RCH

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JUN 15 2015
RWQCB-CVR
FRESNO, CALIF.

Woodward Oil Co. Cunningham Lease

Location: 35 Latitude / 119 Longitude

Assessor's Parcel No: 198-300-04-00-1

Physical Location: NE ¼ of NW ¼ of Sec. 15, T 32S, R 23E

Surface Pond Dimensions: 15' x 15' x 6' (deep)

Discharge of waste water only before oil shipment

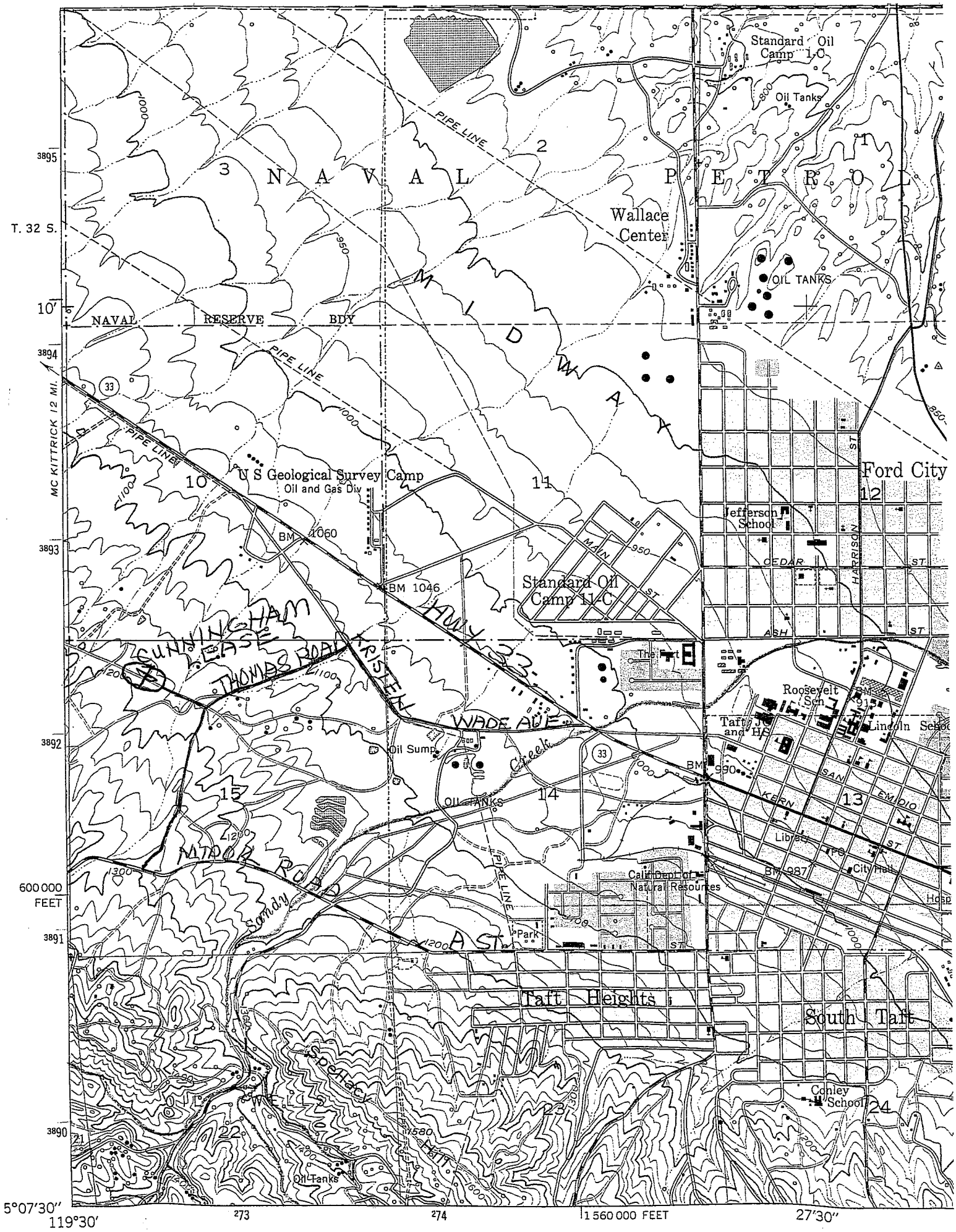
Discharge Dates for 2014:

7/23/2014	135 Barrels
10/20/2014	126 Barrels
Total	261 Barrels

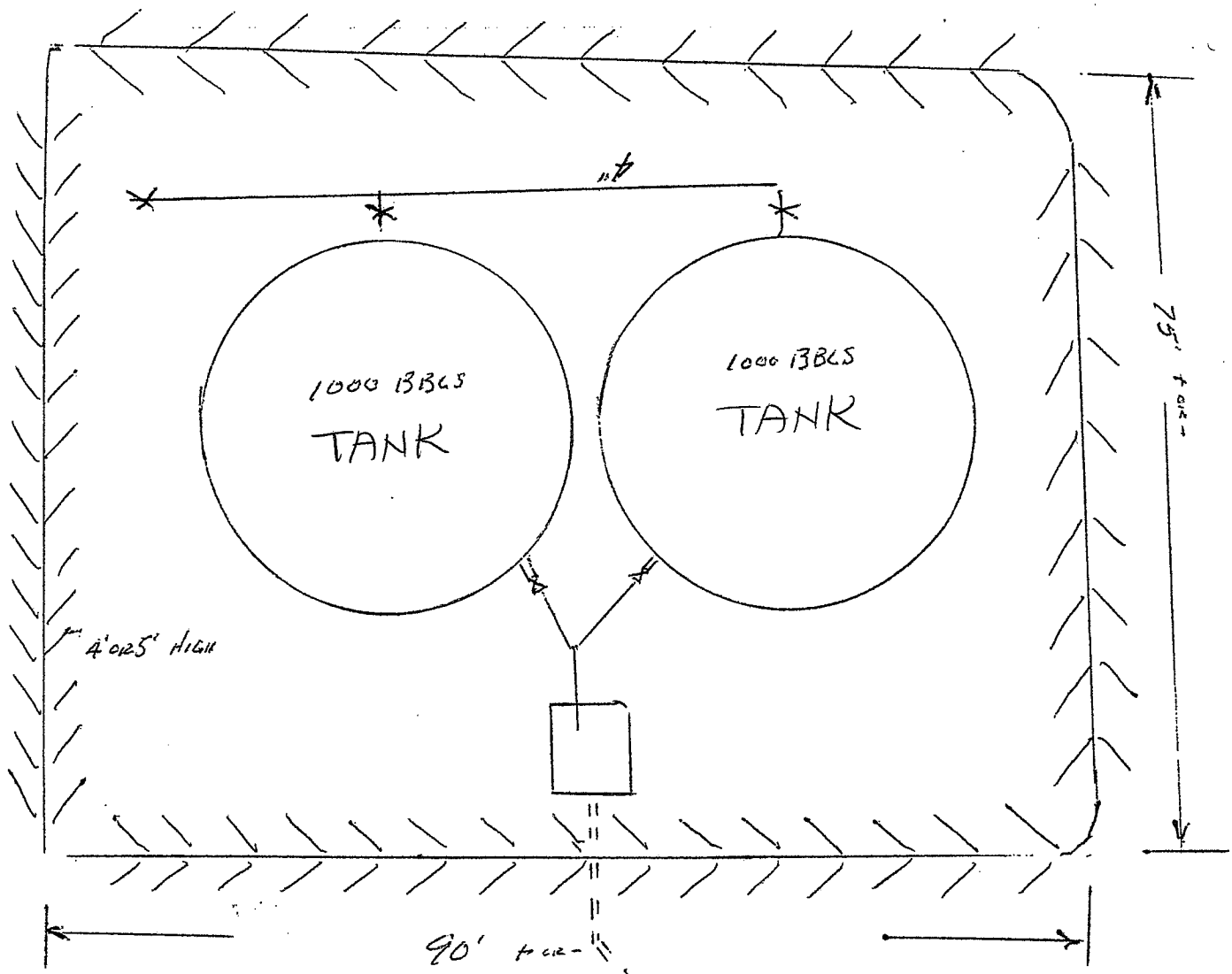
Volume of waste water produced (including Nov/Dec) 2014: 345

