Feasibility Test Report and Remedial Action Plan

Former ExxonMobil Station 18KFK

Cardno ERI 08100605.R07

March 21, 2013

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Shaping the Future

EXHIBIT E

Feasibility Test Report and Remedial Action Plan

Former ExxonMobil Station 18KFK
100 South La Cumbre Road
Santa Barbara, California

Cardno ERI 08100605.R07

March 21, 2013

James Anderson
Senior Engineer
for Cardno ERI
Direct Line 805 644 4157, ext. 181805
Email: james.anderson@cardno.com

PROFESSIONAL GEOLOGIST
ANDREW B. NELSON
exp. 9/30/13
NO 8360
STATE OF CALIFORNIA

Andy Nelson
Project Geologist
P.G. 8360
for Cardno ERI
Direct Line 805 644 4157, ext. 181809
Email: andy.nelson@cardno.com

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1 Introduction

At the request of ExxonMobil Environmental Services (EMES), on behalf of ExxonMobil Oil Corporation (ExxonMobil), Cardno ERI has prepared this *Feasibility Test Report and Remedial Action Plan* (RAP) for the above-referenced site (Plate 1). The purposes of the feasibility test were: 1) to evaluate the feasibility of vapor extraction and air sparge as remedial technologies to mitigate the residual adsorbed phase and dissolved phase hydrocarbons; 2) if applicable, to obtain engineering data for design of potential future remedial strategies; and 3) to achieve mass removal of subsurface hydrocarbons. The work was performed in accordance with Cardno ERI's *Work Plan for Vapor Extraction / Air Sparge Test* dated November 22, 2011, which was conditionally approved by the Santa Barbara County Fire Prevention Division (FPD) in its letter dated December 22, 2011 (Appendix A).

The purposes of the RAP are to summarize the historical site assessment, groundwater monitoring, feasibility testing and remediation activities performed at the site, define the current distribution of residual hydrocarbons in soil and groundwater, evaluate remedial strategies to mitigate the subsurface hydrocarbons, and present a conceptual design for the recommended remedial strategy to progress the case to closure as required by the FPD in its letter dated September 22, 2011 (Appendix A).

The responsible party contact is Mr. Nick Puig, ExxonMobil Environmental Services, 981 West Arrow Highway #473, San Dimas, California 91773, 909 394 6116. The consultant contact is Mr. Andy Nelson, Cardno ERI, 4572 Telephone Road, Suite 916, Ventura, California 93003, 805 644 4157. The agency contact is Mr. Tom Rejzek, Santa Barbara County Fire Prevention Division, 1430 Mission Drive, Solvang, California 93463, 805 686 8176.

2 Site Description and Land Use

Former ExxonMobil Station 18KFK is located at 100 South La Cumbre Road, on the northeastern corner of the intersection of South La Cumbre Road and La Cumbre Plaza Lane, in Santa Barbara, California (Plate 1). The surrounding areas consist of commercial properties.

The subject site is a former Mobil-branded service station, which was decommissioned with removal of the underground fueling facilities in July 2004 [Holguin, Fahan & Associates, Inc. (HFA), 2005b]. The site is currently occupied by an abandoned station building (Plate 2).

3 Geology and Hydrogeology

The site lies at an elevation of 165 feet above msl, and the local topography slopes to the south (USGS, 1988). The east-west trending Mission Ridge Fault is located 500 feet south of the site (Martin, 1984). Surface waters in the site vicinity drain to the Pacific Ocean, which is located 2 miles to the south. The nearest body of surface water is the southward-flowing Arroyo Burro Creek, an ephemeral stream located 1,000 feet to the southeast (USGS, 1988).

Soil in the site vicinity consists of Quaternary alluvium, composed of sand, gravel, silt and clay. The alluvium is underlain by Plio-Pleistocene nonmarine sand and silt of the Santa Barbara Formation, which is underlain by

marine Tertiary to Cretaceous sedimentary rocks (Martin, 1984). Assessment activities indicate that the alluvium beneath the site consists of clay with variable fractions of sand and silt from the surface to 50-70 feet bgs, and sand and gravelly sand with subordinate silty and clayey sand from 50-70 to 90 feet bgs, the maximum depth investigated (HFA, 2005b).

The site is located at the western edge of the Santa Barbara Groundwater Basin. Groundwater in the basin resides in unconsolidated deposits of the Quaternary alluvium and in the Santa Barbara Formation. During the second half 2012 groundwater monitoring event performed on August 13 and 14, 2012, the depth to groundwater in the wells completed in the shallow zone ranged from 26.84 to 31.02 feet below TOC. The groundwater flow direction was divergent with a horizontal gradient of 0.01. The depth to groundwater in the wells in the upper producing zone ranged from 29.01 to 31.05 feet below TOC. The groundwater flow direction was to the northwest with a horizontal gradient of 0.01 (Plates 3 through 12) (Cardno ERI, 2012a).

According to information provided by the City of Santa Barbara Department of Public Works, one groundwater production well is located within 1 mile of the subject site. The Hope Avenue Well is an active municipal supply well located 1,200 feet east of the site, and is operated by the City of Santa Barbara. The well is screened from 200 to 580 feet bgs and had a depth to groundwater of 14 feet bgs in December 2002 (Ferguson, 2006).

4 Previous Work

4.1 Fueling System Activities

In July 2004, the used-oil and gasoline USTs and product lines were removed during the abandonment of the service station (Plate 2) (HFA, 2005a).

4.2 Site Assessment Activities

Multiple phases of assessment have been conducted at the subject site since 1990, including the installation of over 40 groundwater monitoring and remediation wells and numerous soil borings (Plate 2). Laboratory analytical results for the soil samples collected during the historical assessments indicated that hydrocarbon-containing soil was localized at depths above 30 feet bgs, in the vicinity of the former dispenser islands and USTs, and in the upper 10 feet of soil in the area of the former southern dispenser island (HFA, 2006).

4.3 Remediation Activities

Site remediation activities began with hand bailing of NAPL in November 1990 and an automated NAPL skimming system beginning in February 1991. Both manual and automated recovery systems were removed in June 1994 after NAPL levels were reduced by more than 10 feet in both wells MW2 and MW3. A SVE and GWPTS were installed in July and August 1994 and were expanded in August 1996. These remediation systems were shut down in May and June 1997 after asymptotic hydrocarbon mass removal conditions had been achieved. An air diffusion system was operated at the site between June 1998 and March 2000 to enhance remediation by natural attenuation.

A 5-day interim remedial action event at the site was performed using a mobile, high-vacuum, multiphase extraction system (MxT System) in September 2001. The results of the MxT System operations indicated low hydrocarbon mass removal rates and extremely tight soil, and that additional mobile operations would be unlikely to further reduce residual hydrocarbon concentrations (HFA, 2003)

In September and October 2004, an excavation was performed below and surrounding the former USTs and dispensers. The excavation was conducted to remove the adsorbed phase hydrocarbons in excess of FPD investigation levels (ILs) detected in compliance soil samples collected as part of the UST removal activities, and was conducted to a maximum of 17 feet bgs. A total of 366 tons of hydrocarbon-containing soil generated from the excavation was transported off-site for recycling (HFA, 2005a).

In October and November 2005, an excavation was conducted beneath the former western dispenser islands and along the northwestern sidewall of the former gasoline UST cavity to a maximum of 8 feet bgs, and in the vicinity of the former southern dispenser island to a maximum of 13 feet bgs. A total of 2,432 tons of hydrocarbon-containing soil was transported off-site for recycling. Laboratory analytical results for all verification soil samples collected from the former western dispenser island excavation indicated residual hydrocarbon concentrations below FPD ILs. Results for the verification samples from the former southern dispenser island excavation indicated that residual hydrocarbons at concentrations above FPD ILs were only present at sampling locations S-35 and S-36, located along the southern property boundary at maximum TPHg and benzene concentrations of 150 mg/kg and 0.72 mg/kg, respectively, and further excavation was not feasible in the public right of way (HFA, 2006).

NAPL was measured for the first time in well MW04A during the third quarter 2012 groundwater monitoring event performed on August 13 and 14, 2012. An absorbent sock was installed in this well, and subsequent site visits did not detect the presence of NAPL. Therefore, the absorbent sock was removed in the fourth quarter 2012 (Cardno ERI, 2013).

4.4 Groundwater Monitoring Activities

Groundwater monitoring was implemented at the site in 1989. NAPL has not been measured in wells B11, MW02, MW03, MW15, MW17, MW18, and MW19 since 1994. NAPL was last measured in well MW04B on February 9, 2011 and well MW04C on February 12, 1998. NAPL was measured for the first time in well MW04A during the second half 2012 groundwater monitoring event performed on August 13 and 14, 2012. However, subsequent monitoring has not measured NAPL in MW04A. Dissolved phase concentrations in excess of the respective FPD ILs have consistently been measured in the shallow groundwater zone in the northwestern portion of the site. Dissolved phase hydrocarbon concentrations in wells screened in the upper groundwater zone were below FPD ILs during the third quarter 2012 monitoring event, and with the exception of benzene in well MW04D and TBA in well MW13, have been below FPD ILs for the past year (Plates 3 through 12) (Table 1) (Cardno ERI, 2012).

5 Sensitive Receptors

One public production well was identified within 1 mile of the subject site, and is located 1,080 feet to the east. No private production wells were identified within 1 mile of the subject site. A church is located 197 feet northeast of the subject site, but no residences, schools or hospitals have been identified within 1,000 feet. (Plate 1).

The site is currently an unpaved lot with an abandoned station building, therefore no known vertical or horizontal conduits are currently present on site. An inspection of the site vicinity indicates that the only horizontal conduits identified were standard utilities such as water, sewer and electricity. Based upon the depth of encountered

residual hydrocarbons in soil and groundwater, no subsurface utilities or conduits have been identified at the site or in the vicinity which would provide a significant pathway for migration of hydrocarbons.

6 Site Conceptual Model

6.1 Site and Vicinity Setting

The site is a former gasoline service station, in which the fueling facilities have been removed, and is currently an unpaved lot with an abandoned station building. The site is surrounded by commercial areas. The nearest body of surface water is the southward-flowing Arroyo Burro Creek, an ephemeral stream located 1,000 feet southeast of the site (USGS, 1988). Assessment activities indicate that the alluvium beneath the site consists of clay with variable amounts of sand and silt from the surface to 50 to 70 feet bgs, and sand and gravelly sand with lesser amounts of silty sand and clayey sand from 50 to 70 to 90 feet bgs, the maximum depth investigated. First groundwater is present at 26 to 31 feet bgs at the site in the shallow zone. Groundwater in the shallow zone has been steadily falling since the first quarter 2008 in the vicinity of wells MW02 and MW04CR. An upper groundwater zone is present between 29 and 31 feet bgs, and the groundwater flow direction in this zone has consistently been to the northwest.

6.2 Area of Adsorbed Phase Hydrocarbons

Based upon the results of recent assessment activities, the maximum hydrocarbon concentrations have been measured in the northern portion of the site, in the vicinity of well AS/SVE1. Laboratory analytical results indicated TPHg and benzene concentrations up to 1,100 mg/kg and 1.7 mg/kg, respectively from soil samples collected during the installation of this well. The maximum TPHg and benzene concentrations were measured for the samples collected at 35 and 40 feet bgs, respectively, which is approximately 5 to 10 feet below the top of the shallow groundwater zone (Cardno ERI, 2012).

6.3 Area of Dissolved Phase Hydrocarbons

Results of the third quarter 2012 groundwater monitoring event indicate that dissolved phase hydrocarbon concentrations exist at concentrations exceeding FPD ILs in only the shallow groundwater zone beneath the site, and are greatest in the vicinity of wells MW02 and MW04CR. During the third quarter 2012, NAPL was measured in well MW04A for the first time since installation of the well in 1991. Subsequent monitoring of the well has not measured any NAPL.

Dissolved phase hydrocarbon concentrations in wells screened in the upper groundwater zone were below FPD ILs during the third quarter 2012 monitoring event, and with the exception of benzene in well MW04D and TBA in well MW13, have been below FPD ILs for the past year.

7 Vapor Extraction / Air Sparge Well Installation Field Activities and Results

Air sparge / soil vapor extraction well AS/SVE1 was installed on February 24, 2012, using a hollow-stem auger rig. The well was installed adjacent to groundwater monitoring wells MW04E, MW21, MW24 and MW25 for use as the test extraction and injection well during the subsequent vapor extraction and air sparge feasibility test (Plate 2).

7.1 Pre-Field Activities

A permit was obtained from the FPD for the installation of the well (Appendix C). Underground Service Alert of Southern California and the FPD were notified at least 48 hours prior to conducting the fieldwork.

7.2 Soil Sampling and Well Construction

Soil samples were collected from well AS/SVE1 at 5-foot intervals to total depth. Soil encountered during the investigation consisted of silt and clayey silt from the surface to 35 feet bgs, sandy silt from 35 to 45 feet bgs, sand and silty sand from 45 to 55 feet bgs and silt from 55 to 56.5 feet bgs, the maximum depth investigated. Groundwater was observed at 40 feet bgs during the drilling of well AS/SVE1. Detailed soil descriptions and field screening results are included in the boring log for well AS/SVE1 in Appendix D.

Well AS/SVE1 was completed with a 2-inch diameter, Schedule 40, PVC casing screened from 10 to 25 feet bgs for vapor extraction, and a 1-inch diameter, Schedule 80 PVC casing screened from 40 to 45 feet bgs for air sparging (Appendix D). The field protocol for well installation and construction is included in Appendix E.

Select soil samples were submitted to Calscience Environmental Laboratories, Inc., a California state certified testing facility. The samples were analyzed for TPHg using the Cal-LUFT Method, and for BTEX, MTBE, TBA, ETBE, TAME, DIPE, ethanol and recalcitrants using EPA Method 8260B.

Laboratory analytical results indicated TPHg and benzene concentrations up to 1,100 mg/kg and 1.7 mg/kg, respectively. The maximum concentrations of TPHg and benzene were measured for the samples collected at 35 and 40 feet bgs, respectively. Soil analytical results are summarized in Table 2. The laboratory report is included in Appendix F.

8 Vapor Extraction / Air Sparge Test Field Activities and Results

A soil vapor extraction and air sparge feasibility test was performed on May 10 through 11 and May 14, 2012, to evaluate the potential applicability of the technology to remediate the residual on-site adsorbed and dissolved phase hydrocarbons.

8.1 Pre-Field Activities

Approval for the feasibility test was obtained from the Santa Barbara County Air Pollution Control District (SBCAPCD).

8.2 Test Methods and Results

The feasibility test was performed using a mobile extraction system on May 10 through 11 and May 14, 2012. The system operated for 28.75 hours, and used on-site well AS/SVE1 for soil vapor extraction and for air sparging and well MW25 for vapor extraction only (Plate 2) (Cardno ERI, 2012b).

The results of the testing indicated an ROI for vapor extraction of 18 feet for well AS/SVE1 at a well head vacuum of 12 inches of mercury. During the test, 109.22 pounds of hydrocarbon vapor were extracted and oxidized (Plate 2) (Cardno ERI, 2012b). Field measurements of influent concentrations indicated maximum hydrocarbons in wells AS/SVE1 and MW25 of 2,090 ppmv and 17,840 ppmv, respectively.

The results of the testing indicated increases in water levels were generally measured in all observation wells, indicating that the induced air was able to be distributed throughout the subsurface of the site (Cardno ERI, 2012b).

8.3 Vapor Sample Analytical Results

The results of vapor samples collected at the beginning, middle and end of the test from well AS/SVE1 indicated that TPHg, benzene, MTBE and TBA concentrations initially decreased during the test, from 1,600 ppmv to 80 ppmv, 1.6 ppmv to 0.24 ppmv, <0.80 ppmv to <0.032 ppmv, and <2.0 ppmv to <0.080 ppm, respectively. The final TPHg, benzene, MTBE and TBA concentrations increased at the end of the test to 7,200 ppmv, 11 ppmv, 1 ppmv, and <2.5 ppmv, respectively. The field readings measured using a PID indicated that extracted hydrocarbon concentrations initially decreased and then increased throughout the test, with the addition of well MW25, and ranged from 57 ppmv to 17,840 ppmv (Plate 2) (Table 3) (Cardno ERI, 2012b).

8.4 Summary and Conclusions

The results of the vapor extraction and air sparge feasibility testing indicated that 109.22 pounds of hydrocarbons were extracted during the test, for an average of 3.80 pounds extracted per hour. Vapor sample results indicated that extracted vapor concentrations were highest when utilizing extraction well MW25. An ROI for vapor extraction of 18 feet was observed for well AS/SVE1, at a well head vacuum of 12 inches of mercury.

Based upon a hydrocarbon mass removal rate of 91.17 pounds per day and the increase in extracted hydrocarbon concentrations throughout the test, vapor extraction and air sparging appear to be a technically feasible remedial strategy to mitigate the residual adsorbed and dissolved phase hydrocarbons at the site. As sufficient feasibility testing has been completed to select and design a remediation system, a remedial action plan has been completed.

9 Remedial Strategy Evaluation

The site conceptual model indicates that the primary constituents of concern are adsorbed phase TPHg and benzene, generally localized to the former USTs and dispenser islands at depths shallower than 10 feet bgs, and below the capillary fringe in the northwestern corner of the property. Dissolved phase TPHg and benzene are greatest in the northern portion of the site, in the vicinity of wells MW04A, MW04CR and MW02. The results of a feasibility study in May 2012 indicate that the operation of a soil vapor extraction / air sparge system is a potentially viable strategy to remediate the residual adsorbed and dissolved phase hydrocarbons at the site.

10 Proposed Work

To remediate the residual on-site adsorbed and dissolved phase hydrocarbons, Cardno ERI proposes to install and operate a soil vapor extraction/air sparge remediation system at the site. Based upon the feasibility test data, a radius of influence of 18 feet for soil vapor extraction will be utilized for designing the remediation well field.

The proposed vapor extraction system will consist of five AS/SVE wells and two SVE wells, trenching for subsurface piping, and a remediation compound. The remediation wells will consist of existing well AS/SVE1 and four new AS/SVE wells in the northern portion of the property. Two existing monitoring wells, MW21 and MW25, previously used for dual-phase extraction, will be utilized for vapor extraction only (Plate 2).

10.1 Pre-Field Activities

Prior to the onset of drilling, well permits will be obtained from the FPD and the City of Santa Barbara. Cardno ERI personnel will visit the site to check for obstructions and to mark the proposed locations. Underground Service Alert and the FPD will be notified at least 48 hours prior to the onset of field activities.

A discharge permit will be obtained from the Santa Barbara Air Pollution Control District (SBAPCD) for the vapor extraction unit.

10.2 Well Installation Activities

The proposed AS/SVE wells will be drilled using a hollow-stem auger rig. The new proposed AS/SVE wells will be drilled to a minimum of 50 feet bgs. The drilling locations will be sampled at 5-foot intervals to total depth for geologic logging and field screening purposes. If hydrocarbons are detected with field instruments, the drilling locations may be extended to beneath the interval of highest hydrocarbon concentrations.

The remediation wells will be completed with 2-inch diameter, Schedule 40 PVC casing screened from 10 to 25 feet bgs for vapor extraction, and a 1-inch diameter, Schedule 80 PVC casing screened from 40 to 45 feet bgs for air sparging (Plate 13). The screened intervals of the wells may be modified based upon field observations during drilling. It is intended that the air sparge wells be installed at a depth below the interval of maximum hydrocarbon concentrations.

The procedures for drilling, sampling, decontamination and well construction are described in the field protocol contained in Appendix E. The fieldwork will be conducted under the advisement of a State of California professional geologist and in accordance with applicable regulatory guidelines.

10.3 Laboratory Analyses

Select soil samples from the well installation activities will be submitted for analysis to a state-certified analytical laboratory. The soil samples will be analyzed for TPHg by EPA Method 8015, and for VOCs including BTEX, MTBE, DIPE, ETBE, TAME, TBA, EDB, 1,2-dichloroethane (EDC), ethanol, and the recalcitrant constituents n-butylbenzene, sec-butylbenzene, tert-butylbenzene, naphthalene, isopropylbenzene, p-isopropyltoluene, n-propylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260B.

10.4 Waste Management Plan

The soil and decontamination water generated during sampling activities will be temporarily stored on site in DOT-approved, 55-gallon drums. Soil will be transported to Soil Safe, Inc.'s approved facility in Adelanto, California, for recycling. Decontamination water will be transported to Crosby & Overton's approved facility in Long Beach, California, for disposal. Copies of the manifests for disposal of soil and water will be included in the report.

10.5 Site Redevelopment and Well Destruction Activities

The current property owner's redevelopment plan for the site identifies that groundwater monitoring wells MW02 and MW25 are located within the footprint of the proposed commercial building to be constructed on site (Plate 2). It is proposed that well MW02 be destroyed prior to construction activities, and relocated outside the building footprint. Well MW02 will be destroyed by pressure grouting the well and removing the top 5 of casing, and completed with cement to the surface. A well destruction permit will be obtained from FPD, including grout volume calculations, prior to well destruction activities.

Well MW25 will be lowered prior to site redevelopment, and will be plumbed to the remediation system underground. Additionally, the proposed remediation system wells located beneath the footprint of the proposed building will be lowered prior to development and plumbed underground. Once the property is developed, access to these wells will not be available. Following completion of remedial activities, these wells will be destroyed in place by pressure-grouting through the lateral remediation piping.

10.6 Replacement Monitoring Well Installation Activities

Based upon recent groundwater monitoring results, relocation and replacement of well MW02 appears to be necessary, as this well has reported some of the highest dissolved phase hydrocarbon concentrations of the wells screened in the shallow-zone at the site. Well MW02 will be destroyed and a replacement well will be installed immediately east of the proposed on-site building, as shown in Plate 2. The proposed replacement well will be drilled using a hollow-stem auger rig and installed at 40 feet bgs. The drilling location will be sampled at 5-foot intervals to total depth for geologic logging and field screening purposes.

The replacement well will be completed with 4-inch diameter, Schedule 40 PVC casing screened from 25 to 40 feet bgs, approximately 5 feet above to 10 feet below the groundwater interface (Plate 14). The screened interval of the well may be modified based upon field observations during drilling.

10.7 Horizontal Extraction Well Installation Activities

To mitigate the potential for hydrocarbon vapor accumulation beneath the proposed building due to air-sparging activities, Cardno ERI proposes to install lateral horizontal vapor extraction piping beneath the northern footprint of the building. The horizontal piping will be placed in the sand layer beneath the building's foundation in conjunction with the site development activities, and plumbed to the remediation system.

10.8 Monitoring and Reporting

Following destruction of well MW02, installation of the vapor extraction wells, and start-up of the remediation system, a remediation system installation report summarizing the field procedures and well construction details will be submitted to ExxonMobil and the FPD.

Operations and maintenance will be performed on the vapor extraction system on a periodic basis as required by the SBAPCD, and will include monitoring of the injection air flow rates, vapor extraction rates, and measurement of the extracted hydrocarbon vapor concentrations. The results of the monitoring will be reported to the FPD in the quarterly progress report for the site.

