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Jennifer C. Sedlachek
Project Manager

RECEIVED
By Alameda County Environmental Health 8:40 am, Oct 26, 2016

ExxonMobil

October 25, 2016

Mr. Keith Nowell
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

RE: Former Exxon RAS #70235/2225 Telegraph Avenue, Oakland California.

Dear Mr. Nowell:

Attached for your review and comment is a copy of the letter report entitled ***High-Intensity Targeted Event Results,*** dated October 25, 2016 for the above-referenced site. The report was prepared by Cardno of Petaluma, California, and details activities at the subject site.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,

Jennifer C. Sedlachek
Project Manager

Attachment: Cardno's ***High-Intensity Targeted Event Results,*** dated October 25, 2016

cc: w/ attachment
Mr. Shay Wideman, The Valero Companies, Environmental Liability Management

w/o attachment
Mr. Scott Perkins, Cardno

Cardno

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October 25, 2016
Cardno 2229C.R29

Ms. Jennifer C. Sedlachek
ExxonMobil Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611

SUBJECT **High-Intensity Targeted Event Results**
Former Exxon Service Station 70235
2225 Telegraph Avenue, Oakland, California

BAAQMD Plant No. 23468

Ms. Sedlachek:

At the request of ExxonMobil Environmental Services (EMES), on behalf of Exxon Mobil Corporation, Cardno performed a high-intensity targeted (HIT) event at the subject site. Relevant plates, tables, and appendices are included at the end of this report.

SITE DESCRIPTION

The site (Assessor's Parcel Number 8-659-2-1) is located on the eastern corner of Telegraph Avenue and West Grand Avenue, Oakland, California, as shown in the Site Vicinity Map (Plate 1). The locations of the USTs, dispenser islands, groundwater monitoring wells, and select site features are shown on the Generalized Site Plan (Plate 2).

The site is an active retail gasoline service station. Texaco Refining and Marketing, Incorporated operated the station from 1963 until 1988 when the site property was transferred to Exxon Company, U.S.A. (EA, 1992). The site was sold to Valero Refining Company (Valero) in 2000. In 2001, Valero sold the site to Mr. Lam Truong, who currently owns and operates the Valero-branded station and dispenses three grades of gasoline and diesel.

GEOLOGY AND HYDROGEOLOGY

The site lies at an approximate elevation of 20 feet above msl, and the local topography slopes toward the southwest. The site is located along the eastern margin of the San Francisco Bay within the East Bay Plain (Hickenbottom and Muir, 1988). The surficial deposits in the vicinity are mapped as Merritt Sand consisting of fine-grained, very well sorted, well-drained eolian deposits from the Pleistocene and Holocene (Graymer, 2000). The active northwest trending Hayward fault is located approximately 3½ miles east of the site.

The East Bay Plain is regionally divided into two major groundwater basins: the San Pablo Basin and the San Francisco Basin. These basins are tectonic depressions that are filled primarily with a sequence of coalescing alluvial fans. The San Francisco Basin is further divided into seven sub-areas. The site is located in the Oakland Sub-Area, which is filled primarily by alluvial deposits that range from 300 to 700 feet thick without well-defined aquitards (CRWQCB, 1999). Under natural conditions, the direction of groundwater flow in the East Bay Plain is east to west towards San Francisco Bay and correlates with topography.

Based on a review of CPT logs and historical boring logs for groundwater monitoring wells, remediation wells, and soil borings, the site is underlain by low permeability clay and silt units extending approximately 10 to 12 feet bgs. Underlying this unit is a sand unit extending to approximately 18 feet bgs. Silts and clay, with lenses of sand (up to 1 foot thick), extend beneath the sand unit to approximately 30 feet bgs, the maximum depth drilled. The lithology, as interpreted from the CPT borings (CPT1 through CPT3), shows mostly clay and sandy/clayey silts, with interbedded lenses of silty sand, from 30 to 50 feet bgs, the maximum depth explored.

The DTW beneath the site has varied over time and has ranged from approximately 9 to 15 feet bgs. Currently, groundwater is encountered at depths ranging from approximately 11 to 13 feet bgs. Groundwater monitoring data indicate that the groundwater flow direction is predominantly towards the southeast.

In 2008, three CPT soundings were advanced to 50 feet bgs at the site. Up to three water-bearing zones were identified on the CPT logs: 12 to 18 feet bgs, 29 to 30 feet bgs, and between 36 to 42 feet bgs. The second water-bearing zone produced very little water: only 40-milliliter VOAs were able to be collected from one of the borings (ERI, 2008).

PREVIOUS WORK

Fueling System Activities

The site currently dispenses regular, plus, and premium unleaded gasoline and diesel. The locations of the USTs, dispenser islands, and other select site features are shown on the Generalized Site Plan (Plate 2).

In November 1991, three single-walled USTs and their associated piping were removed and replaced with double-walled fiberglass tanks and piping. The existing UST cavity was enlarged to accommodate the new USTs (EA, 1992).

Site Assessment Activities

Multiple phases of assessment have been conducted since 1988, including the advancement of seven soil-gas probes and 22 soil borings; the installation of two vapor extraction wells, four recovery wells, and 14 groundwater monitoring wells (Alton, 1991; ERI, 2000; ERI, 2001a; ERI, 2002; ERI, 2007; Cardno ERI, 2013; HLA, 1988; HLA, 1989; HLA, 1990; HLA, 1992); and the destruction of wells MW6A and RW3 in conjunction with assessment activities (ERI, 2002; HLA, 1992).

Assessment results indicated that maximum residual adsorbed-phase TPHg concentrations of 11,000 mg/kg (B3, 10/04/88) and Maximum benzene concentrations of 200 mg/kg (W01, 11/27/91) are primarily present in the soils from surface to 13.5 feet bgs around the northern dispenser islands, USTs, and the northeastern portion of the site (HLA, 1989; EA, 1992). Maximum residual MTBE (0.016 mg/kg) was reported in soil samples collected from boring B9, located along the eastern edge of the site (ERI, 2007).

Remediation Activities

In November and December 1991, the product USTs were removed and the former tank pit was enlarged to accommodate the new product USTs; an area approximately 45 feet by 33 feet to 13.5 feet bgs was excavated. Concentrations of TPHg up to 10,000 mg/kg (TG2, 13 feet bgs) and benzene up to 130 mg/kg (TG2, 13 feet bgs) were reported in soil samples collected from the base of the excavation. Concentrations of TPHg up to 660 mg/kg (TG12, 12 feet bgs) and benzene up to 4.3 mg/kg (TG12, 12 feet bgs) were reported in the sidewall soil samples of the enlarged cavity (EA, 1992).

A groundwater remediation system extracted, treated, and discharged approximately 307,000 gallons of groundwater between fourth quarter 1990 and first quarter 1992 (HLA, 1992). By November 15, 1993, approximately 583,679 gallons of groundwater had been extracted (Texaco, 1994).

In September 2001, ERI conducted a DPE feasibility test (ERI, 2001b). A total of 9,000 gallons of groundwater was extracted and treated during the 9-day DPE test. The average extraction rate for the test was approximately 1 gpm. Approximately 187.5 pounds of TPHg and 2.36 pounds of MTBE were removed through SVE during the DPE feasibility test. A total of 0.329 pound of TPHg and 0.0374 pound of MTBE were removed

by groundwater extraction during the DPE test. The results of the DPE test indicated that DPE is a feasible remedial alternative for the site (ERI, 2001b).

Cardno ERI prepared a *Feasibility Study/Corrective Action Plan*, dated April 11, 2012, outlining remedial alternatives at the site (Cardno ERI, 2012). Cardno ERI concluded that the current land use at the site (active gasoline service station) limited the remedial alternatives available for implementation and that excavation, groundwater pump and treat, SVE, and chemical oxidation were not currently viable alternatives for remediation. Cardno ERI concluded that DPE was a feasible remediation technology for the site (Cardno ERI, 2012).

In January 2014, Cardno ERI performed DPE and AS/DPE feasibility testing at the site and concluded hydrocarbon mass removal rates in soil vapor indicate that DPE may be a feasible remedial technology at the site; however, the insignificant groundwater extraction rate indicated that groundwater extraction alone would not address residual and dissolved-phase hydrocarbon concentrations (Cardno ERI, 2014).

HIGH-INTENSITY TARGETED EVENT

From August 3 to 18, 2016, Cardno conducted a HIT event at the site using a mobile DPE system to extract soil vapor and groundwater from wells northeast of the current USTs and dispenser islands where maximum site concentrations have been reported. The system consists of a 10-horsepower rotary claw vacuum pump; two extraction wells (MW6La and MW6Ka); an electric catalytic oxidizer; and associated conveyance piping, noise abatement equipment, control devices, and instrumentation. Soil vapor is treated through an electric catalytic oxidizer prior to discharge into the atmosphere under Bay Area Air Quality Management District (BAAQMD) Permit to Operate, Plant No. 23468. Groundwater was stored at the site and transported off-site for disposal.

Cardno conducted the HIT event for 15 days using wells MW6La and MW6Ka for extraction. During the event, the system operated continuously with the exception of downtime associated with re-fueling operations. Extraction tubing was placed within the screened interval of 11 to 13 feet in the wells. Due to influent concentrations and the requirements of the abatement device, dilution air was introduced during the HIT event to ensure compliance with the BAAQMD air permit.

Cardno collected and submitted air samples for laboratory analysis to a state-certified laboratory, under COC protocol. Laboratory analytical reports are provided in Appendix A. Analytical results and hydrocarbon removal and emissions rates are presented in Table 1. Hydrocarbon removal rates were calculated in accordance with the protocol included in Appendix B.

During the HIT event, approximately 2,800 gallons of water were generated and stored on site in a portable tank. The calculated groundwater extraction rate was 0.16 gallon per minute.

Waste Management

Approximately 2,800 gallons of water was generated during the HIT event. The water was transported for disposal to Instrat, Inc., of Rio Vista, California, an EMES-approved (Appendix C).

DISCUSSION AND CONCLUSIONS

Vapor-phase concentrations were stable during the HIT event, with initial TPHg concentrations of 4,800 mg/m^3 increasing to a maximum of 6,300 mg/m^3 and to a final concentration of 5,400 mg/m^3, and initial benzene concentrations of 26 mg/m^3 decreasing to a final concentration of 18 mg/m^3. The sample results include varying amounts of dilution air (required to maintain proper operation of the catalytic oxidizer and permit requirements), meaning the concentrations extracted from the wells were higher. Cardno estimates that approximately 436 pounds of TPHg and 2 pounds of benzene were removed during the HIT event.

RECOMMENDATIONS

Cardno recommends performing the first quarter 2017 groundwater monitoring event to assess hydrocarbon concentrations following the HIT event before assessing the need for additional HIT events at the subject site.

CONTACT INFORMATION

The responsible party contact is Ms. Jennifer C. Sedlachek, ExxonMobil Environmental Services Company, 4096 Piedmont Avenue #194, Oakland, California, 94611. The consultant contact is Mr. Scott Perkins, Cardno, 601 North McDowell Boulevard, Petaluma, California, 94954. The agency contact is Mr. Keith Nowell, Alameda County Environmental Health Services, 1131 Harbor Bay Parkway, Suite 250, Alameda, California, 94502.

