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Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED

By Alameda County Environmental Health 11:07 am, Jun 16, 2015

RE: **Reduction of Light Non Aqueous Phase Liquid (LNAPL)
Recovery Events Request**
Former Chevron Service Station 97127
Grant Line Road and Interstate 580
Tracy, California
RWQCB # RO0000185

Dear Mr. Detterman:

ARCADIS U.S., Inc. (ARCADIS), at the request of Chevron Environmental Management Company (Chevron), has prepared the enclosed Reduction of Light Non Aqueous Phase Liquid (LNAPL) Recovery Events Request for Former Chevron Service Station 97127, located at Grant Line Road and Interstate 580 in Tracy, California.

I declare to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct. The enclosed report is submitted pursuant to the requirements of California Water Code Section 13267 (b)(1).

Sincerely,

A handwritten signature in cursive script that reads "Carryl MacLeod".

Carryl MacLeod
Project Manager

Mr. Mark Detterman, P.G., C.E.G.
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject:

**Reduction of Light Non Aqueous Phase Liquid (LNAPL)
Recovery Events Request**

Former Chevron Service Station No. 97127
Grant Line Road and Interstate 580
Tracy, California
RWQCB # RO0000185

Dear Mr. Detterman:

On behalf of Chevron Environmental Management Company (Chevron), ARCADIS U.S. Inc. (ARCADIS) has prepared this *Reduction of Light Non Aqueous Phase Liquid (LNAPL) Recovery Events Request* (request) associated with former Chevron service station 97127, located at the east side of Grant Line Road, just south of Interstate-580 in a rural area of Tracy, California (the site; Figure 1).

In their letter dated July 10, 2014, Alameda County Environmental Health (ACEH) requested that interim LNAPL recovery be implemented at the site. ARCADIS prepared and submitted the *LNAPL Recovery Work Plan* (work plan), dated August 28, 2014. ACEH approved the work plan in a letter dated October 17, 2014. The first LNAPL recovery event commenced on January 17, 2015 at four onsite monitoring wells (MW-1, MW-3, MW-10 and MW-11). Since commencement, LNAPL has been recovered twice a month from all four groundwater monitoring wells. A summary of LNAPL gauging results are illustrated on Figure 2, and are presented in Table 1.

Results

On January 17, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.43 feet), MW-3 (0.07 foot), MW-10 (1.39 feet) and MW-11 (0.47 foot). Approximately 6 gallons of LNAPL was removed total from all 4 monitoring wells during the bailing event.

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ENVIRONMENT

Date:
June 15, 2015

Contact:
Tonya R. Russi

Phone:
916.865.3168

Email:
Tonya.Russi@
arcadis-us.com

Our ref:
B0047959.0009

On January 31, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.41 feet), MW-3 (0.06 foot), MW-10 (1.26 feet) and MW-11 (0.10 foot). Approximately 5.7 gallons of LNAPL was removed total from all 4 monitoring wells during the bailing event.

On February 13, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.23 feet), MW-3 (0.02 foot), MW-10 (1.14 feet) and MW-11 (0.06 foot). Approximately 6 gallons of LNAPL was removed total from all 4 monitoring wells during the bailing event.

On February 25, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.25 feet), MW-10 (1.21 feet) and MW-11 (0.06 foot). Measurable LNAPL was not observed in MW-3. Approximately 3.5 gallons of LNAPL was removed total from all 3 monitoring wells during the bailing event.

On March 15, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.29 feet), MW-10 (1.07 feet) and MW-11 (0.05 foot). Measurable LNAPL was not observed in MW-3. Approximately 3.7 gallons of LNAPL was removed total from all 3 monitoring wells during the bailing event.

On March 27, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.36 feet), MW-10 (0.98 foot) and MW-11 (0.05 foot). Measurable LNAPL was not observed in MW-3. Approximately 4 gallons of LNAPL was removed total from all 3 monitoring wells during the bailing event.

