22/15	05/28/15 15:25	MK1	MS-B4	50	BYE2168

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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Total Petroleum Hydrocarbons

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Crude Oil	**160000**	**ug/L**	**10000**	**2800**	**EPA-8015B/FFP**	ND	**A01**	1
Tetracosane (Surrogate)	75.6	%	37 - 134 (LCL - UCL)		EPA-8015B/FFP		A01	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	05/22/15	05/28/15 09:15	MWB	GC-13	20	BYE2282

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Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Water Analysis (General Chemistry)

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Calcium	**100**	**mg/L**	**0.20**	**0.030**	**EPA-6010B**	0.053	**A07**	1
Total Magnesium	**10**	**mg/L**	**0.10**	**0.038**	**EPA-6010B**	ND	**A07**	1
Total Sodium	**360**	**mg/L**	**1.0**	**0.10**	**EPA-6010B**	ND	**A07**	1
Total Potassium	**18**	**mg/L**	**2.0**	**0.26**	**EPA-6010B**	ND	**A07**	1
Bicarbonate Alkalinity as CaCO3	**240**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Carbonate Alkalinity as CaCO3	ND	mg/L	8.2	8.2	EPA-310.1	ND		2
Hydroxide Alkalinity as CaCO3	ND	mg/L	8.2	8.2	EPA-310.1	ND		2
Total Alkalinity as CaCO3	**240**	**mg/L**	**8.2**	**8.2**	**EPA-310.1**	ND		2
Bromide	**4.6**	**mg/L**	**0.50**	**0.18**	**EPA-300.0**	ND	**A07**	3
Chloride	**670**	**mg/L**	**2.5**	**0.30**	**EPA-300.0**	ND	**A07**	3
Nitrate as NO3	ND	mg/L	2.2	0.39	EPA-300.0	ND	A07	3
Sulfate	**12**	**mg/L**	**5.0**	**0.50**	**EPA-300.0**	ND	**A07**	3
Total Dissolved Solids @ 180 C	**2200**	**mg/L**	**100**	**100**	**EPA-160.1**	ND		4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-6010B	05/26/15	05/27/15 10:59	ARD	PE-OP3	2	BYE2179
2	EPA-310.1	05/26/15	05/26/15 13:57	RML	MET-1	2	BYE2035
3	EPA-300.0	05/22/15	05/22/15 16:59	BMW	IC5	5	BYE2119
4	EPA-160.1	05/23/15	05/23/15 11:30	CAD	MANUAL	10	BYE2095

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0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

BCL Sample ID: 1512508-02 | **Client Sample Name:** BL1807 DOW Sec. 12, 5/21/2015 1:40:00PM, Juan Enriquez

Constituent	Result	Units	PQL	MDL	Method	TTLC Limits	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	40	14	EPA-7196		A07	1
Total Antimony	ND	ug/L	200	17	EPA-6010B	500000	A07	2
Total Arsenic	ND	ug/L	100	16	EPA-6010B	500000	A07	2
Total Barium	**370**	**ug/L**	**20**	**7.0**	**EPA-6010B**	10000000	**A07**	2
Total Beryllium	ND	ug/L	20	1.0	EPA-6010B	75000	A07	2
Total Boron	**2.9**	**mg/L**	**0.20**	**0.026**	**EPA-6010B**		**A07**	2
Total Cadmium	ND	ug/L	20	2.2	EPA-6010B	100000	A07	2
Total Chromium	**19**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**J,A07**	2
Total Cobalt	**10**	**ug/L**	**100**	**2.6**	**EPA-6010B**	8000000	**J,A07**	2
Total Copper	**22**	**ug/L**	**20**	**2.2**	**EPA-6010B**	2500000	**A07**	2
Total Iron	**7.0**	**mg/L**	**0.10**	**0.060**	**EPA-6010B**		**A07**	2
Total Lead	ND	ug/L	100	8.0	EPA-6010B	1000000	A07	2
Total Lithium	**0.26**	**mg/L**	**0.040**	**0.012**	**EPA-6010B**		**A07**	2
otal Manganese	**0.68**	**mg/L**	**0.020**	**0.0080**	**EPA-6010B**		**A07**	2
Total Mercury	**0.048**	**ug/L**	**0.20**	**0.033**	**EPA-7470A**	20000	**J**	3
Total Molybdenum	**5.8**	**ug/L**	**100**	**2.4**	**EPA-6010B**	3500000	**J,A07**	2
Total Nickel	**100**	**ug/L**	**20**	**4.0**	**EPA-6010B**	2000000	**A07**	2
Total Selenium	ND	ug/L	200	30	EPA-6010B	100000	A07	2
Total Silver	ND	ug/L	20	3.8	EPA-6010B	500000	A07	2
Total Strontium	**1.1**	**mg/L**	**0.020**	**0.0020**	**EPA-6010B**		**A07**	2
Total Thallium	ND	ug/L	200	48	EPA-6010B	700000	A07	2
Total Vanadium	**56**	**ug/L**	**20**	**4.4**	**EPA-6010B**	2400000	**A07**	2
Total Zinc	**51**	**ug/L**	**100**	**4.6**	**EPA-6010B**	5000000	**J,A07**	2
Total Recoverable Uranium	**0.74**	**pCi/L**	**6.7**	**0.67**	**EPA-200.8**		**J,A07**	4

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7196	05/22/15	05/22/15 08:14	BMW	KONE-1	20	BYE2071
2	EPA-6010B	05/26/15	05/27/15 10:59	ARD	PE-OP3	2	BYE2179
3	EPA-7470A	05/27/15	05/27/15 16:12	MEV	CETAC1	1	BYE2261
4	EPA-200.8	05/26/15	05/26/15 22:10	SRM	PE-EL2	10	BYE2185

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Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2091						
Benzene	BYE2091-BLK1	ND	ug/L	0.50	0.083	
Ethylbenzene	BYE2091-BLK1	ND	ug/L	0.50	0.098	
Toluene	BYE2091-BLK1	ND	ug/L	0.50	0.093	
Total Xylenes	BYE2091-BLK1	ND	ug/L	1.0	0.36	
p- & m-Xylenes	BYE2091-BLK1	ND	ug/L	0.50	0.28	
o-Xylene	BYE2091-BLK1	ND	ug/L	0.50	0.082	
1,2-Dichloroethane-d4 (Surrogate)	**BYE2091-BLK1**	**93.1**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**BYE2091-BLK1**	**93.9**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**BYE2091-BLK1**	**94.7**	%	**80 - 120 (LCL - UCL)**		