LIMITATIONS

For documents cited that were not generated by Cardno, the data taken from those documents is used “as is” and is assumed to be accurate. Cardno does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document and the work performed have been undertaken in good faith, with due diligence and with the expertise, experience, capability, and specialized knowledge necessary to perform the work in a good and

workmanlike manner and within all accepted standards pertaining to providers of environmental services in California at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Please contact Mr. Scott Perkins, Cardo's project manager for this site, at scott.perkins@cardno.com or (707) 766-2000 with questions.

Sincerely,

Keri L. Chappell
P.G. 8227
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Enclosures:

References

Acronym List

Plate 1	Site Vicinity Map
Plate 2	Generalized Site Plan
Table 1	Operation and Performance Data for Soil Vapor Extraction System
Appendix A	Laboratory Analytical Reports
Appendix B	Protocols
Appendix C	Waste Documentation

cc: Mr. Keith Nowell, Alameda County Environmental Health Services
Mr. Shay Wideman, The Valero Companies, Environmental Liability Management

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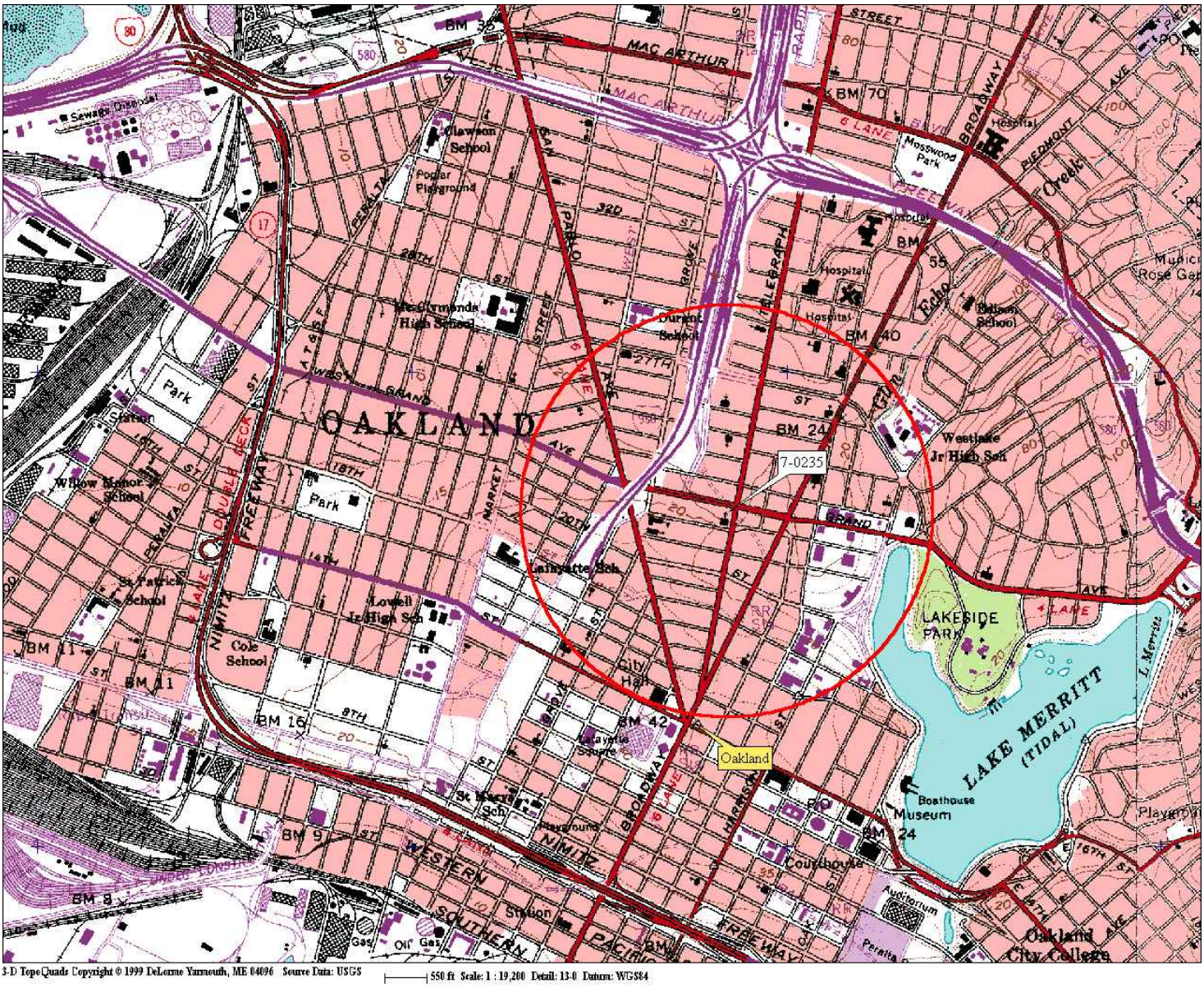

FN 2229Topo

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map provided by DeLorme 3-D TopoQuads

SITE VICINITY MAP

FORMER EXXON SERVICE STATION 70235
2225 Telegraph Avenue
Oakland, California

Cardno
Shaping the Future

PROJECT NO. 2229

PLATE 1

APPROXIMATE SCALE

0 50 100 Feet

FN 2229005 R29

Cardno
Shaping the Future

GENERALIZED SITE PLAN

FORMER EXXON SERVICE STATION 70235
2225 Telegraph Avenue
Oakland, California

EXPLANATION

MW6Lb — Groundwater Monitoring Well

RW3A — Recovery Well

PROJECT NO. 2229

PLATE 2

TABLE 1
OPERATION AND PERFORMANCE DATA FOR DUAL-PHASE EXTRACTION SYSTEM
Former Exxon Service Station 70235
2225 Telegraph Avenue
Oakland, California

Date	Time	System Hours	LRP Hours	Field Measurements										Destruction Efficiency (%)	Analytical Results		TPHg Removal		Benzene Removal		TPHg Emission (lbs/day)	Benzene Emission (lbs/day)
				Temp (deg F)	Vacuum ("H2O)	Pressure ("H_2O)	Catox (deg C)	Temp. (deg F)	Flow (fpm)	Flow (acfm)	Flow (scfm)	Sample ID	PID (ppmv)		TPHg (mg/m^3)	Benzene (mg/m^3)	Period (pounds)	Cumulative (pounds)	Period (pounds)	Cumulative (pounds)		
Wells MW6La and MW6Ka																						
08/03/16	7:45	0:00	19,570	63.0	12	-17.0	353	667	2,780	136.5	134.2	V-INF-OX0	3,309	98.13								
												V-DSCHG	62									
08/03/16	8:45	1:00	---	68.0	4.5	-4.5	442	828	2,600	127.6	126.7	V-INF-OX0	1,675	a								
												V-DSCHG	42									
08/03/16	9:45	2:00	---	72.0	6.5	-6.5	482	900	2,650	130.1	127.5	V-INF-OX0	2,515	98.52	4,800	26	4.58	4.58	0.025	0.025		
												V-DSCHG	37.2		120	0.30					1.374	0.00343
08/03/16	10:45	3:00	---	70.0	6.0	-6.0	480	896	2,400	117.8	116.1	V-INF-OX0	3,117	98.32								
												V-DSCHG	52.3									
08/03/16	11:45	4:00	---	69.0	6.0	-6.0	476	889	2,850	139.9	138.1	V-INF-OX0	3,181	98.36								
												V-DSCHG	52.3									
08/03/16	12:45	5:00	---	74.0	6.0	-6.0	475	887	2,200	108.0	105.6	V-INF-OX0	3,847	98.67								
												V-DSCHG	51.3									
08/03/16	13:45	6:00	19,576	74.0	6.0	-6.0	469	876	2,600	127.6	124.8	V-INF-OX0	3,181	98.26								
												V-DSCHG	55.2									
08/04/16	7:30	23:45	19,594	66.0	6.0	-6.0	461	862	2,950	144.8	143.8	V-INF-OX0	3,613	98.52								
												V-DSCHG	53.3									
08/04/16	8:30	24:45	---	64.0	6.5	-6.5	504	939	2,250	110.4	109.9	V-INF-OX0	4,810	98.41								
												V-DSCHG	76.3									
08/04/16	9:30	25:45	---	65.0	6.5	-6.5	496	925	2,450	120.3	119.5	V-INF-OX0	5,414	98.66								
												V-DSCHG	72.7									
08/04/16	10:30	26:45	---	64.0	6.5	-6.5	496	925	2,350	115.4	114.8	V-INF-OX0	4,796	98.37								
												V-DSCHG	78.2									
08/04/16	12:00	28:15	---	67.0	6.5	-6.5	496	925	2,400	117.8	116.6	V-INF-OX0	5,414	99.04								
												V-DSCHG	52.2									
08/04/16	12:45	29:00	---	68.0	6.5	-6.5	494	921	2,250	110.4	109.1	V-INF-OX0	6,565	98.88								
												V-DSCHG	73.7									
08/04/16	13:45	30:00	19,600	72.0	6.5	-6.5	495	923	1,950	95.7	93.8	V-INF-OX0	6,125	98.84								
												V-DSCHG	70.8									
08/05/16	6:45	47:00	19,617	70.0	6.0	-6.0	460	860	2,400	117.8	116.1	V-INF-OX0	4,314	98.57								
												V-DSCHG	61.8									
08/05/16	7:00	47:15	---	System shut down for refueling generator.																		
08/05/16	8:10	47:15	---	System restarted.																		
08/05/16	9:15	48:20	---	65.0	6.0	-6.0	386	727	1,950	95.7	95.2	V-INF-OX0	2,997	98.71								
												V-DSCHG	38.6									
08/05/16	9:45	48:50	---	66.0	7.0	-7.0	476	889	1,750	85.9	85.1	V-INF-OX0	5,042	98.41								
												V-DSCHG	80.3									
08/05/16	10:15	49:20	---	66.0	7.0	-7.0	490	914	1,750	85.9	85.1	V-INF-OX0	6,125	98.78								
												V-DSCHG	74.8									
08/05/16	10:45	49:50	---	67.0	7.0	-7.0	491	916	1,850	90.8	89.9	V-INF-OX0	6,835	98.85	5,600	36	101.15	105.725	0.603	0.628		
												V-DSCHG	78.4		---	---					---	---
08/05/16	11:15	50:20	---	67.0	7.0	-7.0	493	919	1,800	88.4	87.3	V-INF-OX0	4,803	98.31								
												V-DSCHG	81.1									
08/05/16	12:15	51:20	---	74.0	7.0	-7.0	488	910	2,150	105.5	104.3	V-INF-OX0	7,078	98.88								
												V-DSCHG	79.4									
08/05/16	13:15	52:20	19,623	71.0	7.0	-7.0	487	909	1,050	51.5	50.3	V-INF-OX0	6,835	98.82								
												V-DSCHG	80.8									
08/08/16	6:45	117:50	19,688	66.0	7.0	-7.0	446	835	1,900	93.3	92.4	V-INF-OX0	4,095	98.06								
												V-DSCHG	79.4									
08/08/16	7:00	118:05	---	System shut down for refueling generator.																		
08/08/16	7:45	118:05	---	System restarted.																		
08/08/16	8:45	119:05	---	64.0	7.0	-7.0	408	766	1,850	90.8	90.3	V-INF-OX0	4,350	98.98								
												V-DSCHG	44.3									

TABLE 1
OPERATION AND PERFORMANCE DATA FOR DUAL-PHASE EXTRACTION SYSTEM
Former Exxon Service Station 70235
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Oakland, California