35.150558
-119.491889
Location of Pond

Water lab tests still not received as of 6/11/2015
L.W.
661-623-0515



Mapped by the U. S. Forest Service and Army Map Service
Edited and published by the Geological Survey



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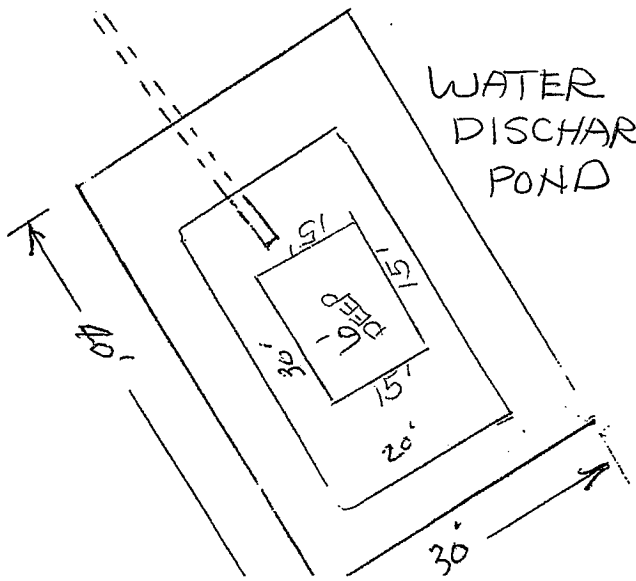
BAKERSFIELD



Woodward Oil Co.
Cunningham Lease

REH

Oilfield Environmental and Compliance, INC.

RECEIVED
JUN 15 2015
RWQCB-CVR
FRESNO, CALIF.

Kurt Buckle
Midway Laboratory, Inc
315 Main Street
Taft, CA 93268

02 June 2015

RE: Midway Laboratory Work Order: 1502205

Dear Client:

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on 21-May-15 15:30 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Ankita

Ankita Kashyap

Project Manager

307 Roemer Way, Suite 300, Santa Maria, CA 93454 www.oecusa.com TEL: (805) 922-4772 FAX: (805) 925-3376

Oilfield Environmental and Compliance, INC.

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
28880	1502205-01	Water	21-May-15 09:30	21-May-15 15:30

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

28880

1502205-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Oilfield Environmental and Compliance									
Total Metals by EPA 6000/7000 Series Methods									
Lithium	**4.7**	0.025	mg/L	1	B5E0668	27-May-15	27-May-15	EPA 6010B	
Strontium	**1.5**	0.010	"	"	"	"	"	"	
TVPH by GC FID									
TPH Gasoline (C4-C12)	**690**	50	ug/L	1	B5E0682	26-May-15	26-May-15	EPA 8015M	D-04
Surrogate: 4-Bromofluorobenzene		*108 %*	*70-130*		"	"	"	"	
TEPH by GC FID									
TPH Diesel (C13-C22)	**8.6**	0.47	mg/L	5	B5E0689	27-May-15	28-May-15	EPA 8015M	
TPH Motor Oil (C23-C40)	**8.6**	0.94	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*105 %*	*53-157*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B									
Benzene	**2.6**	0.50	ug/L	1	B5F0058	02-Jun-15	02-Jun-15	EPA 8260B	
Ethylbenzene	**0.61**	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	**5.2**	0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*107 %*	*70-130*		"	"	"	"	
Surrogate: Toluene-d8		*81.7 %*	*70-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*70-130*		"	"	"	"	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring									**R-05**
Acenaphthene	**1.5**	0.94	ug/L	10	B5E0663	26-May-15	28-May-15	EPA 8270M SIM	
Acenaphthylene	ND	0.94	"	"	"	"	"	"	
Anthracene	ND	0.94	"	"	"	"	"	"	
Benz(a)anthracene	**0.14**	0.094	"	1	"	"	27-May-15	"	
Benzo (b) fluoranthene	**0.17**	0.094	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.094	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.094	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.094	"	"	"	"	"	"	
Chrysene	**0.61**	0.094	"	"	"	"	"	"	

Oilfield Environmental and Compliance, INC.

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

28880

1502205-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Oilfield Environmental and Compliance

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Dibenz (a,h) anthracene	ND	0.094	ug/L	1	B5E0663	26-May-15	27-May-15	EPA 8270M SIM	
Fluoranthene	ND	0.94	"	10	"	"	28-May-15	"	
Fluorene	ND	0.94	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.094	"	1	"	"	27-May-15	"	
Naphthalene	**0.75**	0.094	"	"	"	"	"	"	
Phenanthrene	**11**	0.94	"	10	"	"	28-May-15	"	
Pyrene	ND	0.94	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14		*112 %*	*39-177*		"	"	"	"	

Oilfield Environmental and Compliance, INC.

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5E0668 - EPA 3010A										
Blank (B5E0668-BLK1)				Prepared & Analyzed: 27-May-15						
Lithium	ND	0.025	mg/L							
Strontium	ND	0.010	"							
LCS (B5E0668-BS1)				Prepared & Analyzed: 27-May-15						
Lithium	2.31	0.025	mg/L	2.00		116	80-120			
Strontium	2.30	0.010	"	2.00		115	80-120			
LCS Dup (B5E0668-BSD1)				Prepared & Analyzed: 27-May-15						
Lithium	2.30	0.025	mg/L	2.00		115	80-120	0.651	20	
Strontium	2.26	0.010	"	2.00		113	80-120	1.36	20	
Duplicate (B5E0668-DUP1)	**Source: 1502205-01**			Prepared & Analyzed: 27-May-15						
Lithium	4.60	0.025	mg/L		4.74			3.02	20	
Strontium	1.48	0.010	"		1.52			2.93	20	
Matrix Spike (B5E0668-MS1)	**Source: 1502205-01**			Prepared & Analyzed: 27-May-15						
Lithium	7.75	0.025	mg/L	2.00	4.74	150	57-156			
Strontium	3.74	0.010	"	2.00	1.52	111	67-142			