Vapor samples will be collected from the vapor extraction system in Tedlar® bags and submitted for analyses to a California state-certified analytical laboratory. The samples will be analyzed for TPHg by EPA Method TO-3(M), and for BTEX, MTBE and TBA by EPA Method TO-15, or as required by the SBACPD permit.

Remedial progress and compliance reports will be submitted to the SBAPCD and FPD as required by permit conditions.

10.9 System Shutdown and Closure Goals

The goal of site remediation will be to perform an economically feasible reduction of the residual dissolved phase hydrocarbon concentrations in the vicinity of shallow groundwater zone wells MW02, MW04A and MW04CR, achieve an asymptotic mass removal rate of hydrocarbons in the vapor phase, and demonstrate that site conditions meet the requirements of the State's Low Threat Closure Policy.

Closure will be requested for the subject site when the residual dissolved phase hydrocarbons have been reduced to concentrations in accordance with the State's Low Threat Closure Policy. Remediation of the remaining residual adsorbed and dissolved phase hydrocarbons will be accomplished by natural attenuation.

10.10 Schedule

Within 60 days after approval of the RAP by the FPD, the proposed vapor extraction wells will be installed. Within 90 days after approval of the RAP, it is anticipated that engineering for design of the system will be completed, and the application for discharge will be submitted to the SBAPCD. After issuance of the SBAPCD permit and any permits required by the City of Santa Barbara, field construction and startup of the system will commence.

10.11 Site Safety Plan

All fieldwork will be performed in accordance with the site-specific safety plan included in Appendix G.

11 Limitations

For any reports cited that were not generated by Cardno ERI, the data taken from those reports is used “as is” and is assumed to be accurate. Cardno ERI 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 reports.

This report was prepared in accordance with generally accepted standards of environmental, geological and engineering practices 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.

12 References

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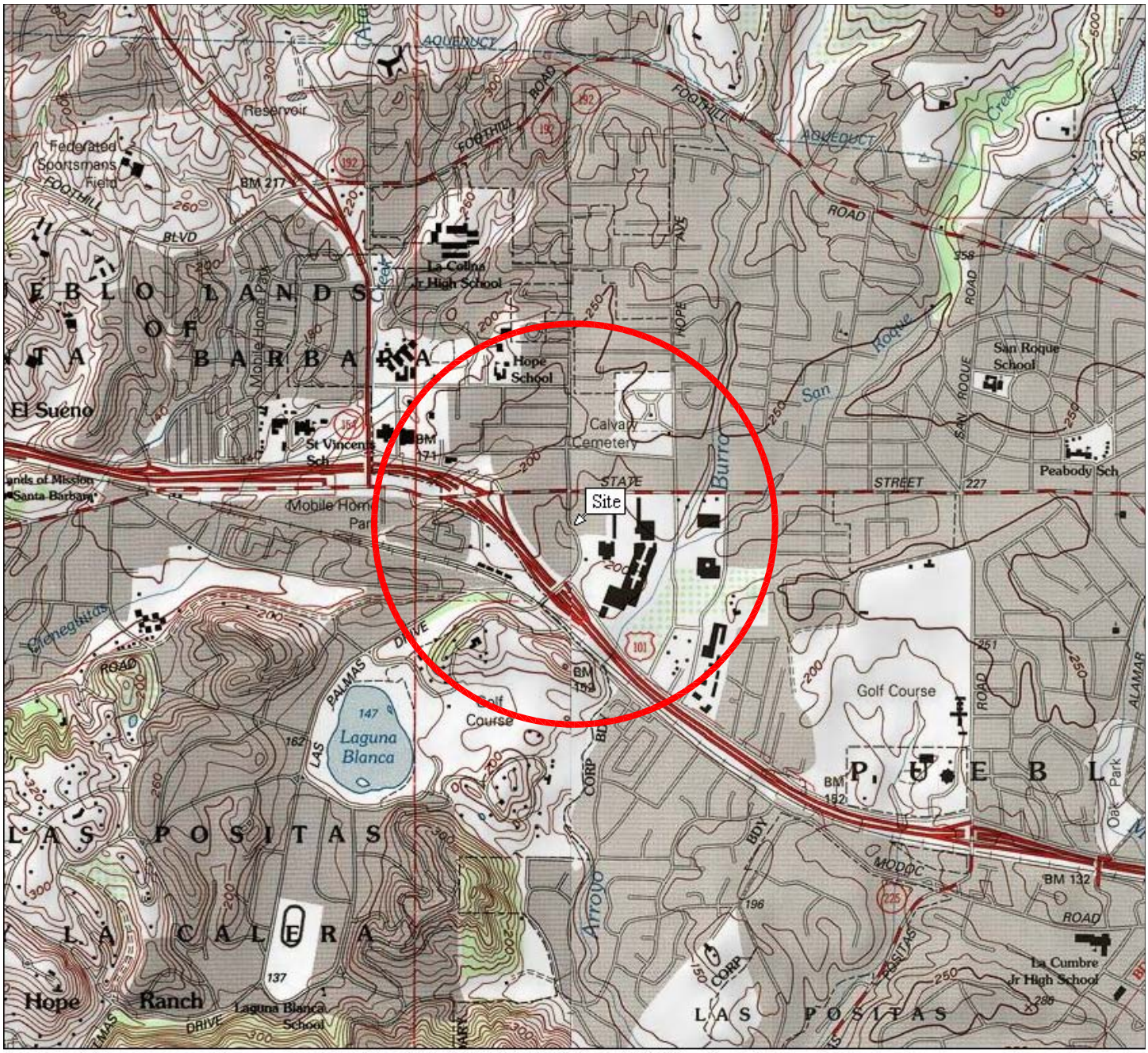
12 Acronym List

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
EPH	Extractable petroleum hydrocarbons
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GRO	Gasoline-range organics
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon



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FN 1006TOPO

Map Name: Santa Barbara, CA
Version: 1995

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map provided by National Geographic's TOPO!

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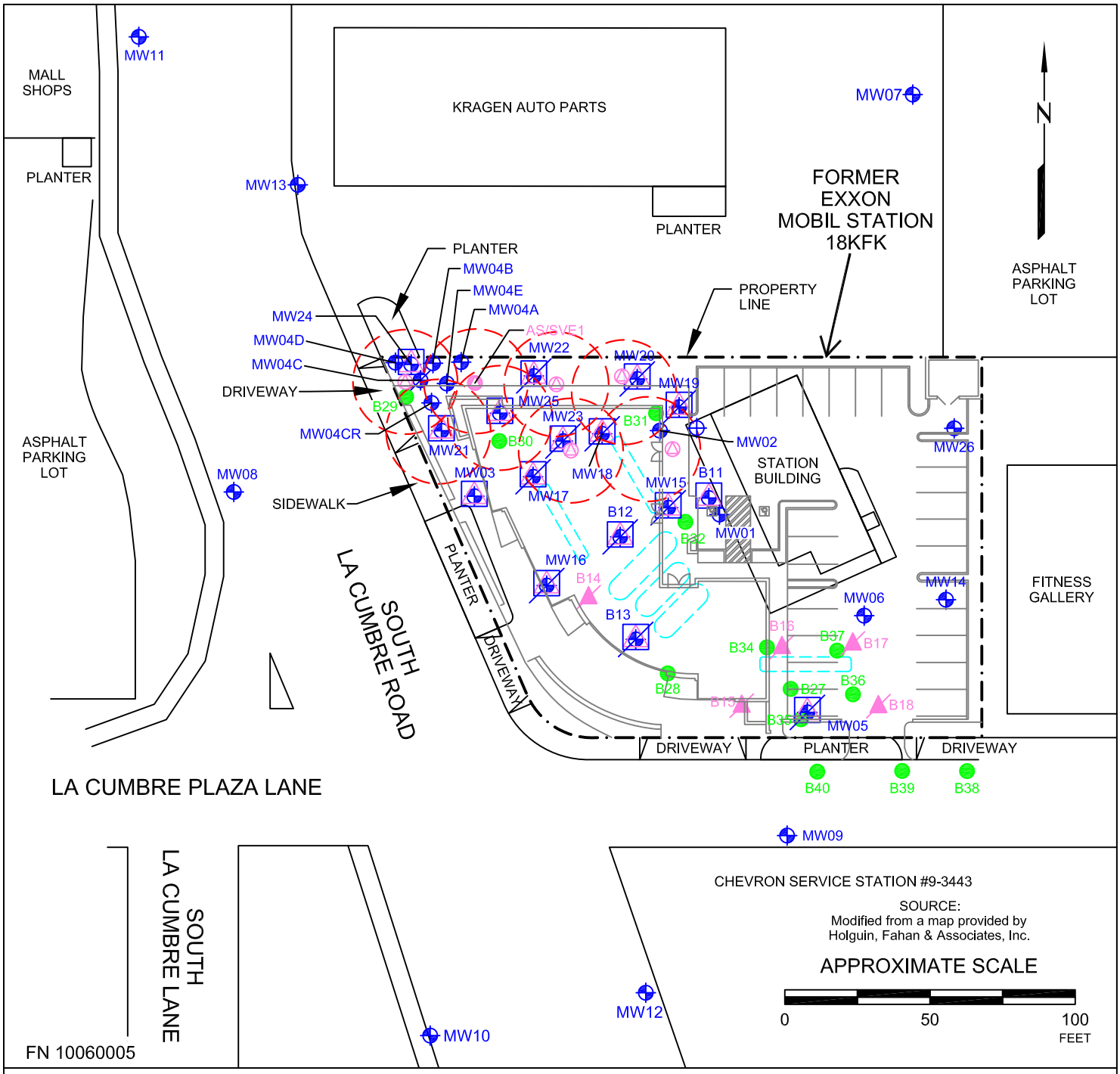
SITE LOCATION MAP

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 1



EXPLANATION

MW26	Groundwater monitoring well	B18	Destroyed soil vapor extraction well
MW25	Dual-phase extraction well		Former dispenser island
B40	Soil boring		Former underground storage tank
AS/SVE1	Air sparge/soil vapor extraction well		Vapor extraction radius of influence (18 ft)
MW04C	Abandoned groundwater monitoring well		Proposed air sparge/soil vapor extraction well
MW23	Destroyed dual-phase extraction well		Proposed groundwater monitoring well
			Redevelopment site

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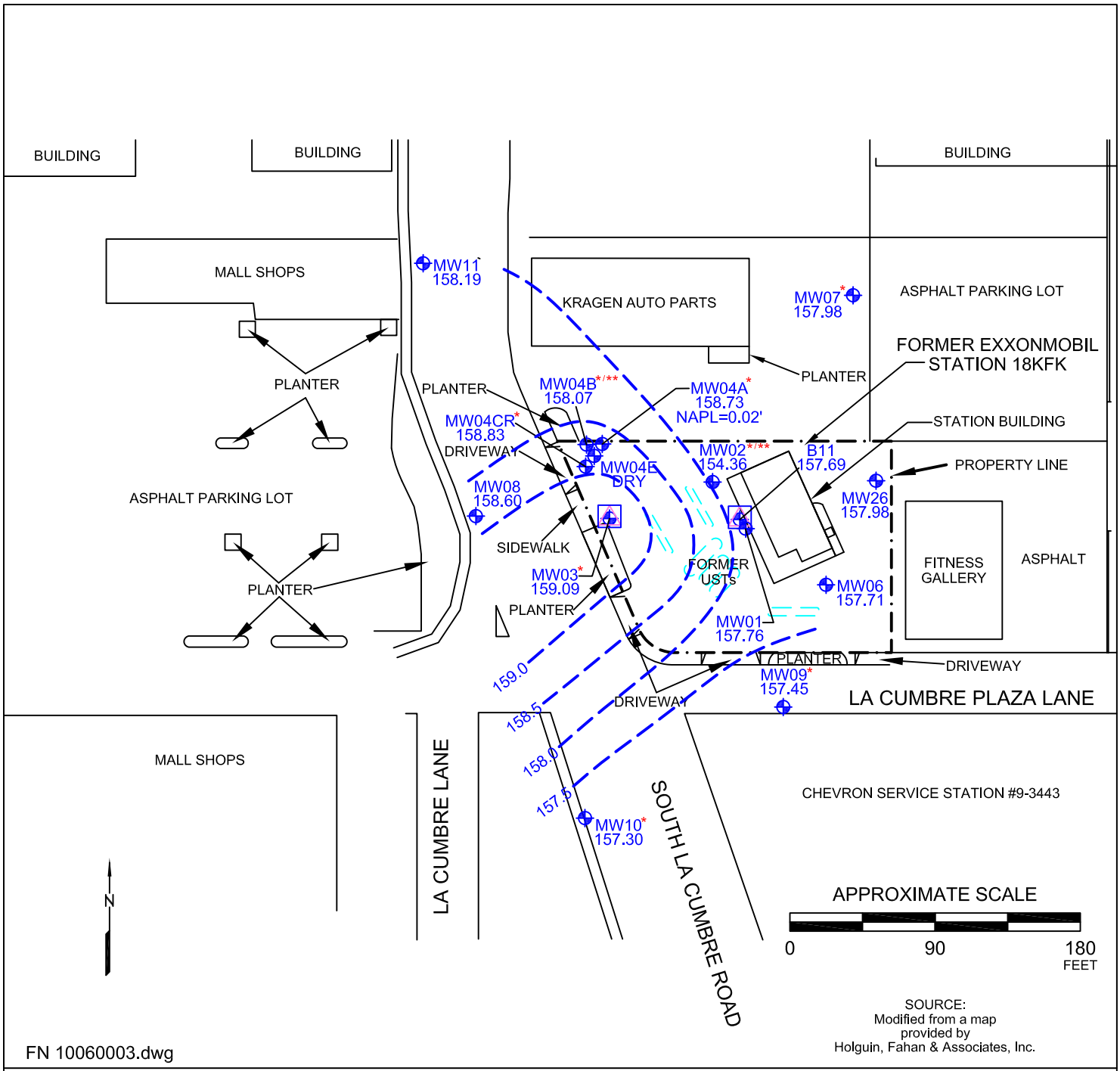
GENERALIZED SITE PLAN

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 2

DATE: 03/21/13



EXPLANATION

MW26	Groundwater monitoring well		Former dispenser island
MW03	Dual-phase extraction well	*	Well screen submerged; analytical data may not be representative
	Groundwater elevation in feet relative to mean sea level	**	Not used for contour
	Line of equal groundwater elevation		

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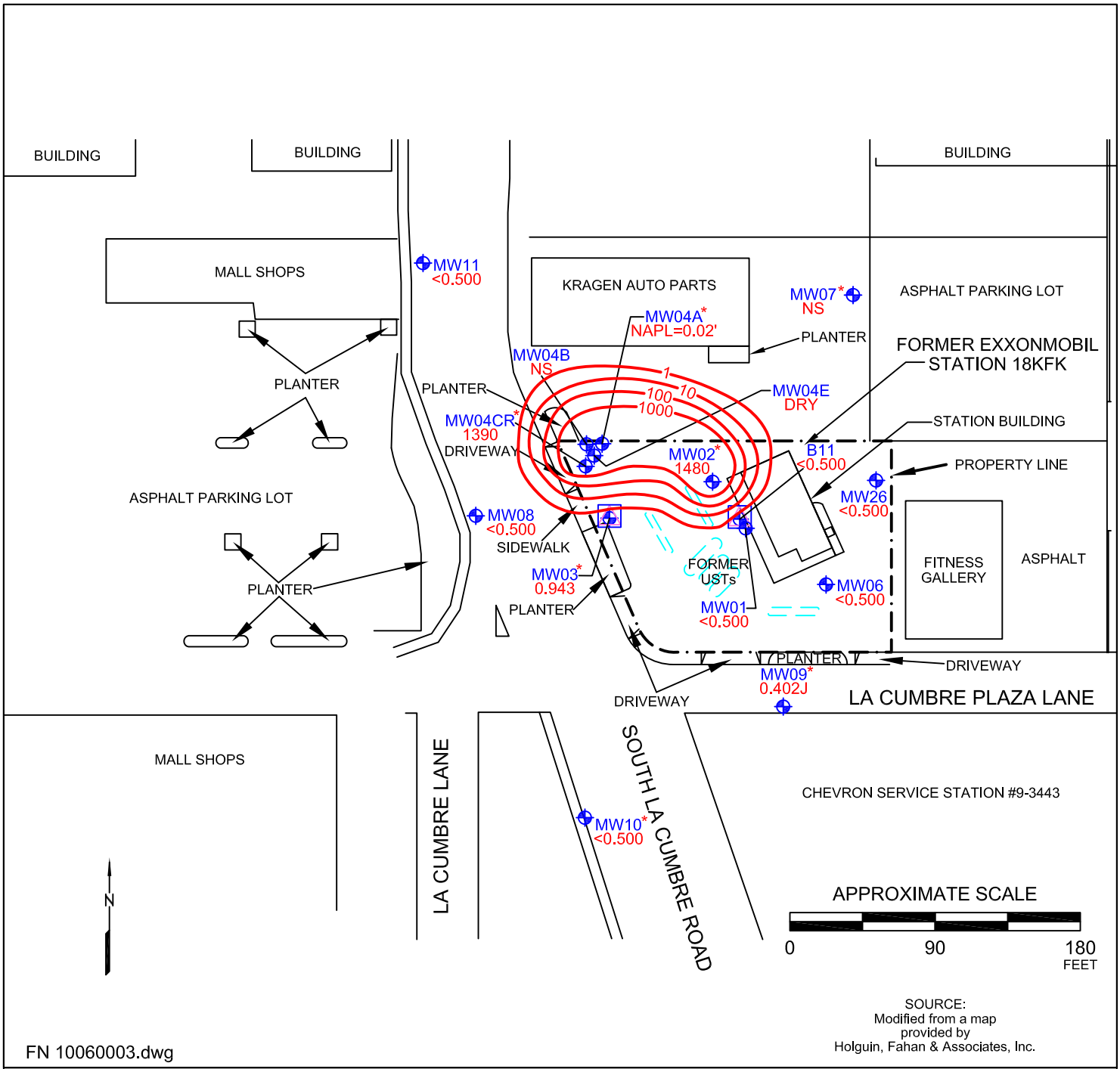
GROUNDWATER CONTOUR MAP
SHALLOW ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 3

DATE: 10/04/12



EXPLANATION

MW26	Groundwater monitoring well	NS	Not sampled
MW03	Dual-phase extraction well		Line of equal benzene concentration
	Benzene concentration in micrograms per liter	*	Well screen submerged; analytical data may not be representative
<	Less than the stated laboratory reporting limit		Former dispenser island
J	Estimated value between method detection limit and practical quantitation limit		

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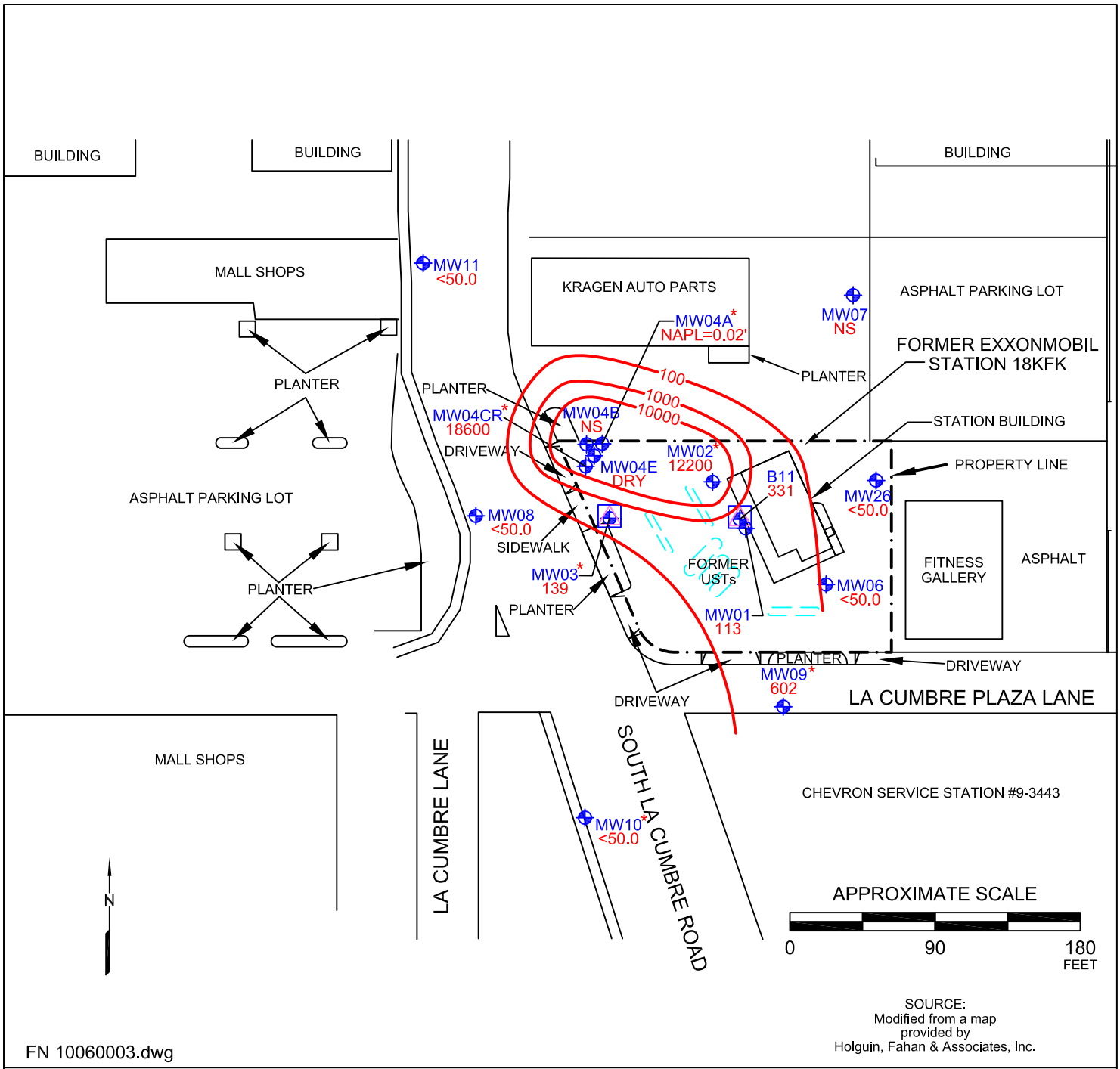
BENZENE GROUNDWATER CONCENTRATION MAP
SHALLOW ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 4

DATE: 10/04/12



EXPLANATION

MW26	Groundwater monitoring well	*	Well screen submerged; analytical data may not be representative
MW03	Dual-phase extraction well		Former dispenser island
	TPHg concentration in micrograms per liter		
<	Less than the stated laboratory reporting limit		
NS	Not sampled		
	Line of equal TPHg concentration		