Date	Time	System Hours	LRP Hours	Field Measurements										Destruction Efficiency (%)	Analytical Results		TPHg Removal		Benzene Removal		TPHg Emission (lbs/day)	Benzene Emission (lbs/day)
				Temp (deg F)	Vacuum ("H2O)	Pressure ("H_2O)	Catox Temp. (deg C)	Catox Temp. (deg F)	Flow (fpm)	Flow (acfm)	Flow (scfm)	Sample ID	PID (ppmv)		TPHg (mg/m^3)	Benzene (mg/m^3)	Period (pounds)	Cumulative (pounds)	Period (pounds)	Cumulative (pounds)		
Wells MW6La and MW6Ka																						
08/08/16	9:15	119:35	---	67.0	10.0	-10.0	506	943	1,200	58.9	57.8	V-INF-OX0	9,052	99.18	6,300	32	114.64	220.363	0.655	1.283		
												V-DSCHG	73.8		---	---					---	---
08/08/16	9:45	120:05	---	67.0	10.0	-10.0	517	963	1,100	54.0	53.0	V-INF-OX0	>9,999	98.77								
												V-DSCHG	123									
08/08/16	10:15	120:35	---	69.0	10.0	-10.0	518	964	1,200	58.9	57.6	V-INF-OX0	>9,999	98.87								
												V-DSCHG	113									
08/08/16	11:15	121:35	---	81.0	10.0	-10.0	518	964	1,250	61.4	58.6	V-INF-OX0	>9,999	99.02								
												V-DSCHG	98.4									
08/08/16	12:15	122:35	---	78.0	10.0	-10.0	522	972	1,250	61.4	59.0	V-INF-OX0	>9,999	98.99								
												V-DSCHG	101									
08/08/16	13:15	123:35	19,694	78.0	10.0	-10.0	523	973	1,200	58.9	56.6	V-INF-OX0	>9,999	98.93								
												V-DSCHG	107									
08/09/16	7:00	141:20	19,711	67.0	10.0	-10.0	507	945	1,300	63.8	62.6	V-INF-OX0	>9,999	98.99								
												V-DSCHG	101									
08/10/16	7:00	165:20	19,735	70.0	10.0	-10.0	501	934	1,200	58.9	57.5	V-INF-OX0	>9,999	98.96								
												V-DSCHG	104									
08/11/16	7:45	190:05	19,760	63.0	10.0	-10.0	515	959	1,200	58.9	58.2	V-INF-OX0	>9,999	98.97								
												V-DSCHG	103									
08/12/16	2:45	209:05	---	System down for refueling.																		
08/12/16	6:30	209:05	19,779	System down for refueling.																		
08/12/16	9:15	209:05	---	System restarted.																		
08/12/16	10:00	209:50	19,779	67.0	10.0	-10.0	484	903	1,100	54.0	53.0	V-INF-OX0	>9,999	98.84								
												V-DSCHG	116									
08/12/16	11:00	210:50	---	71.0	10.0	-10.0	514	957	1,125	55.2	53.8	V-INF-OX0	>9,999	98.57	6,100	31	118.02	338.381	0.600	1.882		
												V-DSCHG	143		---	---					---	---
08/12/16	12:00	211:50	---	74.0	10.0	-10.0	519	966	1,100	54.0	52.3	V-INF-OX0	>9,999	98.55								
												V-DSCHG	145									
08/12/16	12:30	212:20	---	76.0	10.0	-10.0	517	963	1,150	56.5	54.4	V-INF-OX0	>9,999	98.57								
												V-DSCHG	143									
08/12/16	13:30	213:20	19,783	77.0	10.0	-10.0	514	957	1,150	56.5	54.3	V-INF-OX0	>9,999	98.59								
												V-DSCHG	141									
08/13/16	3:15	227:05	---	System down for refueling.																		
08/15/16	11:45	227:05	---	System restarted.																		
08/15/16	11:45	227:05	19,797	66.0	10.0	-10.0	443	829	1,150	56.5	55.5	V-INF-OX0	>9,999	98.49								
												V-DSCHG	151									
08/15/16	12:15	227:35	---	67.0	10.0	-10.0	506	943	1,150	56.5	55.4	V-INF-OX0	>9,999	98.53	5,800	20	20.34	358.722	0.087	1.970		
												V-DSCHG	147		---	---					---	---
08/15/16	13:15	228:35	19,799	75.0	10.0	-10.0	506	943	1,250	61.4	59.3	V-INF-OX0	>9,999	98.89								
												V-DSCHG	111									
08/16/16	8:00	247:20	19,818	65.0	10.0	-10.0	489	912	1,150	56.5	55.6	V-INF-OX0	>9,999	98.64								
												V-DSCHG	136									
08/17/16	8:00	271:20	19,865	65.0	14.0	-14.0	502	936	1,100	54.0	52.6	V-INF-OX0	>9,999	98.49								
												V-DSCHG	151									
08/18/16	7:00	294:20	19,865	66.0	14.0	-14.0	481	898	1,100	54.0	52.5	V-INF-OX0	>9,999	98.39								
												V-DSCHG	161									
08/18/16	8:00	295:20	---	67.0	14.0	-14.0	482	900	1,100	54.0	52.4	V-INF-OX0	>9,999	98.35								
												V-DSCHG	165									
08/18/16	9:00	296:20	19,867	67.0	14.0	-14.0	483	901	1,100	54.0	52.4	V-INF-OX0	>9,999	98.40	5,400	18	77.62	436.343	0.263	2.233		
												V-DSCHG	160		230	0.85					1.083	0.00400
08/18/16	9:00	296:20	19,867	System shut down.																		

TABLE 1
OPERATION AND PERFORMANCE DATA FOR DUAL-PHASE EXTRACTION SYSTEM
Former Exxon Service Station 70235
2225 Telegraph Avenue
Oakland, California

Notes:

V-INF-OX0	=	Influent vapor sample.
V-DSCHG	=	Effluent vapor sample.
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method TO-3M.
Benzene	=	Benzene analyzed using EPA Method TO-15M.
Temp	=	Temperature of vapor stream.
Catox Temp.	=	Catalytic oxidizer catalyst inlet temperature.
deg F	=	Degrees Fahrenheit.
deg C	=	Degrees Celsius.
"Hg	=	Inches of mercury column.
"H_2O	=	Inches of water column.
PID	=	Photo-ionization detector measurement.
fpm	=	Linear feet per minute.
acfm	=	Actual cubic feet per minute.
scfm	=	Standard cubic feet per minute.
ppmv	=	Parts per million by volume.
mg/m3	=	Milligrams per cubic meter.
lbs/day	=	Pounds per day.
>	=	Greater than the stated measurement.
<	=	Less than the stated laboratory reporting limit.
---	=	Not measured.
a	=	PID readings collected during system adjustments. Destruction efficiency not representative of system operation.

APPENDIX A

LABORATORY ANALYTICAL REPORTS

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WORK ORDER NUMBER: 16-08-0262

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: Cardno
Client Project Name: ExxonMobil 70235/022229C
Attention: Scott Perkins
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Approved for release on 08/17/2016 by:
Cecile deGuia
Project Manager

ResultLink

Email your PM

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Contents

Client Project Name: ExxonMobil 70235/022229C
Work Order Number: 16-08-0262

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Work Order Narrative

Work Order: 16-08-0262 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/04/16. They were assigned to Work Order 16-08-0262.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Cardno	Work Order:	16-08-0262
	601 North McDowell Blvd.	Project Name:	ExxonMobil 70235/022229C
	Petaluma, CA 94954-2312	PO Number:	022229C
		Date/Time Received:	08/04/16 09:00
		Number of Containers:	2
Attn:	Scott Perkins		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
V-INF-COMP-1	16-08-0262-1	08/03/16 09:50	1	Air
V-EFF	16-08-0262-2	08/03/16 09:45	1	Air

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0262-1-A**	**08/03/16 09:50**	**Air**	**GC/MS HH**	**N/A**	**08/05/16 20:53**	**160805L04**

Parameter	Result	RL	DF	Qualifiers
Benzene	26	0.16	100	
Toluene	6.5	1.9	100	
Ethylbenzene	15	0.22	100	
o-Xylene	8.6	0.22	100	
p/m-Xylene	37	0.87	100	
Xylenes (total)	46	0.22	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.72	100	
Tert-Butyl Alcohol (TBA)	ND	1.5	100	
Diisopropyl Ether (DIPE)	ND	0.84	100	
Ethyl-t-Butyl Ether (ETBE)	ND	0.84	100	
Tert-Amyl-Methyl Ether (TAME)	ND	0.84	100	
1,2-Dibromoethane	ND	0.38	100	
1,2-Dichloroethane	ND	0.20	100	
Ethanol	ND	9.4	100	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	57-129	
1,2-Dichloroethane-d4	91	47-137	
Toluene-d8	85	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-EFF	**16-08-0262-2-A**	**08/03/16 09:45**	**Air**	**GC/MS HH**	**N/A**	**08/05/16 03:27**	**160804L02**

Parameter	Result	RL	DF	Qualifiers
Benzene	0.30	0.0016	1.00	
Toluene	0.038	0.019	1.00	
Ethylbenzene	0.093	0.0022	1.00	
o-Xylene	0.060	0.0022	1.00	
p/m-Xylene	0.26	0.0087	1.00	
Xylenes (total)	0.32	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	114	57-129	
1,2-Dichloroethane-d4	98	47-137	
Toluene-d8	63	78-156	AZ