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

TVPH by GC FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5E0682 - EPA 5030B VOCGC										
Blank (B5E0682-BLK1)				Prepared & Analyzed: 26-May-15						
TPH Gasoline (C4-C12)	ND	50	ug/L							
Surrogate: 4-Bromofluorobenzene	*118*		"	*125*		*94.1*	*70-130*			
LCS (B5E0682-BS1)				Prepared & Analyzed: 26-May-15						
TPH Gasoline (C4-C12)	574	50	ug/L	500		115	70-130			
Surrogate: 4-Bromofluorobenzene	*124*		"	*125*		*99.2*	*70-130*			
LCS Dup (B5E0682-BSD1)				Prepared & Analyzed: 26-May-15						
TPH Gasoline (C4-C12)	538	50	ug/L	500		108	70-130	6.44	20	
Surrogate: 4-Bromofluorobenzene	*124*		"	*125*		*99.0*	*70-130*			
Duplicate (B5E0682-DUP1)	**Source: 1502205-01**			Prepared & Analyzed: 26-May-15						
TPH Gasoline (C4-C12)	753	50	ug/L		695			8.07	20	D-04
Surrogate: 4-Bromofluorobenzene	*138*		"	*125*		*110*	*70-130*			
Matrix Spike (B5E0682-MS1)	**Source: 1502205-01**			Prepared & Analyzed: 26-May-15						
TPH Gasoline (C4-C12)	1190	50	ug/L	500	695	99.6	70-130			
Surrogate: 4-Bromofluorobenzene	*138*		"	*125*		*110*	*70-130*			
Matrix Spike Dup (B5E0682-MSD1)	**Source: 1502205-01**			Prepared & Analyzed: 26-May-15						
TPH Gasoline (C4-C12)	1210	50	ug/L	500	695	103	70-130	1.35	20	
Surrogate: 4-Bromofluorobenzene	*135*		"	*125*		*108*	*70-130*			

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

Oilfield Environmental and Compliance, INC.

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

TEPH by GC FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5E0689 - EPA 3510C										
Blank (B5E0689-BLK1)				Prepared & Analyzed: 26-May-15						
TPH Diesel (C13-C22)	ND	0.050	mg/L							
TPH Motor Oil (C23-C40)	ND	0.10	"							
Surrogate: o-Terphenyl	*0.0961*		"	*0.100*		*96.1*	*53-157*			
LCS (B5E0689-BS1)				Prepared & Analyzed: 26-May-15						
TPH Diesel (C13-C22)	0.855	0.050	mg/L	1.00		85.5	59-117			
Surrogate: o-Terphenyl	*0.103*		"	*0.100*		*103*	*53-157*			
LCS Dup (B5E0689-BSD1)				Prepared & Analyzed: 26-May-15						
TPH Diesel (C13-C22)	0.874	0.050	mg/L	1.00		87.4	59-117	2.19	20	
Surrogate: o-Terphenyl	*0.0997*		"	*0.100*		*99.7*	*53-157*			

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5F0058 - EPA 5030B VOCGCMS										
Blank (B5F0058-BLK1)				Prepared & Analyzed: 02-Jun-15						
Benzene	ND	0.50	ug/L							
Ethylbenzene	ND	0.50	"							
Toluene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Surrogate: Dibromofluoromethane	*12.5*		"	*12.5*		*99.8*	*70-130*			
Surrogate: Toluene-d8	*11.8*		"	*12.5*		*94.0*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*11.2*		"	*12.5*		*89.8*	*70-130*			
LCS (B5F0058-BS1)				Prepared & Analyzed: 02-Jun-15						
Benzene	27.7	0.50	ug/L	25.0		111	70-130			
Toluene	24.2	0.50	"	25.0		96.8	70-130			
Surrogate: Dibromofluoromethane	*12.3*		"	*12.5*		*98.4*	*70-130*			
Surrogate: Toluene-d8	*10.3*		"	*12.5*		*82.5*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*11.4*		"	*12.5*		*91.3*	*70-130*			
LCS Dup (B5F0058-BSD1)				Prepared & Analyzed: 02-Jun-15						
Benzene	27.4	0.50	ug/L	25.0		110	70-130	1.13	20	
Toluene	24.1	0.50	"	25.0		96.6	70-130	0.290	20	
Surrogate: Dibromofluoromethane	*12.8*		"	*12.5*		*103*	*70-130*			
Surrogate: Toluene-d8	*10.4*		"	*12.5*		*83.1*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*11.5*		"	*12.5*		*91.8*	*70-130*			
Duplicate (B5F0058-DUP1)		**Source: 1502319-01**		Prepared & Analyzed: 02-Jun-15						
Benzene	ND	0.50	ug/L		ND				20	
Ethylbenzene	ND	0.50	"		ND				20	
Toluene	ND	0.50	"		ND				20	
Xylenes (total)	ND	0.50	"		ND				20	
Surrogate: Dibromofluoromethane	*12.5*		"	*12.5*		*100*	*70-130*			
Surrogate: Toluene-d8	*11.6*		"	*12.5*		*93.2*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*11.4*		"	*12.5*		*91.3*	*70-130*			

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5E0663 - EPA 3510C MS										
Blank (B5E0663-BLK1)				Prepared: 26-May-15 Analyzed: 27-May-15						
Acenaphthene	ND	0.10	ug/L							
Acenaphthylene	ND	0.10	"							
Anthracene	ND	0.10	"							
Benz(a)anthracene	ND	0.10	"							
Benzo (b) fluoranthene	ND	0.10	"							
Benzo (k) fluoranthene	ND	0.10	"							
Benzo (a) pyrene	ND	0.10	"							
Benzo (g,h,i) perylene	ND	0.10	"							
Chrysene	ND	0.10	"							
Dibenz (a,h) anthracene	ND	0.10	"							
Fluoranthene	ND	0.10	"							
Fluorene	ND	0.10	"							
Indeno (1,2,3-cd) pyrene	ND	0.10	"							
Naphthalene	ND	0.10	"							
Phenanthrene	ND	0.10	"							
Pyrene	ND	0.10	"							
Surrogate: p-Terphenyl-d14	*0.950*		"	*0.800*		*119*	*39-177*			
LCS (B5E0663-BS1)				Prepared: 26-May-15 Analyzed: 27-May-15						
Acenaphthene	0.680	0.10	ug/L	0.800		85.0	53-105			
Acenaphthylene	0.710	0.10	"	0.800		88.8	48-110			
Anthracene	0.880	0.10	"	0.800		110	54-120			
Benz(a)anthracene	0.590	0.10	"	0.800		73.8	46-131			
Benzo (b) fluoranthene	0.640	0.10	"	0.800		80.0	45-153			
Benzo (k) fluoranthene	0.870	0.10	"	0.800		109	63-154			
Benzo (a) pyrene	0.650	0.10	"	0.800		81.2	56-134			
Benzo (g,h,i) perylene	0.760	0.10	"	0.800		95.0	36-164			
Chrysene	0.880	0.10	"	0.800		110	72-125			
Dibenz (a,h) anthracene	0.670	0.10	"	0.800		83.8	44-154			
Fluoranthene	0.790	0.10	"	0.800		98.8	71-118			
Fluorene	0.680	0.10	"	0.800		85.0	45-122			
Indeno (1,2,3-cd) pyrene	0.970	0.10	"	0.800		121	40-155			
Naphthalene	0.640	0.10	"	0.800		80.0	49-99			
Phenanthrene	0.600	0.10	"	0.800		75.0	49-117			
Pyrene	0.810	0.10	"	0.800		101	71-119			
Surrogate: p-Terphenyl-d14	*0.800*		"	*0.800*		*100*	*39-177*			