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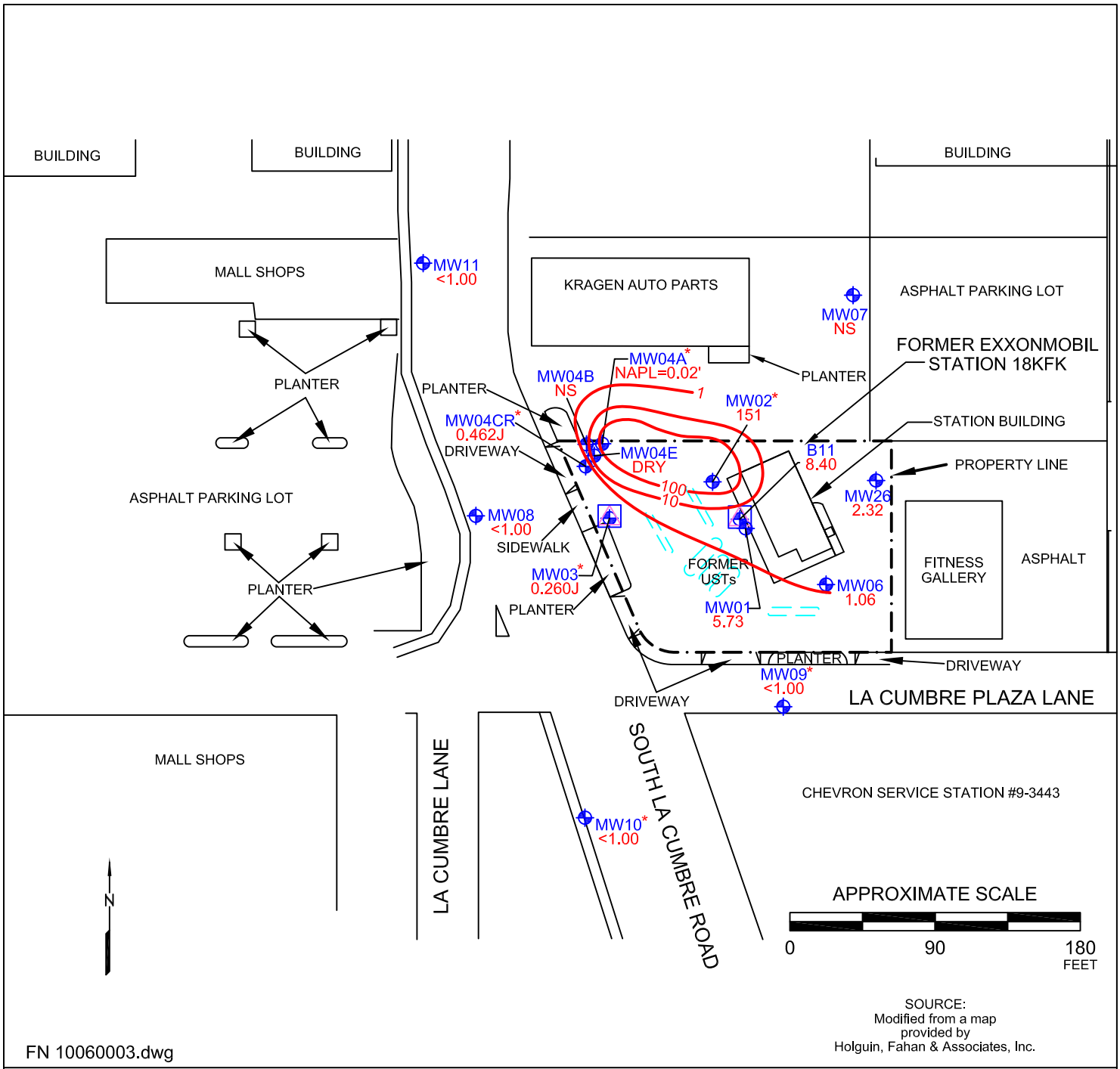
TPHg GROUNDWATER CONCENTRATION MAP SHALLOW ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 5

DATE: 10/04/12



EXPLANATION

MW26	Groundwater monitoring well	NS	Not sampled
MW03	Dual-phase extraction well		Line of equal MTBE concentration
	MTBE concentration in micrograms per liter	*	Well screen submerged; analytical data may not be representative
<	Less than the stated laboratory reporting limit		Former dispenser island
J	Estimated value between method detection limit and practical quantitation limit		

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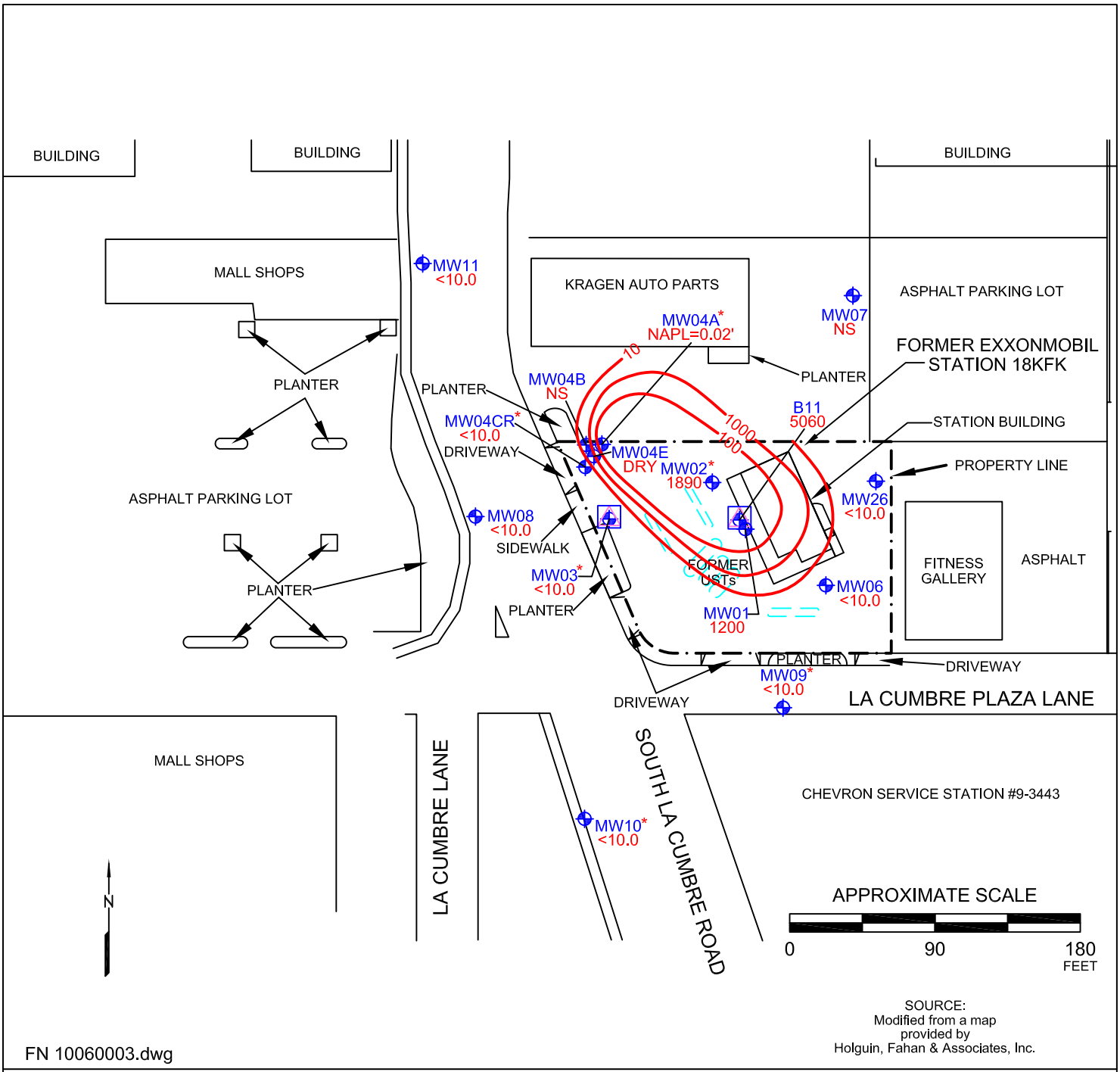
MTBE GROUNDWATER CONCENTRATION MAP
SHALLOW ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 6

DATE: 10/04/12



EXPLANATION

MW26	Groundwater monitoring well	*	Well screen submerged; analytical data may not be representative
MW03	Dual-phase extraction well		Former dispenser island
	TBA concentration in micrograms per liter		
<	Less than the stated laboratory reporting limit		
NS	Not sampled		
	Line of equal TBA concentration		

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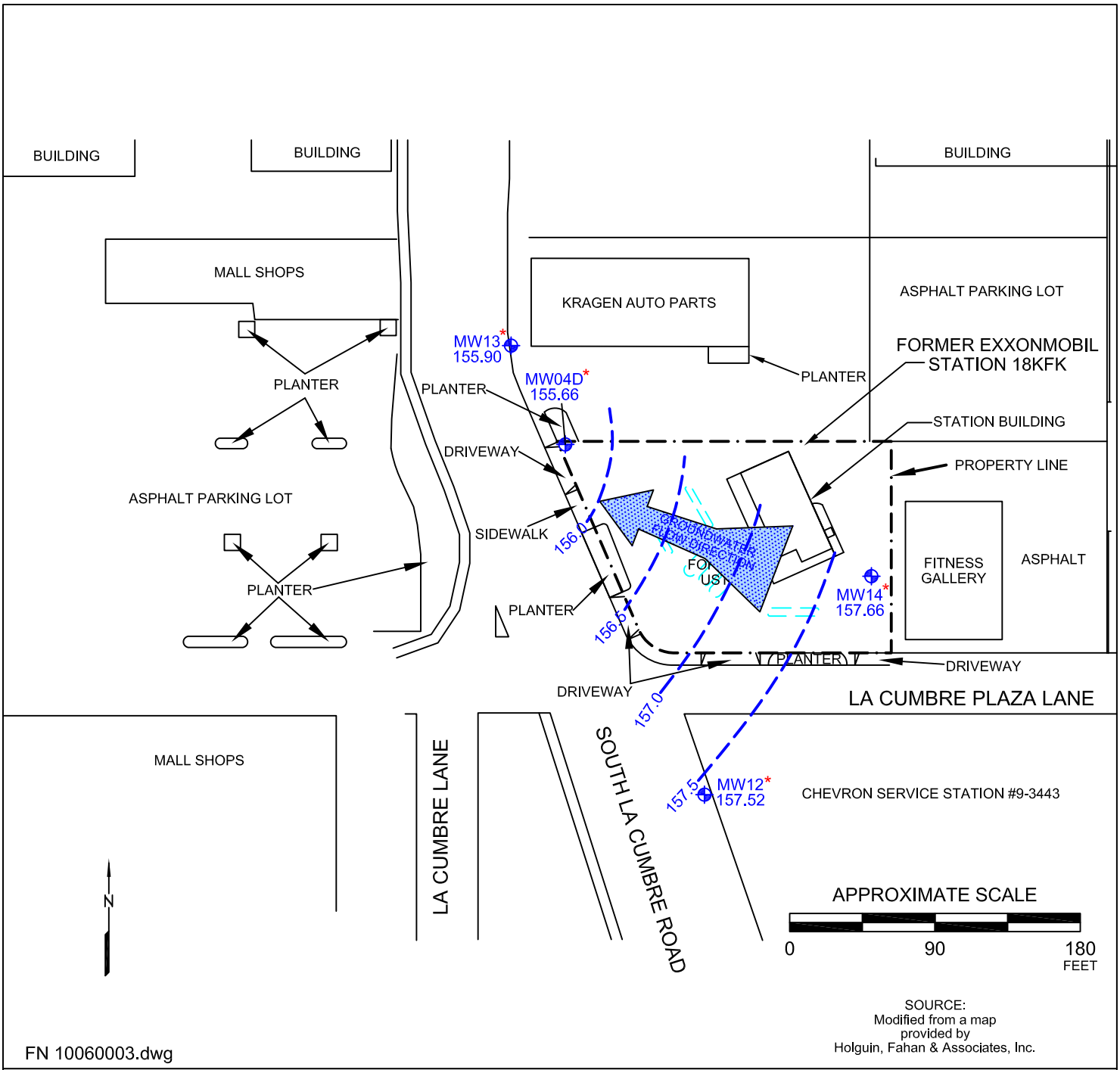
TBA GROUNDWATER CONCENTRATION MAP
SHALLOW ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 7

DATE: 10/04/12



EXPLANATION

MW14	Groundwater monitoring well
	Groundwater elevation in feet relative to mean sea level
	Line of equal groundwater elevation
*	Well screen submerged; analytical data may not be representative
	Former dispenser island

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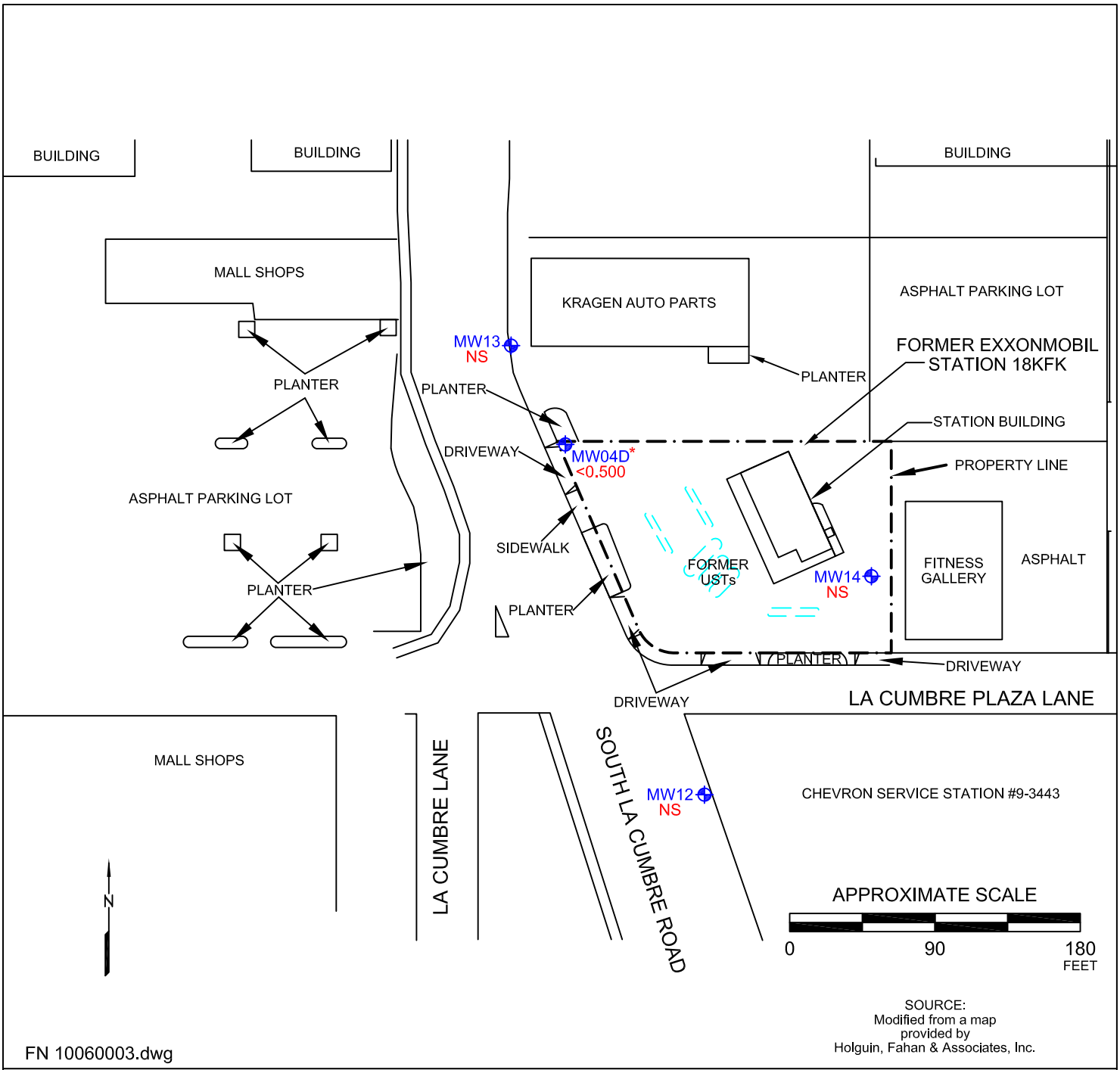
GROUNDWATER CONTOUR MAP
UPPER ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 8

DATE: 10/04/12



EXPLANATION

MW14	Groundwater monitoring well		Former dispenser island
	Benzene concentration in micrograms per liter		
<	Less than the stated laboratory reporting limit		
NS	Not sampled		
*	Well screen submerged; analytical data may not be representative		

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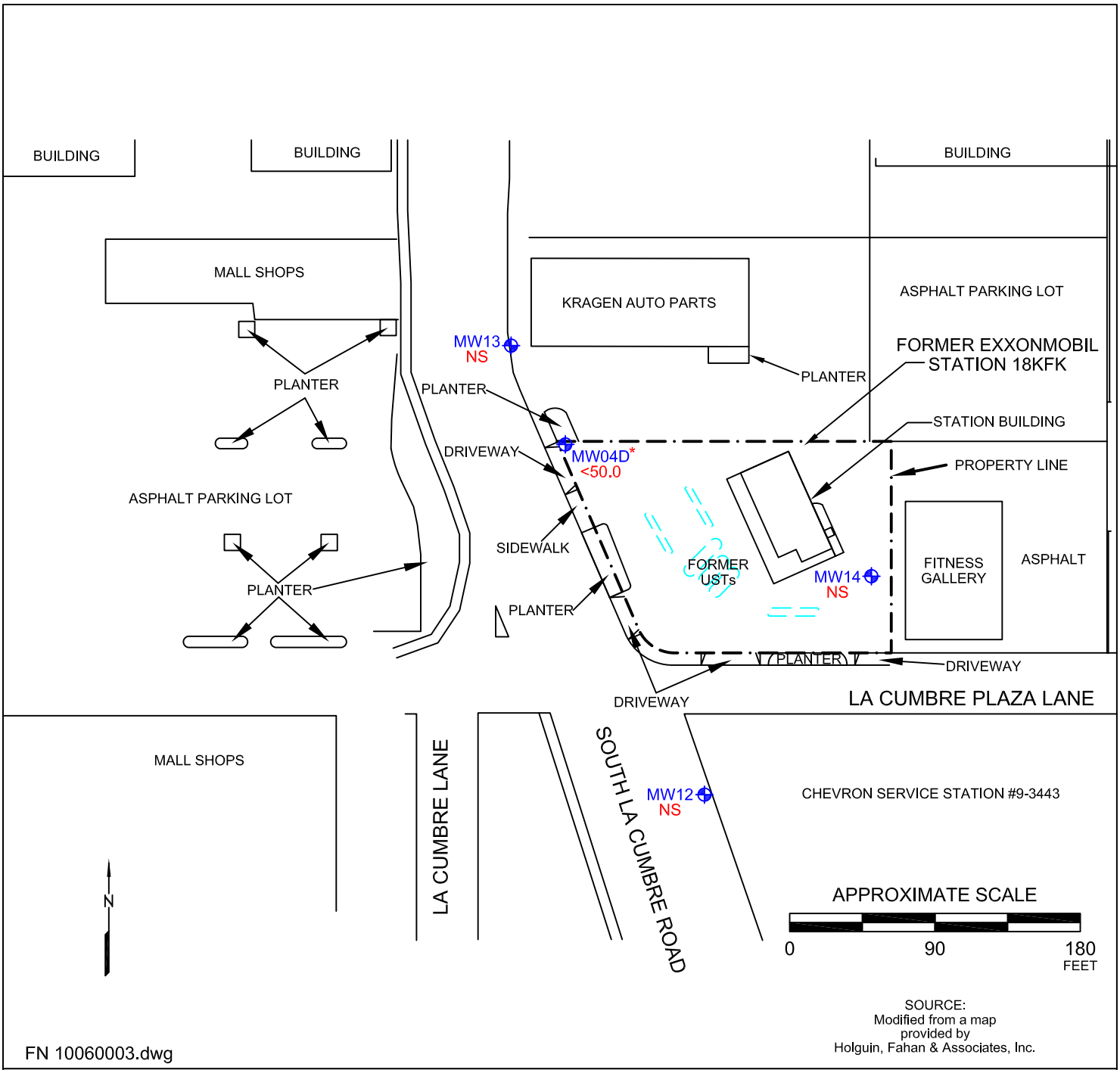
BENZENE GROUNDWATER CONCENTRATION MAP
UPPER ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 9

DATE: 10/04/12



EXPLANATION

MW14	Groundwater monitoring well		Former dispenser island
	TPHg concentration in micrograms per liter		
<	Less than the stated laboratory reporting limit		
NS	Not sampled		
*	Well screen submerged; analytical data may not be representative		

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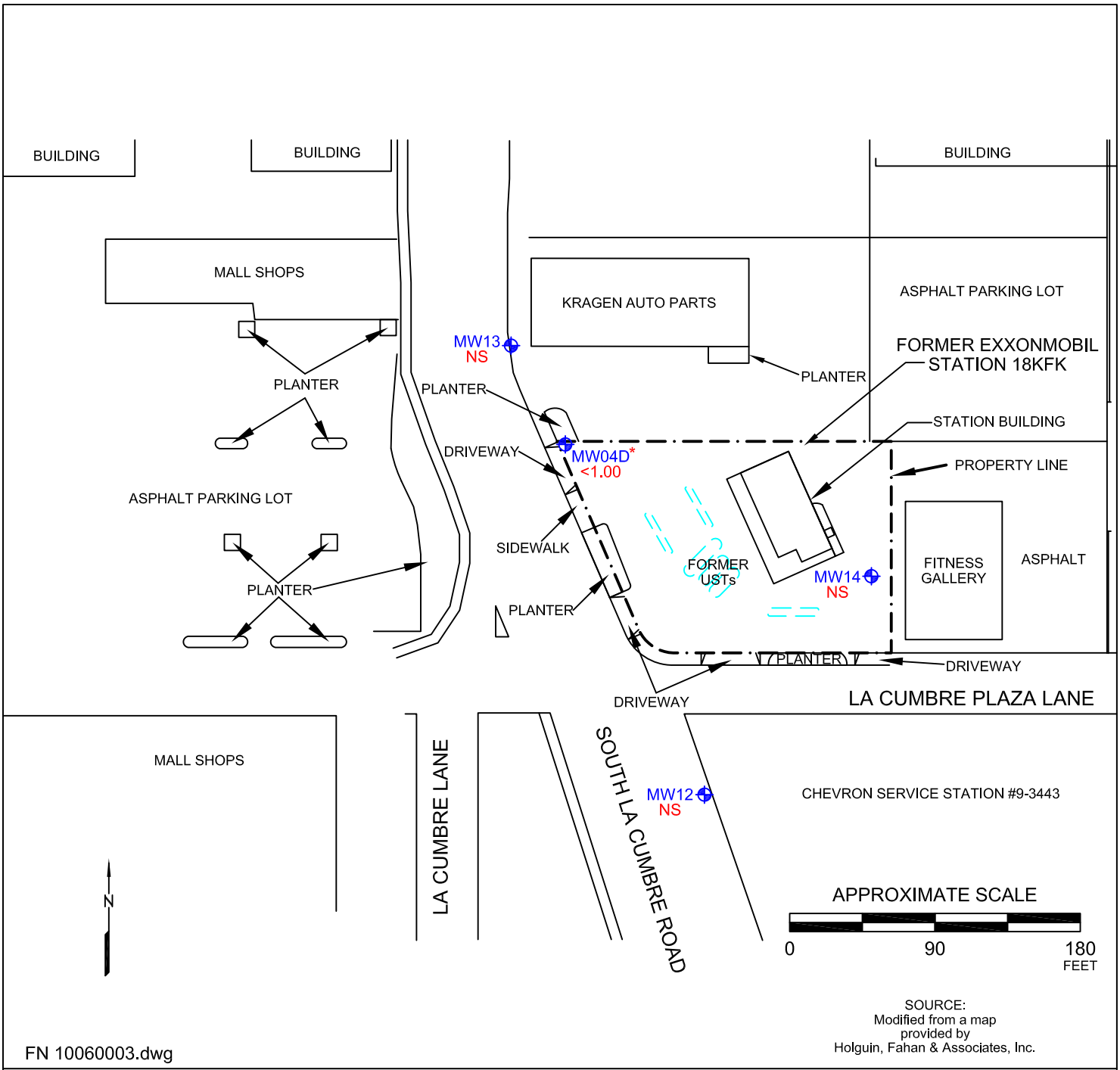
TPHg GROUNDWATER CONCENTRATION MAP UPPER ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 10