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Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2091										
Benzene	BYE2091-BS1	LCS	23.600	25.000	ug/L	94.4		70 - 130		
Toluene	BYE2091-BS1	LCS	23.290	25.000	ug/L	93.2		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BYE2091-BS1	LCS	9.0200	10.000	ug/L	90.2		75 - 125		
Toluene-d8 (Surrogate)	BYE2091-BS1	LCS	9.4400	10.000	ug/L	94.4		80 - 120		
4-Bromofluorobenzene (Surrogate)	BYE2091-BS1	LCS	10.050	10.000	ug/L	100		80 - 120		

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Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2091	Used client sample: N										
Benzene	MS	1511019-38	ND	25.000	25.000	ug/L		100		70 - 130	
	MSD	1511019-38	ND	26.240	25.000	ug/L	4.8	105	20	70 - 130	
Toluene	MS	1511019-38	ND	24.400	25.000	ug/L		97.6		70 - 130	
	MSD	1511019-38	ND	25.830	25.000	ug/L	5.7	103	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1511019-38	ND	9.5200	10.000	ug/L		95.2		75 - 125	
	MSD	1511019-38	ND	9.7300	10.000	ug/L	2.2	97.3		75 - 125	
Toluene-d8 (Surrogate)	MS	1511019-38	ND	9.7000	10.000	ug/L		97.0		80 - 120	
	MSD	1511019-38	ND	9.6400	10.000	ug/L	0.6	96.4		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	1511019-38	ND	9.8900	10.000	ug/L		98.9		80 - 120	
	MSD	1511019-38	ND	9.7600	10.000	ug/L	1.3	97.6		80 - 120	

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2168						
Acenaphthene	BYE2168-BLK1	ND	ug/L	0.10	0.055	
Acenaphthylene	BYE2168-BLK1	ND	ug/L	0.10	0.047	
Anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.017	
Benzo[a]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[b]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.040	
Benzo[k]fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.051	
Benzo[a]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.026	
Benzo[g,h,i]perylene	BYE2168-BLK1	ND	ug/L	0.10	0.043	
Chrysene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Dibenzo[a,h]anthracene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Fluoranthene	BYE2168-BLK1	ND	ug/L	0.10	0.012	
Fluorene	BYE2168-BLK1	ND	ug/L	0.10	0.030	
Indeno[1,2,3-cd]pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.044	
Naphthalene	BYE2168-BLK1	ND	ug/L	0.10	0.077	
Phenanthrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Pyrene	BYE2168-BLK1	ND	ug/L	0.10	0.022	
Nitrobenzene-d5 (Surrogate)	**BYE2168-BLK1**	**91.8**	%	**40 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**BYE2168-BLK1**	**93.1**	%	**50 - 120 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**BYE2168-BLK1**	**126**	%	**40 - 130 (LCL - UCL)**		

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2168										
Acenaphthene	BYE2168-BS1	LCS	1.0861	1.0000	ug/L	109		60 - 110		
Acenaphthylene	BYE2168-BS1	LCS	1.2020	1.0000	ug/L	120		60 - 120		
Anthracene	BYE2168-BS1	LCS	1.2952	1.0000	ug/L	130		60 - 130		
Benzo[a]anthracene	BYE2168-BS1	LCS	1.1582	1.0000	ug/L	116		60 - 130		
Benzo[b]fluoranthene	BYE2168-BS1	LCS	1.0318	1.0000	ug/L	103		50 - 130		
Benzo[k]fluoranthene	BYE2168-BS1	LCS	1.1474	1.0000	ug/L	115		60 - 120		
Benzo[a]pyrene	BYE2168-BS1	LCS	1.1756	1.0000	ug/L	118		60 - 120		
Benzo[g,h,i]perylene	BYE2168-BS1	LCS	0.92832	1.0000	ug/L	92.8		40 - 120		
Chrysene	BYE2168-BS1	LCS	1.0666	1.0000	ug/L	107		60 - 110		
Dibenzo[a,h]anthracene	BYE2168-BS1	LCS	0.66352	1.0000	ug/L	66.4		40 - 120		
Fluoranthene	BYE2168-BS1	LCS	0.96748	1.0000	ug/L	96.7		60 - 120		
Fluorene	BYE2168-BS1	LCS	1.1357	1.0000	ug/L	114		60 - 120		
Indeno[1,2,3-cd]pyrene	BYE2168-BS1	LCS	1.1326	1.0000	ug/L	113		40 - 130		
Naphthalene	BYE2168-BS1	LCS	0.99890	1.0000	ug/L	99.9		60 - 110		
Phenanthrene	BYE2168-BS1	LCS	1.0604	1.0000	ug/L	106		60 - 120		
Pyrene	BYE2168-BS1	LCS	1.6547	1.0000	ug/L	165		50 - 125		L01
Nitrobenzene-d5 (Surrogate)	BYE2168-BS1	LCS	3.8161	4.0000	ug/L	95.4		40 - 130		
2-Fluorobiphenyl (Surrogate)	BYE2168-BS1	LCS	4.0934	4.0000	ug/L	102		50 - 120		
p-Terphenyl-d14 (Surrogate)	BYE2168-BS1	LCS	4.9744	4.0000	ug/L	124		40 - 130		