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Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5E0663 - EPA 3510C MS										
LCS Dup (B5E0663-BSD1)				Prepared: 26-May-15 Analyzed: 27-May-15						
Acenaphthene	0.710	0.10	ug/L	0.800		88.8	53-105	4.32	30	
Acenaphthylene	0.710	0.10	"	0.800		88.8	48-110	0.00	30	
Anthracene	0.890	0.10	"	0.800		111	54-120	1.13	30	
Benz(a)anthracene	0.600	0.10	"	0.800		75.0	46-131	1.68	30	
Benzo (b) fluoranthene	0.660	0.10	"	0.800		82.5	45-153	3.08	30	
Benzo (k) fluoranthene	0.920	0.10	"	0.800		115	63-154	5.59	30	
Benzo (a) pyrene	0.710	0.10	"	0.800		88.8	56-134	8.82	30	
Benzo (g,h,i) perylene	0.770	0.10	"	0.800		96.2	36-164	1.31	30	
Chrysene	0.910	0.10	"	0.800		114	72-125	3.35	30	
Dibenz (a,h) anthracene	0.650	0.10	"	0.800		81.2	44-154	3.03	30	
Fluoranthene	0.810	0.10	"	0.800		101	71-118	2.50	30	
Fluorene	0.660	0.10	"	0.800		82.5	45-122	2.99	30	
Indeno (1,2,3-cd) pyrene	0.950	0.10	"	0.800		119	40-155	2.08	30	
Naphthalene	0.650	0.10	"	0.800		81.2	49-99	1.55	30	
Phenanthrene	0.570	0.10	"	0.800		71.2	49-117	5.13	30	
Pyrene	0.830	0.10	"	0.800		104	71-119	2.44	30	
Surrogate: p-Terphenyl-d14	*0.780*		*"*	*0.800*		*97.5*	*39-177*			

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

Midway Laboratory, Inc	Project: Midway Laboratory	
315 Main Street	Project Number: 28880	**Reported:**
Taft CA, 93268	Project Manager: Kurt Buckle	02-Jun-15 17:05

Notes and Definitions

R-05	The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.
D-04	The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

PAGE ____ OF ____

Midway Laboratory, Inc
CHAIN OF CUSTODY FORM

LOG NUMBER: 28880

COMPANY: Midway Laboratory, Inc
CONTACT(S): Office Personnel (see phone listed below)
PHONE: 661-765-2364 CELL: ____ FAX: 661-765-6920
ADDRESS: P.O. Box 1151
Taft, CA 93268
EMAIL (S): midwaylab@verizon.net

SAMPLER: ____
SAMPLER SIGNATURE REQUIRED ABOVE

ANALYSIS REQUESTED

LAB #	SAMPLE DESCRIPTION & LOCATION	SAMPLE DATE	SAMPLE TIME	BTEX	BOIS	PAH	Radionuclide	lithium	strontium	NUMBER OF CONTAINERS	TYPE OF CONTAINERS (SEE LIST)	SAMPLE MATRIX (SEE LIST)	PRESERVATIVES REQUIRED (SEE LIST)
	Waste Water cunningham Lease	5-21-15	0936	X	X	X	X	X	X	8	L	WW	
		15-21-15	085-18	-L									

Sample Matrix Waste Water
See below for comments and preservatives

PRESERVATIVE LIST
Please indicate preservative required using the corresponding letter at the left of the list

A	HCl - Hydrocloric Acid
B	H2SO4 - Sulfuric Acid
C	HNO3 - Nitric Acid
D	NaOH- Sodium Hydroxide
E	NA2S2O3 - Sodium Thiosulfate
F	Zn Acetate - Zinc Acetate
G	O - Other (Please specify in comments)

SAMPLE CONDITION
AT TIME OF ARRIVAL IN THE LAB PLEASE CHECK THE APPROPRIATE BOXES BELOW:
☐ COOL
☐ RECEIVED ON ICE
☐ WARM
☐ ROOM TEMPERATURE
☐ SAME DAY SAMPLING
TEMPERATURE MUST BE TAKEN FOR ALL DRINKING WATER SAMPLES UPON ARRIVAL IN THE LAB
THESE ARE TAKEN WITH THE TEMP GUN

At time of sampling in Field: TEMPERATURE | PRESSURE | TEMP

CONTAINER TYPES
G= GLASS
AG= AMBER GLASS
M= METAL
MC= METAL CYLINDER
P= PLASTIC
SY= SYRINGE
T= TEDLAR
TC= TEFLON COATED
O= OTHER

SAMPLE MATRIX
G= GAS
L= LIQUID
LNG= LIQUEFIED NATURAL GAS
LPG= LIQUEFIED PETROLEUM GAS
O= OIL
S= SOIL
SLD= SOLID
SL= SLUDGE
DW= DRINKING WATER
W= WATER

INSTRUCTIONS FOR OUTLABBING ANALYSIS:
ALL outlabbed analysis MUST include the method numbers for requested analysis.
ALL drinking water samples MUST include:
Source Numbers
Sampler's Name
Lab MUST be aware that analysis is to be reported to the State

CHAIN OF CUSTODY SIGNATURE RECORD

1.	RELINQUISHED BY	5/21/15 DATE	1:30 TIME
1.	RECEIVED BY	5/21/15 DATE	2:00 TIME
1.	RELINQUISHED BY	5/21/15 DATE	1530 TIME
1.	RECEIVED BY	5.21.15 DATE	1530 TIME

COMMENTS:
1-24 oz poly non pres., 1-24 oz Poly HNO3
1-amber voa non pres.
6-voas pres. w/ HCl
1-1 liter amber non pres.
2-1 liter Poly non pres.
THIS SPACE RESERVED FOR LABORATORY USE ONLY

SAMPLING:
TIME:
MILEAGE:

IF COMPANY REQUIRES PO NUMBER, PM NUMBER OR COST CODE PLEASE LIST BELOW:
____
____

Midway Laboratory, Inc.
Alan J. Harris - President/Owner
Phone: 661-765-2364 ♦ Fax: 661-765-6920 ♦ Email: midwaylab@verizon.net ♦ State Certification Number: 1396 ♦ www.midwaylaboratory.com