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6808**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**08/04/16 20:09**	**160804L02**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	
Toluene	ND	0.019	1.00	
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	
Xylenes (total)	ND	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	103	57-129	
1,2-Dichloroethane-d4	98	47-137	
Toluene-d8	91	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6813**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**08/05/16 18:11**	**160805L04**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	
Toluene	ND	0.019	1.00	
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	
Xylenes (total)	ND	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	105	57-129	
1,2-Dichloroethane-d4	98	47-137	
Toluene-d8	95	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-3M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0262-1-A**	**08/03/16 09:50**	**Air**	**GC 13**	**N/A**	**08/04/16 14:40**	**160804L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	4800	35	5.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-EFF	**16-08-0262-2-A**	**08/03/16 09:45**	**Air**	**GC 13**	**N/A**	**08/04/16 13:54**	**160804L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	120	7.0	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-7290**	**N/A**	**Air**	**GC 13**	**N/A**	**08/04/16 10:04**	**160804L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	ND	7.0	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Cardno		Date Received:	08/04/16
601 North McDowell Blvd.		Work Order:	16-08-0262
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
16-08-0213-1	**Sample**	**Air**	**GC 13**	**N/A**	**08/04/16 10:25**	**160804D01**
16-08-0213-1	**Sample Duplicate**	**Air**	**GC 13**	**N/A**	**08/04/16 10:37**	**160804D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
TPH as Gasoline	256900	260000	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6808	**LCS**	**Air**	**GC/MS HH**	**N/A**	**08/04/16 17:31**	**160804L02**
099-12-981-6808	**LCSD**	**Air**	**GC/MS HH**	**N/A**	**08/04/16 18:29**	**160804L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.07920	99	0.07932	99	60-156	44-172	0	0-40	
Toluene	0.09421	0.1004	107	0.09522	101	56-146	41-161	5	0-43	
Ethylbenzene	0.1086	0.1197	110	0.1175	108	52-154	35-171	2	0-38	
o-Xylene	0.1086	0.1225	113	0.1191	110	52-148	36-164	3	0-38	
p/m-Xylene	0.2171	0.2414	111	0.2371	109	42-156	23-175	2	0-41	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09039	100	0.08893	99	50-150	33-167	2	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1459	96	0.1442	95	60-140	47-153	1	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.08654	83	0.08689	83	60-140	47-153	0	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.09980	96	0.1008	96	60-140	47-153	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1027	98	0.1058	101	60-140	47-153	3	0-30	
1,2-Dibromoethane	0.1921	0.2028	106	0.1931	101	54-144	39-159	5	0-36	
1,2-Dichloroethane	0.1012	0.09972	99	0.1011	100	69-153	55-167	1	0-35	
Ethanol	0.1884	0.1739	92	0.2305	122	60-140	47-153	28	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/04/16
Work Order: 16-08-0262
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6813	**LCS**	**Air**	**GC/MS HH**	**N/A**	**08/05/16 15:32**	**160805L04**
099-12-981-6813	**LCSD**	**Air**	**GC/MS HH**	**N/A**	**08/05/16 16:22**	**160805L04**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08499	106	0.08327	104	60-156	44-172	2	0-40	
Toluene	0.09421	0.1083	115	0.1097	116	56-146	41-161	1	0-43	
Ethylbenzene	0.1086	0.1160	107	0.1258	116	52-154	35-171	8	0-38	
o-Xylene	0.1086	0.1267	117	0.1291	119	52-148	36-164	2	0-38	
p/m-Xylene	0.2171	0.2501	115	0.2557	118	42-156	23-175	2	0-41	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09754	108	0.09706	108	50-150	33-167	1	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1557	103	0.1548	102	60-140	47-153	1	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.09342	89	0.09498	91	60-140	47-153	2	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1086	104	0.1092	104	60-140	47-153	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1101	105	0.1110	106	60-140	47-153	1	0-30	
1,2-Dibromoethane	0.1921	0.2153	112	0.2174	113	54-144	39-159	1	0-36	
1,2-Dichloroethane	0.1012	0.1075	106	0.1095	108	69-153	55-167	2	0-35	
Ethanol	0.1884	0.2417	128	0.2507	133	60-140	47-153	4	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Cardno		Date Received:	08/04/16
601 North McDowell Blvd.		Work Order:	16-08-0262
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
098-01-005-7290	**LCS**	**Air**	**GC 13**	**N/A**	**08/04/16 09:47**	**160804L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline	932.5	950.2	102	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-0262 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15M	N/A	1076	GC/MS HH	2
EPA TO-3M	N/A	929	GC 13	2

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Glossary of Terms and Qualifiers

Work Order: 16-08-0262 Page 1 of 1

Qualifiers	Definition
AZ	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stnds.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
Phone: 714-895-5494
Fax: 714-894-7501

ExxonMobil

16-08-0262

Consultant Name: Cardno ERI | **Account #:** NA | **PO#:** Direct Bill Cardno
Consultant Address: 601 N McDowell Boulevard | **Invoice To:** Direct Bill Cardno
Consultant City/State/Zip: Petaluma, CA 94954 | **Report To:** Scott Perkins
ExxonMobil Project Mgr: Jennifer Sedlachek | **Project Name:** 02 2229 CX
Consultant Project Mgr: Scott Perkins | **ExxonMobil Site #:** 70235 | **Major Project (AFE #):**
Consultant Telephone Number: (707) 766-2000 | **Fax No.:** | **Site Address:** 2225 Telegraph Avenue
Sampler Name (Print): GRAY MILLICH | **Site City, State, Zip:** Oakland, CA
Sampler Signature: | **Oversight Agency:** Alameda County Health Care Services

Sample ID	Field Point Name	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify): Distilled Water	Analyze For: *TPHd 8015 B	TPHg TO-3 (M)	BTEX MTBE TO-15 (M)	Oxygenates TO-15 (M)	Methanol 8015B	Motor Oil by 8015B	Kerosene by 8015B		RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
V-INF-COMP-1 (1)	EVENT-INF	8-3-16	9 50	1													1						1			X	X	X							X	
V-EFF (2)	EVENT-EFF	8-3-16	9 45	1													1						1			X	X	X							X	

Comments/Special Instructions:
TO-15 to include: BTEX, MTBE, DIPE, ETBE, TAME, TBA, 1,2DCA, EDB, ethanol

PLEASE E-MAIL ALL PDF FILES TO
norcallabs@eri-us.com

GLOBAL ID # T0600101354

Relinquished by:	Company	Date	Time	Received by:	Date	Time
	CARDNO	8/3/16	1510	Tom Malloy ECI	8/3/16	1510
Relinquished by: Tom Malloy TO CSO		8/3/16	1730	Received by (Lab personnel):	8/04/16	0900

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ Calscience Project Manager or attach specific instructions

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GSO GOLDEN STATE OVERNIGHT

800-322-5555 www.gso.com

0262

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD: $0.00
Weight: 0 lb(s)
Reference:
ETIC
Delivery Instructions:

Signature Type: REQUIRED

Tracking #: 532814351

NPS

ORC **A**
GARDEN GROVE

D92845A

54909851

Print Date: 8/3/2016 2:34 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

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WORK ORDER NUMBER: 16-08- 0262

SAMPLE RECEIPT CHECKLIST

COOLER 0 OF 0

CLIENT: Cardno ERI

DATE: 08 / 04 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____°C (w/ CF): _____°C; ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☑ Air ☐ Filter Checked by: 836

CUSTODY SEAL:

Cooler ☑ Present and Intact (BOX) ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: 836

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 836

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☑ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 836

Reviewed by: ZH

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WORK ORDER NUMBER: 16-08-0497

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: Cardno
Client Project Name: ExxonMobil 70235/022229C
Attention: Scott Perkins
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Approved for release on 08/19/2016 by:
Cecile deGuia
Project Manager

ResultLink ▸

Email your PM ▸

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Client Project Name: ExxonMobil 70235/022229C
Work Order Number: 16-08-0497

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Work Order Narrative

Work Order: 16-08-0497 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/06/16. They were assigned to Work Order 16-08-0497.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Cardno	Work Order:	16-08-0497
	601 North McDowell Blvd.	Project Name:	ExxonMobil 70235/022229C
	Petaluma, CA 94954-2312	PO Number:	022229C
		Date/Time Received:	08/06/16 09:10
		Number of Containers:	1
Attn:	Scott Perkins		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
V-INF-COMP-1	16-08-0497-1	08/05/16 10:45	1	Air

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/06/16
Work Order: 16-08-0497
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0497-1-A**	**08/05/16 10:45**	**Air**	**GC/MS II**	**N/A**	**08/08/16 17:36**	**160808L02**

Parameter	Result	RL	DF	Qualifiers
Toluene	22	1.9	100	
Ethylbenzene	30	0.22	100	
o-Xylene	19	0.22	100	
p/m-Xylene	70	0.87	100	
Xylenes (total)	90	0.22	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.72	100	
Tert-Butyl Alcohol (TBA)	ND	1.5	100	
Diisopropyl Ether (DIPE)	ND	0.84	100	
Ethyl-t-Butyl Ether (ETBE)	ND	0.84	100	
Tert-Amyl-Methyl Ether (TAME)	ND	0.84	100	
1,2-Dibromoethane	ND	0.38	100	
1,2-Dichloroethane	ND	0.20	100	
Ethanol	ND	9.4	100	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	119	57-129	
1,2-Dichloroethane-d4	120	47-137	
Toluene-d8	82	78-156	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0497-1-A**	**08/05/16 10:45**	**Air**	**GC/MS HH**	**N/A**	**08/07/16 04:59**	**160806L04**

Parameter	Result	RL	DF	Qualifiers
Benzene	36	0.64	400	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	105	57-129	
1,2-Dichloroethane-d4	96	47-137	
Toluene-d8	80	78-156	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/06/16
Work Order: 16-08-0497
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6825**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**08/06/16 17:46**	**160806L04**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	81	57-129	
1,2-Dichloroethane-d4	98	47-137	
Toluene-d8	98	78-156	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6816**	**N/A**	**Air**	**GC/MS II**	**N/A**	**08/08/16 15:11**	**160808L02**

Parameter	Result	RL	DF	Qualifiers
Toluene	ND	0.019	1.00	
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	
Xylenes (total)	ND	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	57-129	
1,2-Dichloroethane-d4	126	47-137	
Toluene-d8	99	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno		Date Received:	08/06/16
601 North McDowell Blvd.		Work Order:	16-08-0497
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
		Units:	mg/m3
Project: ExxonMobil 70235/022229C			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0497-1-A**	**08/05/16 10:45**	**Air**	**GC 13**	**N/A**	**08/06/16 12:49**	**160806L02**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	5600	35	5.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-7298**	**N/A**	**Air**	**GC 13**	**N/A**	**08/06/16 10:07**	**160806L02**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	ND	7.0	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Cardno		Date Received:	08/06/16
601 North McDowell Blvd.		Work Order:	16-08-0497
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
16-08-0498-1	**Sample**	**Air**	**GC 13**	**N/A**	**08/06/16 10:28**	**160806D02**
16-08-0498-1	**Sample Duplicate**	**Air**	**GC 13**	**N/A**	**08/06/16 11:28**	**160806D02**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
TPH as Gasoline	60.29	60.86	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/06/16
Work Order: 16-08-0497
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6825	**LCS**	**Air**	**GC/MS HH**	**N/A**	**08/06/16 13:50**	**160806L04**
099-12-981-6825	**LCSD**	**Air**	**GC/MS HH**	**N/A**	**08/06/16 15:56**	**160806L04**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08268	104	0.08208	103	60-156	44-172	1	0-40	
Diisopropyl Ether (DIPE)	0.1045	0.09113	87	0.09022	86	60-140	47-153	1	0-30	
1,2-Dibromoethane	0.1921	0.1989	104	0.1997	104	54-144	39-159	0	0-36	
1,2-Dichloroethane	0.1012	0.1061	105	0.1053	104	69-153	55-167	1	0-35	
Ethanol	0.1884	0.1855	98	0.1761	93	60-140	47-153	5	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1024	98	0.1027	98	60-140	47-153	0	0-30	
Ethylbenzene	0.1086	0.1190	110	0.1169	108	52-154	35-171	2	0-38	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.08999	100	0.09149	102	50-150	33-167	2	0-35	
o-Xylene	0.1086	0.1215	112	0.1117	103	52-148	36-164	8	0-38	
p/m-Xylene	0.2171	0.2367	109	0.2254	104	42-156	23-175	5	0-41	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1004	96	0.1010	97	60-140	47-153	1	0-30	
Tert-Butyl Alcohol (TBA)	0.1516	0.1476	97	0.1561	103	60-140	47-153	6	0-30	
Toluene	0.09421	0.09792	104	0.1002	106	56-146	41-161	2	0-43	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/06/16
Work Order: 16-08-0497
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6816	**LCS**	**Air**	**GC/MS II**	**N/A**	**08/08/16 12:36**	**160808L02**
099-12-981-6816	**LCSD**	**Air**	**GC/MS II**	**N/A**	**08/08/16 13:28**	**160808L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.07534	94	0.07704	96	60-156	44-172	2	0-40	
Toluene	0.09421	0.09318	99	0.09457	100	56-146	41-161	1	0-43	
Ethylbenzene	0.1086	0.1163	107	0.1170	108	52-154	35-171	1	0-38	
o-Xylene	0.1086	0.1228	113	0.1224	113	52-148	36-164	0	0-38	
p/m-Xylene	0.2171	0.2621	121	0.2585	119	42-156	23-175	1	0-41	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09556	106	0.09582	106	50-150	33-167	0	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1812	120	0.1832	121	60-140	47-153	1	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.09993	96	0.1005	96	60-140	47-153	1	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1090	104	0.1097	105	60-140	47-153	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1024	98	0.1039	99	60-140	47-153	1	0-30	
1,2-Dibromoethane	0.1921	0.1958	102	0.1965	102	54-144	39-159	0	0-36	
1,2-Dichloroethane	0.1012	0.1244	123	0.1225	121	69-153	55-167	2	0-35	
Ethanol	0.1884	0.2009	107	0.2034	108	60-140	47-153	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Cardno		Date Received:	08/06/16
601 North McDowell Blvd.		Work Order:	16-08-0497
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
098-01-005-7298	**LCS**	**Air**	**GC 13**	**N/A**	**08/06/16 09:48**	**160806L02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline	932.5	828.5	89	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-0497 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15M	N/A	866	GC/MS II	2
EPA TO-15M	N/A	884	GC/MS HH	2
EPA TO-3M	N/A	1074	GC 13	2