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2168	Used client sample: N										
Acenaphthene	MS	**1511019-28**	**ND**	**1.1763**	**1.0000**	**ug/L**		**118**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0913**	**1.0000**	**ug/L**	**7.5**	**109**	**30**	**60 - 110**	
Acenaphthylene	MS	**1511019-28**	**ND**	**1.3083**	**1.0000**	**ug/L**		**131**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1879**	**1.0000**	**ug/L**	**9.7**	**119**	**30**	**60 - 120**	
Anthracene	MS	**1511019-28**	**ND**	**1.4025**	**1.0000**	**ug/L**		**140**		**60 - 130**	**Q03**
	MSD	**1511019-28**	**ND**	**1.3073**	**1.0000**	**ug/L**	**7.0**	**131**	**30**	**60 - 130**	**Q03**
Benzo[a]anthracene	MS	**1511019-28**	**ND**	**1.2480**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1594**	**1.0000**	**ug/L**	**7.4**	**116**	**30**	**60 - 120**	
Benzo[b]fluoranthene	MS	1511019-28	ND	1.1310	1.0000	ug/L		113		50 - 130	
	MSD	1511019-28	ND	1.0752	1.0000	ug/L	5.1	108	30	50 - 130	
Benzo[k]fluoranthene	MS	**1511019-28**	**ND**	**1.2472**	**1.0000**	**ug/L**		**125**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1434**	**1.0000**	**ug/L**	**8.7**	**114**	**30**	**60 - 120**	
Benzo[a]pyrene	MS	**1511019-28**	**ND**	**1.2360**	**1.0000**	**ug/L**		**124**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.0911**	**1.0000**	**ug/L**	**12.5**	**109**	**30**	**60 - 120**	
Benzo[g,h,i]perylene	MS	1511019-28	ND	1.0647	1.0000	ug/L		106		40 - 120	
	MSD	1511019-28	ND	0.97751	1.0000	ug/L	8.5	97.8	30	40 - 120	
Chrysene	MS	**1511019-28**	**ND**	**1.2087**	**1.0000**	**ug/L**		**121**		**60 - 110**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1388**	**1.0000**	**ug/L**	**6.0**	**114**	**30**	**60 - 110**	**Q03**
Dibenzo[a,h]anthracene	MS	1511019-28	ND	0.78144	1.0000	ug/L		78.1		40 - 120	
	MSD	1511019-28	ND	0.69146	1.0000	ug/L	12.2	69.1	30	40 - 120	
Fluoranthene	MS	1511019-28	ND	1.0666	1.0000	ug/L		107		60 - 120	
	MSD	1511019-28	ND	1.0141	1.0000	ug/L	5.0	101	30	60 - 120	
Fluorene	MS	**1511019-28**	**ND**	**1.2329**	**1.0000**	**ug/L**		**123**		**60 - 120**	**Q03**
	MSD	**1511019-28**	**ND**	**1.1270**	**1.0000**	**ug/L**	**9.0**	**113**	**30**	**60 - 120**	
Indeno[1,2,3-cd]pyrene	MS	1511019-28	ND	1.2781	1.0000	ug/L		128		40 - 130	
	MSD	1511019-28	ND	1.0352	1.0000	ug/L	21.0	104	30	40 - 130	
Naphthalene	MS	1511019-28	ND	1.0556	1.0000	ug/L		106		60 - 110	
	MSD	1511019-28	ND	0.99619	1.0000	ug/L	5.8	99.6	30	60 - 110	
Phenanthrene	MS	1511019-28	ND	1.1471	1.0000	ug/L		115		60 - 120	
	MSD	1511019-28	ND	1.0638	1.0000	ug/L	7.5	106	30	60 - 120	
Pyrene	MS	**1511019-28**	**ND**	**1.7749**	**1.0000**	**ug/L**		**177**		**50 - 125**	**Q03**
	MSD	**1511019-28**	**ND**	**1.6037**	**1.0000**	**ug/L**	**10.1**	**160**	**30**	**50 - 125**	**Q03**
Nitrobenzene-d5 (Surrogate)	MS	1511019-28	ND	4.0540	4.0000	ug/L		101		40 - 130	
	MSD	1511019-28	ND	3.7488	4.0000	ug/L	7.8	93.7		40 - 130	
2-Fluorobiphenyl (Surrogate)	MS	1511019-28	ND	4.3117	4.0000	ug/L		108		50 - 120	
	MSD	1511019-28	ND	3.9075	4.0000	ug/L	9.8	97.7		50 - 120	

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Polynuclear Aromatic Hydrocarbons (EPA Method 8270C-SIM)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2168	Used client sample: N										
p-Terphenyl-d14 (Surrogate)	MS	1511019-28	ND	5.3878	4.0000	ug/L		135		40 - 130	S09
	MSD	1511019-28	ND	4.9525	4.0000	ug/L	8.4	124		40 - 130	

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Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2282						
TPH - Diesel (FFP)	BYE2282-BLK1	ND	ug/L	200	34	
TPH - Crude Oil	BYE2282-BLK1	ND	ug/L	500	140	
Tetracosane (Surrogate)	**BYE2282-BLK1**	**91.6**	%	**37 - 134 (LCL - UCL)**		

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Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2282										
TPH - Diesel (FFP)	BYE2282-BS1	LCS	2127.6	2500.0	ug/L	85.1		52 - 128		
Tetracosane (Surrogate)	BYE2282-BS1	LCS	97.390	100.00	ug/L	97.4		37 - 134		

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Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2282	Used client sample: N										
TPH - Diesel (FFP)	MS	1511019-59	ND	1902.7	2500.0	ug/L		76.1		50 - 127	
	MSD	1511019-59	ND	2030.1	2500.0	ug/L	6.5	81.2	24	50 - 127	
Tetracosane (Surrogate)	MS	1511019-59	ND	89.695	100.00	ug/L		89.7		37 - 134	
	MSD	1511019-59	ND	91.645	100.00	ug/L	2.2	91.6		37 - 134	

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Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2035						
Bicarbonate Alkalinity as CaCO3	BYE2035-BLK1	ND	mg/L	4.1	4.1	
Carbonate Alkalinity as CaCO3	BYE2035-BLK1	ND	mg/L	4.1	4.1	
Hydroxide Alkalinity as CaCO3	BYE2035-BLK1	ND	mg/L	4.1	4.1	
Total Alkalinity as CaCO3	BYE2035-BLK1	ND	mg/L	4.1	4.1	
QC Batch ID: BYE2095						
Total Dissolved Solids @ 180 C	BYE2095-BLK1	ND	mg/L	6.7	6.7	
QC Batch ID: BYE2119						
Bromide	BYE2119-BLK1	ND	mg/L	0.10	0.035	
Chloride	BYE2119-BLK1	ND	mg/L	0.50	0.061	
Nitrate as NO3	BYE2119-BLK1	ND	mg/L	0.44	0.078	
Sulfate	BYE2119-BLK1	ND	mg/L	1.0	0.10	
QC Batch ID: BYE2179						
Total Calcium	**BYE2179-BLK1**	**0.026720**	**mg/L**	**0.10**	**0.015**	**J**
Total Magnesium	BYE2179-BLK1	ND	mg/L	0.050	0.019	
Total Sodium	BYE2179-BLK1	ND	mg/L	0.50	0.051	
Total Potassium	BYE2179-BLK1	ND	mg/L	1.0	0.13	
QC Batch ID: BYF0131						
Chloride	BYF0131-BLK1	ND	mg/L	0.50	0.061	
Sulfate	BYF0131-BLK1	ND	mg/L	1.0	0.10	