PAGE ____ OF ____

Midway Laboratory, Inc
CHAIN OF CUSTODY FORM

LOG NUMBER: 29880

COMPANY: Midway Laboratory, Inc.
CONTACT(S): Office Personnel (see phone listed below)
PHONE: 661-765-2364 CELL: FAX: 661-765-6920
ADDRESS: P.O. Box 1151
Taft, CA 93268
EMAIL (S): midwaylab@verizon.net

SAMPLER: SAMPLER SIGNATURE REQUIRED ABOVE

ANALYSIS REQUESTED

LAB #	SAMPLE DESCRIPTION & LOCATION	SAMPLE DATE	SAMPLE TIME	BTEX	BOIS	PAH	Radionuclide	lithium	Strontium					NUMBER OF CONTAINERS	TYPE OF CONTAINERS (SEE LIST)	SAMPLE MATRIX (SEE LIST)	PRESERVATIVES REQUIRED (SEE LIST)	At time of sampling in Field: TEMPERATURE	At time of sampling in Field: PRESSURE	TEMP
	Waste Water cunningham Lease	5-21-15	0936	X	X	X	X	X	X					6	L	WW				
		15&22	0915-1	-	L															

Sample Matrix: Waste Water
See below for Containers and Preservatives

PRESERVATIVE LIST

Please indicate preservative required using the corresponding letter at the left of the list

A	HCl - Hydrochloric Acid
B	H2SO4 - Sulfuric Acid
C	HNO3 - Nitric Acid
D	NaOH - Sodium Hydroxide
E	NA2S2O3 - Sodium Thiosulfate
F	Zn Acetate - Zinc Acetate
G	O - Other (Please specify in comments)

SAMPLE CONDITION

AT TIME OF ARRIVAL IN THE LAB PLEASE CHECK THE APPROPRIATE BOXES BELOW:

- ☐ COOL
- ☐ RECEIVED ON ICE
- ☐ WARM
- ☐ ROOM TEMPERATURE
- ☐ SAME DAY SAMPLING

TEMPERATURE MUST BE TAKEN FOR ALL DRINKING WATER SAMPLES UPON ARRIVAL IN THE LAB

THESE ARE TAKEN WITH THE TEMP GUN

CONTAINER TYPES

G= GLASS
AG= AMBER GLASS
M= METAL
MC= METAL CYLINDER
P= PLASTIC
SY= SYRINGE
T= TEDLAR
TC= TEFLON COATED
O= OTHER

SAMPLE MATRIX

G= GAS
L= LIQUID
LNG= LIQUEFIED NATURAL GAS
LPG= LIQUEFIED PETROLEUM GAS
O= OIL
S= SOIL
SLD= SOLID
SL= SLUDGE
DW= DRINKING WATER
W= WATER

INSTRUCTIONS FOR OUTLABBING ANALYSIS:

ALL outlabbed analysis MUST include the method numbers for requested analysis.
ALL drinking water samples MUST include:
Source Numbers
Sampler's Name
Lab MUST be aware that analysis is to be reported to the State

CHAIN OF CUSTODY SIGNATURE RECORD

1.	RELINQUISHED BY	5/21/15 DATE	1:00 TIME
1.	RECEIVED BY	5/21/15 DATE	2:00 TIME
1.	RELINQUISHED BY	5/21/15 DATE	1534 TIME
1.	RECEIVED BY	5.21.15 DATE	1534 TIME

COMMENTS:

1- 24oz poly non pres., 1-24 oz Poly HNO3
1- amber voa non pres.
6- voas pres. w/ HCl
1- 1 liter amber non pres.
2- 1 liter Poly non pres.

THIS SPACE RESERVED FOR LABORATORY USE ONLY

SAMPLING:

TIME:

MILEAGE:

IF COMPANY REQUIRES PO NUMBER, PM NUMBER OR COST CODE PLEASE LIST BELOW:

SAMPLE RECEIPT

Rev. 01/15/10

CLIENT: Midway OEC ID #: 1502205 Temp: 3.1 °C
Acceptable Range: 0°C to 6°C

COC RECEIVED
DATE/TIME: 5-21-12 1530

RECEIPT LOGIN
DATE/TIME: 5-21-12 1730

REFRIGERATOR(s): 8

SAMPLE TRANSPORT, RECEIPT, CONDITION & PRESERVATION:

- [x] OEC Courier/Sampler
- [ ] Delivery(Other than OEC Courier)
- [x] Samples Received on Ice
- [ ] Samples Received Outside Temp. Range*
- [ ] Samples Direct from field (Outside Temp)
- [ ] After-Hours Outside Drop-off [Brought Inside]

(Initials/Date/Time):

	Yes	No	N/A
COC document(s) received with samples	[x]	[ ]*	[ ]
Correct containers for analysis requested	[ ]	[x]*	[ ]
Container(s) intact and in good condition	[x]	[ ]*	[ ]
Container label(s) consistent with COC	[x]	[ ]*	[ ]
OEC preservative added (**note std ID)	[ ]**	[x]	[ ]
Proper preservation on sample label(s)	[x]	[ ]	[ ]
VOA containers free of headspace	[ ]	[x]*	[ ]
Tedlar Bags free of condensation	[ ]	[ ]*	[x]

(*) PROBLEM CHAIN FORM NEEDED

Custody Seals (circle): Present / Absent
Samples / Coolers
Intact / Broken*

Method of Shipment & Tracking #(if applicable):

(**) OEC Preservative ID:

Dissolved Metals Filtration: (Date/Init/Preserve ID)

CONTAINERS, COC CHANGES AND/OR CORRECTIONS

CHANGES AUTHORIZED BY:

OEC ID	Client ID ***If blank, refer to CoC	Container Description	Preservative	ResCl /pH	Matrix	Date/Time Sampled ***	Comments / Remarks / Condition Notes, Etc.
1A		1-1L amber	–	–	W		
1B-C		2-1L polys	–	↓	↓		
1D		1-250 mL poly	–	↓	↓		
1E		↓	HNO_3	<2	↓		
1F		1-40 mL amber VOA	–	–	↓		
1G-L		6-40 mL VOAs	HCl	–	↓		

RECEIPT LOGIN BY: LJ RECEIPT REVIEWED BY: TK

SAMPLE RECEIPT

Rev. 01/15/10

CLIENT: Midway OEC ID #: 1502205 Temp: 3.1 °C
Acceptable Range: 0°C to 6°C

COC RECEIVED
DATE/TIME: 5-21-15 1539

RECEIPT LOGIN
DATE/TIME: 5-21-15 1730

REFRIGERATOR(s): 8, Davi

SAMPLE TRANSPORT, RECEIPT, CONDITION & PRESERVATION:		Yes	No	N/A	(*) PROBLEM CHAIN FORM NEEDED
☒ OEC Courier/Sampler	COC document(s) received with samples	☒	☐*	☐	Custody Seals (circle): Present / Absent
☐ Delivery(Other than OEC Courier)	Correct containers for analysis requested	☐	☒*	☐	Samples / Coolers
☒ Samples Received on Ice	Container(s) intact and in good condition	☒	☐*	☐	Intact / Broken*
☐ Samples Received Outside Temp. Range*	Container label(s) consistent with COC	☒	☐*	☐	Method of Shipment & Tracking #(if applicable):
☐ Samples Direct from field (Outside Temp)	OEC preservative added (**note std ID)	☒**	☒*	☐	
☐ After-Hours Outside Drop-off [Brought Inside]	Proper preservation on sample label(s)	☒	☐	☐	(**) OEC Preservative ID: HNO3 4690185
(Initials/Date/Time):	VOA containers free of headspace	☐	☒*	☐	Dissolved Metals Filtration: (Date/Init/Preserve ID)
	Tedlar Bags free of condensation	☐	☐*	☒	