On April 10, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.38 feet), MW-10 (1.21 feet) and MW-11 (0.06 feet). Measurable LNAPL was not observed in MW-3. Approximately 6.5 gallons of LNAPL was removed total from all 3 monitoring wells during the bailing event.

On April 24, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.50 feet), MW-10 (1.21 feet) and MW-11 (0.06 feet). Measurable LNAPL was not observed in MW-3. Approximately 2.5 gallons of LNAPL was removed total from all 3 monitoring wells during the bailing event.

On May 8, 2015, initial LNAPL thickness was measured in onsite wells MW-1 (1.54 feet), MW-10 (1.26 feet) and MW-11 (0.07 feet). Measurable LNAPL was not observed in MW-3. Approximately 7 gallons of LNAPL was removed total from all 3 monitoring wells during the bailing event.

Conclusions

The LNAPL plume is stable and primarily in the center portion of the site in the vicinity of the former dispenser island and underground storage tanks. LNAPL has not been observed in any other network monitoring wells. With the exception of MW-3, there has not been a significant change in measurable LNAPL thicknesses at wells MW-1, MW-10 and MW-11 despite LNAPL recovery events twice a month. LNAPL continues to be measured at a similar thickness at MW-1, MW-10 and MW-11.

Recommendations

ARCADIS requests that LNAPL recovery events be conducted on a semi-annual basis during routine groundwater monitoring and sampling events.

Sincerely,

ARCADIS U.S., Inc.

Tonya Russi

Tonya R. Russi
Senior Scientist

David W. Lay

David W. Lay, P.G., C.P.G.
Principal Geologist



Enclosures:

Figure 1 Site Location Map
Figure 2 Site Plan

Table 1 Bi-Monthly LNAPL Monitoring and Recovery Data

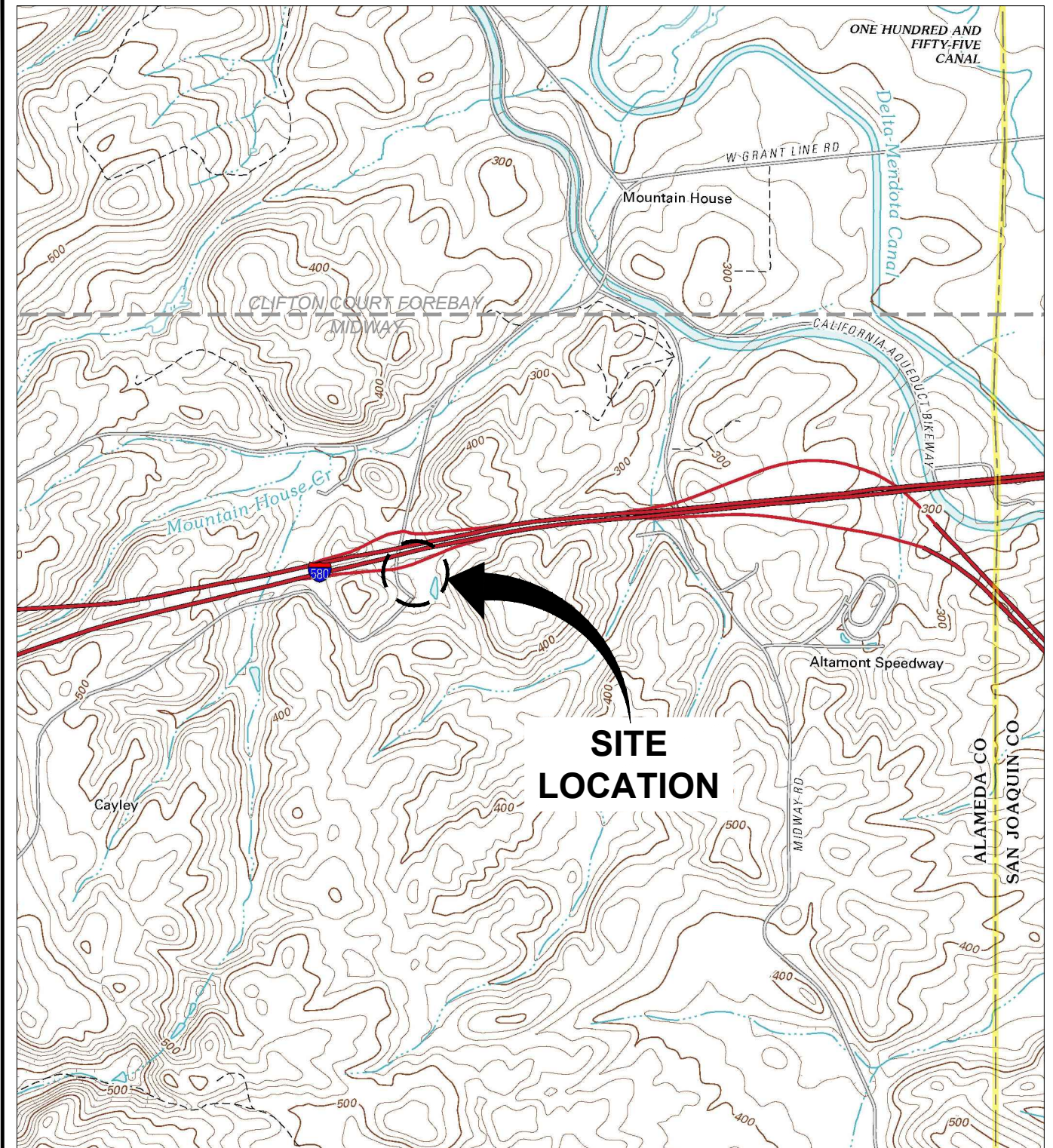
Copies:

Ms. Carryl MacLeod, Chevron Environmental Management Company
Mr. Ardavan Onori, DM Livermore, Inc.
Mr. Wyman Hong, Zone 7 Water Agency

ARCADIS

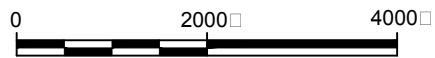
Figures

CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENVCAD DB: J. HARRIS
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SITE LOCATION

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. □ UAD., MIDWAY AND CLIFTON COURT FOREBAY, CALIFORNIA, 2012.



Approximate Scale: 1 inch = 2000 ft.



AREA LOCATION

CALIFORNIA

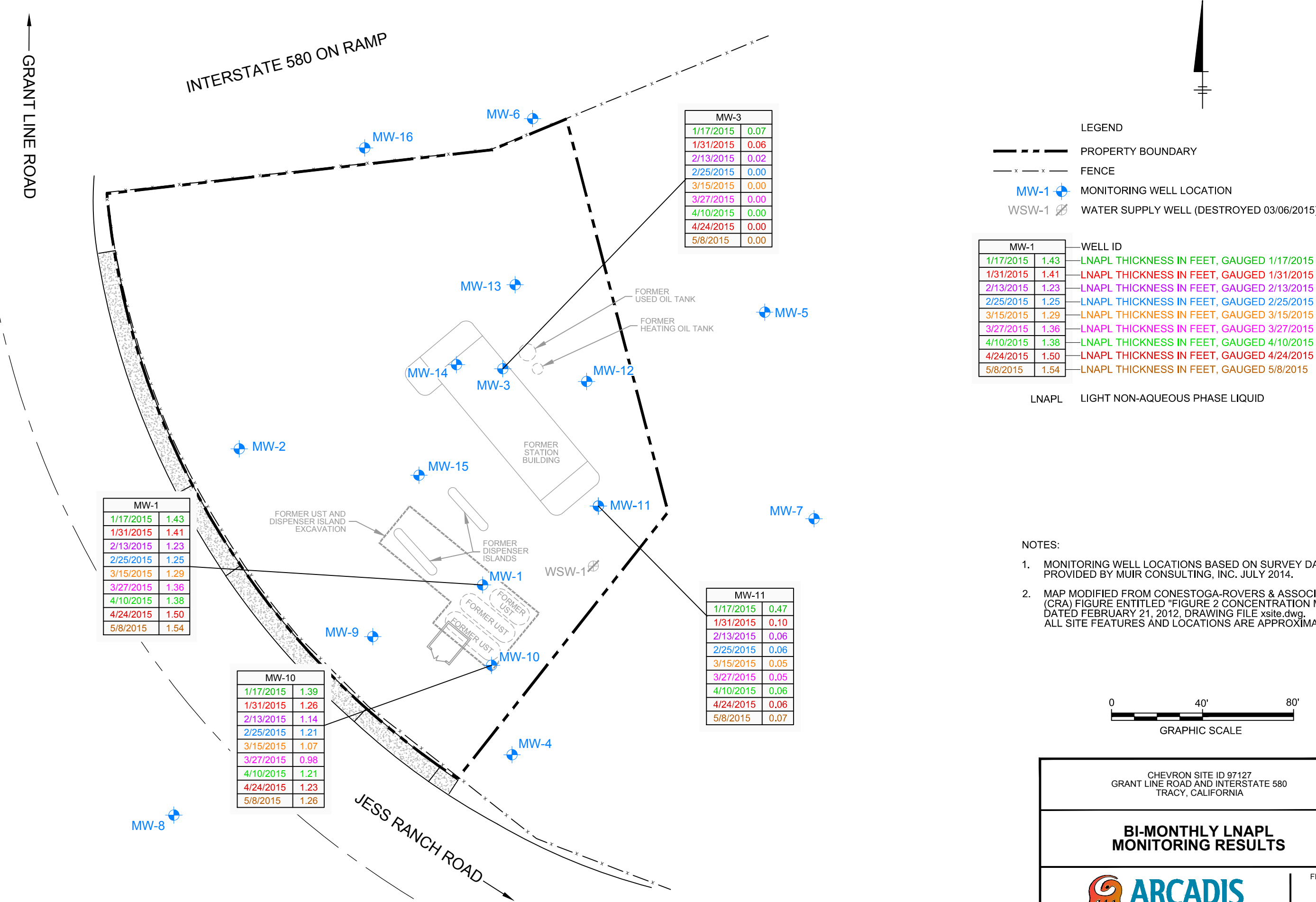
CHEVRON SITE ID 97127
 GRANT LINE ROAD AND INTERSTATE 580
 TRACY, CALIFORNIA

SITE LOCATION MAP



FIGURE
1

CITY: SAN RAFAEL, CA (PETALUMA) DIV: GROUP: ENVCAD DB: J. HARRIS, E. MURESAN, J. HARRIS