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2035										
Total Alkalinity as CaCO3	BYE2035-BS3	LCS	104.52	100.00	mg/L	105		90 - 110		
QC Batch ID: BYE2095										
Total Dissolved Solids @ 180 C	BYE2095-BS1	LCS	545.00	586.00	mg/L	93.0		90 - 110		
QC Batch ID: BYE2119										
Bromide	BYE2119-BS1	LCS	2.1190	2.0000	mg/L	106		90 - 110		
Chloride	BYE2119-BS1	LCS	51.277	50.000	mg/L	103		90 - 110		
Nitrate as NO3	BYE2119-BS1	LCS	23.272	22.134	mg/L	105		90 - 110		
Sulfate	BYE2119-BS1	LCS	99.431	100.00	mg/L	99.4		90 - 110		
QC Batch ID: BYE2179										
Total Calcium	BYE2179-BS1	LCS	10.137	10.000	mg/L	101		85 - 115		
Total Magnesium	BYE2179-BS1	LCS	9.7663	10.000	mg/L	97.7		85 - 115		
al Sodium	BYE2179-BS1	LCS	10.282	10.000	mg/L	103		85 - 115		
Total Potassium	BYE2179-BS1	LCS	10.119	10.000	mg/L	101		85 - 115		
QC Batch ID: BYF0131										
Chloride	BYF0131-BS1	LCS	51.651	50.000	mg/L	103		90 - 110		
Sulfate	BYF0131-BS1	LCS	99.638	100.00	mg/L	99.6		90 - 110		

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2035	Used client sample: N										
Bicarbonate Alkalinity as CaCO3	DUP	1512493-04	226.98	225.00		mg/L	0.9		10		
Carbonate Alkalinity as CaCO3	DUP	1512493-04	ND	ND		mg/L			10		
Hydroxide Alkalinity as CaCO3	DUP	1512493-04	ND	ND		mg/L			10		
Total Alkalinity as CaCO3	DUP	1512493-04	226.98	225.00		mg/L	0.9		10		
QC Batch ID: BYE2095	Used client sample: N										
Total Dissolved Solids @ 180 C	DUP	1512515-01	2100.0	2100.0		mg/L	0		10		
QC Batch ID: BYE2119	Used client sample: N										
Bromide	DUP	1512563-01	0.49400	0.51200		mg/L	3.6		10		
	MS	1512563-01	0.49400	4.7838	4.0404	mg/L		106		80 - 120	
	MSD	1512563-01	0.49400	5.1737	4.0404	mg/L	7.8	116	10	80 - 120	
Chloride	DUP	1512563-01	117.81	117.76		mg/L	0.0		10		
	MS	1512563-01	117.81	225.27	101.01	mg/L		106		80 - 120	
	MSD	1512563-01	117.81	225.20	101.01	mg/L	0.0	106	10	80 - 120	
Nitrate as NO3	DUP	1512563-01	0.29217	0.30988		mg/L	5.9		10		J
	MS	1512563-01	0.29217	46.379	44.715	mg/L		103		80 - 120	
	MSD	1512563-01	0.29217	47.040	44.715	mg/L	1.4	105	10	80 - 120	
Sulfate	DUP	1512563-01	226.68	226.74		mg/L	0.0		10		
	MS	1512563-01	226.68	434.05	202.02	mg/L		103		80 - 120	
	MSD	1512563-01	226.68	433.68	202.02	mg/L	0.1	102	10	80 - 120	
QC Batch ID: BYE2179	Used client sample: N										
Total Calcium	DUP	1510960-01	24.731	25.081		mg/L	1.4		20		
	MS	1510960-01	24.731	36.727	10.000	mg/L		120		75 - 125	
	MSD	1510960-01	24.731	33.867	10.000	mg/L	8.1	91.4	20	75 - 125	
Total Magnesium	DUP	1510960-01	19.471	18.532		mg/L	4.9		20		
	MS	1510960-01	19.471	30.698	10.000	mg/L		112		75 - 125	
	MSD	1510960-01	19.471	27.826	10.000	mg/L	9.8	83.5	20	75 - 125	
Total Sodium	DUP	**1510960-01**	**149.89**	**155.18**		**mg/L**	**3.5**		**20**		
	MS	**1510960-01**	**149.89**	**177.16**	**10.000**	**mg/L**		**273**		**75 - 125**	**A03**
	MSD	**1510960-01**	**149.89**	**162.28**	**10.000**	**mg/L**	**8.8**	**124**	**20**	**75 - 125**	
Total Potassium	DUP	1510960-01	18.558	18.888		mg/L	1.8		20		
	MS	1510960-01	18.558	31.038	10.000	mg/L		125		75 - 125	
	MSD	1510960-01	18.558	28.381	10.000	mg/L	8.9	98.2	20	75 - 125	
QC Batch ID: BYF0131	Used client sample: N										
Chloride	DUP	1512133-01	145.27	144.72		mg/L	0.4		10		
	MS	1512133-01	145.27	193.23	50.505	mg/L		95.0		80 - 120	
	MSD	1512133-01	145.27	192.95	50.505	mg/L	0.1	94.4	10	80 - 120	

era Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYF0131	Used client sample: N										
Sulfate	DUP	1512133-01	25.504	25.457		mg/L	0.2		10		
	MS	1512133-01	25.504	131.00	101.01	mg/L		104		80 - 120	
	MSD	1512133-01	25.504	130.71	101.01	mg/L	0.2	104	10	80 - 120	

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYE2071						
Hexavalent Chromium	BYE2071-BLK1	ND	ug/L	2.0	0.70	
QC Batch ID: BYE2179						
Total Antimony	BYE2179-BLK1	ND	ug/L	100	8.5	
Total Arsenic	BYE2179-BLK1	ND	ug/L	50	7.8	
Total Barium	**BYE2179-BLK1**	**3.5933**	**ug/L**	**10**	**3.5**	**J**
Total Beryllium	BYE2179-BLK1	ND	ug/L	10	0.50	
Total Boron	**BYE2179-BLK1**	**0.013557**	**mg/L**	**0.10**	**0.013**	**J**
Total Cadmium	BYE2179-BLK1	ND	ug/L	10	1.1	
Total Chromium	BYE2179-BLK1	ND	ug/L	10	1.1	
Total Cobalt	BYE2179-BLK1	ND	ug/L	50	1.3	
Total Copper	**BYE2179-BLK1**	**3.9270**	**ug/L**	**10**	**1.1**	**J**
Total Iron	BYE2179-BLK1	ND	mg/L	0.050	0.030	
Total Lead	BYE2179-BLK1	ND	ug/L	50	4.0	
Total Lithium	BYE2179-BLK1	ND	mg/L	0.020	0.0062	
Total Manganese	BYE2179-BLK1	ND	mg/L	0.010	0.0040	
Total Molybdenum	BYE2179-BLK1	ND	ug/L	50	1.2	
Total Nickel	BYE2179-BLK1	ND	ug/L	10	2.0	
Total Selenium	BYE2179-BLK1	ND	ug/L	100	15	
Total Silver	BYE2179-BLK1	ND	ug/L	10	1.9	
Total Strontium	BYE2179-BLK1	ND	mg/L	0.010	0.0010	
Total Thallium	BYE2179-BLK1	ND	ug/L	100	24	
Total Vanadium	BYE2179-BLK1	ND	ug/L	10	2.2	
Total Zinc	**BYE2179-BLK1**	**3.5246**	**ug/L**	**50**	**2.3**	**J**
QC Batch ID: BYE2185						
Total Recoverable Uranium	BYE2185-BLK1	ND	pCi/L	0.67	0.067	
QC Batch ID: BYE2261						
Total Mercury	BYE2261-BLK1	ND	ug/L	0.20	0.033	