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Glossary of Terms and Qualifiers

Work Order: 16-08-0497 Page 1 of 1

Qualifiers	Definition
AZ	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stnds.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
Phone: 714-895-5494
Fax: 714-894-7501

ExxonMobil
16-08-0497

Consultant Name: Cardno ERI | **Account #:** NA | **PO#:** Direct Bill Cardno
Consultant Address: 601 N McDowell Boulevard | **Invoice To:** Direct Bill Cardno
Consultant City/State/Zip: Petaluma, CA 94954 | **Report To:** Scott Perkins
ExxonMobil Project Mgr: Jennifer Sedlachek | **Project Name:** 02 2229 CX
Consultant Project Mgr: Scott Perkins | **ExxonMobil Site #:** 70235 | **Major Project (AFE #):**
Consultant Telephone Number: (707) 766-2000 | **Fax No.:** | **Site Address:** 2225 Telegraph Avenue
Sampler Name (Print): CARL MIKLICH | **Site City, State, Zip:** Oakland, CA
Sampler Signature: | **Oversight Agency:** Alameda County Health Care Services

Sample ID	Field Point Name	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify): Distilled Water	Analyze For: *TPHd 8015 B	TPHg TO-3 (M)	BTEX MTBE TO-15 (M)	Oxygenates TO-15 (M)	Methanol 8015B	Motor Oil by 8015B	Kerosene by 8015B		RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
V-INF-COMP-1	EVENT-INF	8-5-16	1045	1													1						1			X	X	X							X	

Comments/Special Instructions:
TO-15 to include: BTEX, MTBE, DIPE, ETBE, TAME, TBA, 1,2DCA, EDB, ethanol

PLEASE E-MAIL ALL PDF FILES TO norcallabs@eri-us.com

GLOBAL ID # T0600101354

Relinquished by:		Date	Time	Received by:	Date	Time
	CARDNO	8/5/16	1040	Tom O'Malley ECI	8/5/16	1040
Tom O'Malley TO 650		8/5/16	1730		8/6/16	0910

Received by (Lab personnel):

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ Calscience Project Manager or attach specific instructions

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0497

GSO GOLDEN STATE OVERNIGHT

800-322-5555 www.gso.com

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD: $0.00
Weight: 0 lb(s)
Reference:
CARDNO ERI
Delivery Instructions:

Signature Type: REQUIRED

Tracking #: 532843519

SDS

ORC
GARDEN GROVE

A

D92845A

55014119

Print Date: 8/5/2016 1:34 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

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WORK ORDER NUMBER: 16-08- 0497

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Cardno ERT

DATE: 08 / 06 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____°C (w/ CF): _____°C; ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☑ Air ☐ Filter Checked by: SR

CUSTODY SEAL:

Cooler ☑ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: SR

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☑ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: SR

Reviewed by: ZM

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WORK ORDER NUMBER: 16-08-0595

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: Cardno
Client Project Name: ExxonMobil 70235/022229C
Attention: Scott Perkins
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Approved for release on 08/22/2016 by:
Cecile deGuia
Project Manager

ResultLink ▸

Email your PM ▸

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Contents

Client Project Name: ExxonMobil 70235/022229C
Work Order Number: 16-08-0595

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Work Order Narrative

Work Order: 16-08-0595 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/09/16. They were assigned to Work Order 16-08-0595.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Cardno	Work Order:	16-08-0595
	601 North McDowell Blvd.	Project Name:	ExxonMobil 70235/022229C
	Petaluma, CA 94954-2312	PO Number:	022229C
		Date/Time Received:	08/09/16 11:00
		Number of Containers:	1
Attn:	Scott Perkins		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
V-INF-COMP-1	16-08-0595-1	08/08/16 09:15	1	Air

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/09/16
Work Order: 16-08-0595
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0595-1-A**	**08/08/16 09:15**	**Air**	**GC/MS HH**	**N/A**	**08/10/16 18:43**	**160810L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	32	0.32	200	
Toluene	34	3.8	200	
Ethylbenzene	56	0.43	200	
o-Xylene	34	0.43	200	
p/m-Xylene	110	1.7	200	
Xylenes (total)	150	0.43	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.4	200	
Tert-Butyl Alcohol (TBA)	ND	3.0	200	
Diisopropyl Ether (DIPE)	ND	1.7	200	
Ethyl-t-Butyl Ether (ETBE)	ND	1.7	200	
Tert-Amyl-Methyl Ether (TAME)	ND	1.7	200	
1,2-Dibromoethane	ND	0.77	200	
1,2-Dichloroethane	ND	0.40	200	
Ethanol	ND	19	200	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	116	57-129	
1,2-Dichloroethane-d4	100	47-137	
Toluene-d8	74	78-156	AZ

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Date Received: 08/09/16
Work Order: 16-08-0595
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Project: ExxonMobil 70235/022229C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6822**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**08/10/16 17:47**	**160810L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	
Toluene	ND	0.019	1.00	
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	
Xylenes (total)	ND	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	107	57-129	
1,2-Dichloroethane-d4	98	47-137	
Toluene-d8	97	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/09/16
Work Order: 16-08-0595
Preparation: N/A
Method: EPA TO-3M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-0595-1-A**	**08/08/16 09:15**	**Air**	**GC 13**	**N/A**	**08/09/16 13:05**	**160809L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	6300	35	5.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-7300**	**N/A**	**Air**	**GC 13**	**N/A**	**08/09/16 09:36**	**160809L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	ND	7.0	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Cardno		Date Received:	08/09/16
601 North McDowell Blvd.		Work Order:	16-08-0595
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
V-INF-COMP-1	**Sample**	**Air**	**GC 13**	**N/A**	**08/09/16 13:05**	**160809D01**
V-INF-COMP-1	**Sample Duplicate**	**Air**	**GC 13**	**N/A**	**08/09/16 13:16**	**160809D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
TPH as Gasoline	6288	6271	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/09/16
Work Order: 16-08-0595
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6822	**LCS**	**Air**	**GC/MS HH**	**N/A**	**08/10/16 14:09**	**160810L01**
099-12-981-6822	**LCSD**	**Air**	**GC/MS HH**	**N/A**	**08/10/16 15:01**	**160810L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08413	105	0.08161	102	60-156	44-172	3	0-40	
Toluene	0.09421	0.1074	114	0.1132	120	56-146	41-161	5	0-43	
Ethylbenzene	0.1086	0.1234	114	0.1252	115	52-154	35-171	1	0-38	
o-Xylene	0.1086	0.1206	111	0.1252	115	52-148	36-164	4	0-38	
p/m-Xylene	0.2171	0.2482	114	0.2547	117	42-156	23-175	3	0-41	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09250	103	0.09315	103	50-150	33-167	1	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1458	96	0.1464	97	60-140	47-153	0	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.09055	87	0.09216	88	60-140	47-153	2	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1041	100	0.1065	102	60-140	47-153	2	0-30	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1105	106	0.1065	102	60-140	47-153	4	0-30	
1,2-Dibromoethane	0.1921	0.2127	111	0.2241	117	54-144	39-159	5	0-36	
1,2-Dichloroethane	0.1012	0.1051	104	0.1057	104	69-153	55-167	1	0-35	
Ethanol	0.1884	0.2343	124	0.2493	132	60-140	47-153	6	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Cardno		Date Received:	08/09/16
601 North McDowell Blvd.		Work Order:	16-08-0595
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
098-01-005-7300	**LCS**	**Air**	**GC 13**	**N/A**	**08/09/16 09:20**	**160809L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline	932.5	826.9	89	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-0595 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15M	N/A	884	GC/MS HH	2
EPA TO-3M	N/A	929	GC 13	2

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Glossary of Terms and Qualifiers

Work Order: 16-08-0595 Page 1 of 1

Qualifiers	Definition
AZ	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stnds.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Return to Contents

Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
Phone: 714-895-5494
Fax: 714-894-7501

ExxonMobil

16-08-0595

Consultant Name: Cardno ERI | **Account #:** NA | **PO#:** Direct Bill Cardno
Consultant Address: 601 N McDowell Boulevard | **Invoice To:** Direct Bill Cardno
Consultant City/State/Zip: Petaluma, CA 94954 | **Report To:** Scott Perkins
ExxonMobil Project Mgr: Jennifer Sedlachek | **Project Name:** 02 2229 CX
Consultant Project Mgr: Scott Perkins | **ExxonMobil Site #:** 70235 | **Major Project (AFE #):**
Consultant Telephone Number: (707) 766-2000 | **Fax No.:** | **Site Address:** 2225 Telegraph Avenue
Sampler Name (Print): CARL MINLICH | **Site City, State, Zip:** Oakland, CA
Sampler Signature: | **Oversight Agency:** Alameda County Health Care Services

	Sample ID	Field Point Name	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify): Distilled Water	Analyze For: *TPHd 8015 B	TPHg TO-3 (M)	BTEX MTBE TO-15 (M)	Oxygenates TO-15 (M)	Methanol 8015B	Motor Oil by 8015B	Kerosene by 8015B		RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
(1)	V-INF-COMP-1	EVENT-INF	8-8-16	915	1													1						1			X	X	X							X	

Comments/Special Instructions:
TO-15 to include: BTEX, MTBE, DIPE, ETBE, TAME, TBA, 1,2DCA, EDB, ethanol

PLEASE E-MAIL ALL PDF FILES TO norcallabs@eri-us.com

GLOBAL ID # T0600101354

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N

QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ Calscience Project Manager or attach specific instructions

Relinquished by:		Date	Time	Received by:	Date	Time
	CARDNO	8/8/16	1030	Tom Malley ECI	8/8/16	1030
Tom Malley TO 650		8/8/16	1730		8/9/16	1100

Received by (Lab personnel):

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GSO
GOLDEN STATE OVERNIGHT

800-322-5555 www.gso.com

0545

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD: $0.00
Weight: 0 lb(s)
Reference:
C B & I, CARDNO ERI
Delivery Instructions:

Signature Type: REQUIRED

Tracking #: 532858317

NPS

ORC
GARDEN GROVE

A

D92845A

55063551

Print Date: 8/8/2016 1:48 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

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WORK ORDER NUMBER: 16-08- 0595

SAMPLE RECEIPT CHECKLIST

COOLER 0 OF 0

CLIENT: Cardno ERI

DATE: 08 / 09 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____°C (w/ CF): _____°C; ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☑ Air ☐ Filter Checked by: 836

CUSTODY SEAL: Box

Cooler ☑ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: 836

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 836

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☑ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 836