CONTAINERS, COC CHANGES AND/OR CORRECTIONS — **CHANGES AUTHORIZED BY:**

OEC ID	Client ID ***If blank, refer to CoC	Container Description	Preservative	ResCl /pH	Matrix	Date/Time Sampled ***	Comments / Remarks / Condition Notes, Etc.
1A		1-1L amber	–	–	W		8
1B-C		2-1L polys	–				Davi
1D		1-250 mL poly	**HNO3	<2			8
1E		↓	HNO3	<2			Davi
1F		1-40 mL amber VOA	–	–			8
1G-L		6-40 mL VOAs	HCl	–	↓		8 (3)

RECEIPT LOGIN BY: LJ RECEIPT REVIEWED BY: TK

OEC PROBLEM CHAIN

CLIENT: Midway OEC ID #: 1502205

ISSUES RECORDED BY (DATE/TIME/INITIALS): 5-21-15 1730 by

ISSUE(S): PLEASE PROVIDE DETAILS OF ISSUE(S) BELOW – Samples/Containers Affected, as necessary.

- ☐ Samples Received Outside Temp. Range (see below)
- ☐ NO COC document(s) received with samples
- ☐ Container(s) NOT intact or in good condition
- (1) ☒ Incorrect containers for analysis requested
- ☐ Container label(s) NOT consistent with COC
- ☐ Custody Seals Broken
- (2) ☒ OTHER: (if multiple, identify with numbers)

(1) only received 1-1L amber for both 8015 and PAH
did not receive enough sample for radionuclides
Wrong container for metals analysis - container ID

(2) VOAs 1G-I have headspace

RESOLUTIONS: MINIMUM INFO: Issue#[if necessary] – Description – Contact Type (Verbal, email, etc.) – Client Authorization Contact – Date/Time/Initials

(1) talked to Meredith and Marissa (Ankita already gone for the day)
and we will talk to Ankita and client tomorrow - Added 2.0 of
HNO3 to ID to bring pH to <2. (Lot#4090185)

(2) marked with x on sides and tops to alert analyst

FINAL RESOLUTION OF ISSUES BY (DATE/TIME/INITIALS): 5-22-15 @ 1050 by TA

09/09/08

OEC PROBLEM CHAIN

CLIENT: Midway OEC ID #: 1502205

ISSUES RECORDED BY (DATE/TIME/INITIALS): 5-21-15 1730 by

ISSUE(S): PLEASE PROVIDE DETAILS OF ISSUE(S) BELOW – Samples/Containers Affected, as necessary.

- ☐ Samples Received Outside Temp. Range (see below)
- ☐ NO COC document(s) received with samples
- ☐ Container(s) NOT intact or in good condition
- (1) ☒ Incorrect containers for analysis requested
- ☐ Container label(s) NOT consistent with COC
- ☐ Custody Seals Broken
- (2) ☒ OTHER: (if multiple, identify with numbers)

(1) only received 1-1L amber for both 8015 and PAH did not receive enough sample for radionuclides

(2) VOAs 1G-I have headspace

RESOLUTIONS: MINIMUM INFO: Issue#[if necessary]– Description – Contact Type (Verbal, email, etc.) – Client Authorization Contact – Date/Time/Initials

(1) talked to Meredith and Marissa (Ankita already gone for the day) and we will talk to Ankita and client tomorrow

(2) marked with x on sides and tops to alert analyst

FINAL RESOLUTION OF ISSUES BY (DATE/TIME/INITIALS): _____

09/09/08

AREA: Cunningham Lease

FREQUENCY Callout

Midway Laboratory, Inc

CHAIN OF CUSTODY FORM

Outlabbed to OEC 5-21-15

LOG NUMBER: 28880

PAGE: OF

COMPANY: Woodward-Clyde

CONTACT: Ken Wilcox

ADDRESS: 15 Hughes Irvine CA 92618

PHONE: (949) 753-2393 FAX: (949) 753-2114

PROJECT: Phase II

P.O. #: 43255

SAMPLER: Alan

SAMPLER SIGNATURE REQUIRED ABOVE

ANALYSIS REQUESTED

LAB #	SAMPLE DESCRIPTION	LOCATION / FACILITY	SAMPLE DATE	SAMPLE TIME	METER #	TDS	Cl	SO4	Alkalinity	BTEX	PAH	Geochem	Lithium	Strontium	Manganese	Radium 226/228 (Ra 226 + Ra 228) (C64442)	NUMBER OF CONTAINERS	TYPE OF CONTAINERS (SEE LIST)	SAMPLE MATRIX (SEE LIST)	PRESERVATIVES REQUIRED (SEE LIST)
	Waste water	Cunningham Lease	5-21-15	0930		X	X	X	X	X	X	X	X	X	X	X	1	4G 3P	W	

PRESERVATIVE USED

	TEMPERATURE		PRESSURE	
	Temp	UOM	Pressure	UOM
A				
B				
C				
D				
E				
F				
G				

SAMPLE CONDITION

ROOM TEMPERATURE

PLEASE LIST ANY

PM /PO NUMBERS OR COST CODES:

TEMPERATURE MUST BE TAKEN FOR ALL GROUNDWATER SAMPLES AND FOR ALL SAMPLES REQUIRING THERMAL PRESERVATION. TEMP MUST BE TAKEN WITHIN 1 HR OF COC

CONTAINER TYPES

G= GLASS
AG= AMBER GLASS
M= METAL
MO= METAL CYLINDER
P= PLASTIC
SY= SYRINGE
T= TEDLAR
TC= TEFLON COATED
O= OTHER

SAMPLE MATRIX

G= GAS
L= LIQUID
LNG= LIQUEFIED NATURAL GAS
LPG= LIQUEFIED PETROLEUM GAS
O= OIL
S= SOIL
SLD= SOLID
SL= SLUDGE
DW= DRINKING WATER
W= WATER

SAMPLING

TIME 0920

HOURS

MILES

CHAIN OF CUSTODY SIGNATURE RECORD

1.	RELINQUISHED BY	DATE 5-21-15	TIME 0955	
1.	RECEIVED BY	DATE 5/21/15	TIME 0956	
1.	RELINQUISHED BY	DATE	TIME	
1.	RECEIVED BY	DATE	TIME	

INSTRUCTIONS FOR OPERATING ANALYSIS

IS SAMPLE A RESAMPLE PLEASE STATE YES OR NO

ORGINAL LOG NUMBER:

IS SAMPLE A REVISED PLEASE STATE YES OR NO

COMMENTS:

THIS SPACE RESERVED FOR LABORATORY USE ONLY

MW 10:00AM

Midway Laboratory, Inc.