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BYE2071										
Hexavalent Chromium	BYE2071-BS1	LCS	50.584	50.000	ug/L	101		85 - 115		
QC Batch ID: BYE2179										
Total Antimony	BYE2179-BS1	LCS	399.71	400.00	ug/L	99.9		85 - 115		
Total Arsenic	BYE2179-BS1	LCS	192.10	200.00	ug/L	96.1		85 - 115		
Total Barium	BYE2179-BS1	LCS	398.95	400.00	ug/L	99.7		85 - 115		
Total Beryllium	BYE2179-BS1	LCS	192.09	200.00	ug/L	96.0		85 - 115		
Total Boron	BYE2179-BS1	LCS	0.98260	1.0000	mg/L	98.3		85 - 115		
Total Cadmium	BYE2179-BS1	LCS	196.42	200.00	ug/L	98.2		85 - 115		
Total Chromium	BYE2179-BS1	LCS	196.11	200.00	ug/L	98.1		85 - 115		
Total Cobalt	BYE2179-BS1	LCS	194.91	200.00	ug/L	97.5		85 - 115		
Total Copper	BYE2179-BS1	LCS	367.56	400.00	ug/L	91.9		85 - 115		
tal Iron	BYE2179-BS1	LCS	1.0050	1.0000	mg/L	101		85 - 115		
otal Lead	BYE2179-BS1	LCS	400.69	400.00	ug/L	100		85 - 115		
Total Lithium	BYE2179-BS1	LCS	0.20705	0.20000	mg/L	104		85 - 115		
Total Manganese	BYE2179-BS1	LCS	0.48210	0.50000	mg/L	96.4		85 - 115		
Total Molybdenum	BYE2179-BS1	LCS	199.00	200.00	ug/L	99.5		85 - 115		
Total Nickel	BYE2179-BS1	LCS	390.17	400.00	ug/L	97.5		85 - 115		
Total Selenium	BYE2179-BS1	LCS	198.93	200.00	ug/L	99.5		85 - 115		
Total Silver	BYE2179-BS1	LCS	93.826	100.00	ug/L	93.8		85 - 115		
Total Strontium	BYE2179-BS1	LCS	0.50808	0.50000	mg/L	102		85 - 115		
Total Thallium	BYE2179-BS1	LCS	428.86	400.00	ug/L	107		85 - 115		
Total Vanadium	BYE2179-BS1	LCS	197.03	200.00	ug/L	98.5		85 - 115		
Total Zinc	BYE2179-BS1	LCS	468.95	500.00	ug/L	93.8		85 - 115		
QC Batch ID: BYE2185										
Total Recoverable Uranium	BYE2185-BS1	LCS	24.756	26.800	pCi/L	92.4		85 - 115		
QC Batch ID: BYE2261										
Total Mercury	BYE2261-BS1	LCS	1.0175	1.0000	ug/L	102		85 - 115		

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2071	Used client sample: Y - Description: BL3 TOW Belridge V Pond 4, 05/21/2015 08:10										
Hexavalent Chromium	DUP	**1512507-01**	**ND**	**ND**		**ug/L**			**10**		
	MS	**1512507-01**	**ND**	**218.42**	**263.16**	**ug/L**		**83.0**		**85 - 115**	**Q03**
	MSD	**1512507-01**	**ND**	**216.89**	**263.16**	**ug/L**	**0.7**	**82.4**	**10**	**85 - 115**	**Q03**
QC Batch ID: BYE2179	Used client sample: N										
Total Antimony	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	434.76	400.00	ug/L		109		75 - 125	
	MSD	1510960-01	ND	391.17	400.00	ug/L	10.6	97.8	20	75 - 125	
Total Arsenic	DUP	1510960-01	82.260	89.882		ug/L	8.9		20		
	MS	1510960-01	82.260	308.57	200.00	ug/L		113		75 - 125	
	MSD	1510960-01	82.260	277.29	200.00	ug/L	10.7	97.5	20	75 - 125	
Total Barium	DUP	1510960-01	15.894	18.363		ug/L	14.4		20		
	MS	1510960-01	15.894	462.00	400.00	ug/L		112		75 - 125	
	MSD	1510960-01	15.894	436.99	400.00	ug/L	5.6	105	20	75 - 125	
Total Beryllium	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	211.71	200.00	ug/L		106		75 - 125	
	MSD	1510960-01	ND	195.41	200.00	ug/L	8.0	97.7	20	75 - 125	
Total Boron	DUP	1510960-01	2.7217	2.8102		mg/L	3.2		20		
	MS	1510960-01	2.7217	3.8792	1.0000	mg/L		116		75 - 125	
	MSD	1510960-01	2.7217	3.5206	1.0000	mg/L	9.7	79.9	20	75 - 125	
Total Cadmium	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	216.13	200.00	ug/L		108		75 - 125	
	MSD	1510960-01	ND	194.03	200.00	ug/L	10.8	97.0	20	75 - 125	
Total Chromium	DUP	1510960-01	3.9460	3.5827		ug/L	9.7		20		J
	MS	1510960-01	3.9460	211.75	200.00	ug/L		104		75 - 125	
	MSD	1510960-01	3.9460	195.57	200.00	ug/L	7.9	95.8	20	75 - 125	
Total Cobalt	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	209.64	200.00	ug/L		105		75 - 125	
	MSD	1510960-01	ND	189.15	200.00	ug/L	10.3	94.6	20	75 - 125	
Total Copper	DUP	1510960-01	3.6574	3.9733		ug/L	8.3		20		J
	MS	1510960-01	3.6574	415.96	400.00	ug/L		103		75 - 125	
	MSD	1510960-01	3.6574	383.30	400.00	ug/L	8.2	94.9	20	75 - 125	
Total Iron	DUP	1510960-01	ND	ND		mg/L			20		
	MS	1510960-01	ND	1.1413	1.0000	mg/L		114		75 - 125	
	MSD	1510960-01	ND	1.0597	1.0000	mg/L	7.4	106	20	75 - 125	
Total Lead	DUP	**1510960-01**	**6.7584**	**5.4539**		**ug/L**	**21.4**		**20**		**J,A02**
	MS	**1510960-01**	**6.7584**	**435.78**	**400.00**	**ug/L**		**107**		**75 - 125**	
	MSD	**1510960-01**	**6.7584**	**389.49**	**400.00**	**ug/L**	**11.2**	**95.7**	**20**	**75 - 125**	