DATE: 10/04/12



EXPLANATION

MW14	Groundwater monitoring well		Former dispenser island
	MTBE concentration in micrograms per liter		
<	Less than the stated laboratory reporting limit		
NS	Not sampled		
*	Well screen submerged; analytical data may not be representative		

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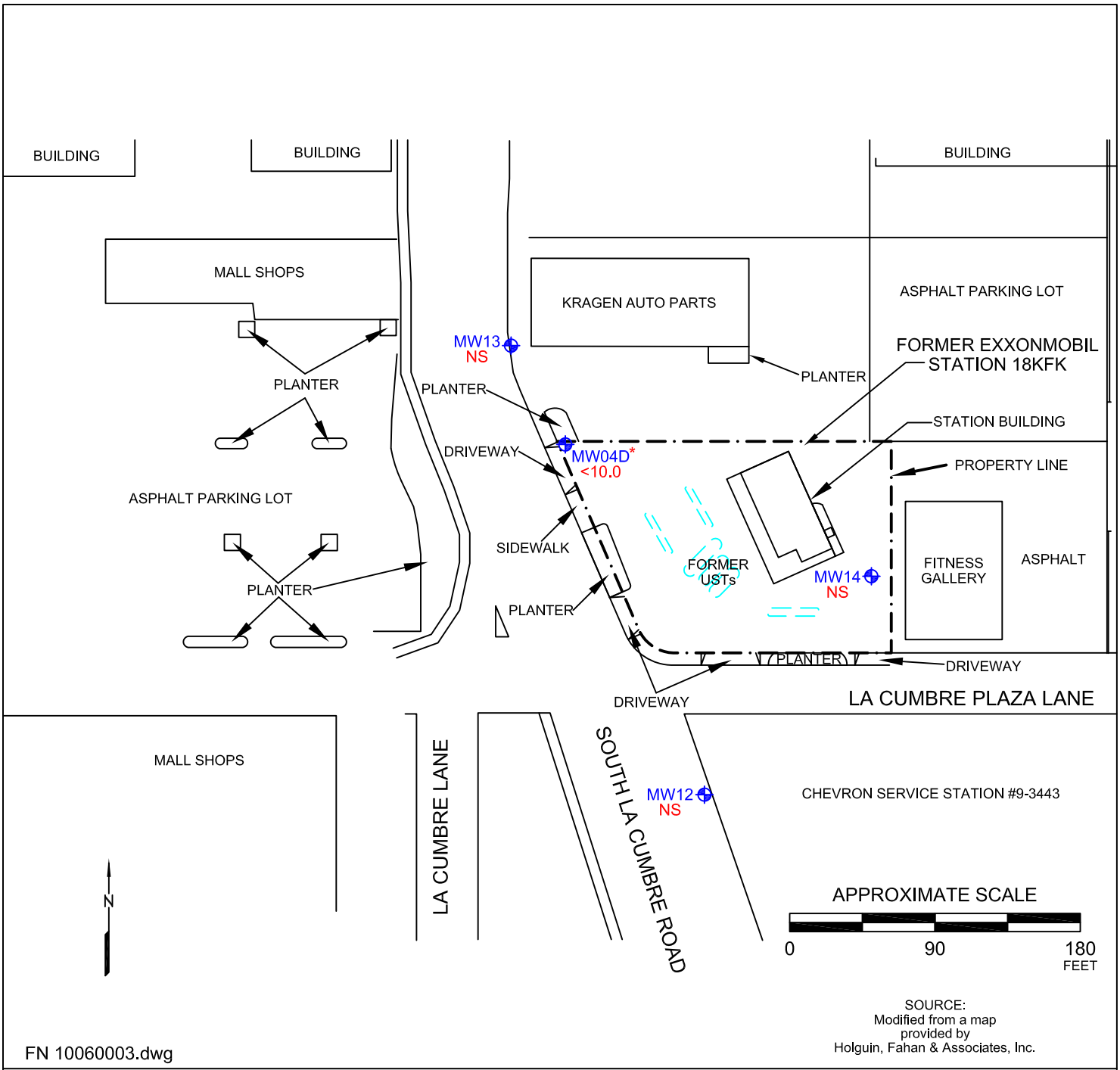
MTBE GROUNDWATER CONCENTRATION MAP
UPPER ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 11

DATE: 10/04/12



EXPLANATION

MW14	Groundwater monitoring well		Former dispenser island
	TBA concentration in micrograms per liter		
<	Less than the stated laboratory reporting limit		
NS	Not sampled		
*	Well screen submerged; analytical data may not be representative		

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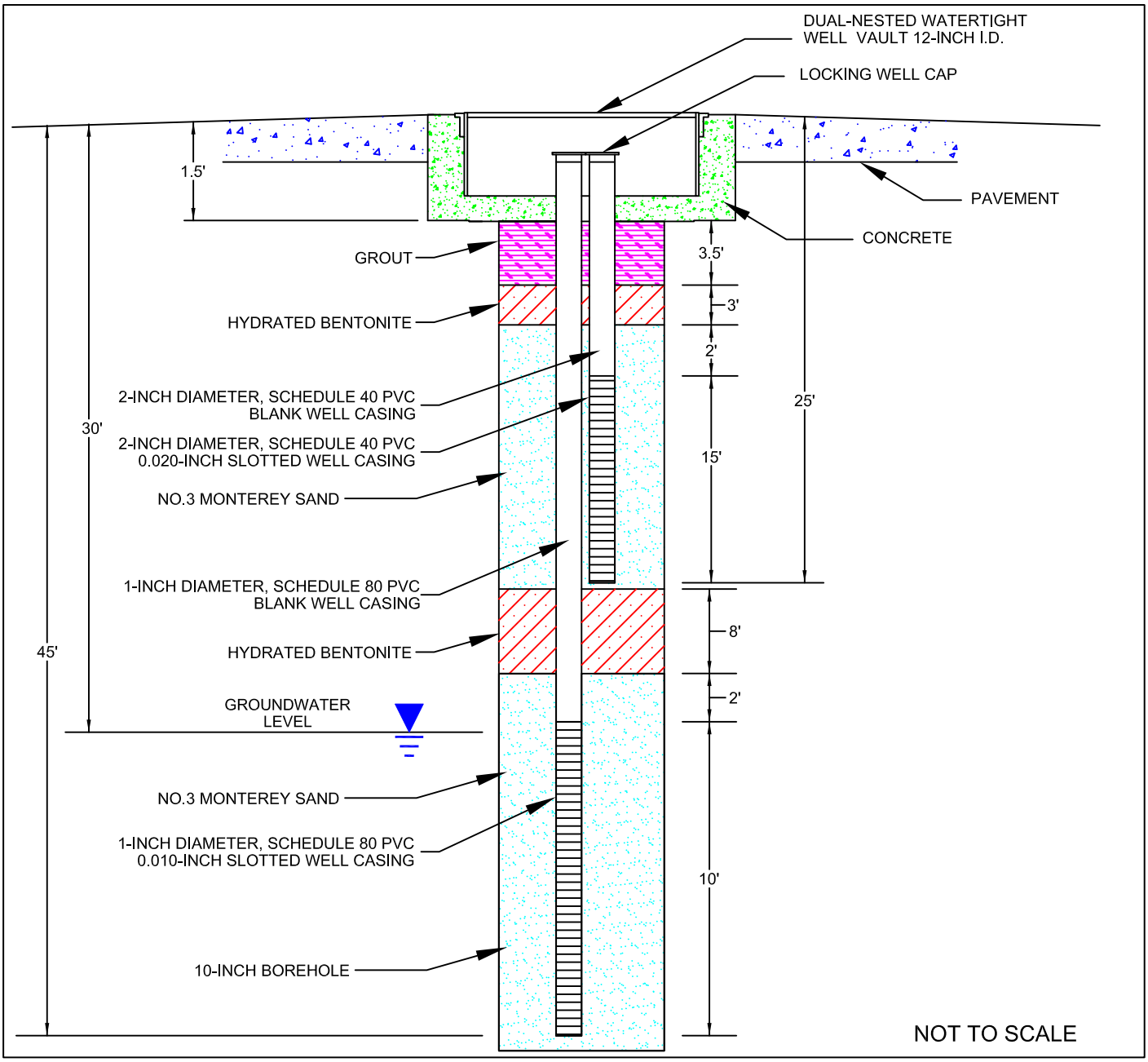
TBA GROUNDWATER CONCENTRATION MAP
UPPER ZONE - 08/13&14/12

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 12

DATE: 10/04/12



FN PROPASSVE01

Cardno ERI
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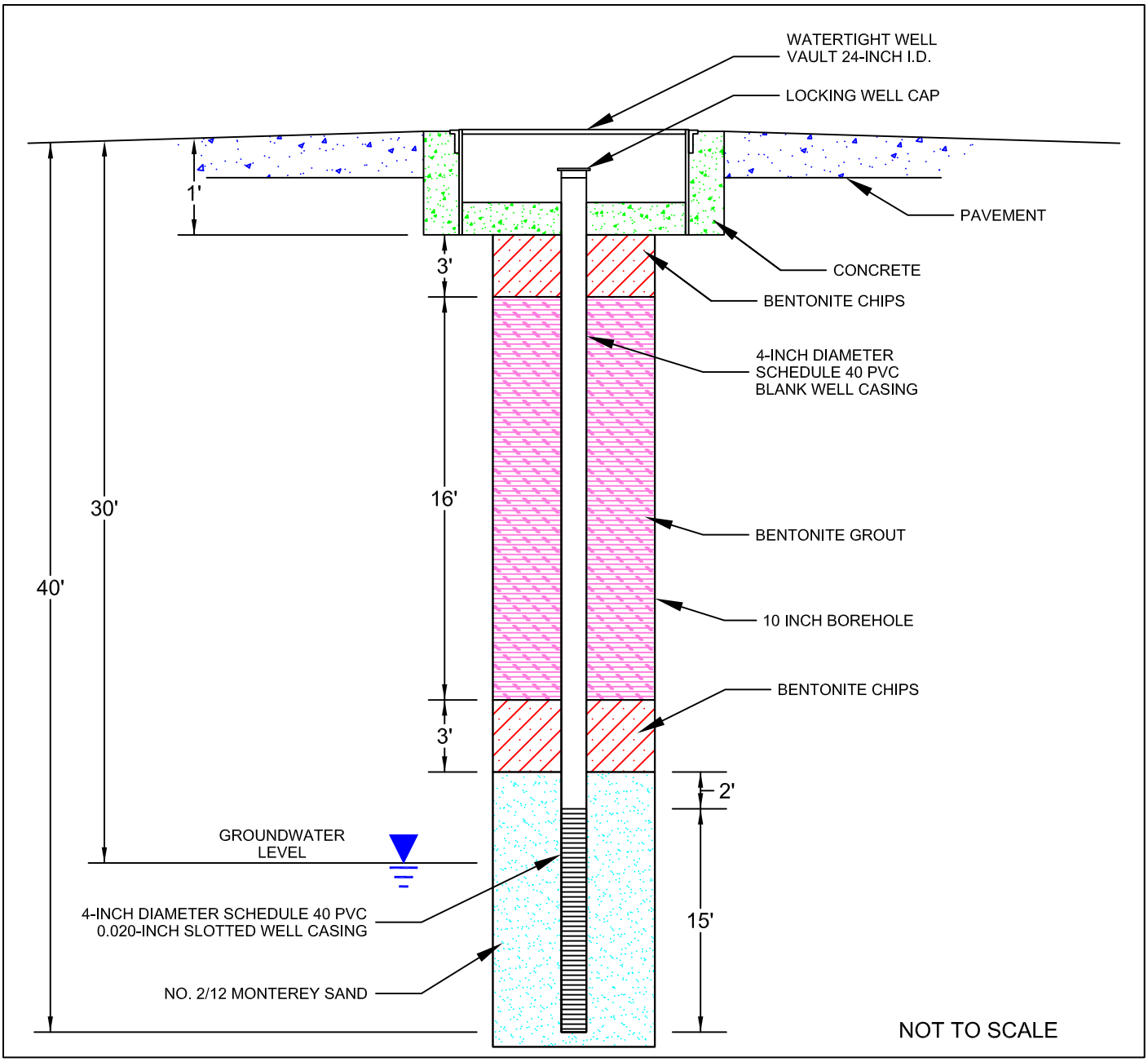
PROPOSED SOIL VAPOR EXTRACTION/ AIR SPARGE WELL CONSTRUCTION DIAGRAM

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 13

DATE: 02/12/13



FN 1006WELL03

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PROPOSED GROUNDWATER MONITORING WELL CONSTRUCTION DIAGRAM

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 14

DATE: 03/21/13

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
Field Point	**B11**		***Well Screen Interval (feet):***	**10-40**		***Well Zone:***	***Shallow Zone***										
12/9/1991 (h)		38.81	148.09*	yes	0.04												
12/23/1991 (h)		38.93	147.97*	yes	0.04												
2/20/1992 (h)		38.93	148.01*	yes	0.1												
6/1/1992 (h)		38.95	147.98*	yes	0.08												
8/31/1992 (h)		38.93	147.98*	yes	0.06												
2/24/1993		39.84	147.03	no													
5/27/1993 (h)		38.97	148.05*	yes	0.2												
8/25/1993 (h)		38.96	148.06*	yes	0.2												
11/19/1993 (h)		38.76	148.23*	yes	0.16												
2/7/1994 (h)		38.71	148.29*	yes	0.17												
5/31/1994 (h)		38.67	148.33*	yes	0.17												
9/14/1994		38.84	148.03	no													
12/22/1994		36.56	150.31	no													
2/20/1995		37.38	149.49	no													
7/27/1995		32.73	154.14	no													
4/3/1996		37.79	149.08	no													
9/17/1996		28.3	158.57	no													
12/4/1996		34.96	151.91	no													
2/11/1997		33.45	153.42	no													
9/25/1997 (f)		N/A	N/A	no													
2/12/1998		27.65	159.22	no													
10/22/1998		25.55	161.32	no													
1/6/1999		25.05	161.82	no													
8/5/1999		24.28	162.59	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/9/2000		24.26	162.61	no													
7/24/2000		22.14	164.73	no													
1/25/2001		22.51	164.36	no													
7/25/2001		19.98	166.89	no													
1/7/2002		20.17	166.7	no													
6/25/2002		20.72	166.15	no													
9/18/2002 (o)		21	165.92	no													
12/10/2002		20.25	166.67	no	1,750	13	852	250	10,500	5,020	<0.50	<0.50	<0.50	<2,500	<100	<0.50	<0.50
3/17/2003		18.71	168.21	no	265	1.1	240	8.9	4,260	1,690	<0.50	<0.50	<0.50	1,840		<0.50	4.2
6/20/2003		19.67	167.25	no	680	2.6	710	90	13,500	1,320	<0.50	<0.50	<0.50	9,620		<0.50	<0.50
9/16/2003		19.76	167.16	no	320	<5.00	276	28	8,910	1,820	<5.00	<5.00	<5.00	917		<5.00	<5.00
12/22/2003		19.84	167.08	no	251	3.7	71.7	3.5	2,600	1,810	<0.50	1	<0.50	3,880		<0.50	6.1
3/24/2004		19.2	167.72	no	580	3	310	21.6	7,120	3,390	<0.50	<0.50	<0.50	1,060		<0.50	<0.50
6/23/2004		19.95	166.97	no	422	2.6	304	15.5	5,800	2,120	<0.50	<0.50	<0.50	4,740		<0.50	<0.50
9/22/2004		20.18	166.74	no	528	2.2	310	331	6,480	2,830	<0.50	<0.50	<0.50	6,120		<0.50	<0.50
12/28/2004 (j)		N/A	N/A	no													
6/23/2005		17.5	169.42	no	236	4.6	81.3	17.5	4,580	1,640	<0.50	<0.50	<0.50	5,980	<100	3	<0.50
9/15/2005		17.85	169.07	no	427	2.22	121	7.12	3,620	2,960	<0.500	1.95	<0.500	8,310	<100	<0.500	<0.500
11/21/2005		21	165.92	no	318	1.24	159	4.79	4,580	2,490	<0.500	<0.500	<0.500	7,540	<50.0	<0.500	<0.500
2/23/2006		20.89	166.03	no	300	<20	150	<40	3,200	2,100	<40	<40	<40	8,100	<2,000	<20	<10
5/25/2006		19.55	167.37	no	170	<20	82	<20	2,200	1,400	<40	<40	<40	2,900	<2,000	<20	<10
8/24/2006		20.83	166.09	no	130	<20	46	<20	340	1,400	<40	<40	<40	5,000	<2,000	<20	<10
12/12/2006		21.51	165.41	no	140	8.4J	47	<20	1,400	1,600	<40	<40	<40	7,600	<2,000	<20	<10
3/22/2007		20.95	165.97	no	9	<10	2.9J	<10	580	260	<20	<20	<20	5,000	<1,000	<10	<5.0
5/29/2007		20.53	166.39	no	4.9J	<10	2.9J	<10	860	150	<20	<20	<20	4,700	<1,000	<10	<5.0

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
8/27/2007	186.92	21.5	165.42	no	2.4	0.32J	1.1	<1.0	390	150	<2.0	1.0J	<2.0	7,400	<100	<1.0	1.1
12/5/2007	186.92	22.79	164.13	no	9.5	7.6 J	4.7 J	1.7 J	1400	180	<20	1.9 J	<20	5900		<10	<5.0
2/25/2008	186.92	21.18	165.74	no	15	3.6	8.1	5.1	580	140	<2.0	0.42 J	<2.0	3000		<1.0	<0.50
5/15/2008	186.92	21.74	165.18	no	8.0	6.0	6.1	13	510	48	<2.0	0.52 J	<2.0	5100	<100	<1.0	0.64
8/14/2008	186.92	23.33	163.59	no	5.8	3.5 J	3.1 J	<10	590	57	<20	<20	<20	4600		<10	<5.0
11/6/2008	186.92	24.71	162.21	no	4.0 J	<10	<10	<10	760	29	<20	<20	<20	6500		<10	<5.0
2/19/2009	186.92	19.31	167.61	no	<0.50	<0.50	0.15 J	<0.50	<50	3.7	<0.50	<0.50	<0.50	92		<0.50	<0.50
5/20/2009	186.92	25.44	161.48	no	1.2	0.69	1.1	2.6	400	19	<0.50	0.58	<0.50	3700	<50	<0.50	0.42 J
8/19/2009	186.92	27.39	159.53	no	<12	<12	<12	<12	340	18	<12	<12	<12	4100		<12	<12
11/5/2009	186.92	27.06	159.86	no	<12	<12	7.0 J	6.3 J	420	30	<12	<12	<12	2400		<12	<12
3/3/2010	186.92	23.63	163.29	no	1.5	<1.0	0.88 J	<1.0	120	9.4	<1.0	<1.0	<1.0	340		<1.0	<1.0
8/24/2010	186.92	27.68	159.24	no	<1.0	<1.0	0.17 J	0.47 J	320	20	<1.0	<1.0	<1.0	3100		<1.0	0.31 J
2/9/2011	186.92	27.09	159.83	no	<10	<10	4.7 J	<10	800	75	<10	<10	<10	4300	<1000	<10	<10
8/10/2011	186.92	26.45	160.47	no	6.0 J	<12	2.9 J	6.2 J	340	32	<12	<12	<12	3100		<12	<12
2/14/2012	186.92	28.07	158.85	no	<25	<25	<25	<25	500	14 J	<25	<25	<25	5600	<2500	<25	<25
8/13/2012	186.92	29.23	157.69	no	<0.500	<0.500	<0.500	0.302 J	331	8.40	<1.00	<1.00	<1.00	5060		<0.500	0.569
Field Point	**B12**		***Well Screen Interval (feet):***				***Well Zone:***	***Shallow Zone***									
12/9/1991		36.04	150.15	no													
12/23/1991		36.09	150.1	no													
2/20/1992		33.75	152.44	no													
6/1/1992		34.75	151.44	no													
8/31/1992		35.39	150.8	no													
2/24/1993		31.51	154.68	no													
5/27/1993		33.43	152.76	no													
8/25/1993		33.74	152.45	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
11/19/1993		34.94	151.25	no													
2/7/1994		33.38	152.81	no													
5/31/1994		33.88	152.31	no													
9/14/1994		36.04	150.15	no													
12/22/1994		31.64	154.55	no													
7/27/1995		29.52	156.67	no													
11/9/1995		35.9	150.29	no													
1/4/1996		35.68	150.51	no													
4/3/1996		32.16	154.03	no													
9/17/1996		32	154.19	no													
12/4/1996		31.39	154.8	no													
2/11/1997		30.3	155.89	no													
9/25/1997 (f)		N/A	N/A	no													
2/12/1998		24.01	162.18	no													
10/22/1998		24.2	161.99	no													
1/6/1999		24.16	162.03	no													
8/5/1999		23.26	162.93	no													
2/9/2000		23.12	163.07	no													
7/24/2000		20.79	165.4	no													
1/25/2001		21.15	165.04	no													
7/25/2001		19.2	166.99	no													
1/7/2002		19.98	166.21	no													
6/25/2002		19.68	166.51	no													
9/18/2002 (o)		19.82	166.24	no													
12/10/2002		19.38	166.68	no	1,030	71.6	1,390	1,620	21,300	7,680	<0.50	<0.50	<0.50	<3,000	<100	<0.50	<0.50