Alan J. Harris - President/Owner

Phone: 661-765-2384 ♦ Fax: 661-765-6920 ♦ Email: midwaylab@verizon.net ♦ State Certification Number: 1396 ♦ www.midwaylaboratory.com

Midway Laboratory, Inc.

LABORATORY REPORT

ELAP STATE CERT. #1396

Title 22 Article 3 – Characteristics of Hazardous Waste

CUSTOMER: Woodward Oil
PO BOX 1052
Taft, CA 93268

LOG NUMBER: 28880
DATE RECEIVED: 05-21-15
DATE COMPLETED: 05-26-15
REPORT DATE: 05-26-15

ATTENTION: Paul Woodward

SAMPLE DESCRIPTION: Waste Water Cunningham Lease

Sample Log #28880, Described as "Waste Water Cunningham Lease" was submitted for hazardous waste characterization as described under California Code of Regulations, Title 22, Article 3 § 66261.20.

Sample Log # 28880 was evaluated according to the following criteria utilizing EPA SW-846 methodology and related regulatory methodology.

Title 22 Article 3. Characteristics of Hazardous Waste

§ 66261.20. General.

(b) A waste which is identified as a hazardous waste pursuant to one or more of the characteristics set forth in section;

§ 66261.21 Characteristics of Ignitability. ***Not Requested***

§ 66261.22(a)(1) Characteristics of Corrosivity (Aqueous, dealing with pH 2-12.5). ***Not Requested***

§ 66261.23 Characteristics of Reactivity. (Explosives, sulfides-cyanides) ***Not Requested***

§ 66261.24(a)(1) Characteristic of Toxicity (TCLP-metals, organics, Table 1; WET extraction, STLC-TTLC CAM metals) ***Passed***

** § 66261.24(a)(6) Acute aquatic 96-hour LC50 (Fish Bioassay). ***Not Requested***

Under these guidelines, sample Log #28880 would be considered as Non Hazardous

** **Please Note:** This analysis was not performed by Midway Laboratory personnel and therefore Midway Laboratory is unable to verify the accuracy of these results.

Please note: Hazardous or non hazardous status under Characteristics of Hazardous Waste Title 22, Article 3 is only applicable to analysis that was completed. Any analysis listed as "Not Requested" is not included in the determination of Hazardous or Non Hazardous.

Q.C. KR Date: 5/27/15

Q.C. RW Date: 5/27/15

Date: 5-27-15

Kurt Buckle - Laboratory Director **Midway Laboratory, Inc.**

Midway Laboratory, Inc.
315 Main Street ♦ P.O. Box 1151
Taft, CA 93268
Phone: 661-765-2364♦Fax: 661-765-6920♦Email: midwaylab@verizon.net♦www.midwaylaboratory.com

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State Certification Number: 1396A
Petroleum ♦ Industrial ♦ Environmental

Member: American Society for Testing and Materials (ASTM), Gas Processors Association (GPA), American Petroleum Institute (API), Society of Petroleum Engineers (SPE) member # 3564829

~Laboratory Report~

Characteristics of Hazardous Waste - Title 22, Article 3.

‡ Aqueous Samples

Rev. 6-23-06

Customer: Woodward Oil
Address: PO BOX 1052
Taft, CA 93268
Attention: Paul Woodward
Sample Description: Waste Water Cunningham Lease
Sample Matrix: L=LIQUID
Analytical Parameter: CAM Metals, as itemized in Title 22, § 66261.24,Table II (STLC,TTLC)

Log # : 28880
Sample Date: 5/21/15
Date Received: 5/21/15
Date Completed: 5/26/15
Date Reported: 5/26/15

Toxicity § 66261.24

Characteristic Constituent	Symbol	Results: Total (mg/L)	PQL (mg/L)	Method	STLC (mg/L)	TTLC (mg/Kg)
Antimony	Sb	ND	0.01	EPA 6010B	15	500
Arsenic	As	ND	0.01	EPA 6010B	5	500
Barium*	Ba	0.42	0.01	EPA 6010B	100	10000
Beryllium	Be	ND	0.01	EPA 6010B	0.75	75
Cadmium	Cd	ND	0.01	EPA 6010B	1	100
Chromium (Total)	Cr	ND	0.01	EPA 6010B	560	2500
Chromium (VI)	Cr	NR	0.01	EPA 7196A	5	500
Cobalt	Co	ND	0.01	EPA 6010B	80	8000
Copper	Cu	0.04	0.01	EPA 6010B	25	2500
Lead	Pb	0.39	0.01	EPA 6010B	5	1000
Mercury	Hg	ND	0.001	EPA 7470	0.2	20
Molybdenum**	Mo	0.3	0.1	EPA 6010B	350	3500
Nickel	Ni	0.3	0.1	EPA 6010B	20	2000
Selenium	Se	ND	0.5	EPA 6010B	1	100
Silver	Ag	ND	0.01	EPA 6010B	5	500
Thallium	Tl	ND	0.1	EPA 6010B	7	700
Vanadium	V	ND	0.01	EPA 6010B	24	2400
Zinc	Zn	0.06	0.01	EPA 6010B	250	5000

‡ Constituents for aqueous samples exceeding STLC values shall be considered a hazardous waste.

Notes:

~ STLC and TTLC values are calculated on the concentrations of the elements, not the compounds.
~ WET extraction may be required if Total mg/L results exceeds 10X STLC (solid matrix).
~ If Total mg/L for a liquid matrix exceed STLC mg/L values or Total mg/Kg for a solid matrix exceed TTLC values, the sample is considered hazardous.
* Excluding barite, Ba SO4.
** Excluding molybdenum disulfide, MoS2.
NR - Not Requested
ND - Not Detected (below PQL)
One or more state approved methods may be used in performing anaylsis depending upon sample matrix.
*** Subcontracted due to matrix of analysis

Initials: KRB Date: 5-27-15

Midway Laboratory, Inc

315 Main Street ♦ P.O. Box 1151 ♦ Taft, California 93268
Phone 661.765.2364 ♦ Fax 661.765.6920 ♦ midwaylab@verizon.net ♦ www.midwaylaboratory.com ♦ Facebook
State Certification Number: 1396A
Petroleum ♦ Industrial ♦ Environmental

Member: American Society for Testing and Materials (ASTM), Gas Processors Association (GPA), American Petroleum Institute (API), Society of Petroleum Engineers (SPE) member # 3564829

Characteristics of Hazardous waste - Title 22, Article 3.

Reactivity: § 66261.23		Total Releasable Concentration (mg/Kg)	PQL (mg/Kg)	EPA Method Number	EPA Action Level (mg/Kg)
Charactristic		Results:			
Releasable Cyanide	as HCN	NR	1.0	SW-846 (7.3.3)	250
Total Sulfide	as H2S	NR	1.0	SM4500-S=F	250

Corrosivity: § 66261.22				
Characteristic	Results:			Hazardous if
pH	NR	± 0.01	EPA 9040B	< 2.0 or >12.5

Ignitability: § 66261.21				
Characteristic	Results°F			Hazardous if
Flash Point	NR	±1°F	EPA 1010	<140°F

Notes and Definitions:

1. **PQL** - Practical Quantitation Limit is the lowest level that can be reliably achieved within specific limits of precision and accuracy. It is also dependent of sample size, digestion technique and analytical methodology employed.
2. **STLC** - Soluble Threshold Limit Concentration.
3. **TTLC** - Total Threshold Limit Concentration.
4. **ND.** - Not Detected (consitiuent, if present, would be "less than" PQL.
5. **NR** - Not Requested / Not Required.
6. **<>** - Refers to "less than" or "Greater than" respectively.