Reviewed by: [illegible]

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WORK ORDER NUMBER: 16-08-1008

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: Cardno
Client Project Name: ExxonMobil 70235/022229C
Attention: Scott Perkins
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Approved for release on 08/26/2016 by:
Cecile deGuia
Project Manager

ResultLink

Email your PM

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Contents

Client Project Name: ExxonMobil 70235/022229C
Work Order Number: 16-08-1008

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Work Order Narrative

Work Order: 16-08-1008 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/13/16. They were assigned to Work Order 16-08-1008.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Cardno	Work Order:	16-08-1008
	601 North McDowell Blvd.	Project Name:	ExxonMobil 70235/022229C
	Petaluma, CA 94954-2312	PO Number:	022229C
		Date/Time Received:	08/13/16 09:40
		Number of Containers:	1
Attn:	Scott Perkins		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
V-INF-COMP-1	16-08-1008-1	08/12/16 11:00	1	Air

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/13/16
Work Order: 16-08-1008
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1008-1-A**	**08/12/16 11:00**	**Air**	**GC/MS NN**	**N/A**	**08/13/16 22:06**	**160813L03**

Parameter	Result	RL	DF	Qualifiers
Benzene	31	0.51	320	
Toluene	54	6.0	320	
Ethylbenzene	93	0.69	320	
o-Xylene	50	0.69	320	
p/m-Xylene	220	2.8	320	
Xylenes (total)	270	0.69	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.3	320	
Tert-Butyl Alcohol (TBA)	ND	4.9	320	
Diisopropyl Ether (DIPE)	ND	2.7	320	
Ethyl-t-Butyl Ether (ETBE)	ND	2.7	320	
Tert-Amyl-Methyl Ether (TAME)	ND	2.7	320	
1,2-Dibromoethane	ND	1.2	320	
1,2-Dichloroethane	ND	0.65	320	
Ethanol	ND	30	320	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	57-129	
1,2-Dichloroethane-d4	100	47-137	
Toluene-d8	102	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/13/16
Work Order: 16-08-1008
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6838**	**N/A**	**Air**	**GC/MS NN**	**N/A**	**08/13/16 18:16**	**160813L03**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	
Toluene	ND	0.019	1.00	
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	
Xylenes (total)	ND	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	57-129	
1,2-Dichloroethane-d4	103	47-137	
Toluene-d8	100	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/13/16
Work Order: 16-08-1008
Preparation: N/A
Method: EPA TO-3M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1008-1-A**	**08/12/16 11:00**	**Air**	**GC 13**	**N/A**	**08/13/16 12:10**	**160813L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	6100	35	5.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-7307**	**N/A**	**Air**	**GC 13**	**N/A**	**08/13/16 10:05**	**160813L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	ND	7.0	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Cardno		Date Received:	08/13/16
601 North McDowell Blvd.		Work Order:	16-08-1008
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
V-INF-COMP-1	**Sample**	**Air**	**GC 13**	**N/A**	**08/13/16 12:10**	**160813D01**
V-INF-COMP-1	**Sample Duplicate**	**Air**	**GC 13**	**N/A**	**08/13/16 13:47**	**160813D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
TPH as Gasoline	6134	6126	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/13/16
Work Order: 16-08-1008
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6838	**LCS**	**Air**	**GC/MS NN**	**N/A**	**08/13/16 15:16**	**160813L03**
099-12-981-6838	**LCSD**	**Air**	**GC/MS NN**	**N/A**	**08/13/16 16:31**	**160813L03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08290	104	0.08255	103	60-156	44-172	0	0-40	
Toluene	0.09421	0.09554	101	0.09617	102	56-146	41-161	1	0-43	
Ethylbenzene	0.1086	0.1153	106	0.1148	106	52-154	35-171	0	0-38	
o-Xylene	0.1086	0.1132	104	0.1129	104	52-148	36-164	0	0-38	
p/m-Xylene	0.2171	0.2689	124	0.2660	123	42-156	23-175	1	0-41	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09021	100	0.09086	101	50-150	33-167	1	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1509	100	0.1535	101	60-140	47-153	2	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.1165	111	0.1142	109	60-140	47-153	2	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1059	101	0.1140	109	60-140	47-153	7	0-30	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1027	98	0.1028	98	60-140	47-153	0	0-30	
1,2-Dibromoethane	0.1921	0.2056	107	0.2057	107	54-144	39-159	0	0-36	
1,2-Dichloroethane	0.1012	0.1061	105	0.1043	103	69-153	55-167	2	0-35	
Ethanol	0.1884	0.2099	111	0.2019	107	60-140	47-153	4	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Cardno		Date Received:	08/13/16
601 North McDowell Blvd.		Work Order:	16-08-1008
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
098-01-005-7307	**LCS**	**Air**	**GC 13**	**N/A**	**08/13/16 09:35**	**160813L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline	932.5	830.8	89	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-1008 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15M	N/A	866	GC/MS NN	2
EPA TO-3M	N/A	1078	GC 13	2

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Glossary of Terms and Qualifiers

Work Order: 16-08-1008 Page 1 of 1

Qualifiers	Definition
AZ	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stnds.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
Phone: 714-895-5494
Fax: 714-894-7501

ExxonMobil
16-08-1008

Consultant Name: Cardno ERI | **Account #:** NA | **PO#:** Direct Bill Cardno
Consultant Address: 601 N McDowell Boulevard | **Invoice To:** Direct Bill Cardno
Consultant City/State/Zip: Petaluma, CA 94954 | **Report To:** Scott Perkins
ExxonMobil Project Mgr: Jennifer Sedlachek | **Project Name:** 02 2229 CX
Consultant Project Mgr: Scott Perkins | **ExxonMobil Site #:** 70235 | **Major Project (AFE #):**
Consultant Telephone Number: (707) 766-2000 | **Fax No.:** | **Site Address:** 2225 Telegraph Avenue
Sampler Name (Print): CARL MARLICH | **Site City, State, Zip:** Oakland, CA
Sampler Signature: | **Oversight Agency:** Alameda County Health Care Services

Sample ID	Field Point Name	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify): Distilled Wate	Analyze For: *TPHd 8015 B	TPHg TO-3 (M)	BTEX MTBE TO-15 (M)	Oxygenates TO-15 (	Methanol 8015B	Motor Oil by 8015B	Kerosene by 8015B		RUSH TAT (Pre-Schedule	5-day TAT	Standard 10-day TAT	Due Date of Report
V-INF-COMP-1	EVENT-INF	8-12-16	1100	1													1						1			X	X	X							X	

Comments/Special Instructions:
TO-15 to include: BTEX, MTBE, DIPE, ETBE, TAME, TBA, 1,2DCA, EDB, ethanol

PLEASE E-MAIL ALL PDF FILES TO norcallabs@eri-us.com

GLOBAL ID #T0600101354

Relinquished by:		Date	Time	Received by:	Date	Time
	CARDNO	8/12/16	1215	Tom O'Malley ECI	8/12/16	1215
Relinquished by:		Date	Time	Received by (Lab personnel):	Date	Time
Tom O'Malley TO (-50)		8/12/16	1730	2 ECI	8/13/16	0940

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ Calscience Project Manager or attach specific instructions

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GSO GOLDEN STATE OVERNIGHT

800-322-5555 www.gso.com

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD: $0.00
Weight: 0 lb(s)
Reference:
CARDNO ERI
Delivery Instructions:

Signature Type: REQUIRED

Tracking #: 532922931

SDS

ORC
GARDEN GROVE

A

D92845A

55284530

Print Date: 8/12/2016 2:04 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

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WORK ORDER NUMBER: 16-08-1008

SAMPLE RECEIPT CHECKLIST

COOLER 0 OF 0

CLIENT: Cardno ERI

DATE: 08 / 13 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____°C (w/ CF): _____°C; ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☑ Air ☐ Filter Checked by: SR

CUSTODY SEAL: (Box)

Cooler ☑ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: SR

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE: **(Trip Blank Lot Number: _____)**

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☑ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: SR

Reviewed by: 1017

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WORK ORDER NUMBER: 16-08-1166

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: Cardno
Client Project Name: ExxonMobil 70235/022229C
Attention: Scott Perkins
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Approved for release on 08/29/2016 by:
Cecile deGuia
Project Manager

ResultLink

Email your PM

eurofins | Calscience

Contents

Client Project Name: ExxonMobil 70235/022229C
Work Order Number: 16-08-1166

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Work Order Narrative

Work Order: 16-08-1166 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/16/16. They were assigned to Work Order 16-08-1166.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Cardno	Work Order:	16-08-1166
	601 North McDowell Blvd.	Project Name:	ExxonMobil 70235/022229C
	Petaluma, CA 94954-2312	PO Number:	022229C
		Date/Time Received:	08/16/16 10:00
		Number of Containers:	1
Attn:	Scott Perkins		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
V-INF-COMP-1	16-08-1166-1	08/15/16 12:15	1	Air

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/16/16
Work Order: 16-08-1166
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1166-1-A**	**08/15/16 12:15**	**Air**	**GC/MS II**	**N/A**	**08/17/16 09:28**	**160816L02**

Parameter	Result	RL	DF	Qualifiers
Benzene	20	0.51	320	
Toluene	39	6.0	320	
Ethylbenzene	61	0.69	320	
o-Xylene	39	0.69	320	
p/m-Xylene	150	2.8	320	
Xylenes (total)	190	0.69	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.3	320	
Tert-Butyl Alcohol (TBA)	ND	4.9	320	
Diisopropyl Ether (DIPE)	ND	2.7	320	
Ethyl-t-Butyl Ether (ETBE)	ND	2.7	320	
Tert-Amyl-Methyl Ether (TAME)	ND	2.7	320	
1,2-Dibromoethane	ND	1.2	320	
1,2-Dichloroethane	ND	0.65	320	
Ethanol	ND	30	320	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	57-129	
1,2-Dichloroethane-d4	94	47-137	
Toluene-d8	85	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/16/16
Work Order: 16-08-1166
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6842**	**N/A**	**Air**	**GC/MS II**	**N/A**	**08/16/16 20:13**	**160816L02**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	
Toluene	ND	0.019	1.00	
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	
Xylenes (total)	ND	0.0022	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	93	57-129	
1,2-Dichloroethane-d4	95	47-137	
Toluene-d8	92	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/16/16
Work Order: 16-08-1166
Preparation: N/A
Method: EPA TO-3M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1166-1-A**	**08/15/16 12:15**	**Air**	**GC 13**	**N/A**	**08/16/16 19:58**	**160816L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	5800	35	5.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-7310**	**N/A**	**Air**	**GC 13**	**N/A**	**08/16/16 09:50**	**160816L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	ND	7.0	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Cardno		Date Received:	08/16/16
601 North McDowell Blvd.		Work Order:	16-08-1166
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
16-08-1144-2	**Sample**	**Air**	**GC 13**	**N/A**	**08/16/16 16:18**	**160816D01**
16-08-1144-2	**Sample Duplicate**	**Air**	**GC 13**	**N/A**	**08/16/16 16:55**	**160816D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
TPH as Gasoline	86.21	74.13	15	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/16/16
Work Order: 16-08-1166
Preparation: N/A
Method: EPA TO-15M