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CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/18/2003		17.81	168.25	no	655	14.9	985	380	21,800	8,200	<0.50	<0.50	<0.50	2,900		<0.50	<0.50
6/20/2003		18.56	167.5	no	685	14.9	825	498	18,700	4,470	<0.50	<0.50	2.3	1,120		<0.50	18.1
9/16/2003		18.74	167.32	no	774	17.2	1,010	648	22,700	5,550	<0.50	<0.50	<0.50	1,000		<0.50	<0.50
12/22/2003		18.64	167.42	no	127	1.1	16.8	5.4	4,720	3,500	<0.50	<0.50	<0.50	3,180		<0.50	3.8
3/24/2004		19	167.06	no	545	18.7	820	535	16,400	3,810	<0.50	<0.50	<0.50	844		<0.50	18.1
6/23/2004		18.7	167.36	no	570	21.3	1,070	444	13,300	2,720	<0.50	<0.50	<0.50	2,640		<0.50	<0.50
9/22/2004 (j)		N/A	N/A	no													
12/28/2004 (r)		N/A	N/A	no													
6/23/2005		16.08	169.98	no	382	14.1	600	404	10,900	2,580	<0.50	<0.50	<0.50	5,550	<100	<0.50	<0.50
Field Point	**B13**		***Well Screen Interval (feet):***			***Well Zone:***		***Shallow Zone***									
6/20/2003		18.21	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	7.4	<0.50	<0.50	<0.50	107		<0.50	1.2
9/15/2003		18.53	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	8.1	<0.50	<0.50	<0.50	48.4		<0.50	<0.50
12/22/2003		18.75	N/A	no	<0.50	<0.50	<0.50	<0.50	68.7	96.9	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		19.25	N/A	no	7.8	<0.50	<0.50	<0.50	114	119	<0.50	<0.50	<0.50	57.4		<0.50	0.9
9/22/2004 (j)		N/A	N/A	no													
12/28/2004 (r)		N/A	N/A	no													
6/23/2005		15.73	N/A	no	<0.50	<0.50	<0.50	<0.50	368	302	<0.50	<0.50	<0.50	438	<100	<0.50	0.7
Field Point	**MW01**		***Well Screen Interval (feet):***	**28-58**		***Well Zone:***		***Shallow Zone***									
8/3/1989		34.54	152.46	no	36	153	40.7	293	2,290								
7/18/1990		38.6	148.4	no	ND	2.3	ND	4	310								
1/18/1991		40.46	146.54	no	3	ND	ND	ND	ND								
4/23/1991		41.5	145.5	no	240	ND	ND	12	2,100								
7/25/1991		41.72	145.28	no	4.6	3	1.5	3.7	150								
10/25/1991		42.23	144.77	no	13	12	2.6	16	460								
1/24/1992		42.86	144.14	no	52	2.9	1.1	3.2	1,000								

TABLE 1
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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/19/1992		42.66	144.34	no													
6/1/1992		42.38	144.62	no	28	1.6	0.7	1.2	580								
8/31/1992		42.78	144.22	no	38	1.1	1	2	510								
11/30/1992		42.94	144.06	no	80	4	5	3	800								
2/24/1993		42.27	144.73	no	26	ND	ND	ND	740								
5/27/1993		40.81	146.19	no	350	4.3	3.8	ND	2,000								
8/25/1993		40.12	146.88	no	10	ND	ND	ND	90								
11/19/1993		40.09	146.91	no	190	0.42	0.3	ND	630								
2/7/1994		40.13	146.87	no	40	0.4	2.3	0.6	180								
5/31/1994		39.35	147.65	no	18	ND	1.5	ND	160								
9/14/1994		43.31	143.69	no	0.48	0.48	ND	1.5	66								
12/22/1994		44.21	142.79	no	ND	ND	ND	ND	52								
2/20/1995		44.52	142.48	no	ND	ND	ND	ND	ND								
4/20/1995		40.91	146.09	no	ND	ND	ND	ND	ND								
7/27/1995		42.04	144.96	no	0.31	ND	ND	ND	ND								
11/9/1995		39.82	147.18	no	ND	ND	ND	ND	ND								
1/4/1996		39	148	no	ND	ND	ND	ND	ND								
4/3/1996		37.71	149.29	no	ND	ND	ND	ND	ND								
9/17/1996		35.38	151.62	no	0.79	0.38	ND	0.9	ND	ND (i)							
12/4/1996		35.36	151.64	no	0.59	ND	ND	ND	ND	20 (i)							
2/11/1997		34.08	152.92	no	0.85	ND	ND	0.78	ND	55 (i)							
9/25/1997		30.4	156.6	no	2,000	11	590	22	11,000	1,200 (i)							
9/25/1997 Dup		NM	N/A	no	1,700	9	500	20	9,300	1,000 (i)							
2/12/1998		30.01	156.99	no	21	0.6	0.4	1.7	210	130 (i)							
10/22/1998		26.48	160.52	no	13	<0.3	4.6	<0.6	1,600	1,400 (i)							

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CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/6/1999		25.78	161.22	no	<10	<0.3	4.6	<1	1,500	1,600 (i)							
8/5/1999		25.24	161.76	no	2.8	0.7	0.6	<0.6	1,100	1,500 (i)							
2/9/2000		25.02	161.98	no	18	0.39	2.8	<5.0	1,700	2,800 (i)							
7/24/2000		22.34	164.66	no	12	<5.0	6	<5.0	4,100	5,500	<5.0	<5.0	<5.0	1,100			
1/25/2001		24.19	162.81	no	25	<1	17	31	1700	1900	<1	2	1	7100			
7/25/2001		21.22	165.78	no	14	<1	11	<1	1400	710	<1	2	<1	7200			
1/7/2002		21.21	165.79	no	<10	<10	<10	<10	560	370	<10	<10	<10	7000			
6/25/2002		21.13	165.87	no	4	<0.50	1.9	2.7	241	260	1.2	3	1.7	9,000	<100	<0.50	<0.50
9/18/2002 (o)		21.65	165.33	no													
12/10/2002		21	165.98	no	101	2.4	16.4	24.5	644	312	<0.50	<0.50	<0.50	4,880		<0.50	<0.50
3/17/2003		20.32	166.66	no													
6/20/2003		20.16	166.82	no	7.9	<0.50	4	3.3	368	134	<0.50	1.2	<0.50	3,440		<0.50	2.1
9/15/2003		20.18	166.8	no													
12/22/2003		20.57	166.41	no	0.6	<0.50	0.6	<0.50	105	71.2	<0.50	1	<0.50	5,300		<0.50	<0.50
3/24/2004		20	166.98	no													
6/23/2004		20.37	166.61	no	4	<0.50	2.5	2.4	149	69.1	<0.50	1.2	<0.50	4,440		<0.50	2.3
9/22/2004		20.85	166.13	no													
12/28/2004 (r)		N/A	N/A	no													
3/23/2005 (j)		N/A	N/A	no													
9/15/2005 (n)		N/A	N/A	no													
11/21/2005		19.6	167.38	no	25.2	<0.500	7.78	6.86	999	131	<0.500	<0.500	<0.500	2,440	<50.0	<0.500	<0.500
2/23/2006		19.26	167.72	no													
5/25/2006		17.75	169.23	no	2.8	<1.0	1.7	1.5	83J	32	<2.0	<2.0	<2.0	610	<100	<1.0	0.35J
8/24/2006		19.2	167.78	no													
12/12/2006		19.56	167.42	no	3.9	0.34J	2.4	0.31J	120	39	<2.0	<2.0	<2.0	2,000	<100	<1.0	<0.50

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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/22/2007		18.98	168	no	2	<1.0	1.6	0.36J	71J	16	<2.0	<2.0	<2.0	770	<100	<1.0	<0.50
5/29/2007		20.05	166.93	no													
8/27/2007	186.98	21.35	165.63	no	6.6	<2.0	5.8	1.5J	170	32	<4.0	<4.0	<4.0	1,300	<200	<2.0	<1.0
12/5/2007	186.98	23.78	163.20	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	186.98	20.90	166.08	no	1.4	0.71 J	1.4	2.0	130	18	<2.0	<2.0	<2.0	640		<1.0	<0.50
5/15/2008	186.98	21.36	165.62	no	GAUGE ONLY												
8/14/2008	186.98	23.07	163.91	no	<2.5	<5.0	<5.0	<5.0	120	17	<10	<10	<10	1000		<5.0	<2.5
11/6/2008	186.98	24.69	162.29	no	GAUGE ONLY												
2/19/2009	186.98	24.27	162.71	no	<2.5	<2.5	2.5 J	<2.5	120	9.8	<2.5	<2.5	<2.5	530		<2.5	<2.5
5/20/2009	186.98	25.11	161.87	no	GAUGE ONLY												
8/19/2009	186.98	26.62	160.36	no	<2.5	<2.5	0.61 J	<2.5	320	19	<2.5	0.42 J	<2.5	2400		<2.5	0.83 J
11/5/2009	186.98	27.21	159.77	no	GAUGE ONLY												
3/3/2010	186.98	26.02	160.96	no	9.6	<4.0	16	3.8 J	540	44	<4.0	<4.0	<4.0	1000		<4.0	<4.0
8/24/2010	186.98	27.82	159.16	no	10	<4.0	17	<4.0	440	16	<4.0	<4.0	<4.0	1400		<4.0	<4.0
2/9/2011	186.98	27.91	159.07	no	2.4 J	<4.0	0.91 J	<4.0	370	28	<4.0	<4.0	<4.0	1500	<400	<4.0	<4.0
8/10/2011	186.98	26.96	160.02	no	<4.0	<4.0	1.3 J	<4.0	110	11	<4.0	<4.0	<4.0	1600		<4.0	<4.0
2/14/2012	186.98	27.95	159.03	no	<5.0	<5.0	0.44 J	<5.0	140	8.1	<5.0	<5.0	<5.0	1700	<500	<5.0	<5.0
8/13/2012	186.98	29.22	157.76	no	<0.500	<0.500	<0.500	<0.500	113	5.73	<1.00	<1.00	<1.00	1200		<0.500	0.353 J
Field Point	**MW02**		***Well Screen Interval (feet):***	**49.5-59.5**		***Well Zone:***	***Shallow Zone***										
8/3/1989		33.82	152.98	no	8,600	12,700	1,230	7,260	48,300								
7/18/1990 (h)		47.16	148.22*	yes	11.6												
1/18/1991 (a) (h)		46.42	147.47*	yes	9.58												
4/23/1991 (h)		45.27	146.03*	yes	6.08												
7/25/1991 (h)		43.05	145.84*	yes	2.83												
10/25/1991 (h)		41.48	145.35*	yes	0.04												

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SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/24/1992 (h)		42.13	144.7*	yes 0.04													
6/1/1992 (h)		41.83	144.98*	yes 0.02													
8/31/1992 (h)		42.3	144.68*	yes 0.24													
2/24/1993 (h)		41.76	145.2*	yes 0.22													
5/27/1993 (h)		40.32	146.49*	yes 0.01													
8/25/1993 (h)		39.75	147.06*	yes 0.01													
11/19/1993 (h)		39.61	147.24*	yes 0.07													
2/7/1994 (h)		39.83	147.07*	yes 0.13													
5/31/1994 (h)		39.04	147.79*	yes 0.04													
9/14/1994 (h)		38.99	147.91*	yes 0.14													
12/22/1994		40.08	146.72	no	160	ND	ND	4,200	13,000								
2/20/1995		40.5	146.3	no	190	110	ND	450	5,800								
4/20/1995		58.54	128.26	no	150	15	ND	270	2,800								
7/27/1995		58.04	128.76	no	570	220	ND	380	3,000								
11/9/1995		46.5	140.3	no	46	9.1	0.38	29	250								
11/9/1995 Dup		46.5	N/A	no	47	8.7	0.33	28	210								
1/4/1996 Dup		N/A	N/A	no	4.7	1.7	ND	7.3	100								
1/4/1996		NM	N/A	no	5.7	2.6	ND	7	90								
4/3/1996 Dup		NM	N/A	no	4	2.7	0.32	13	180								
4/3/1996		39.75	147.05	no	2.6	1.3	ND	9	150								
9/17/1996		33.92	152.88	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		35.2	151.6	no	120	10	52	14	770	ND (i)							
2/11/1997		34.03	152.77	no	290	130	29	60	1,100	250 (i)							
9/25/1997 (h)		N/A	N/A	no	12,000	13,000	1,700	8,300	83,000	6,100 (i)							
9/25/1997		31.7	155.1	no	13,000	14,000	1,900	8,900	88,000	6,300 (i)							

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SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
9/25/1997		N/A	N/A	no						4,600 (i)							
2/12/1998		29.31	157.49	no	6,600	7,200	1,200	4,900	50,000	2,700 (i)							
10/22/1998 Dup		N/A	N/A	no	1,300	370	130	180	6,200	3,100 (i)							
10/22/1998		N/A	N/A	no						3,500 (i)							
10/22/1998		26.28	160.52	no	1,400	380	140	170	6,300	3,000 (i)							
1/6/1999 Dup		N/A	N/A	no	1,500	710	230	420	10,000	3,400 (i)							
1/6/1999		25.65	161.15	no	1.4	690	220	420	10,000	3,400 (i)							
8/5/1999		22.91	163.89	no	64	37	7.3	30	1,800	1,600 (i)							
8/5/1999		N/A	N/A	no						1,500 (i)							
2/9/2000		23.25	163.55	no	0.58	<0.30	<0.30	<0.60	<50	11 (i)							
7/24/2000		21.17	165.63	no	7,100	4,700	1,100	3,200	37,000	4,800	<5.0	<5.0	5	1,700			
7/24/2000 Dup		N/A	N/A	no	7,400	4,500	1,100	3,000	38,000	4,800	<5.0	<5.0	<5.0	1,900			
1/25/2001 Dup		N/A	N/A	no	420	310	52	270	3800	1700							
1/25/2001		20.59	166.21	no	400	280	55	270	3600	1700 (i)	<1	<1	2	1600			
7/25/2001		19.2	167.6	no	1100	1100	280	770	8200	620	<1	1	<1	5900			
7/25/2001 Dup		N/A	N/A	no	790	760	180	560	8300	520	<1	<1	<1	5600			
1/8/2002		18.83	167.97	no		<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		19.62	167.18	no													
9/19/2002 (o)		20.07	165.25	no	6,720	3,710	1,500	3,150	31,300	<0.50	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
12/10/2002		19.09	166.23	no													
3/18/2003		18.49	166.83	no	5,550	3,920	1,240	2,780	33,700	1,440	<0.50	<0.50	59.2	3,350		<0.50	<0.50
6/19/2003		18.5	166.82	no													
9/16/2003		18.54	166.78	no	6,140	3,580	1,180	2900	36,700	1,190	<5.00	<5.00	<5.00	1,310		<5.00	<5.00
12/22/2003		19	166.32	no													
3/24/2004		18	167.32	no	3,000	1,620	530	1,280	24,800	750	<0.50	<0.50	<0.50	1,640		<0.50	<0.50

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
6/23/2004		18.66	166.66	no													
9/22/2004		20.2	165.12	no	3,880	2,220	666	1,990	20,300	608	<0.50	<0.50	<0.50	6,480		<0.50	<0.50
12/28/2004		18.25	167.07	no													
3/24/2005		15.63	169.69	no	692	310	195	200	4,300	868	<0.50	<0.50	<0.50	8,920	<100	<0.50	<0.50
6/22/2005		15.95	169.37	no													
9/15/2005		16.64	168.68	no	3,910	3,040	640	2,270	19,800	2,110	<0.500	1.48	124	8,520	<100	<0.500	78.4
11/21/2005		21	164.32	no													
2/23/2006		20.99	164.33	no	2,300	2,200	390	1,410	11,000	830	<40	<40	<40	8,600	<2,000	<20	<10
5/25/2006		19.75	165.57	no													
8/24/2006		21	164.32	no	<0.50	<1.0	<1.0	<1.0	<100	51	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/11/2006		21.65	163.67	no													
3/22/2007		21	164.32	no	1,400	1,100	290	890	7,000	350	<2.0	0.74J	<2.0	5,000	<100	<1.0	<0.50
5/29/2007		22	163.32	no													
8/27/2007	185.32	21.3	164.02	no	29	5.6	2.4	6	400	29	<2.0	0.74J	<2.0	3,000	<100	<1.0	<0.50
12/5/2007	185.32	23.71	161.61	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	185.32	22.67	162.65	no	2700	2400	510	1700	12000	450	<10	<10	<10	3700		<5.0	<2.5
5/15/2008	185.32	23.22	162.1	no	GAUGE ONLY												
8/14/2008	185.32	24.91	160.41	no	4100	1900	560	920	5900	490	<100	<100	<100	3100		<50	<25
11/6/2008	185.32	26.43	158.89	no	GAUGE ONLY												
2/19/2009	185.32	26.04	159.28	no	970	730	190	580	5800	130	<25	<25	<25	2200		<25	<25
5/20/2009	185.32	26.96	158.36	no	GAUGE ONLY												
8/19/2009	185.32	29.01	156.31	no	1900	880	83	180	5100	180	<25	<25	<25	1900		<25	<25
11/5/2009	185.32	28.84	156.48	no	GAUGE ONLY												
3/3/2010	185.32	27.53	157.79	no	30	12	5.6	12	550	6.5	<2.5	<2.5	<2.5	760		<2.5	<2.5
8/24/2010	185.32	29.34	155.98	no	1700	1000	130	360	5400	130	<2.0	<2.0	<2.0	1600		<2.0	<2.0

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/9/2011	185.32	29.40	155.92	no	950	150	27	32	2100	76	<25	<25	<25	1100	<2500	<25	<25
8/10/2011	185.32	28.40	156.92	no	970	570	190	410	3900	110	<20	<20	<20	1900		<20	<20
2/14/2012	185.32	29.77	155.55	no	1000	270	110	150	2900	98	<20	<20	<20	2100	<2000	<20	<20
8/13/2012	185.32	30.96	154.36	no	1480	1010	491	1260	12200	151	<1.00	<1.00	<1.00	1890		<0.500	<0.500
Field Point	**MW03**		***Well Screen Interval (feet):***	**37-62**		***Well Zone:***	***Shallow Zone***										
8/3/1989		32.1	154.18	no	3,950	9,600	1,000	11,100	53,000								
7/18/1990 (h)		40.68	149.43*	yes	5.17												
1/18/1991 (h)		43.08	147.37*	yes	5.63												
4/23/1991 (h)		39.35	147.41*	yes	0.65												
7/25/1991 (h)		39.09	147.31*	yes	0.16												
10/25/1991 (h)		39.21	147.08*	yes	0.02												
1/24/1992 (h)		40.27	146.02*	yes	0.02												
8/31/1992 (h)		40.29	146*	yes	0.01												
2/24/1993 (b)		39.73	146.55	no													
5/27/1993		38.18	148.1	no	4,700	11,000	850	13,000	87,000								
8/25/1993		37.86	148.42	no	4,200	9,900	1,600	10,000	29,000								
11/19/1993		38.03	148.25	no	3,800	920	1,100	11,000	46,000								
2/7/1994		38.06	148.22	no	3,400	6,100	1,100	5,500	32,000								
5/31/1994		37.15	149.13	no	6,100	10,000	2,300	16,000	140,000								
9/14/1994 (h)		41.48	144.81*	yes	0.01												
12/22/1994		42.54	143.74	no	120	110	220	200	8,300								
2/20/1995		42.22	144.06	no	120	390	640	1,300	20,000								
4/20/1995		39.84	146.44	no	570	820	850	2,000	33,000								
7/27/1995		38.12	148.16	no	1,200	390	970	1,700	24,000								
11/9/1995		39.06	147.22	no	240	72	540	910	16,000								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/4/1996		38.57	147.71	no	22	4.7	26	71	870								
4/3/1996		37.21	149.07	no	490	52	110	550	10,000	ND (i)						ND	22
9/17/1996 (c)		34.3	151.98	no													
12/4/1996		36.42	149.86	no	7.4	ND	21	58	7,700	ND (i)						ND	19
2/11/1997		33.95	152.33	no	16	0.39	1.2	3.4	480	ND (i)						ND	7.7
9/25/1997		30	156.28	no	180	8.7	42	18	1,500	ND (i)						ND	ND
2/12/1998		27.14	159.14	no	1,400	420	520	880	12,000	<10 (i)						<2.0	7.2
10/22/1998		30.07	156.21	no	10	1.1	4.2	8.2	310	<10 (i)						<0.3	<0.3
1/6/1999		24.31	161.97	no	8.9	0.7	3.9	7.8	330	<10 (i)							
8/5/1999		23.74	162.54	no	1,400	90	770	1,100	14,000	<10 (i)						<4.0	<4.0
2/9/2000		22.52	163.76	no	1,400	84	560	600	8,100	<10 (i)						<4.0	<4.0
2/9/2000 Dup		NM	N/A	no	1,200	87	530	550	8,600	<50 (i)							
7/24/2000		21.31	164.97	no	1,100	520	730	1,100	14,000	<5	<1	<1	<1	36			
1/25/2001		26.23	160.05	no	4	1	1	2	130	<5	<1	<1	<1	50			
7/25/2001		19.11	167.17	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/7/2002		19.06	167.22	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/26/2002		18.85	167.43	no	400	84.9	480	700	4,490	<0.50	<0.50	<0.50	<0.50	74	<100	<0.50	1.91
9/18/2002 (o)		20.05	165.88	no													
12/11/2002		19.38	166.55	no	912	86.4	858	372	6,460	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/17/2003		18.82	167.11	no													
6/20/2003		18.55	167.38	no	730	80.7	715	738	9,410	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	23
9/15/2003		18.74	167.19	no													
12/22/2003		18.7	167.23	no	6	1.2	6.8	<0.50	454	<0.50	<0.50	<0.50	<0.50	47.2		<0.50	1
3/24/2004		18.33	167.6	no													
6/23/2004		18.93	167	no		36	708	301	3,290	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
9/22/2004		20.2	165.73	no													
12/29/2004		18.75	167.18	no	624	16.4	469	202	3,600	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
3/23/2005		15.36	170.57	no													
6/23/2005		16.04	169.89	no	417	12.7	171	38.8	1,630	0.9	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/15/2005		18.64	167.29	no													
11/21/2005		16.97	168.96	no	180	20.4	176	56	1,160	<0.500	<0.500	<0.500	<0.500	11.8	<50.0	<0.500	<0.500
2/23/2006		17.03	168.9	no													
5/25/2006		15.8	170.13	no	53	4.8	49	7.4	1,000	<1.0	<2.0	<2.0	<2.0	4.8J	<100	<1.0	<0.50
8/24/2006		17.2	168.73	no													
12/11/2006		18.04	167.89	no	74	6.1	49	9.4	1,300	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
3/22/2007		17.5	168.43	no	16	2.1	18	12	1,000	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/29/2007		18.12	167.81	no													
8/27/2007	185.93	18.8	167.13	no	270	16	160	46	920	<1.0	<2.0	<2.0	<2.0	27	<100	<1.0	<0.50
12/5/2007	185.93	21.93	164.00	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	185.93	18.61	167.32	no	25	3.4	13	5.0	900	<1.0	<2.0	<2.0	<2.0	7.7 J		<1.0	<0.50
5/15/2008	185.93	19.18	166.75	no	GAUGE ONLY												
8/14/2008	185.93	20.66	165.27	no	13	0.77 J	2.4	1.3	280	<1.0	<2.0	<2.0	<2.0	7.6 J		<1.0	<0.50
11/6/2008	185.93	22.07	163.86	no	GAUGE ONLY												
2/19/2009	185.93	22.06	163.87	no	17	1.2	8.3	1.2	630	<0.50	<0.50	<0.50	<0.50	6.1 J		<0.50	1.3
5/20/2009	185.93	22.96	162.97	no	GAUGE ONLY												
8/19/2009	185.93	24.06	161.87	no	10	0.78	2.0	0.56	200	0.30 J	<0.50	<0.50	<0.50	5.8 J		<0.50	0.99
11/5/2009	185.93	24.58	161.35	no	GAUGE ONLY												
3/4/2010	185.93	23.18	162.75	no	14	2.0	10	3.6	680	0.19 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/24/2010	185.93	25.06	160.87	no	2.8	0.76	1.1	1.5	230	0.17 J	<0.50	<0.50	<0.50	<10		<0.50	0.33 J
2/9/2011	185.93	25.02	160.91	no	3.4	0.36 J	2.4	0.72	120	0.19 J	<0.50	<0.50	<0.50	<10	<50	<0.50	0.38 J