Aera Energy
0000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BYE2179	Used client sample: N										
Total Lithium	DUP	1510960-01	0.21533	0.22364		mg/L	3.8		20		
	MS	1510960-01	0.21533	0.45282	0.20000	mg/L		119		75 - 125	
	MSD	1510960-01	0.21533	0.42539	0.20000	mg/L	6.2	105	20	75 - 125	
Total Manganese	DUP	1510960-01	ND	ND		mg/L			20		
	MS	1510960-01	ND	0.51797	0.50000	mg/L		104		75 - 125	
	MSD	1510960-01	ND	0.47831	0.50000	mg/L	8.0	95.7	20	75 - 125	
Total Molybdenum	DUP	1510960-01	8.3033	7.2074		ug/L	14.1		20		J
	MS	1510960-01	8.3033	231.11	200.00	ug/L		111		75 - 125	
	MSD	1510960-01	8.3033	204.37	200.00	ug/L	12.3	98.0	20	75 - 125	
Total Nickel	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	409.38	400.00	ug/L		102		75 - 125	
	MSD	1510960-01	ND	382.82	400.00	ug/L	6.7	95.7	20	75 - 125	
Total Selenium	DUP	1510960-01	ND	15.363		ug/L			20		J
	MS	1510960-01	ND	220.13	200.00	ug/L		110		75 - 125	
	MSD	1510960-01	ND	187.79	200.00	ug/L	15.9	93.9	20	75 - 125	
Total Silver	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	103.36	100.00	ug/L		103		75 - 125	
	MSD	1510960-01	ND	94.787	100.00	ug/L	8.7	94.8	20	75 - 125	
Total Strontium	DUP	**1510960-01**	**0.77319**	**0.80121**		**mg/L**	**3.6**		**20**		
	MS	**1510960-01**	**0.77319**	**1.4218**	**0.50000**	**mg/L**		**130**		**75 - 125**	**Q03**
	MSD	**1510960-01**	**0.77319**	**1.3199**	**0.50000**	**mg/L**	**7.4**	**109**	**20**	**75 - 125**	
Total Thallium	DUP	1510960-01	ND	ND		ug/L			20		
	MS	1510960-01	ND	448.15	400.00	ug/L		112		75 - 125	
	MSD	1510960-01	ND	407.79	400.00	ug/L	9.4	102	20	75 - 125	
Total Vanadium	DUP	1510960-01	12.199	13.466		ug/L	9.9		20		
	MS	1510960-01	12.199	228.10	200.00	ug/L		108		75 - 125	
	MSD	1510960-01	12.199	211.37	200.00	ug/L	7.6	99.6	20	75 - 125	
Total Zinc	DUP	1510960-01	3.7957	ND		ug/L			20		
	MS	1510960-01	3.7957	517.49	500.00	ug/L		103		75 - 125	
	MSD	1510960-01	3.7957	478.12	500.00	ug/L	7.9	94.9	20	75 - 125	
QC Batch ID: BYE2185	Used client sample: N										
Total Recoverable Uranium	DUP	1512150-01	1.9423	1.7380		pCi/L	11.1		20		
	MS	1512150-01	1.9423	30.339	26.800	pCi/L		106		70 - 130	
	MSD	1512150-01	1.9423	28.584	26.800	pCi/L	6.0	99.4	20	70 - 130	
QC Batch ID: BYE2261	Used client sample: N										
Total Mercury	DUP	1512525-01	ND	ND		ug/L			20		
	MS	1512525-01	ND	1.0050	1.0000	ug/L		100		70 - 130	
	MSD	1512525-01	ND	1.0100	1.0000	ug/L	0.5	101	20	70 - 130	

BSK Associates Engineers & Laboratories
BSK Associates Fresno
1414 Stanislaus St
Fresno, CA93706
559-497-2888 (Main)
559-485-6935 (FAX)

A5E2039
5/29/2015
Invoice: A510957

Kerrie Vaughan
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for A5E2039 General: Project Manager-Kerrie Vaughan

Dear Kerrie Vaughan,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 5/22/2015. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Stephane Maupas , at (800) 877-8310 or (559) 497-2888 x212.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Stephane Maupas, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

Case Narrative

Project and Report Details		Invoice Details	
Client:	BC Laboratories	**Invoice To:**	BC Laboratories
Report To:	Kerrie Vaughan	**Invoice Attn:**	Kerrie Vaughan
Project #:	1512508	**Project PO#:**	-
Received:	5/22/2015 - 15:40		
Report Due:	5/29/2015		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 4.0

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

MS1.0 Matrix spike recoveries exceed control limits.

Report Distribution

Recipient(s)	Report Format	CC:
Kerrie Vaughan	FINAL.RPT	

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan
1512508

Certificate of Analysis

Sample ID: A5E2039-01
Sampled By: Client
Sample Description: 1512508-01

Sample Date - Time: 05/21/15 - 10:34
Matrix: Water
Sample Type: Grab

BSK Associates Fresno

Radiological

Analyte	Method	Result	Units	Batch	Prepared	Analyzed	Qual
Gross Alpha	EPA 00-02	ND	pCi/L	A505748	05/26/15	05/27/15	
1.65 Sigma Uncertainty		0.191	±				
MDA95		1.070	pCi/L				

A5E2039 FINAL 05292015 0844
Printed: 05/29/2015
QA-RF-0001-10 Final.rpt

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

1512508

Certificate of Analysis

Sample ID: A5E2039-02
Sampled By: Client
Sample Description: 1512508-02

Sample Date - Time: 05/21/15 - 13:40
Matrix: Water
Sample Type: Grab

BSK Associates Fresno

Radiological

Analyte	Method	Result	Units	Batch	Prepared	Analyzed	Qual
Gross Alpha	EPA 00-02	ND	pCi/L	A505797	05/27/15	05/28/15	
1.65 Sigma Uncertainty		0.110	±				
MDA95		536	pCi/L				

A5E2039 FINAL 05292015 0844
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Page 4 of 10