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MW-1	
1/17/2015	1.43
1/31/2015	1.41
2/13/2015	1.23
2/25/2015	1.25
3/15/2015	1.29
3/27/2015	1.36
4/10/2015	1.38
4/24/2015	1.50
5/8/2015	1.54

MW-3	
1/17/2015	0.07
1/31/2015	0.06
2/13/2015	0.02
2/25/2015	0.00
3/15/2015	0.00
3/27/2015	0.00
4/10/2015	0.00
4/24/2015	0.00
5/8/2015	0.00

MW-10	
1/17/2015	1.39
1/31/2015	1.26
2/13/2015	1.14
2/25/2015	1.21
3/15/2015	1.07
3/27/2015	0.98
4/10/2015	1.21
4/24/2015	1.23
5/8/2015	1.26

MW-11	
1/17/2015	0.47
1/31/2015	0.10
2/13/2015	0.06
2/25/2015	0.06
3/15/2015	0.05
3/27/2015	0.05
4/10/2015	0.06
4/24/2015	0.06
5/8/2015	0.07

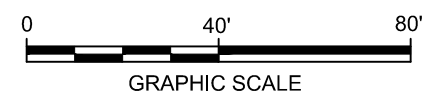
LEGEND

- PROPERTY BOUNDARY
- FENCE
- MW-1 MONITORING WELL LOCATION
- WSW-1 WATER SUPPLY WELL (DESTROYED 03/06/2015)