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6842	**LCS**	**Air**	**GC/MS II**	**N/A**	**08/16/16 17:31**	**160816L02**
099-12-981-6842	**LCSD**	**Air**	**GC/MS II**	**N/A**	**08/16/16 18:24**	**160816L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08247	103	0.08279	104	60-156	44-172	0	0-40	
Toluene	0.09421	0.09728	103	0.09846	105	56-146	41-161	1	0-43	
Ethylbenzene	0.1086	0.1191	110	0.1194	110	52-154	35-171	0	0-38	
o-Xylene	0.1086	0.1180	109	0.1190	110	52-148	36-164	1	0-38	
p/m-Xylene	0.2171	0.2432	112	0.2450	113	42-156	23-175	1	0-41	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.09744	108	0.09823	109	50-150	33-167	1	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1609	106	0.1611	106	60-140	47-153	0	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.08468	81	0.08456	81	60-140	47-153	0	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1018	97	0.1011	97	60-140	47-153	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1069	102	0.1074	103	60-140	47-153	0	0-30	
1,2-Dibromoethane	0.1921	0.2142	111	0.2163	113	54-144	39-159	1	0-36	
1,2-Dichloroethane	0.1012	0.1103	109	0.1100	109	69-153	55-167	0	0-35	
Ethanol	0.1884	0.1722	91	0.1761	93	60-140	47-153	2	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Cardno		Date Received:	08/16/16
601 North McDowell Blvd.		Work Order:	16-08-1166
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
098-01-005-7310	**LCS**	**Air**	**GC 13**	**N/A**	**08/16/16 09:36**	**160816L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline	932.5	883.8	95	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-1166 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15M	N/A	866	GC/MS II	2
EPA TO-3M	N/A	1078	GC 13	2

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Glossary of Terms and Qualifiers

Work Order: 16-08-1166 Page 1 of 1

Qualifiers	Definition
AZ	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stnds.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
Phone: 714-895-5494
Fax: 714-894-7501

ExxonMobil
16-08-1166

Consultant Name: Cardno ERI | **Account #:** NA | **PO#:** Direct Bill Cardno
Consultant Address: 601 N McDowell Boulevard | **Invoice To:** Direct Bill Cardno
Consultant City/State/Zip: Petaluma, CA 94954 | **Report To:** Scott Perkins
ExxonMobil Project Mgr: Jennifer Sedlachek | **Project Name:** 02 2229 CX
Consultant Project Mgr: Scott Perkins | **ExxonMobil Site #:** 70235 | **Major Project (AFE #):**
Consultant Telephone Number: (707) 766-2000 | **Fax No.:** | **Site Address:** 2225 Telegraph Avenue
Sampler Name (Print): CARL MINICH | **Site City, State, Zip:** Oakland, CA
Sampler Signature: | **Oversight Agency:** Alameda County Health Care Services

Sample ID	Field Point Name	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify): Distilled Wate	Analyze For: *TPHd 8015 B	TPHg TO-3 (M)	BTEX MTBE TO-15 (M)	Oxygenates TO-15 (	Methanol 8015B	Motor Oil by 8015B	Kerosene by 8015B		RUSH TAT (Pre-Schedule	5-day TAT	Standard 10-day TAT	Due Date of Report
V-INF-COMP-1	EVENT-INF	8-15-16	1215	1													1						1			X	X	X							X	

Comments/Special Instructions:
TO-15 to include: BTEX, MTBE, DIPE, ETBE, TAME, TBA, 1,2DCA, EDB, ethanol

PLEASE E-MAIL ALL PDF FILES TO norcallabs@eri-us.com

GLOBAL ID # T0600101354

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N

QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ Calscience Project Manager or attach specific instructions

Relinquished by:		Date	Time	Received by:	Date	Time
	Cardno	8/15/16	1236	Fa-O'Malley EC)	8/15/16	1236
Relinquished by:		Date	Time	Received by (Lab personnel):	Date	Time
Fa-O'malley FedEx		8/15/16	1730		8/16/16	1000

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GSO GOLDEN STATE OVERNIGHT

800-322-5555 www.gso.com

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD: $0.00
Weight: 0 lb(s)
Reference:
CARDNO ERI
Delivery Instructions:

Signature Type: REQUIRED

Tracking #: 532938200

NPS

ORC
GARDEN GROVE

A

D92845A

55334125

Print Date: 8/15/2016 2:32 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

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WORK ORDER NUMBER: 16-08- 1166

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Cardno ERT

DATE: 08 / 16 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____°C (w/ CF): _____°C; ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☑ Air ☐ Filter Checked by: LS

CUSTODY SEAL:

Cooler ☑ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: LS

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☑ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: SR

Reviewed by: TT

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WORK ORDER NUMBER: 16-08-1425

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For
Client: Cardno
Client Project Name: ExxonMobil 70235/022229C
Attention: Scott Perkins
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Approved for release on 09/01/2016 by:
Cecile deGuia
Project Manager

ResultLink ▸

Email your PM ▸

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Contents

Client Project Name: ExxonMobil 70235/022229C
Work Order Number: 16-08-1425

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Work Order Narrative

Work Order: 16-08-1425 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/19/16. They were assigned to Work Order 16-08-1425.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Cardno	Work Order:	16-08-1425
	601 North McDowell Blvd.	Project Name:	ExxonMobil 70235/022229C
	Petaluma, CA 94954-2312	PO Number:	022229C
		Date/Time Received:	08/19/16 11:15
		Number of Containers:	2
Attn:	Scott Perkins		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
V-INF-COMP-1	16-08-1425-1	08/18/16 09:00	1	Air
V-EFF	16-08-1425-2	08/18/16 08:55	1	Air

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/19/16
Work Order: 16-08-1425
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1425-1-A**	**08/18/16 09:00**	**Air**	**GC/MS HH**	**N/A**	**08/19/16 21:40**	**160819L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	18	0.16	100	
Toluene	33	1.9	100	
Xylenes (total)	240	0.87	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.72	100	
Tert-Butyl Alcohol (TBA)	ND	1.5	100	
Diisopropyl Ether (DIPE)	ND	0.84	100	
Ethyl-t-Butyl Ether (ETBE)	ND	0.84	100	
Tert-Amyl-Methyl Ether (TAME)	ND	0.84	100	
1,2-Dibromoethane	ND	0.38	100	
1,2-Dichloroethane	ND	0.20	100	
Ethanol	ND	9.4	100	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	125	57-129	
1,2-Dichloroethane-d4	91	47-137	
Toluene-d8	60	78-156	AZ

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1425-1-A**	**08/18/16 09:00**	**Air**	**GC/MS HH**	**N/A**	**08/20/16 17:05**	**160820L01**

Parameter	Result	RL	DF	Qualifiers
Ethylbenzene	79	0.87	400	
o-Xylene	53	0.87	400	
p/m-Xylene	180	3.5	400	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	133	57-129	AZ
1,2-Dichloroethane-d4	101	47-137	
Toluene-d8	91	78-156	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/19/16
Work Order: 16-08-1425
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-EFF	**16-08-1425-2-A**	**08/18/16 08:55**	**Air**	**GC/MS HH**	**N/A**	**08/19/16 20:05**	**160819L01**

Parameter	Result	RL	DF	Qualifiers
Xylenes (total)	5.0	0.0087	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	0.036	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	208	57-129	AZ
1,2-Dichloroethane-d4	93	47-137	
Toluene-d8	41	78-156	AZ

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-EFF	**16-08-1425-2-A**	**08/18/16 08:55**	**Air**	**GC/MS HH**	**N/A**	**08/19/16 20:50**	**160819L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	0.85	0.0064	4.00	
Toluene	0.95	0.075	4.00	
o-Xylene	1.4	0.0087	4.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	136	57-129	AZ
1,2-Dichloroethane-d4	94	47-137	
Toluene-d8	44	78-156	AZ

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Date Received: 08/19/16
Work Order: 16-08-1425
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Project: ExxonMobil 70235/022229C

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-EFF	**16-08-1425-2-A**	**08/18/16 08:55**	**Air**	**GC/MS HH**	**N/A**	**08/20/16 16:19**	**160820L01**

Parameter	Result	RL	DF	Qualifiers
Ethylbenzene	1.6	0.017	8.00	
p/m-Xylene	3.7	0.069	8.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	132	57-129	AZ
1,2-Dichloroethane-d4	97	47-137	
Toluene-d8	85	78-156	

Method Blank	099-12-981-6845	N/A	Air	GC/MS HH	N/A	08/19/16 14:33	160819L01

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.0016	1.00	
Toluene	ND	0.019	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.0072	1.00	
Tert-Butyl Alcohol (TBA)	ND	0.015	1.00	
Diisopropyl Ether (DIPE)	ND	0.0084	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.0084	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.0084	1.00	
1,2-Dibromoethane	ND	0.0038	1.00	
o-Xylene	ND	0.0022	1.00	
Xylenes (total)	ND	0.0022	1.00	
1,2-Dichloroethane	ND	0.0020	1.00	
Ethanol	ND	0.094	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	116	57-129	
1,2-Dichloroethane-d4	101	47-137	
Toluene-d8	114	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/19/16
Work Order: 16-08-1425
Preparation: N/A
Method: EPA TO-15M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-981-6847**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**08/20/16 14:50**	**160820L01**

Parameter	Result	RL	DF	Qualifiers
Ethylbenzene	ND	0.0022	1.00	
o-Xylene	ND	0.0022	1.00	
p/m-Xylene	ND	0.0087	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	114	57-129	
1,2-Dichloroethane-d4	98	47-137	
Toluene-d8	106	78-156	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/19/16
Work Order: 16-08-1425
Preparation: N/A
Method: EPA TO-3M
Units: mg/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-INF-COMP-1	**16-08-1425-1-A**	**08/18/16 09:00**	**Air**	**GC 60**	**N/A**	**08/19/16 14:44**	**160819L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	5400	35	5.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
V-EFF	**16-08-1425-2-A**	**08/18/16 08:55**	**Air**	**GC 60**	**N/A**	**08/19/16 13:28**	**160819L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	230	7.0	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-7322**	**N/A**	**Air**	**GC 60**	**N/A**	**08/19/16 10:32**	**160819L01**

Parameter	Result	RL	DF	Qualifiers
TPH as Gasoline	ND	7.0	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Cardno		Date Received:	08/19/16
601 North McDowell Blvd.		Work Order:	16-08-1425
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
V-EFF	**Sample**	**Air**	**GC 60**	**N/A**	**08/19/16 13:28**	**160819D01**
V-EFF	**Sample Duplicate**	**Air**	**GC 60**	**N/A**	**08/19/16 13:44**	**160819D01**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
TPH as Gasoline	225.1	223.8	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno		Date Received:	08/19/16
601 North McDowell Blvd.		Work Order:	16-08-1425
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-15M
Project: ExxonMobil 70235/022229C			Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6845	**LCS**	**Air**	**GC/MS HH**	**N/A**	**08/19/16 11:06**	**160819L01**
099-12-981-6845	**LCSD**	**Air**	**GC/MS HH**	**N/A**	**08/19/16 11:56**	**160819L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08004	100	0.07952	100	60-156	44-172	1	0-40	
Toluene	0.09421	0.09293	99	0.09395	100	56-146	41-161	1	0-43	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.08762	97	0.08782	97	50-150	33-167	0	0-35	
Tert-Butyl Alcohol (TBA)	0.1516	0.1513	100	0.1530	101	60-140	47-153	1	0-30	
Diisopropyl Ether (DIPE)	0.1045	0.09201	88	0.09236	88	60-140	47-153	0	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1036	99	0.1052	101	60-140	47-153	2	0-30	
Ethylbenzene	0.1086	0.1116	103	0.1096	101	52-154	35-171	2	0-38	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1064	102	0.1095	105	60-140	47-153	3	0-30	
1,2-Dibromoethane	0.1921	0.2008	105	0.2012	105	54-144	39-159	0	0-36	
o-Xylene	0.1086	0.1118	103	0.1089	100	52-148	36-164	3	0-38	
1,2-Dichloroethane	0.1012	0.1026	101	0.1043	103	69-153	55-167	2	0-35	
p/m-Xylene	0.2171	0.2214	102	0.2178	100	42-156	23-175	2	0-41	
Ethanol	0.1884	0.1751	93	0.1761	93	60-140	47-153	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Cardno
601 North McDowell Blvd.
Petaluma, CA 94954-2312