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

BSK Associates Fresno

Radiological Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 00-02 - Quality Control											
Batch: A505748										Prepared: 05/26/2015	
Prep Method: EPA 00-02										Analyst: SAB	
Blank (A505748-BLK1)											
1.65 Sigma Uncertainty	ND		±							05/27/15	
Gross Alpha	ND	3	pCi/L							05/27/15	
MDA95	ND	0.00	pCi/L							05/27/15	
Blank Spike (A505748-BS1)											
Gross Alpha	28.8	3	pCi/L	30		95	80-120			05/27/15	
Blank Spike Dup (A505748-BSD1)											
Gross Alpha	24.0	3	pCi/L	30		80	80-120	17	50	05/27/15	
Matrix Spike (A505748-MS1), Source: A5E1287-01											
Gross Alpha	114	3	pCi/L	120	ND	94	70-130			05/27/15	
Matrix Spike (A505748-MS2), Source: A5E1400-03											
Gross Alpha	100	3	pCi/L	120	ND	83	70-130			05/27/15	
Matrix Spike Dup (A505748-MSD1), Source: A5E1287-01											
Gross Alpha	115	3	pCi/L	120	ND	95	70-130	1	50	05/27/15	
Matrix Spike Dup (A505748-MSD2), Source: A5E1400-03											
Gross Alpha	80.7	3	pCi/L	120	ND	67	70-130	21	50	05/27/15	MS1.0 Low
EPA 00-02 - Quality Control											
Batch: A505797										Prepared: 05/27/2015	
Prep Method: EPA 00-02										Analyst: NYY	
Blank (A505797-BLK1)											
1.65 Sigma Uncertainty	ND		±							05/28/15	
Gross Alpha	ND	3	pCi/L							05/28/15	
MDA95	ND	0.00	pCi/L							05/28/15	
Blank Spike (A505797-BS1)											
Gross Alpha	28.9	3	pCi/L	30		96	80-120			05/28/15	
Blank Spike Dup (A505797-BSD1)											
Gross Alpha	29.4	3	pCi/L	30		98	80-120	2	50	05/28/15	
Matrix Spike (A505797-MS1), Source: A5E1557-01											
Gross Alpha	113	3	pCi/L	120	3.58	92	70-130			05/28/15	
Matrix Spike (A505797-MS2), Source: A5E1676-01											
Gross Alpha	110	3	pCi/L	120	ND	92	70-130			05/28/15	
Matrix Spike Dup (A505797-MSD1), Source: A5E1557-01											
Gross Alpha	92.0	3	pCi/L	120	3.58	74	70-130	21	50	05/28/15	

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

BSK Associates Fresno

Radiological Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 00-02 - Quality Control											
Batch: A505797										**Prepared: 05/27/2015**	
Prep Method: EPA 00-02										**Analyst: NYY**	
Matrix Spike Dup (A505797-MSD1), Source: A5E1557-01											
Matrix Spike Dup (A505797-MSD2), Source: A5E1676-01											
Gross Alpha	107	3	pCi/L	120	ND	89	70-130	3	50	05/28/15	

BSK Associates Engineers & Laboratories

A5E2039

General: Project Manager-Kerrie Vaughan

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAC program for the following parameters: **NA**

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792015-1	State of Oregon - NELAC	4021
EPA - UCMR3	CA00079	State of Washington	C997-15

Sacramento

State of California - ELAP	2435

Vancouver

State of Oregon - NELAC	WA100008	State of Washington	C824-14a

A5E2039

05222015

BCLab4911

Turnaround: Standard
Due Date: 5/29/2015

BC Laboratories

Printed: 5/22/1

SUBCONTRACT ORDER

BC Laboratories

40

1512508

RUSH!

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Kerrie Vaughan

RECEIVING LABORATORY:

BSK Analytical Labs $BSKSA
1414 Stanislaus Street A5E2039 05/22/2015
Fresno, CA 93706 BCLab4911 4
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1512508-01	**Water**	**Sampled:05/21/15 10:34**		
om900.0w Gross Alpha BSKSA	05/29/15 17:00	11/18/15 10:34		Analyze water phase only. Results needed by 5/29/2015.
Containers Supplied:				
Sample ID: 1512508-02	**Water**	**Sampled:05/21/15 13:40**		
om900.0w Gross Alpha BSKSA	05/29/15 17:00	11/18/15 13:40		Analyze water phase only. Results needed by 5/29/2015.
Containers Supplied:				

MWD 5/22 — Released By / Date — BF 5-22-15 — Received By / Date

BF 5-22-15 — Released By / Date — Received By — 5-22-15 1540 — Date

W/BW/pms

Page 9 of 10

BSK Associates SR-FL-0002-13

A5E2039 05/22/2015
BCLab4911 4

Sample Integrity

BSK Bottles: Yes (No) Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 10°C	(Yes) No NA	Were correct containers and preservatives received for the tests requested?	(Yes) No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Were there bubbles in the VOA vials? (Volatiles Only)	Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received?	(Yes) No
Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No (NA)	Was PM notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?	1-2
Bacti $Na_2S_2O_3$	—	—	
None (P) White Cap	—	—	
Cr6 (P) Lt. Green Label $NH_4OH/(NH_4)_2SO_4$ DW	Cl, pH > 8	Y N	
Cr6 (P) Pink Label Hex Chrome Buffer DW	pH 9-9.5	Y N	
Cr6 (P) Pink Label Hex Chrome Buffer WW	pH 9.3-9.7	Y N	
HNO_3 (P) Red Cap	—	—	1C
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	Y N	
NaOH (P) Green Cap	Cl, pH >10	Y N	
NaOH+ ZnAc (P)	pH > 9	Y N	5-22-15
Dissolved Oxygen 300ml (g)	—	—	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	NC
HCl (AG) Lt. Blue Label O&G, Diesel	—	—	
$Na_2O_3S_2$+HCl (AG) Lt. Pink Label 525	—	—	
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	
$Na_2S_2O_3$ (AG) Blue Label 547, 515.548,THM 524	—	—	
$Na_2S_2O_3$ (CG) Blue Label 504, 505	—	—	
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	Y N	
NH_4Cl (AG) Purple Label 552	—	—	
EDA (AG) Brown Label DBPs	—	—	
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	
Buffer pH 4 (CG)	—	—	
None (CG)	—	—	
H_3PO_4 (CG) Salmon Label	—	—	
Other:	—	—	
Asbestos 1Liter Plastic w/ Foil	—	—	
Low Level Hg / Metals Double Baggie	—	—	
Bottled Water	—	—	
Clear Glass Jar: 250 / 500 / 1 Liter	—	—	
Soil Tube: Brass / Steel / Plastic	—	—	
Tedlar Bag / Plastic Bag	—	—	

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

Labeled by: MW @ 16:47 Labels checked by: JKD @ 16:49 RUSH Paged by: Page 10 of 10

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

June 03, 2015

Ms. Kerrie Vaughan
BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308

RE: Project: 1512508
Pace Project No.: 30148945

Dear Ms. Vaughan:
Enclosed are the analytical results for sample(s) received by the laboratory on May 26, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 1512508
Pace Project No.: 30148945