MW-1		WELL ID
1/17/2015	1.43	LNAPL THICKNESS IN FEET, GAUGED 1/17/2015
1/31/2015	1.41	LNAPL THICKNESS IN FEET, GAUGED 1/31/2015
2/13/2015	1.23	LNAPL THICKNESS IN FEET, GAUGED 2/13/2015
2/25/2015	1.25	LNAPL THICKNESS IN FEET, GAUGED 2/25/2015
3/15/2015	1.29	LNAPL THICKNESS IN FEET, GAUGED 3/15/2015
3/27/2015	1.36	LNAPL THICKNESS IN FEET, GAUGED 3/27/2015
4/10/2015	1.38	LNAPL THICKNESS IN FEET, GAUGED 4/10/2015
4/24/2015	1.50	LNAPL THICKNESS IN FEET, GAUGED 4/24/2015
5/8/2015	1.54	LNAPL THICKNESS IN FEET, GAUGED 5/8/2015

LNAPL LIGHT NON-AQUEOUS PHASE LIQUID

- NOTES:
- MONITORING WELL LOCATIONS BASED ON SURVEY DATA PROVIDED BY MUIR CONSULTING, INC. JULY 2014.
 - MAP MODIFIED FROM CONESTOGA-ROVERS & ASSOCIATES (CRA) FIGURE ENTITLED "FIGURE 2 CONCENTRATION MAP" DATED FEBRUARY 21, 2012, DRAWING FILE xsite.dwg. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



CHEVRON SITE ID 97127
GRANT LINE ROAD AND INTERSTATE 580
TRACY, CALIFORNIA

BI-MONTHLY LNAPL MONITORING RESULTS

FIGURE 2

ARCADIS

Table

**Table 1
Bi-Monthly LNAPL Monitoring and Recovery Data**

**Former Chevron Service Station No. 9-7127
Grant Line Road and Interstate 580
Tracy, California**

Well ID	Initial SPH Thickness (feet)	Final SPH Thickness (feet)	Approximate Volume of SPH Removed (Liters)	Approximate Volume of Groundwater Removed (Liters)
MW-1				
1/17/2015	1.43	1.09	18	2
1/31/2015	1.41	1.21	18	2
2/13/2015	1.23	1.11	19	4
2/25/2015	1.25	0.6	10	2
3/15/2015	1.29	1.12	10	1
3/27/2015	1.36	0.86	12	4
4/10/2015	1.38	1.07	22	6.5
4/24/2015	1.50	1.37	8.5	19
5/8/2015	1.54	1.36	24	16
MW-3				
1/17/2015	0.07	0.03	0.06	0.06
1/31/2015	0.06	0.04	0.02	0.25
2/13/2015	0.02	0.00	0.02	0.08
2/25/2015	0	0	0	0
3/15/2015	0	0	0	0
3/27/2015	0	0	0	0
4/10/2015	0	0	0	0
4/24/2015	0	0	0	0
5/8/2015	0	0	0	0
MW-10				
1/17/2015	1.39	0.48	3.5	1.5
1/31/2015	1.26	0.42	3.5	0.5
2/13/2015	1.14	0.46	4	1
2/25/2015	1.21	0.42	3	1
3/15/2015	1.07	0.59	4	1
3/27/2015	0.98	0.63	3	1
4/10/2015	1.21	0.42	2.5	1
4/24/2015	1.23	0.48	1.5	6
5/8/2015	1.26	0.52	1	2
MW-11				
1/17/2015	0.47	0.05	0.77	0.23
1/31/2015	0.10	0.07	0.08	0.50
2/13/2015	0.06	0.02	0.06	0.04
2/25/2015	0.06	0.04	0.02	0.08
3/15/2015	0.05	0.03	0.02	0.08
3/27/2015	0.05	0.05	0.02	0.08
4/10/2015	0.06	0.03	0.5	1
4/24/2015	0.06	0.06	0.1	2
5/8/2015	0.07	0.07	0.5	1

Table 1
Bi-Monthly LNAPL Monitoring and Recovery Data

Former Chevron Service Station No. 9-7127
Grant Line Road and Interstate 580
Tracy, California

Notes:

SPH = Separate phase hydrocarbons