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
8/10/2011	185.93	24.20	161.73	no	2.1	0.38 J	1.6	0.82	130	0.25 J	<0.50	<0.50	<0.50	<10		<0.50	0.20 J
2/14/2012	185.93	25.23	160.70	no	0.49 J	0.33 J	0.97	0.68	120	0.25 J	<0.50	<0.50	<0.50	<10	<50	<0.50	0.13 J
8/13/2012	185.93	26.84	159.09	no	0.943	0.350 J	0.762	0.359 J	139	0.260 J	<1.00	<1.00	<1.00	<10.0		<0.500	0.323 J
Field Point	**MW04A**		***Well Screen Interval (feet):***	**55-60**		***Well Zone:***	***Shallow Zone***										
1/18/1991		37.88	148.58	no													
10/25/1991		40.04	146.42	no													
1/24/1992		40.47	145.99	no													
3/19/1992		40.64	145.82	no	200	120	40	150	4,000								
6/1/1992		40.83	145.63	no													
8/31/1992		41.38	145.08	no													
11/30/1992		41.74	144.72	no													
2/24/1993		39.95	146.51	no													
5/27/1993		39.57	146.89	no													
8/25/1993		38.95	147.51	no													
11/19/1993		39.81	146.65	no													
2/7/1994		39.01	147.45	no													
5/31/1994		38.4	148.06	no													
9/14/1994		43.12	143.34	no													
12/22/1994		44.17	142.29	no													
2/20/1995		43.77	142.69	no													
7/27/1995		40.51	145.95	no													
11/9/1995		39.06	147.4	no													
4/3/1996		38.31	148.15	no													
9/17/1996		35.49	150.97	no													
12/4/1996		34.71	151.75	no													

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CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/11/1997		33.24	153.22	no													
9/25/1997		29.9	156.56	no													
2/12/1998		28.22	158.24	no													
10/22/1998		25.88	160.58	no													
1/6/1999		24.82	161.64	no													
8/5/1999		24.49	161.97	no													
2/9/2000		24.37	162.09	no													
7/24/2000		22.15	164.31	no													
1/25/2001		28.84	157.62	no													
7/25/2001		20.68	165.78	no													
1/7/2002		20.66	165.8	no													
6/26/2002		20.7	165.76	no	12.6	2.2	4	15.3	138	7.8	<0.50	<0.50	<0.50	76.6	<100	<0.50	6.7
9/18/2002 (o)		21.48	165.04	no													
12/10/2002		20.06	166.46	no													
3/17/2003		19.75	166.77	no													
6/19/2003		19.51	167.01	no	<0.50	<0.50	0.6	2.6	<50.0	1.7	<0.50	<0.50	<0.50	<10.0		<0.50	3
9/15/2003		19.43	167.09	no													
12/22/2003		19.69	166.83	no													
3/24/2004		19.18	167.34	no													
6/23/2004		19.47	167.05	no	<0.50	<0.50	<0.50	<0.50	<50.0	1.4	<0.50	<0.50	<0.50	<10.0		<0.50	13.2
9/22/2004		20.98	165.54	no													
12/28/2004		19.51	167.01	no													
3/23/2005		16.93	169.59	no													
6/23/2005		16.88	169.64	no	4,300	323	1,460	3,380	35,700	<0.50	<0.50	<0.50	<0.50	646	<100	3	<0.50
9/15/2005		17.62	168.9	no	1,940	103	688	1,190	11,800	<0.500	<0.500	<0.500	<0.500	1,130	<100	<0.500	46.8

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
11/21/2005		22.77	163.75	no	355	33.6	146	223	3,470	<0.500	<0.500	<0.500	<0.500	448	<50.0	<0.500	<0.500
2/23/2006		20.62	165.9	no	3.3	<1.0	1.5	2.36	550	<1.0	<2.0	<2.0	<2.0	130	<100	<1.0	10
5/25/2006		17.05	169.47	no	620	11	230	230	3,300	<5.0	<10	<10	<10	240	<500	<5.0	<2.5
8/24/2006		21.11	165.41	no	310	15	210	310	2,700	<5.0	<10	<10	<10	300	<500	<5.0	<2.5
12/12/2006		19.16	167.36	no	110	3.3	91	84	970	<1.0	<2.0	<2.0	<2.0	210	<100	<1.0	<0.50
3/22/2007		18.59	167.93	no	5.4	0.95J	3.4	9.5	580	<1.0	<2.0	<2.0	<2.0	97	<100	<1.0	6.4
5/29/2007		22.05	164.47	no													
8/27/2007	186.52	19.95	166.57	no	2.2	0.94J	5	6.6	390J	<1.0	<2.0	<2.0	<2.0	88	<100	<1.0	2.8
12/5/2007	186.52	23.42	163.10	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	186.52	20.08	166.44	no	1.2	0.96 J	0.75 J	1.6	52 J	<1.0	<2.0	<2.0	<2.0	28		<1.0	11
5/15/2008	186.52	20.84	165.68	no	GAUGE ONLY												
8/14/2008	186.52	22.17	164.35	no	1.4	1.1	0.93 J	2.3	62 J	<1.0	<2.0	<2.0	<2.0	95		<1.0	2.7
11/6/2008	186.52	23.66	162.86	no	GAUGE ONLY												
2/19/2009	186.52	23.62	162.90	no	<0.50	0.66	0.29 J	1.1	<50	0.10 J	<0.50	<0.50	<0.50	50		<0.50	3.2
5/20/2009	186.52	24.68	161.84	no	GAUGE ONLY												
8/19/2009	186.52	25.98	160.54	no	3.2	2.1	1.4	2.3	<50	0.15 J	<0.50	<0.50	<0.50	67		<0.50	1.7
11/5/2009	186.52	26.19	160.33	no	GAUGE ONLY												
3/3/2010	186.52	25.23	161.29	no	1.9	0.69	0.54	0.99	81	<0.50	<0.50	<0.50	<0.50	63		<0.50	3.1
8/24/2010	186.52	26.74	159.78	no	<0.50	<0.50	<0.50	<0.50	59	<0.50	<0.50	<0.50	<0.50	140		<0.50	3.2
2/9/2011	186.52	26.86	159.66	no	40	1.2	0.87	1.2	200	0.42 J	<0.50	<0.50	<0.50	82	<50	<0.50	11
8/10/2011	186.52	25.81	160.71	no	17	8.1	3.7	7.6	110	0.52	<0.50	<0.50	<0.50	120		<0.50	2.1
2/13/2012	186.52	27.11	159.41	no	2.1	<0.50	0.21 J	<0.50	<50	0.16 J	<0.50	<0.50	<0.50	24	<50	<0.50	1.0
8/13/2012	186.52	27.81	158.73	yes 0.02	NOT SAMPLED DUE TO NAPL												
Field Point	**MW04B**		***Well Screen Interval (feet):***		**42-47**		***Well Zone:***		***Shallow Zone***								
1/18/1991		37.48	148.98	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
10/25/1991		39.26	147.2	no													
1/24/1992		39.72	146.74	no													
3/19/1992		39.78	146.68	no													
6/1/1992		39.79	146.67	no	8,600	25,000	2,000	14,000	78,000								
8/31/1992		40.27	146.19	no	7,900	23,000	1,600	11,000	64,000								
11/30/1992		40.54	145.92	no													
2/24/1993		39.7	146.76	no	7,200	16,000	740	10,000	52,000								
5/27/1993		38.52	147.94	no													
8/25/1993		38.06	148.4	no													
11/19/1993		38.06	148.4	no													
2/7/1994		38.08	148.38	no													
5/31/1994		37.47	148.99	no	6,700	12,000	1,500	27,000	230,000								
9/14/1994 (h)		41.28	145.21*	yes	0.04												
12/22/1994 (h)		42.24	144.36*	yes	0.19												
2/20/1995 (h)		42.24	144.24*	yes	0.03												
7/27/1995 (h)		39.15	147.61*	yes	0.41												
11/9/1995 (h)		39.5	147.39*	yes	0.58												
1/4/1996		39.15	147.31	no													
4/3/1996 (h)		37.44	149.03*	yes	0.02												
9/17/1996		35.04	151.42	no													
12/4/1996		34.78	152.42*	yes	1												
2/11/1997		33.23	153.23	no													
9/25/1997		29.7	156.76	no													
2/12/1998 (h)		28.45	158.41*	yes	0.54												
10/22/1998		25.72	160.74	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/6/1999		24.86	161.6	no													
8/5/1999		24.3	162.16	no													
2/9/2000		24.08	162.38	no													
7/24/2000		22	164.46	no													
1/25/2001		22.94	163.52	no													
7/25/2001		23.11	163.35	no													
1/7/2002		20.27	166.19	no													
6/26/2002		20.37	166.09	no	1,700	3,840	2,240	10,100	47,400	<25.0	<25.0	<25.0	<25.0	<500	<5,000	<25.0	<25.0
9/18/2002 (o)		20.81	165.5	no													
12/10/2002		19.65	166.66	no													
3/17/2003		19.34	166.97	no													
6/19/2003		19.16	167.15	no	231	606	1,280	4,840	49,500	<0.50	<0.50	<0.50	4.1	<10.0		<0.50	7.6
9/15/2003		19.12	167.19	no													
12/22/2003		19.33	166.98	no													
3/24/2004		18.84	167.47	no													
6/23/2004		19.44	166.87	no	615	604	1,790	4,270	19,000	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/22/2004		20.6	165.71	no													
12/28/2004		19.22	167.09	no													
3/23/2005		16.47	169.84	no													
6/23/2005		16.83	169.48	no	268	235	1,070	2,360	23,800	<0.50	<0.50	<0.50	<0.50	44.1	<100	<0.50	<0.50
9/15/2005		17.31	169	no													
11/21/2005		19.83	166.48	no													
2/23/2006		18.51	167.8	no													
5/25/2006		16.6	169.71	no	270	190	890	1,600	14,000	<5.0	<10	<10	<10	34J	<500	<5.0	<2.5
8/24/2006		18	168.31	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
12/11/2006		18.78	167.53	no													
3/22/2007		18.25	168.06	no	450	570	950	3,300	36,000	<5.0	<10	<10	<10	<50	<500	<5.0	<2.5
5/29/2007		20.23	166.08	no													
8/27/2007	186.31	19.5	166.81	no													
12/5/2007	186.31	20.62	165.69	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	186.31	19.57	166.74	no	59	35	450	650	16000	<10	<20	<20	<20	<100		<10	<5.0
5/15/2008	186.31	20.11	166.2	no	GAUGE ONLY												
8/13/2008	186.31	21.61	164.70	no	GAUGE ONLY 8-13-08												
11/6/2008	186.31	23.06	163.25	no	GAUGE ONLY												
2/19/2009	186.31	22.98	163.33	no	660	450	2000	6200	38000	<5.0	<5.0	<5.0	<5.0	43 J		<5.0	21
5/21/2009	186.31	23.83	162.48	no	GAUGE ONLY												
8/19/2009	186.31	24.69	161.62	no	GAUGE ONLY												
11/5/2009	186.31	25.61	160.72	yes 0.02	GAUGE ONLY												
3/3/2010	186.31	24.52	161.79	no	1100	600	3700	14000	59000	<12	<12	<12	<12	<250		<12	<12
8/24/2010	186.31	26.16	160.15	no	GAUGE ONLY												
2/9/2011	186.31	26.92	159.41	yes 0.02	NOT PURGED OR SAMPLED DUE TO NAPL												
8/10/2011	186.31	25.57	160.74	no	GAUGE ONLY												
2/13/2012	186.31	26.56	159.75	no	340	10	750	1200	25000	<2.5	<2.5	<2.5	<2.5	48 J	<250	<2.5	<2.5
8/13/2012	186.31	28.24	158.07	no	GAUGE ONLY												
Field Point	**MW04C**		***Well Screen Interval (feet):***			***Well Zone:***	***Shallow Zone***										
1/18/1991		37	149.28	no	1,718	1,432	289	1,271	49,700								
4/23/1991		37.5	148.78	no	19,000	24,000	1,800	11,000	270,000								
7/25/1991 (h)		38.13	148.3*	yes 0.2													
10/25/1991 (h)		38.96	147.48*	yes 0.22													
1/24/1992 (h)		39.33	146.96*	yes 0.02													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/19/1992		39.3	146.98	no													
6/1/1992		39.38	146.9	no													
8/31/1992		39.57	146.71	no													
2/24/1993		39.43	146.85	no													
5/27/1993		38.18	148.1	no	22,000	28,000	2,300	15,000	180,000								
8/25/1993		37.89	148.39	no	20,000	30,000	1,700	13,000	120,000								
11/19/1993		38.4	147.88	no	18,000	26,000	1,600	15,000	99,000								
2/7/1994 (h)		39	148.45*	yes 1.58													
5/31/1994 (h)		38.43	147.95*	yes 0.14													
7/27/1995 (h)		38.75	147.59*	yes 0.08													
11/9/1995 (h)		38.83	147.55*	yes 0.13													
1/4/1996		38.45	147.83	no													
4/3/1996 (h)		37.17	149.18*	yes 0.09													
9/17/1996 (d)		35.02	151.26	no	15,000	19,000	2,100	22,000	110,000								
12/4/1996		34.67	151.61	no	14,000	15,000	2,800	31,000	370,000								
2/11/1997		33.23	153.05	no	19,000	18,000	8,100	85,000	500,000								
9/25/1997		29.9	156.38	no	7,400	1,800	980	6,800	47,000								
9/25/1997 (h)		N/A	N/A	no	7,700	1,800	1,000	7,100	49,000								
2/12/1998 (h)		28.46	158.23*	yes 0.55													
10/22/1998		25.15	161.13	no	4,400	450	1,500	4,600	42,000								
1/6/1999 Dup		NM	N/A	no	3,100	400	1,200	3,100	44,000								
1/6/1999		24.91	161.37	no	3,200	410	1,200	3,200	44,000								
8/5/1999		26.48	159.8	no	1,100	200	600	1,400	21,000								
2/9/2000		24.22	162.06	no	5,800	1,300	1,500	5,500	45,000	ND (i)							
7/24/2000		22.15	164.13	no	8,200	1,400	1,500	5,800	45,000	ND	<10	<10	<10	610			

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/25/2001		22.81	163.47	no	3400	74	610	850	19000	ND	<3.0	<3.0	<3.0	550			
7/25/2001		20.25	166.03	no	1400	29	290	210	9500	ND	<1	<1	<1	610			
1/7/2002		20.14	166.14	no	3	<1	18	18	6200	ND	<1	<1	<1	<10			
6/26/2002		20.55	165.73	no	3,200	3,900	5,750	22,600	21,500		<0.50	<0.50	<0.50	277	<100	<0.50	4.24
9/18/2002 (o)		20.94	165.4	no	5,320	1,770	2,010	6,980	35,800	<50	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
12/11/2002		20.26	166.08	no	7,300	3,830	1,280	5,920	39,700	<20	<0.50	<0.50	<0.50	320		<0.50	<0.50
3/18/2003		19.58	166.76	no	4,260	1,840	1,260	6,070	35,900	<20	<0.50	<0.50	<0.50	278		<0.50	<0.50
6/19/2003		19.25	167.09	no	3,700	780	1,200	5,830	42,900	<10	<0.50	<0.50	<0.50	<10.0		<0.50	77.6
9/15/2003		19.2	167.14	no	2,930	518	724	3,950	51,300	<100	<5.00	<5.00	<5.00	321		<5.00	54
12/22/2003		19.54	166.8	no	3,180	890	937	3,010	20,500	<0.50	<0.50	<0.50	<0.50	493		<0.50	78.4
3/24/2004		19.03	167.31	no	2,500	510	760	2,360	15,500	0.8	<0.50	<0.50	<0.50	108		<0.50	<0.50
6/23/2004		19.32	167.02	no	7,600	700	1,720	6,480	42,100	<2.50	<2.50	<2.50	<2.50	448		<2.50	<2.50
9/22/2004		20.6	165.74	no	8,600	730	1,920	5,980	41,300	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/29/2004		19.6	166.74	no	5,240	398	1,810	4,860	31,400	<0.50	<0.50	<0.50	26.8	528	<100	<0.50	<0.50
3/24/2005		16.65	169.69	no	3,100	346	1,040	2,500	18,100	<0.50	<0.50	<0.50	<0.50	760	<100	<0.50	62.5
6/23/2005		16.72	169.62	no	1,480	604	863	3,730	52,900	<0.50	<0.50	<0.50	<0.50	423	<100	<0.50	<0.50
9/15/2005		17.41	168.93	no	3,510	657	609	1,770	16,100	<0.500	<0.500	<0.500	56.5	612	<100	<0.500	69.8
11/21/2005		20.67	165.67	no	1,230	371	560	1,130	10,700	<0.500	<0.500	<0.500	<0.500	463	<50.0	<0.500	<0.500
2/23/2006		19.22	167.12	no	1,500	490	660	1,160	13,000	<10	<20	<20	<20	650	<1,000	<10	<5.0
5/25/2006		16.55	169.79	no	2,800	940	1,200	4,100	36,000	<25	<50	<50	<50	390	<2,500	<25	<13
8/24/2006		19.6	166.74	no	2,900	1,200	1,200	4,700	36,000	<25	<50	<50	<50	450	<2,500	<25	<13
12/12/2006		21.54	164.8	no	3,300	1,400	2100	7,400	29,000	<25	<50	<50	<50	<250	<2,500	<25	<12
3/21/2007				no	WELL DESTROYED												
Field Point	**MW04CR**		***Well Screen Interval (feet):***		**30-40**		***Well Zone:***		***Shallow Zone***								
3/22/2007		18.66	167.68	no	4,600	2,100	2,000	7,600	36,000	<25	<50	<50	<50	630	<2,500	<25	<12

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
5/29/2007		20.2	166.14	no													
8/27/2007	186.13	19.05	167.08	no	3,600	7,800	2,100	12,000	48,000	<25	<50	<50	<50	880	<2,500	<25	<12
12/5/2007	186.13	19.93	166.20	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	186.13	19.32	166.81	no	1700	1100	920	2400	34000	<50	<100	<100	<100	710		<50	<25
5/15/2008	186.13	19.92	166.21	no	2000	1200	880	2700	26000	<50	<100	<100	<100	890	<5000	<50	<25
8/14/2008	186.13	21.27	164.86	no	3200	2500	1500	4800	3900	<50	<100	<100	<100	780		<50	<25
11/6/2008	186.13	22.64	163.49	no	4100	3800	1700	5800	60000	<50	<100	<100	<100	1200		<50	<25
2/19/2009	186.13	22.76	163.37	no	8500	9800	2300	9700	69000	<25	<25	<25	<25	900		<25	<25
5/20/2009	186.13	23.44	162.69	no	7600	6700	2000	8800	56000	<250	<250	<250	<250	2500 J	<25000	<250	<250
8/19/2009	186.13	25.11	161.02	no	5900	5000	1900	8000	46000	<100	<100	<100	<100	1200 J		<100	<100
11/5/2009	186.13	25.08	161.05	no	3500	3300	2000	7600	41000	<100	<100	<100	<100	<2000		<100	<100
3/4/2010	186.13	24.13	162.00	no	2900	2000	1000	3200	23000	<50	<50	<50	<50	750 J		<50	<50
8/24/2010	186.13	25.65	160.48	no	4700	2700	1800	6600	47000	<50	<50	<50	<50	830 J		<50	<50
2/9/2011	186.13	25.73	160.40	no	3300	1900	1100	3600	31000	<50	<50	<50	<50	620 J	<5000	<50	<50
8/10/2011	186.13	24.82	161.31	no	2700	900	1300	4300	37000	<50	<50	<50	<50	540 J		<50	<50
2/13/2012	186.13	26.23	159.90	no	300	2.9	240	110	2400	<2.5	<2.5	<2.5	<2.5	450	<250	<2.5	<2.5
8/13/2012	186.13	27.30	158.83	no	1390	275	684	952	18600	0.462 J	<1.00	<1.00	<1.00	<10.0		0.288 J	47.6
Field Point	**MW04D**		***Well Screen Interval (feet):***	**85-90**		***Well Zone:***	***Upper Zone***										
3/19/1992		43.33	143.08	no													
6/1/1992		43.08	143.33	no	17	6.1	0.3	61	460								
8/31/1992		43.42	142.99	no	0.7	ND	ND	0.8	ND								
10/16/1992		43.43	142.98	no													
11/30/1992		43.65	142.76	no	ND	ND	ND	ND	ND								
2/24/1993		43.13	143.28	no	ND	ND	ND	ND	ND								
5/27/1993		41.55	144.86	no	ND	ND	ND	ND	ND								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
8/25/1993		40.89	145.52	no	ND	ND	ND	ND	ND								
11/19/1993		40.61	145.8	no	ND	ND	ND	ND	ND								
2/7/1994		40.54	145.87	no	ND	ND	ND	ND	ND								
5/31/1994		40.08	146.33	no	11	2	ND	3.7	190								
9/14/1994		41.45	144.96	no	1.5	2.5	0.68	7.9	150								
12/22/1994		42.06	144.35	no	ND	0.56	ND	ND	ND								
2/20/1995		41.88	144.53	no	ND	0.58	ND	0.6	ND								
4/20/1995		40.3	146.11	no	10	1.5	ND	5.4	90								
7/27/1995		38.8	147.61	no	0.69	0.81	ND	1	ND								
11/9/1995		39.28	147.13	no	ND	ND	ND	ND	ND								
1/4/1996		38.48	147.93	no	ND	ND	ND	ND	ND								
4/3/1996		37.31	149.1	no	0.31	ND	ND	ND	ND								
9/17/1996		35.62	150.79	no	1.4	5.8	1.3	15	91								
12/4/1996		35.5	150.91	no	ND	1.4	0.42	4.7	ND								
2/11/1997		34.58	151.83	no	2.2	2.1	1.5	3.7	ND								
9/25/1997		32.3	154.11	no	0.3	ND	ND	ND	ND								
2/12/1998		31.1	155.31	no	1.4	2.6	0.5	4.3	<50								
10/22/1998		27.38	159.03	no	<0.3	<0.3	<0.3	<0.6	<50								
1/6/1999		26.33	160.08	no	<0.3	<0.3	0.4	0.9	<50								
8/5/1999		24.04	162.37	no	<0.3	<0.3	0.4	1	<50								
2/9/2000 Dup		NM	N/A	no	0.99	0.43	1.1	3.3	<50	ND (i)							
2/9/2000		26.29	160.12	no	1	0.68	1.3	4.2	71								
7/24/2000		24.36	162.05	no	<1	2	1	7	71	ND	<1	<1	<1	<20			
1/25/2001		25.51	160.9	no	<0.30	0.77	0.49	2.8	<20	<1.0 (i)							
7/25/2001		22.44	163.97	no	<1	<1	<1	<1	<50	ND	<1	<1	<1	<10			