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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1638 Roseytown Road,- Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 1512508
Pace Project No.: 30148945

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30148945001	1512508-01	Water	05/21/15 10:34	05/26/15 09:45
30148945002	1512508-02	Water	05/21/15 13:40	05/26/15 09:45

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(724)850-5600

SAMPLE ANALYTE COUNT

Project: 1512508
Pace Project No.: 30148945

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30148945001	1512508-01	EPA 903.1	JC2	1
		EPA 904.0	JLW	1
30148945002	1512508-02	EPA 903.1	JC2	1
		EPA 904.0	JLW	1

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PROJECT NARRATIVE

Project: 1512508
Pace Project No.: 30148945

Method: EPA 903.1
Description: 903.1 Radium 226
Client: BC Laboratories
Date: June 03, 2015

General Information:
2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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(724)850-5600

PROJECT NARRATIVE

Project: 1512508
Pace Project No.: 30148945

Method: EPA 904.0
Description: 904.0 Radium 228
Client: BC Laboratories
Date: June 03, 2015

General Information:
2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1512508
Pace Project No.: 30148945

Sample: 1512508-01 Lab ID: 30148945001 Collected: 05/21/15 10:34 Received: 05/26/15 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Comments:
- Sample collection dates and times were not present on the sample containers.
- Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.
- Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	2.14 ± 6.41 (10.1) C:NA T:71%	pCi/L	06/02/15 11:16	13982-63-3	
Radium-228	EPA 904.0	1.17 ± 6.79 (15.4) C:76% T:74%	pCi/L	06/02/15 12:53	15262-20-1	

Sample: 1512508-02 Lab ID: 30148945002 Collected: 05/21/15 13:40 Received: 05/26/15 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Comments:
- Sample collection dates and times were not present on the sample containers.
- Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.
- Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	3.28 ± 14.4 (23.1) C:NA T:69%	pCi/L	06/02/15 10:56	13982-63-3	
Radium-228	EPA 904.0	3.60 ± 11.3 (25.3) C:74% T:65%	pCi/L	06/02/15 12:53	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1512508
Pace Project No.: 30148945

QC Batch: RADC/24595
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30148945001, 30148945002

METHOD BLANK: 898960
Matrix: Water
Associated Lab Samples: 30148945001, 30148945002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.419 (0.853) C:NA T:87%	pCi/L	06/02/15 10:46	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1512508
Pace Project No.: 30148945

QC Batch: RADC/24594
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30148945001, 30148945002

METHOD BLANK: 898959
Matrix: Water
Associated Lab Samples: 30148945001, 30148945002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.168 ± 0.433 (0.955) C:64% T:76%	pCi/L	06/02/15 12:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 1512508
Pace Project No.: 30148945

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Act - Activity
Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)
(MDC) - Minimum Detectable Concentration
Trac - Tracer Recovery (%)
Carr - Carrier Recovery (%)
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

Date: 06/03/2015 02:11 PM

30148945

SUBCONTRACT ORDER

BC Laboratories

1512508

RUSH!

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Kerrie Vaughan

RECEIVING LABORATORY:

PACE Analytical $PACEA
1638 Roseytown Road, Ste 2,3 &4
Greensburg, PA 15601
Phone :(724) 850-5600
Fax: (724) 850-5601

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1512508-01	**Water**	**Sampled:05/21/15 10:34**	[redacted]	DD1
om904.0w Radium228 PACEA	05/29/15 17:00	11/18/15 10:34		Analyze water phase only. Results needed by 5/29/2015.
om903.1w Radium226 PACEA	05/29/15 17:00	11/18/15 10:34		Analyze water phase only. Results needed by 5/29/2015.
Containers Supplied:				
Sample ID: 1512508-02	**Water**	**Sampled:05/21/15 13:40**	[redacted]	DD2
om904.0w Radium228 PACEA	05/29/15 17:00	11/18/15 13:40		Analyze water phase only. Results needed by 5/29/2015.
om903.1w Radium226 PACEA	05/29/15 17:00	11/18/15 13:40		Analyze water phase only. Results needed by 5/29/2015.
Containers Supplied:				

Meggen Boyle 5/22/15 — Pace 5-22-15 0905

Released By / Date — Received By / Date

Released By / Date — Received By / Date

Page 2 of 2

Sample Condition Upon Receipt

Pace Analytical

Client Name: Bc Labs

Project # 30148945

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 1Z1K5376 01 6227 5811

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap X Bubble Bags ___ None ___ Other _____

Thermometer Used N/A Type of Ice: Wet Blue (None) ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Date and initials of person examining contents: SRA 5-26-15

Temp should be above freezing to 6°C

			Comments:
Chain of Custody Present:	☒Yes	☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes	☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes	☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes	☒No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes	☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☒No ☐N/A	6.
Rush Turn Around Time Requested:	☒Yes	☐No ☐N/A	7.
Sufficient Volume:	☒Yes	☐No ☐N/A	8.
Correct Containers Used:	☒Yes	☐No ☐N/A	9.
-Pace Containers Used:	☐Yes	☒No ☐N/A	
Containers Intact:	☒Yes	☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No ☒N/A	11.
Sample Labels match COC:	☐Yes	☒No ☐N/A	12. No date or time on Samples
-Includes date/time/ID/Analysis Matrix:	WT		
All containers needing preservation have been checked.	☒Yes	☐No ☐N/A	13. Added 3 ml HNO3 to Sample #1 @ 1026 SRA 5-26-15
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☒No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes	☒No	Initial when completed SRA Lot # of added preservative DL15-0433
Samples checked for dechlorination:	☐Yes	☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No ☒N/A	15.
Trip Blank Present:	☐Yes	☒No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No ☒N/A	
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Anna Sevina **Date:** 5/26/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

J:\QAQC\Master\Document Management\Sample Mgt\SCURF\FALLC003-09 SCUR Front 3March2015 Page 12 of 13

30148945

Project Number:
Client Name: BC Labs

page 2

Pace Analytical

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil Kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other	Other
001	WT																		2	1					
002	WT																								

SCURF Back (CD16-4 15May2012).xls

Aera Energy
10000 Ming Ave
Bakersfield, CA 93311

Reported: 06/08/2015 13:06
Project: Oilfield Produced Water Pond Testing
Project Number: DOW
Project Manager: Rod Bowyer

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A01	Detection and quantitation limits are raised due to sample dilution.
A02	The difference between duplicate readings is less than the quantitation limit.
A03	The sample concentration is more than 4 times the spike level.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q03	Matrix spike recovery(s) is(are) not within the control limits.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
Z1	50uL of antifoamer added to sample VOA.