Project: ExxonMobil 70235/022229C

Date Received: 08/19/16
Work Order: 16-08-1425
Preparation: N/A
Method: EPA TO-15M
Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-981-6847	**LCS**	**Air**	**GC/MS HH**	**N/A**	**08/20/16 12:14**	**160820L01**
099-12-981-6847	**LCSD**	**Air**	**GC/MS HH**	**N/A**	**08/20/16 13:03**	**160820L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	0.07987	0.08108	102	0.08173	102	60-156	44-172	1	0-40	
Ethylbenzene	0.1086	0.1090	100	0.1064	98	52-154	35-171	2	0-38	
o-Xylene	0.1086	0.1075	99	0.1052	97	52-148	36-164	2	0-38	
p/m-Xylene	0.2171	0.2128	98	0.2065	95	42-156	23-175	3	0-41	
Diisopropyl Ether (DIPE)	0.1045	0.09235	88	0.09320	89	60-140	47-153	1	0-30	
1,2-Dibromoethane	0.1921	0.1977	103	0.1914	100	54-144	39-159	3	0-36	
1,2-Dichloroethane	0.1012	0.1010	100	0.1013	100	69-153	55-167	0	0-35	
Ethanol	0.1884	0.2417	128	0.2050	109	60-140	47-153	16	0-30	
Ethyl-t-Butyl Ether (ETBE)	0.1045	0.1051	101	0.1071	103	60-140	47-153	2	0-30	
Methyl-t-Butyl Ether (MTBE)	0.09013	0.08899	99	0.08984	100	50-150	33-167	1	0-35	
Tert-Amyl-Methyl Ether (TAME)	0.1045	0.1071	103	0.1075	103	60-140	47-153	0	0-30	
Tert-Butyl Alcohol (TBA)	0.1516	0.1508	100	0.1507	99	60-140	47-153	0	0-30	
Toluene	0.09421	0.09251	98	0.08998	96	56-146	41-161	3	0-43	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Cardno		Date Received:	08/19/16
601 North McDowell Blvd.		Work Order:	16-08-1425
Petaluma, CA 94954-2312		Preparation:	N/A
		Method:	EPA TO-3M
Project: ExxonMobil 70235/022229C			Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
098-01-005-7322	**LCS**	**Air**	**GC 60**	**N/A**	**08/19/16 10:18**	**160819L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline	932.5	871.8	93	80-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-1425 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15M	N/A	884	GC/MS HH	2
EPA TO-3M	N/A	1074	GC 60	2

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Glossary of Terms and Qualifiers

Work Order: 16-08-1425 Page 1 of 1

Qualifiers	Definition
AZ	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stnds.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
Phone: 714-895-5494
Fax: 714-894-7501

ExxonMobil

16-08-1425

Consultant Name: Cardno ERI | **Account #:** NA | **PO#:** Direct Bill Cardno
Consultant Address: 601 N McDowell Boulevard | **Invoice To:** Direct Bill Cardno
Consultant City/State/Zip: Petaluma, CA 94954 | **Report To:** Scott Perkins
ExxonMobil Project Mgr: Jennifer Sedlachek | **Project Name:** 02 2229 CX
Consultant Project Mgr: Scott Perkins | **ExxonMobil Site #:** 70235 | **Major Project (AFE #):**
Consultant Telephone Number: (707) 766-2000 | **Fax No.:** | **Site Address:** 2225 Telegraph Avenue
Sampler Name (Print): Cathy Mukicich | **Site City, State, Zip:** Oakland, CA
Sampler Signature: | **Oversight Agency:** Alameda County Health Care Services

	Sample ID	Field Point Name	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	HNO_3	Ice	Other	None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Air	Other (specify): Distilled Water	Analyze For: *TPHd 8015 B	TPHg TO-3 (M)	BTEX MTBE TO-15 (M)	Oxygenates TO-15 (M)	Methanol 8015B	Motor Oil by 8015B	Kerosene by 8015B		RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
1	V-INF-COMP-1 (1)	EVENT-INF	8/18/16	900	1													1						1			X	X	X							X	
2	V-EFF (2)	EVENT-EFF	8/18/16	855	1													1						1			X	X	X							X	

Comments/Special Instructions:
TO-15 to include: BTEX, MTBE, DIPE, ETBE, TAME, TBA, 1,2DCA, EDB, ethanol

PLEASE E-MAIL ALL PDF FILES TO
norcallabs@eri-us.com

GLOBAL ID # T0600101354

Relinquished by:		Date	Time	Received by:	Date	Time
	CARDNO	8/18/16	0945	Tom Malley ECI	8/18/16	0945
Tom Malley	TO GSO	8/18/16	1730	Received by (Lab personnel):	8/19/16	1115

Laboratory Comments:
Temperature Upon Receipt:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
QC Deliverables (please circle one)
Level 2
Level 3
Level 4
Site Specific - if yes, please attach pre-schedule w/ Calscience Project Manager or attach specific instructions

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GSO GOLDEN STATE OVERNIGHT

800-322-5555 www.gso.com

1425

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

COD: $0.00
Weight: 0 lb(s)
Reference:
CARDNO ERI
Delivery Instructions:

Signature Type: REQUIRED

Tracking #: 532987188

NPS

ORC **A**
GARDEN GROVE

D92845A

55504254

Print Date: 8/18/2016 2:49 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

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WORK ORDER NUMBER: 16-08- 1415

SAMPLE RECEIPT CHECKLIST

COOLER 0 OF 0

CLIENT: Cardno GR

DATE: 08 / 19 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): _____°C (w/ CF): _____°C; ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☑ Air ☐ Filter Checked by: SM6

CUSTODY SEAL:

Cooler ☑ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: SM6

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SM6

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☑ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: SM6

Reviewed by: TM

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APPENDIX B

PROTOCOLS

SOP-25: Hydrocarbon Removal from a Vadose Well
Pounds of Hydrocarbon in a Vapor Stream

Input Data

1. Vapor flow rate acfm (usually by Pitot tube)
2. Vapor pressure at the flow measuring device (in inches of H_2O) (use {-} for vacuum)
3. Vapor temperature at the flow-measuring device
4. Hydrocarbon content of vapor (usually in mg/m^3) for ppmv you need molecular weight.
5. Length of time (usually hours) over which flow rate occurred)

From periodic measurements, a calculation of total pounds of hydrocarbons removed from a well or from a system is calculated. The input data listed above are measured at a point in time. To calculate quantities removed, some assumptions must be made about what was happening between measurements. The following assumptions will be used for the sake of consistency:

Assumptions

1. Vapor flow for the period equals the average of the initial and final reading for the period.
2. Pressure and temperature for the entire period will be the final reading.
3. Hydrocarbon concentration for the period equals the average of the initial and final reading.
4. The hours of operation can be taken from an hour meter, an electric meter or will be assumed to be equal to the time between measurements.
5. If the unit is found down - try to determine how many hours it did operate and use the data taken for the previous period to make the calculations. Restart the unit and then take data to start the next period.

Sample Data and Calculations

Date	Time	Temperature (deg F)	Pressure (in H_2O)	Concentration (mg/m^3)	Vapor Flow (acfm)	Calculation (pounds removed)
01/06/95	11:00	70	-46	2,000	120	
01/07/95	13:00	55	-50	1,350	90	
01/08/95	10:00	80	-13	750	100	7.4

Calculate the pounds of hydrocarbon removed from the system during the period from 13:00 (1:00 pm) on the 7th to 10 am on the 8th. Pressure and temperature of the measurements (at the flow meter) must be corrected to the P and T used to report the concentration (which are P = 1 atm and T = 70 deg F). 1 atm = 14.7psia, 760 mm Hg, or 407 in H_2O. T_{abs} = 460 + T deg F.

Hours of operation = 21, T = 80, P = -13, HC = (1350+750)/2 = 1050 mg/m^3, Flow = 95

$$21 \times 60 \times 95 \times \frac{(460+70)}{(460+80)} \times \frac{(407-13)}{407} \times \frac{28.3}{1000} \times \frac{1050}{1000} \times \frac{1}{454} = 7.4 \text{ lb}$$

$$\frac{\text{hr}}{\text{basis}} \times \frac{\text{min}}{\text{hr}} \times \frac{\text{cu ft}}{\text{min}} \times T_{Corr} \times P_{Corr} \times \frac{m^3}{\text{cu ft}} \times \frac{g}{m^3} \times \frac{\text{lb}}{g} = \frac{\text{lb}}{\text{basis}}$$

$$21 \times 60 \times 95 \times 0.98 \times 0.97 \times 0.0283 \times 1.050 \times 1/454 = 7.4 \text{ lb}$$

cumulative lbs (the running total) = the sum of all the previous periods.

Note: If results are given in ppm, an assumption about the molecular weight of the hydrocarbon must be made to convert ppm into mg/m^3. ppmv x molecular wt. /24.1 = mg/m^3. (Use 102 for gasoline)

APPENDIX C

WASTE DOCUMENTATION

NON-HAZARDOUS Waste Hauler Document

Daily Field Ticket No. 89328 85378

GENERATOR

Name: Evan Mobil 70225

EPA #

Address: 225 Telegraph Ave

Oakland Ca

Order Placed: Order Date:

DESIGNATED TSD FACILITY

Name: Onyx

EPA #

Address: 1105 Airport Rd

Pittsburg CA

ALTERNATE TDS FACILITY

Name:

EPA #

Address:

WASTE

☐ - DRILLING MUD ☐ - GASWELL WATER ☐ - OTHER Produced Water

Weight/Volume 2800 Units bbl Container: ☐ - Dump Truck ☑ - Tank Truck

This material is nonhazardous because:
1) it is a drilling mud containing only the additives listed by the Department in its exemption letter and contains no significant concentrations of toxic materials from natural sources, or
2) is a sulfur-dioxide scrubber solution from a sodium hydroxise or sodium carbonate oil field boiler scrubber system, and possesses no characteristics that would require its handling as a hazardous waste.

SIGNATURE OF AUTHORIZED AGENT — DATE 8-19-16

TRANSPORTER

Warren E. Gomes Exc., Inc.
P. O. Box 369
Rio Vista, CA 94571
(707) 374-2881
EPA # CAD076557370

Job No. Cardno-ERI

Unit No. 28-113

Pick-Up Date 8-19-16

SIGNATURE OF BUYER

TSD FACILITY

Name Onyx

EPA #

QTY Measured 2800 gal

☐ - BBL ☐ - TONS ☐ - OTHER

SIGNATURE OF AUTHORIZED AGENT — DATE 8/19/16

Method of Disposal:

- ☐ - Injection Well
- ☐ - Landfill
- ☐ - Land Treatment
- ☐ - Surface Impoundment
- ☐ - Other

TSDF TO GENERATOR