References:

1. EPA; **"Test Methods for Evaluating Solid Wastes, Physical / Chemical Methods,"** USEPA. SW-846, 3rd. Ed. 1992
2. Title 22; **"California Administrative Code,"** Division 4, Environmental Health, © 1999.
3. APHA-AWWA-WPCF; **"Standard Methods for the Examination of Water and Waste Water,"** 19th.Ed. ©1995
4. EPA; **"Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy,"** Rev. 1, July 1992, EPA Method 3010A.

QC: KR Date: 5/27/15
QC: AU Date: 5/27/15

Date: 5-27-15

Kurt Buckle- Laboratory Director Midway Laboratory, Inc.

Log # 28880

Midway Laboratory, Inc
315 Main Street ♦ P.O. Box 1151 ♦ Taft, California 93268
Phone 661.765.2364 ♦ Fax 661.765.6920 ♦ midwaylab@verizon.net ♦ www.midwaylaboratory.com ♦ Facebook
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Laboratory Report

ELAP Cert. 1396A

Geo-Chemical Water Analysis

Rev 01-13-15

Customer: Woodward Oil
Address: P.O. Box 1052, Taft, CA 93268
Attention: Paul Woodward
Sample Description: Waste Water Cunningham Lease

Log # : 28880
Date In: 5/21/15
Date Completed: 5/29/15
Date Reported: 5/29/15

Anions	mg/L	meq/L	Method #.	MDL
Bicarbonate, HCO_3^{-1}	1,908	31.2	SM2320 B	0.20
Carbonate, CO_3^{-2}	0.00	0.00	SM2320 B	0.20
Chloride, Cl^{-1}	4,210	119	SM4500-Cl^{-1}	0.01
Hydroxide, OH^{-1}	0.00	0.00	SM2320 B	0.20
Sulfate, SO_4^{-2}	6.31	0.13	SM4500-$SO4^{-2}$	0.05

Calculations	Results	Units	Method #	MDL
Alkalinity, as CaCO3 (Total)	1,564	mg/l	SM 2320 B	NA
as CaCO3 (less Org. Alk.)	1,564	mg/l	SM 2320 B	NA
Hardness, as CaCO3 (Calc.)	200	mg/l	SM 2340 B	NA
Salinity; calc. Na+Cl	8,762	mg/l	(Calc.)	NA
Salinity, from Chlorosity	7,606	mg/l	(Calc.)	NA
Calcium Carbonate				
Stability Index (Langlier)	0.24	(Notes)	SM 2330 B	NA
Stability Index (Stiff Davis)	0.16	NA	Ref. 4	NA

Cations	mg/L	meq/L	Method #.	MDL
Barium, Ba^{+2}	0.33	0.00	EPA 200.7	0.01
Boron, B^{+3}	38.4	10.7	EPA 200.7	0.01
Calcium, Ca^{+2}	31.1	1.6	EPA 200.7	0.1
Iron, Fe^{+3}	0.6	0.0	EPA 200.7	0.1
Magnesium, Mg^{+2}	29.6	2.44	EPA 200.7	0.01
Potassium, K^{+1}	109	2.79	EPA 200.7	0.10
Sodium, Na^{+1}	3,200	139	EPA 200.7	5.0
Manganese, Mn^{+2}	0.06	0.00	EPA 200.7	0.01

Other	mg/L	meq/L	Method #.	MDL
Silica, as SiO2	65.5	9.43	EPA 200.7	0.01
Sodium, Na^{+1} (Calc.)	3,201	139	API RP 45	NA
Chloride, Cl^{-1} (Calc.)	4,190	118	API RP 45	NA

Physical Data	Results		Method #	MDL
Temperature	68.0	°F	SM 2550 B	± 0.20
Conductivity (Measured)	15,100	µmho's	SM 2510 B	2.00
Resistivity	0.662	ohm's	(Calc.)	NA
Specific Gravity (60/60)	1.0050	units	API RP 45	±0.0001
Ionic strength	0.15	IS (µ)	(Calc.)	NA
pH	7.26	units	SM 4500 H B	± 0.01
Total Diss. Solids (TDS)*	9,533	mg/L	(An-Cat Sum.)	NA
Total Diss. Solids @ 105 °c	8,660	mg/L	SM 2540 C	NA

QC (Quality Control)	Results		Criteria	Limits
Meas EC - Calc EC =	1.0	*Note	(0.9 - 1.1) EC	>2500
TDS - EC Ratio =	0.63	**Note	(0.55 - 0.70)	>2500
Measured EC - Ion Sum =	1.0	Cation	(0.9 - 1.1) EC	
	1.0	Anion	(0.9 - 1.1) EC	
Calc. Na - Actual Na =	1.00	Na/Na	(0.98 - 1.02)	
NaCl/(NaCl Calc.) =	1.00	Na:Cl	(0.98 - 1.02)	

QC - Anion - Cation Balance Criteria

Anion Sum meq/L	meq/L SUM	Acceptable % Difference
0 - 3.0	NA	± 0.2 meq
3.0 - 10.0	NA	± 2 %
10.0 - 800	300	± 2 - 5 %
Anion - Cation Balance =	-0.2	%

"The Quality of the Analysis is Only as Good as the Quality of the Sample"

Notes:

MDL - Method Detection Limit.
PQL - Practical Quantitation Limit - The lowest level that can be reliably achieved within specific limits of precision and accuracy of the analytical methodology (5X MDL).
N.D. - Not Detected (below PQL)
TDS* - Cation and anion sum..
NA - Not applicable to report.
∑ = Sum
** Dissociated ions may elevate this value (Ca^{+2}, $SO4^{-2}$ etc.)
X = Not Analyzed for

Calcium Carbonate Stability Index

(+) =CaCO3 will tend to precipitate.
(-) = CaCO3 will tend to dissolve.
(±) = CaCO3 is at equilibrium.

References:

1. APHA-AWWA; "Standard Methods for the Examination of Water and Waste Water," 18-20 th. Ed. 1992-98
2. ASTM; "Water," 2007 American Society for Testing and Material Vol. 11.01-02
3. EPA;"Methods for Chemical Analysis of Water and Waste," 1983 EPA-600/4-79-020
4. API; "Analysis of Oil-Field Waters," 1981 2nd. Ed. American Petroleum Insitiute, API RP 45.
5. Patton, C.C.; "Applied Water Technology," 1986 Campbell Petroleum Series.

Comments:

QC: [signature] Date: 6/1/15

QC: SH Date: 6-1-15

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Date: 6-1-15