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/7/2002		22.31	164.1	no	<1	<1	<1	<1	<50	<10	<1	<1	<1	<10			
6/26/2002		22.23	164.18	no	<0.50	<0.50	<0.50	<0.50	<50	<10	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/19/2002 (o)		22	164.5	no	2.59	2.54	2.05	8.6	<50.0	<10	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
12/11/2002		22.47	164.03	no	2.4	<0.50	<0.50	<0.50	<50.0	<10	<0.50	<0.50	<0.50	115		<0.50	<0.50
3/18/2003		21.56	164.94	no	<0.50	<0.50	<0.50	<0.50	<50.0	<10	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		21.29	165.21	no	<0.50	<0.50	<0.50	1.1	69.7	<10	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/15/2003		21.41	165.09	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	27.6		<0.50	<0.50
12/22/2003		22.65	163.85	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/24/2004		22.15	164.35	no	1	2.1	1.2	5	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		21.29	165.21	no	0.7	0.8	0.8	4	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/22/2004		22.75	163.75	no	5.8	1.2	1.6	5.4	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/29/2004		21.56	164.94	no	4.6	1.2	3.4	11	52	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
3/24/2005		19.07	167.43	no	37.2	5.2	6	16.6	403	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/23/2005		15.57	170.93	no	1.2	2.7	7.1	40.7	1,250	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/15/2005		19.85	166.65	no	13.1	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<100	<0.500	<0.500
11/21/2005		23.8	162.7	no	1.35	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<100	<0.500	<0.500
2/23/2006		20.53	165.97	no	2.3	0.72J	0.39J	1.57J	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		19.05	167.45	no	0.66	<1.0	0.40J	0.75J	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/24/2006		20.5	166	no	0.86	0.44J	0.40J	1.6	53J	<1.0	<2.0	<2.0	<2.0	7.8J	<100	<1.0	<0.50
12/12/2006		20.61	165.89	no	0.45J	0.41J	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
3/21/2007		19.95	166.55	no													
5/29/2007		21.25	165.25	no	<0.50	0.34J	<1.0	1.1	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/27/2007	186.50	22.9	163.6	no	0.19J	<1.0	<1.0	<1.0	140	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/5/2007	186.50	23.33	163.17	no	3.6	3.1	3.8	6.8	75 J	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/25/2008	186.50	22.26	164.24	no	4.2	4.2	9.4	32	420	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
5/15/2008	186.50	22.76	163.74	no	5.3	3.8	3.0	7.3	69 J	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/14/2008	186.50	24.73	161.77	no	0.37 J	0.34 J	0.29 J	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008	186.50	26.49	160.01	no	1.3	1.2	1.3	2.2	100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/19/2009	186.50	26.31	160.19	no	7.0	7.4	12	49	420	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/20/2009	186.50	26.61	159.89	no	1.6	1.6	2.4	8.6	190	<0.50	<0.50	<0.50	<0.50	4.7 J	<50	<0.50	<0.50
8/19/2009	186.50	28.88	157.62	no	2.8	3.3	3.4	13	160	<0.50	<0.50	<0.50	<0.50	2.8 J		<0.50	<0.50
11/5/2009	186.50	28.93	157.57	no	1.2	1.2	1.8	5.7	160	<0.50	<0.50	<0.50	<0.50	<10		<0.50	0.12 J
3/3/2010	186.50	27.98	158.52	no	1.2	0.75	4.5	16	350	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/24/2010	186.50	29.67	156.83	no	5.3	2.4	2.6	9.2	160	<0.50	<0.50	<0.50	<0.50	11		<0.50	<0.50
2/9/2011	186.50	29.65	156.85	no	5.3	3.1	6.6	25	480	<0.50	<0.50	<0.50	<0.50	4.5 J	<50	<0.50	<0.50
8/10/2011	186.50	28.32	158.18	no	1.3	0.63	0.43 J	0.99	<50	<0.50	<0.50	<0.50	<0.50	23		<0.50	0.42 J
2/13/2012	186.50	29.51	156.99	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/13/2012	186.50	30.84	155.66	no	<0.500	<0.500	<0.500	<0.500	<50.0	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
Field Point	**MW04E**		***Well Screen Interval (feet):***	**8-23**		***Well Zone:***	**Shallow Zone**										
3/18/2003		19.75	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		19.45	167.05	no													
9/15/2003		19.52	166.98	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/22/2003		19.56	166.94	no													
3/24/2004		19.04	167.46	no	0.9	2.3	<0.50	1.4	59.1	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		19.6	166.9	no													
9/22/2004		20.84	165.66	no	3	2.3	0.9	1.6	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/28/2004		19.62	166.88	no													
3/24/2005		16.74	169.76	no	1	<0.50	<0.50	<0.50	60.8	<0.50	<0.50	<0.50	1.7	42.3	<100	<0.50	<0.50
6/23/2005		16.87	169.63	no													
9/15/2005		17.55	168.95	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	14.7	<100	<0.500	<0.500

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
11/21/2005		18.18	168.32	no													
2/23/2006		18.01	168.49	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		16.7	169.8	no													
8/24/2006		18	168.5	no	2	0.81J	1.9	3.2	250	<1.0	<2.0	<2.0	<2.0	180	<100	<1.0	1.5
12/11/2006		18.83	167.67	no													
3/22/2007		18.35	168.15	no	1.2	0.65J	0.68J	2.5	<100	<1.0	<2.0	<2.0	<2.0	28	<100	<1.0	<0.50
5/29/2007		18.87	167.63	no	<0.50	<1.0	<1.0	0.32J	<100	<1.0	<2.0	<2.0	<2.0	14	<100	<1.0	<0.50
8/27/2007	186.13	19.3	166.83	no	<0.50	<1.0	<1.0	<1.0	59J	<1.0	<2.0	<2.0	<2.0	60	<100	<1.0	0.42J
12/5/2007	186.13	20.23	165.90	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	26		<1.0	0.39 J
2/25/2008	186.13	19.59	166.54	no	1.0	0.75 J	0.99 J	2.1	130	<1.0	<2.0	<2.0	<2.0	71		<1.0	0.76
5/15/2008	186.13	20.11	166.02	no	<0.50	<1.0	<1.0	1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/14/2008	186.13	21.54	164.59	no	INSUFFICIENT WATER TO PURGE OR SAMPLE												
11/6/2008	186.13	22.44	163.69	no	INSUFFICIENT WATER TO PURGE OR SAMPLE												
2/18/2009	186.13	22.43	163.70	no	INSUFFICIENT WATER TO PURGE OR SAMPLE												
5/20/2009	186.13	22.46	163.67	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
8/19/2009	186.13			no	WELL DRY												
11/5/2009	186.13	22.49	163.64	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
3/3/2010	186.13	22.48	163.65	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
8/24/2010	186.13	22.52	163.61	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
2/9/2011	186.13	22.50	163.63	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
8/10/2011	186.13	22.53	163.60	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
2/13/2012	186.13	22.56	163.57	no	NOT ENOUGH WATER TO PURGE OR SAMPLE												
8/13/2012	186.13	DRY		no	WELL DRY												
Field Point	**MW05**		***Well Screen Interval (feet):***			***Well Zone:***											
1/18/1991		40.79	146.39	no	172	179	ND	388	9,800								

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100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
4/23/1991		41.95	145.23	no	560	530	32	1,000	7,700								
7/25/1991		42.13	145.05	no	360	250	41	590	5,600								
10/25/1991		42.6	144.58	no	290	210	67	300	8,000								
1/24/1992		43.04	144.14	no	310	190	67	310	6,200								
3/19/1992		42.84	144.34	no													
6/1/1992		42.63	144.55	no	36	69	31	130	3,300								
8/31/1992		43.09	144.09	no	73	36	15	43	2,200								
11/30/1992		43.18	144	no	40	9	13	20	1,200								
2/24/1993		42.94	144.24	no	180	120	25	110	4,200								
5/27/1993		41.09	146.09	no	110	26	37	230	4,400								
8/25/1993		40.42	146.76	no	2.6	ND	ND	17	510								
11/19/1993		40.37	146.81	no	0.36	ND	ND	9.1	480								
2/7/1994		40.27	146.91	no	ND	ND	ND	ND	ND								
5/31/1994		39.86	147.32	no	1.5	ND	1.9	17	690								
9/14/1994		42.54	144.64	no													
12/22/1994		43.1	144.08	no	18	0.86	2.3	8.9	610								
2/20/1995		43.35	143.83	no	4.8	1.5	1.7	3.4	830								
4/20/1995		40.41	146.77	no	7.3	2.3	1.9	16	930								
7/27/1995		40.13	147.05	no	2.9	1.7	2.1	4.2	300								
11/9/1995		39.93	147.25	no	2.9	0.61	1.2	4.7	330								
1/4/1996		38.93	148.25	no	6.9	1.1	10	ND	500								
4/3/1996		37.75	149.43	no	5.7	1.2	1.8	9.4	410								
9/17/1996 Dup		N/A	N/A	no	19	ND	1.3	0.87	490	ND (i)							
9/17/1996		35.13	152.05	no	15	ND	1.1	0.87	400	ND (i)							
12/4/1996 (f)		N/A	N/A	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/11/1997		34.25	152.93	no	4.7	0.47	2.3	1.8	770	ND (i)							
9/25/1997 (j)		N/A	N/A	no													
2/12/1998		30.21	156.97	no	14	<5	3.5	12	1,000	<10 (i)							
10/22/1998		26.65	160.53	no	3.1	<0.3	0.4	3.6	70	<10 (i)							
1/6/1999 (j)		25.84	161.34	no													
8/5/1999 (j)		N/A	N/A	no													
2/9/2000 (l)		25.78	161.4	no													
7/24/2000		22.81	164.37	no	<1	<1	<1	<1	110	<5	<1	<1	<1	36			
1/25/2001		17.23	169.95	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
7/25/2001		17.35	169.83	no	<1	<1	<1	<1	87	<2	<1	<1	<1	<10			
1/8/2002		18.88	168.3	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		21.03	166.15	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	5
9/18/2002 (o)		21.47	165.3	no													
12/10/2002		20.95	165.82	no	<0.50	<0.50	<0.50	<0.50	78	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	8.6
3/17/2003		20.19	166.58	no													
6/20/2003		19.96	166.81	no	<0.50	<0.50	<0.50	<0.50	58.2	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	6.3
9/15/2003		20.12	166.65	no													
12/22/2003		20.43	166.34	no	<0.50	<0.50	<0.50	<0.50	<50.0	1.3	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/24/2004		19.9	166.87	no													
6/23/2004		20.27	166.5	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	6.8
9/22/2004 (q)		N/A	N/A	no													
12/29/2004		20.36	166.41	no	<0.50	<0.50	<0.50	<0.50	<50.0	0.7	<0.50	<0.50	<0.50	<10.0	<100		
3/23/2005		17.95	168.82	no													
6/23/2005		17.5	169.27	no	<0.50	<0.50	<0.50	0.8	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	5.4
9/15/2005		18.45	168.32	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
10/17/2005				no	WELL DESTROYED												
Field Point	**MW06**		***Well Screen Interval (feet):***		**29-59**		***Well Zone:***		***Shallow Zone***								
1/18/1991		40.73	146.44	no	1	1	ND	2	ND								
4/23/1991		41.8	145.37	no	1.6	2.2	ND	1.8	ND								
7/25/1991		42.02	145.15	no	1.1	2.4	ND	3.2	ND								
10/25/1991		42.52	144.65	no	1.4	3	1.2	4.1	ND								
1/24/1992		42.84	144.33	no	ND	ND	ND	ND	ND								
3/19/1992		42.8	144.37	no													
6/1/1992		42.59	144.58	no	0.6	ND	ND	ND	ND								
8/31/1992		42.96	144.21	no	ND	ND	ND	ND	ND								
11/30/1992		43.22	143.95	no	ND	ND	ND	ND	ND								
2/24/1993		42.51	144.66	no	ND	ND	ND	ND	ND								
5/27/1993		41.04	146.13	no	ND	ND	ND	ND	ND								
8/25/1993		40.35	146.82	no	ND	ND	ND	ND	ND								
11/19/1993		40.32	146.85	no	ND	ND	ND	ND	ND								
2/7/1994		40.26	146.91	no	ND	ND	ND	ND	ND								
5/31/1994		39.6	147.57	no	ND	ND	ND	ND	ND								
9/14/1994		42.52	144.65	no	ND	ND	ND	ND	ND								
12/22/1994		42.74	144.43	no	ND	ND	ND	ND	ND								
2/20/1995		43.41	143.76	no	ND	ND	ND	ND	ND								
4/20/1995		40.71	146.46	no	ND	ND	ND	ND	ND								
7/27/1995		40.21	146.96	no	ND	ND	ND	ND	ND								
11/9/1995		39.95	147.22	no	ND	ND	ND	ND	ND								
1/4/1996		38.93	148.24	no	ND	ND	ND	ND	ND								
4/3/1996		37.65	149.52	no	ND	ND	ND	ND	ND								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
9/17/1996		35.6	151.57	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		35.44	151.73	no	ND	ND	ND	ND	ND	ND (i)							
2/11/1997		34.25	152.92	no	ND	ND	ND	ND	ND	ND (i)							
9/25/1997		32	155.17	no	ND	ND	ND	ND	ND	ND (i)							
2/12/1998		30.4	156.77	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
10/22/1998		26.45	160.72	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
1/6/1999		25.95	161.22	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
8/5/1999		25.36	161.81	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
2/9/2000		25.46	161.71	no	<0.30	<0.30	<0.30	<0.60	<50	<10 (i)							
7/24/2000		32.25	154.92	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
1/25/2001		24.51	162.66	no	<0.30	<0.30	0.38	<0.60	<20	3.2							
7/25/2001		21.59	165.58	no	<1	<1	<1	<1	<50	2	<1	<1	<1	<10			
1/8/2002		21.42	165.75	no	<1	<1	<1	<1	77	3	<1	<1	<1	<10			
6/25/2002		21.53	165.64	no													
9/18/2002 (o)		20.9	166.45	no	<0.50	<0.50	<0.50	<0.50	<50.0	2.09	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
12/10/2002		21.45	165.9	no													
3/17/2003		20.75	166.6	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		20.54	166.81	no													
9/16/2003		20.62	166.73	no	<0.50	<0.50	<0.50	<0.50	<50.0	1.3	<0.50	<0.50	<0.50	657		<0.50	<0.50
12/22/2003		20.97	166.38	no													
3/24/2004		20.36	166.99	no	0.7	5.1	<0.50	2	<50.0	1.3	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		20.63	166.72	no													
9/22/2004 (q)		N/A	N/A	no													
12/28/2004		20.92	166.43	no													
3/24/2005		15.8	171.55	no	<0.50	<0.50	<0.50	<0.50	<50.0	2.5	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
6/22/2005		17.9	169.45	no													
9/15/2005		18.84	168.51	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<100	<0.500	<0.500
11/21/2005		19.85	167.5	no													
2/23/2006		19.47	167.88	no	<0.50	<1.0	<1.0	<2.0	<100	2.3	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		18.05	169.3	no													
8/24/2006		19.4	167.95	no	<0.50	<1.0	<1.0	<1.0	<100	2.1	<2.0	<2.0	<2.0	<10	<100	<1.0	1.4
12/11/2006		19.97	167.38	no													
3/22/2007		19.35	168	no	<0.50	<1.0	<1.0	<1.0	<100	2.9	<2.0	<2.0	<2.0	<10	<100	<1.0	2.2
5/29/2007		20.38	166.97	no													
8/27/2007	187.35	21.7	165.65	no	<0.50	<1.0	<1.0	<1.0	110	3.8	<2.0	<2.0	<2.0	<10	<100	<1.0	0.95
12/5/2007	187.35	23.39	163.96	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/25/2008	187.35	21.22	166.13	no	0.33 J	0.31 J	0.24 J	<1.0	53 J	1.8	<2.0	<2.0	<2.0	<10		<1.0	3.0
5/15/2008	187.35	21.69	165.66	no	GAUGE ONLY												
8/14/2008	187.35	23.43	163.92	no	<0.50	<1.0	<1.0	<1.0	<100	1.8	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008	187.35	25.06	162.29	no	GAUGE ONLY												
2/19/2009	187.35	24.86	162.49	no	<0.50	<0.50	<0.50	<0.50	<50	1.5	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/20/2009	187.35	25.48	161.87	no	GAUGE ONLY												
8/19/2009	187.35	27.58	159.77	no	<0.50	<0.50	<0.50	<0.50	<50	1.4	<0.50	<0.50	<0.50	<10		<0.50	0.21 J
11/5/2009	187.35	27.59	159.76	no	GAUGE ONLY												
3/3/2010	187.35	26.56	160.79	no	<0.50	<0.50	<0.50	<0.50	<50	0.60	<0.50	<0.50	<0.50	<10		<0.50	0.19 J
8/24/2010	187.35	28.17	159.18	no	<0.50	<0.50	<0.50	0.086 J	<50	0.84	<0.50	<0.50	<0.50	<10		<0.50	1.2
2/9/2011	187.35	28.24	159.11	no	0.33 J	<0.50	0.088 J	0.34 J	<50	0.64	<0.50	<0.50	<0.50	6.7 J	<50	<0.50	0.57
8/10/2011	187.35	26.94	160.41	no	<0.50	<0.50	0.065 J	0.099 J	<50	0.61	<0.50	<0.50	<0.50	<10		<0.50	2.0
2/13/2012	187.35	28.35	159.00	no	<0.50	<0.50	0.060 J	0.14 J	<50	0.92	<0.50	<0.50	<0.50	<10	<50	<0.50	0.33 J
8/13/2012	187.35	29.64	157.71	no	<0.500	<0.500	<0.500	0.304 J	<50.0	1.06	<1.00	<1.00	<1.00	<10.0		<0.500	0.782

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
Field Point	**MW07**		***Well Screen Interval (feet):***		**29-59**		***Well Zone:***	***Shallow Zone***									
7/25/1991		40.76	145.99	no	2	11	0.86	6.3	89								
10/25/1991		41.47	145.28	no	2	2.7	0.9	2.8	170								
1/24/1992		41.88	144.87	no	ND	0.3	ND	14	110								
3/19/1992		41.91	144.84	no													
6/1/1992		41.76	144.99	no	ND	ND	ND	ND	65								
8/31/1992		42.16	144.59	no	ND	ND	0.6	ND	65								
11/30/1992		42.28	144.47	no	ND	0.4	0.4	0.6	50								
2/24/1993		41.62	145.13	no	ND	ND	ND	ND	ND								
5/27/1993		40.23	146.52	no	ND	ND	ND	ND	ND								
8/25/1993		39.55	147.2	no	ND	ND	ND	ND	ND								
11/19/1993		39.51	147.24	no	ND	ND	ND	ND	ND								
2/7/1994		39.65	147.1	no	ND	ND	ND	ND	ND								
5/31/1994		38.87	147.88	no	ND	ND	ND	ND	ND								
9/14/1994		41.28	145.47	no	ND	ND	ND	ND	ND								
12/22/1994		42.09	144.66	no	ND	ND	ND	ND	ND								
2/20/1995		42.3	144.45	no	ND	ND	ND	ND	ND								
4/20/1995		40.22	146.53	no	ND	ND	ND	ND	ND								
7/27/1995		38.65	148.1	no	ND	ND	ND	ND	ND								
11/9/1995		39.51	147.24	no	ND	ND	ND	ND	ND								
1/4/1996		38.58	148.17	no	ND	ND	ND	ND	ND								
4/3/1996		37.27	149.48	no	ND	ND	ND	ND	ND								
9/17/1996		35.2	151.55	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		35.03	151.72	no	ND	ND	ND	ND	ND	ND (i)							
2/11/1997		33.81	152.94	no	ND	ND	ND	ND	ND	ND (i)							

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CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
9/25/1997		31.3	155.45	no	ND	ND	ND	ND	ND	ND (i)							
2/12/1998		30.81	155.94	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
10/22/1998 (j)		N/A	N/A	no													
1/6/1999		25.55	161.2	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
8/5/1999		24.91	161.84	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
2/9/2000		24.94	161.81	no	<0.30	<0.30	<0.30	<0.60	<50	<10 (i)							
7/24/2000		22.65	164.1	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
1/25/2001		24.11	162.64	no	<0.30	<0.30	<0.30	<0.60	<20	<1.0 (i)							
7/25/2001		21	165.75	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/8/2002		20.87	165.88	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		20.98	165.77	no													
9/18/2002 (o)		21.43	165.53	no													
12/10/2002		20.4	166.56	no													
3/17/2003		20.21	166.75	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		19.94	167.02	no													
9/15/2003		19.88	167.08	no													
12/22/2003		20.37	166.59	no													
3/24/2004		19.71	167.25	no	1.1	6.4	0.8	2.6	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		20.18	166.78	no													
9/22/2004		20.75	166.21	no													
12/28/2004		20.11	166.85	no													
3/23/2005		17.6	169.36	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		17.25	169.71	no													
9/15/2005		18.62	168.34	no													
11/21/2005		19.2	167.76	no													

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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/24/2006		18.91	168.05	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		17.42	169.54	no													
8/24/2006		18.8	168.16	no													
11/27/2006		19.13	167.83	no													
12/11/2006		19.44	167.52	no													
3/22/2007		18.79	168.17	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/29/2007		19.77	167.19	no													
8/27/2007	186.96	21	165.96	no													
12/5/2007	186.96	22.23	164.73	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/26/2008	186.96	20.59	166.37	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	186.96	21.17	165.79	no	GAUGE ONLY												
8/13/2008	186.96	22.86	164.10	no	GAUGE ONLY 8-13-08												
11/6/2008	186.96	24.43	162.53	no	GAUGE ONLY												
2/18/2009	186.96	24.44	162.52	no	<0.50	<0.50	<0.50	<0.50	<50	0.20 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/20/2009	186.96	24.89	162.07	no	GAUGE ONLY												
8/19/2009	186.96	26.19	160.77	no	GAUGE ONLY												
11/5/2009	186.96	26.92	160.04	no	GAUGE ONLY												
3/3/2010	186.96	26.01	160.95	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	186.96	27.51	159.45	no	GAUGE ONLY												
2/9/2011	186.96	27.58	159.38	no	<0.50	<0.50	0.070 J	0.25 J	<50	0.23 J	<0.50	<0.50	<0.50	5.6 J	<50	<0.50	<0.50
8/10/2011	186.96	26.35	160.61	no	GAUGE ONLY												
2/13/2012	186.96	27.74	159.22	no	0.98	0.29 J	0.29 J	0.62	<50	0.37 J	<0.50	<0.50	<0.50	<10	<50	<0.50	0.085 J
8/14/2012	186.96	28.98	157.98	no	GAUGE ONLY												
Field Point	**MW08**		***Well Screen Interval (feet):***		**28-58**		***Well Zone:***		***Shallow Zone***								
7/25/1991		38.8	148.5	no	5.3	200	4.2	31	1,400								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
10/25/1991		39.88	147.42	no	16	26	7.6	25	190								
1/24/1992		40.68	146.62	no	ND	ND	ND	ND	ND								
3/19/1992		40.89	146.41	no													
6/1/1992		40.86	146.44	no	ND	0.4	0.5	8.2	56								
8/31/1992		41.36	145.94	no	ND	ND	ND	2.4	ND								
11/30/1992		41.57	145.73	no	ND	ND	ND	ND	ND								
2/24/1993		40.8	146.5	no	ND	ND	ND	ND	ND								
5/27/1993		39.51	147.79	no	ND	ND	ND	ND	ND								
8/25/1993		38.97	148.33	no	ND	ND	ND	ND	ND								
11/19/1993		38.99	148.31	no	ND	ND	ND	ND	ND								
2/7/1994		38.4	148.9	no	ND	ND	ND	ND	ND								
5/31/1994		38.49	148.81	no	0.3	0.68	ND	0.69	ND								
9/14/1994		40.92	146.38	no	ND	ND	ND	ND	ND								
12/22/1994		41.9	145.4	no	ND	ND	ND	ND	ND								
2/20/1995		41.69	145.61	no	ND	ND	ND	ND	ND								
4/20/1995		40.08	147.22	no	ND	ND	ND	ND	ND								
7/27/1995		38.7	148.6	no	ND	ND	ND	ND	ND								
11/9/1995		39.61	147.69	no	ND	ND	ND	ND	ND								
1/4/1996		39.22	148.08	no	ND	ND	ND	ND	ND								
4/3/1996		37.94	149.36	no	ND	ND	ND	ND	ND								
9/17/1996 (e)		36.03	151.27	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		35.6	151.7	no	ND	ND	ND	ND	ND	ND (i)							
2/11/1997		34.31	152.99	no	ND	ND	ND	ND	ND	ND (i)							
9/25/1997		30.6	157.01	no	ND	ND	ND	ND	ND	ND (i)							
2/12/1998		28.76	158.85	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
10/22/1998		26.63	160.98	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
1/6/1999		26.36	161.25	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
8/5/1999		25.56	162.05	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
2/9/2000		25.34	162.27	no	<0.30	<0.30	<0.30	<0.60	<50	<10 (i)							
7/24/2000		23.31	164.3	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
1/25/2001		23.81	163.8	no	<0.30	<0.30	<0.30	<0.60	<20	<1.0 (i)							
7/25/2001		21.85	165.76	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/8/2002		21.42	166.19	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		21.71	165.9	no													
9/18/2002 (o)		22.09	165.45	no													
12/10/2002 (p)		N/A	N/A	no													
3/17/2003		20.66	166.88	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		20.38	167.16	no													
9/15/2003		20.27	167.27	no													
12/22/2003		20.51	167.03	no													
3/25/2004		20.25	167.29	no	1	8.6	0.7	3.3	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		20.52	167.02	no													
9/22/2004		21.72	165.82	no													
12/28/2004		20.22	167.32	no													
3/23/2005		16.92	170.62	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		17.94	169.6	no													
9/15/2005		18.64	168.9	no													
11/21/2005		19.17	168.37	no													
2/24/2006		19.03	168.51	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	0.52
5/25/2006		17.7	169.84	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
8/24/2006		19.05	168.49	no													
12/11/2006		19.96	167.58	no													
3/21/2007		19.4	168.14	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	0.27J
5/29/2007		20.11	167.43	no													
8/28/2007	187.54	20.55	166.99	no	<0.50	<1.0	<1.0	<1.0	61J	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/5/2007	187.54			no	INACCESSIBLE - CITY MORATORIUM FOR SAMPLING STREET WELLS												
2/26/2008	187.54	22.05	165.49	no	<0.50	<1.0	0.42 J	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	187.54	21.36	166.18	no	GAUGE ONLY												
8/13/2008	187.54	23.78	163.76	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008	187.54	24.21	163.33	no	GAUGE ONLY												
2/18/2009	187.54	24.14	163.40	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/21/2009	187.54	25.04	162.50	no	GAUGE ONLY												
8/20/2009	187.54	25.96	161.58	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	0.090 J
11/5/2009	187.54	26.68	160.86	no	GAUGE ONLY												
3/4/2010	187.54	25.74	161.80	no	<0.50	<0.50	0.17 J	0.49 J	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	187.54	27.32	160.22	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/10/2011	187.54	27.41	160.13	no	<0.50	<0.50	0.061 J	0.31 J	<50	<0.50	<0.50	<0.50	<0.50	6.5 J	<50	<0.50	<0.50
8/11/2011	187.54	26.50	161.04	no	0.47 J	0.28 J	0.33 J	1.2	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	0.083 J
2/14/2012	187.54	27.90	159.64	no	<0.50	<0.50	<0.50	<0.50	<50	0.25 J	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/14/2012	187.54	28.94	158.60	no	<0.500	<0.500	<0.500	<0.500	<50.0	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
Field Point	**MW09**		***Well Screen Interval (feet):***	**30-60**		***Well Zone:***	***Shallow Zone***										
3/19/1992		42.8	144.19	no	ND	0.5	ND	0.7	ND								
6/1/1992		42.6	144.39	no	12	0.8	ND	3	58								
8/31/1992		42.97	144.02	no	42	2.8	2.3	8.3	180								
11/30/1992		43.2	143.79	no	20	1.5	2	1.2	60								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/24/1993		42.59	144.4	no	8	0.5	0.3	ND	ND								
5/28/1993		41.4	145.59	no	18	0.96	ND	ND	60								
8/25/1993		40.38	146.61	no	ND	ND	ND	ND	ND								
11/19/1993		40.46	146.53	no	ND	ND	ND	ND	ND								
2/7/1994		40.25	146.74	no	ND	ND	ND	ND	ND								
5/31/1994		39.86	147.13	no	ND	ND	ND	ND	ND								
9/14/1994		42.2	144.79	no	ND	ND	ND	ND	ND								
12/22/1994		43.39	143.6	no	ND	ND	ND	ND	ND								
2/20/1995		42.84	144.15	no	ND	ND	ND	ND	ND								
4/20/1995		40.54	146.45	no	ND	ND	ND	ND	ND								
7/27/1995		40	146.99	no	ND	ND	ND	ND	ND								
11/10/1995		40.74	146.25	no	ND	ND	ND	ND	ND								
1/5/1996		39.02	147.97	no	ND	ND	ND	ND	ND								
4/3/1996		37.89	149.1	no	ND	ND	ND	ND	ND								
9/17/1996 (e)		35.47	151.52	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		35.35	151.64	no	1.3	ND	ND	ND	ND	ND (i)							
2/11/1997		34.14	152.85	no	17	ND	ND	ND	62	ND (i)							
9/25/1997		31.5	155.43	no	ND	ND	ND	ND	ND	ND (i)							
2/12/1998		30.11	156.82	no	19	0.8	1	<0.6	150	<10 (i)							
10/22/1998		26.6	160.33	no	150	13	36	4.2	890	<10 (i)							
1/6/1999		26.53	160.4	no	24	7.3	5.9	5.6	270	<10 (i)							
8/5/1999		25.34	161.59	no	41	32	21	27	670	<10 (i)							
2/9/2000		25.11	161.82	no	<50	<5.0	5.9	6.9	540	<10 (i)							
7/24/2000		22.95	163.98	no	24	5	3	9	390	<5	<1	<1	<1	<20			
1/25/2001		24.15	162.78	no	<0.30	<0.30	<0.30	<0.60	<20	<1.0 (i)							

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
7/25/2001 (n)		N/A	N/A	no													
1/7/2002 (n)		N/A	N/A	no													
6/25/2002 (n)		N/A	N/A	no													
12/10/2002 (p)		N/A	N/A	no													
3/17/2003 (n)		N/A	N/A	no													
6/19/2003 (n)		N/A	N/A	no													
9/15/2003 (n)		N/A	N/A	no													
12/22/2003 (n)		N/A	N/A	no													
3/24/2004 (n)		N/A	N/A	no													
6/23/2004 (n)		N/A	N/A	no													
9/22/2004 (n)		N/A	N/A	no													
12/28/2004 (o)		N/A	N/A	no													
3/23/2005 (n)		N/A	N/A	no													
6/22/2005 (n)		N/A	N/A	no													
9/15/2005 (n)		N/A	N/A	no													
11/21/2005 (n)		N/A	N/A	no													
2/23/2006 (n)		N/A	N/A	no													
5/25/2006 (n)		N/A	N/A	no													
8/24/2006 (n)		N/A	N/A	no													
12/11/2006 (n)		N/A	N/A	no													
3/21/2007 (f)		N/A	N/A	no													
5/29/2007		20.31	166.62	no													
8/28/2007	186.93	21.7	165.23	no	7.3	0.74J	0.44J	1.5	550	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	1.8
12/5/2007	186.93			no	INACCESSIBLE - CITY MORATORIUM FOR SAMPLING STREET WELLS												
2/27/2008	186.93	21.03	165.90	no	0.82	<1.0	<1.0	<1.0	350	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
5/15/2008	186.93	21.62	165.31	no	GAUGE ONLY												
8/13/2008	186.93	23.42	163.51	no	1.3	<1.0	<1.0	<1.0	320	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008	186.93	24.99	161.94	no	GAUGE ONLY												
2/18/2009	186.93	24.84	162.09	no	<0.50	<0.50	<0.50	<0.50	400	<0.50	<0.50	<0.50	<0.50	2.9 J		<0.50	<0.50
5/21/2009	186.93	25.36	161.57	no	GAUGE ONLY												
8/20/2009	186.93	27.59	159.34	no	1.7	<0.50	0.11 J	0.33 J	530	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
11/5/2009	186.93	27.32	159.61	no	GAUGE ONLY												
3/4/2010	186.93	26.47	160.46	no	<0.50	<0.50	0.076 J	0.20 J	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	186.93	28.08	158.85	no	<0.50	<0.50	<0.50	0.22 J	410	<0.50	<0.50	<0.50	<0.50	<10		<0.50	0.19 J
2/10/2011	186.93	28.09	158.84	no	0.22 J	<0.50	0.11 J	0.41 J	400	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/11/2011	186.93	26.91	160.02	no	0.59	<0.50	0.17 J	0.72	350	<0.50	<0.50	<0.50	<0.50	4.5 J		<0.50	1.7
2/14/2012	186.93	28.22	158.71	no	1.9	0.29 J	0.17 J	0.39 J	630	<0.50	<0.50	<0.50	<0.50	10	<50	<0.50	0.48 J
8/14/2012	186.93	29.48	157.45	no	0.402 J	<0.500	<0.500	0.431 J	602	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	0.388 J
Field Point	**MW10**		***Well Screen Interval (feet):***		**30-60**		***Well Zone:***	***Shallow Zone***									
3/19/1992		41.8	143.6	no	ND	0.7	ND	ND	ND								
6/1/1992		41.12	144.28	no	ND	ND	0.9	ND	ND								
8/31/1992		41.4	144	no	ND	ND	ND	ND	ND								
11/30/1992		41.78	143.62	no	ND	ND	ND	ND	ND								
2/24/1993		40.96	144.44	no	ND	ND	ND	ND	ND								
5/28/1993		39.5	145.9	no	ND	ND	ND	ND	ND								
8/25/1993		38.9	146.5	no	ND	ND	ND	ND	ND								
11/19/1993		38.86	146.54	no	ND	ND	ND	ND	ND								
2/7/1994		38.76	146.64	no	ND	ND	ND	ND	ND								
5/31/1994		38.1	147.3	no	ND	ND	ND	ND	ND								
9/14/1994		40.96	144.44	no	ND	ND	ND	ND	ND								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
12/22/1994		41.25	144.15	no	ND	ND	ND	ND	ND								
2/20/1995		41.77	143.63	no	ND	ND	ND	ND	ND								
4/20/1995		39.3	146.1	no	ND	ND	ND	ND	ND								
7/27/1995		38.24	147.16	no	ND	ND	ND	ND	ND								
11/9/1995		38.35	147.05	no	ND	ND	ND	ND	ND								
1/4/1996		37.53	147.87	no	ND	ND	ND	ND	ND								
4/3/1996		36.12	149.28	no	ND	ND	ND	ND	ND								
12/10/2002 (p)		N/A	N/A	no													
3/18/2003		19.28	166.12	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		18.9	166.5	no													
9/15/2003		19.05	166.35	no													
12/22/2003		19.39	166.01	no													
3/25/2004		18.77	166.63	no	<0.50	2.6	<0.50	1.1	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		19.22	166.18	no													
9/22/2004		20.92	164.48	no													
12/28/2004		19.49	165.91	no													
3/23/2005		11.92	173.48	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	501	<0.50	<0.50
6/22/2005		16.47	168.93	no													
9/15/2005		17.61	167.79	no													
11/21/2005		18.6	166.8	no													
2/24/2006		18.01	167.39	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		16.7	168.7	no													
8/24/2006		18.05	167.35	no													
12/11/2006		18.29	167.11	no													
3/21/2007		17.9	167.5	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
5/29/2007		18.95	166.45	no													
8/28/2007	185.40	20.3	165.1	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/5/2007	185.40			no	INACCESSIBLE - CITY MORATORIUM FOR SAMPLING STREET WELLS												
2/26/2008	185.40	23.35	162.05	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	185.40	20.24	165.16	no	GAUGE ONLY												
8/13/2008	185.40	21.98	163.42	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008	185.40	23.61	161.79	no	GAUGE ONLY												
2/18/2009	185.40	23.44	161.96	no	<0.50	<0.50	<0.50	<0.50	<50	0.14 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/21/2009	185.40	23.98	161.42	no	GAUGE ONLY												
8/20/2009	185.40	26.18	159.22	no	<0.50	<0.50	0.16 J	0.64	<50	0.15 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
11/5/2009	185.40	45.94	139.46	no	GAUGE ONLY												
3/4/2010	185.40	24.97	160.43	no	<0.50	<0.50	0.11 J	0.34 J	<50	0.18 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	185.40	26.69	158.71	no	<0.50	<0.50	<0.50	<0.50	<50	0.15 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/10/2011	185.40	29.48	155.92	no	<0.50	<0.50	0.14 J	0.74	<50	0.14 J	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/11/2011	185.40	25.50	159.90	no	2.4	1.7	2.8	10	94	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/14/2012	185.40	26.81	158.59	no	<0.50	<0.50	<0.50	<0.50	<50	0.20 J	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/14/2012	185.40	28.10	157.30	no	<0.500	<0.500	<0.500	<0.500	<50.0	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
Field Point	**MW11**		***Well Screen Interval (feet):***	**30-59.8**		***Well Zone:***	***Shallow Zone***										
3/19/1992		42.62	146.49	no	ND	ND	ND	ND	ND								
6/1/1992		42.66	146.45	no	ND	ND	ND	ND	ND								
8/31/1992		43.17	145.94	no	ND	ND	ND	ND	ND								
11/30/1992		43.36	145.75	no	ND	ND	ND	ND	ND								
2/24/1993		42.54	146.57	no	ND	ND	ND	ND	ND								
5/27/1993		41.1	148.01	no	ND	ND	ND	ND	ND								
8/25/1993		40.76	148.35	no	ND	ND	ND	ND	ND								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
11/19/1993		40.83	148.28	no	ND	ND	ND	ND	ND								
2/7/1994		40.31	148.8	no	ND	ND	ND	ND	ND								
5/31/1994		40.34	148.77	no	ND	ND	ND	ND	ND								
9/14/1994		42.39	146.72	no	ND	ND	ND	ND	ND								
12/22/1994		43.64	145.47	no	ND	ND	ND	ND	ND								
2/20/1995		43.09	146.02	no	ND	ND	ND	ND	ND								
4/20/1995		41.7	147.41	no	ND	ND	ND	ND	ND								
7/27/1995		40.2	148.91	no	ND	ND	ND	ND	ND								
11/9/1995		41.25	147.86	no	ND	ND	ND	ND	ND								
1/4/1996		40.7	148.41	no	ND	ND	ND	ND	ND								
4/3/1996		39.46	149.65	no	ND	ND	ND	ND	ND								
9/17/1996 (e)		37.68	151.43	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		37.35	151.76	no	ND	ND	ND	ND	ND	ND (i)							
2/11/1997		36.05	153.06	no	ND	ND	ND	ND	ND	ND (i)							
9/25/1997		32.2	157.09	no	ND	ND	ND	0.9	ND	15 (i)							
2/12/1998		31.08	158.21	no	<0.3	<0.3	< 0.3	<0.6	<50	<10 (i)							
10/22/1998		28.9	160.39	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
1/6/1999		28.27	161.02	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
8/5/1999		27.48	161.81	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
2/9/2000		27.3	161.99	no	<0.30	<0.30	<0.30	<0.60	<50	<10 (i)							
7/24/2000		25.39	163.9	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
1/25/2001		25.84	163.45	no	<0.30	<0.30	<0.30	<0.60	<20	<1.0 (i)							
7/25/2001		23.82	165.47	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/8/2002		23.51	165.78	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		23.59	165.7	no													

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100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
9/18/2002 (o)		24.05	165.16	no													
12/10/2002 (p)		N/A	N/A	no													
3/17/2003		22.72	166.49	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		22.37	166.84	no													
9/15/2003		22.09	167.12	no													
12/22/2003		22.4	166.81	no													
3/25/2004		21.95	167.26	no	0.7	5.4	0.6	2	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		22.3	166.91	no													
9/22/2004		22.8	166.41	no													
12/28/2004		21.81	167.4	no													
3/23/2005		30.25	158.96	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		19.62	169.59	no													
9/15/2005		20.39	168.82	no													
11/21/2005		21.22	167.99	no													
2/24/2006		21.03	168.18	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		19.7	169.51	no													
8/24/2006		21	168.21	no													
12/11/2006		21.79	167.42	no													
3/21/2007		21.28	167.93	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	1.1
5/29/2007		21.97	167.24	no													
8/28/2007		22.45	166.76	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/5/2007	189.21			no	INACCESSIBLE - CITY MORATORIUM FOR SAMPLING STREET WELLS												
2/26/2008	189.21	23.79	165.42	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	189.21	23.37	165.84	no	GAUGE ONLY												
8/13/2008	189.21	24.86	164.35	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50

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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
11/6/2008	189.21	26.29	162.92	no	GAUGE ONLY												
2/18/2009	189.21	26.18	163.03	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/21/2009	189.21	27.08	162.13	no	GAUGE ONLY												
8/20/2009	189.21	28.18	161.03	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
11/5/2009	189.21	28.74	160.47	no	GAUGE ONLY												
3/4/2010	189.21	27.87	161.34	no	<0.50	<0.50	0.15 J	0.43 J	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	189.21	29.40	159.81	no	<0.50	<0.50	<0.50	0.18 J	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/10/2011	189.21	29.48	159.73	no	<0.50	<0.50	<0.50	0.087 J	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/11/2011	189.21	28.52	160.69	no	0.43 J	0.28 J	0.42 J	1.5	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	0.076 J
2/14/2012	189.21	29.95	159.26	no	<0.50	<0.50	<0.50	0.082 J	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/14/2012	189.21	31.02	158.19	no	<0.500	<0.500	<0.500	<0.500	<50.0	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	0.712
Field Point	**MW12**		***Well Screen Interval (feet):***	**65-85**		***Well Zone:***	***Upper Zone***										
10/16/1992		44.18	143.54	no	ND	0.3	ND	ND	ND								
11/30/1992		44.36	143.36	no													
2/24/1993		43.58	144.14	no	ND	ND	ND	ND	ND								
5/27/1993		42.06	145.66	no	ND	ND	ND	ND	ND								
8/25/1993		41.44	146.28	no	ND	ND	ND	ND	ND								
11/19/1993		41.41	146.31	no	ND	ND	ND	ND	ND								
2/7/1994		41.81	145.91	no	ND	ND	ND	ND	ND								
5/31/1994		40.73	146.99	no	ND	ND	ND	ND	ND								
9/14/1994		43.39	144.33	no	ND	ND	ND	ND	ND								
12/22/1994		44.25	143.47	no	ND	ND	ND	ND	ND								
2/20/1995		43.88	143.84	no	ND	ND	ND	ND	ND								
4/20/1995		41.61	146.11	no	ND	ND	ND	ND	ND								
7/27/1995		40.77	146.95	no	ND	ND	ND	ND	ND								

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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
11/9/1995		40.71	147.01	no	ND	ND	ND	ND	ND								
1/5/1996		39.94	147.78	no	ND	ND	ND	ND	ND								
4/3/1996		38.61	149.11	no	ND	ND	ND	ND	ND								
12/10/2002 (p)		N/A	N/A	no													
3/17/2003		20.2	167.52	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		21	166.72	no	<0.50	<0.50	<0.50	1.9	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/15/2003		21.14	166.58	no													
12/22/2003		21.5	166.22	no	<0.50	0.8	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/25/2004		20.85	166.87	no	1.9	17.5	1.5	7.5	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/24/2004		21.2	166.52	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0			
9/22/2004		21.7	166.02	no													
12/29/2004		21.34	166.38	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100		
3/23/2005		19.63	168.09	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		18.4	169.32	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/15/2005		19.83	167.89	no													
11/21/2005		20.7	167.02	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<50.0	<0.500	<0.500
2/24/2006		20.09	167.63	no	<0.50	0.56J	0.32J	1.76J	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/26/2006		18.69	169.03	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/24/2006		20.1	167.62	no													
11/27/2006		20.2	167.52	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/11/2006		20.52	167.2	no													
3/21/2007		19.95	167.77	no													
5/29/2007		21.05	166.67	no													
8/28/2007	187.72	22.45	165.27	no													
12/5/2007	187.72			no	INACCESSIBLE - CITY MORATORIUM FOR SAMPLING STREET WELLS												

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/26/2008	187.72	21.97	165.75	no	<0.50	<1.0	<1.0	0.68 J	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	187.72	22.34	165.38	no	GAUGE ONLY												
8/13/2008	187.72	24.11	163.61	no	GAUGE ONLY 8-13-08												
11/6/2008	187.72	25.73	161.99	no	GAUGE ONLY												
2/19/2009	187.72	25.63	162.09	no	<0.50	<0.50	<0.50	<0.50	<50	0.093 J	<0.50	<0.50	<0.50	2.9 J		<0.50	<0.50
5/21/2009	187.72	28.08	159.64	no	GAUGE ONLY												
8/20/2009	187.72	27.69	160.03	no	GAUGE ONLY												
11/5/2009	187.72	28.08	159.64	no	GAUGE ONLY												
3/4/2010	187.72	27.18	160.54	no	<0.50	<0.50	<0.50	0.12 J	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	187.72	28.88	158.84	no	GAUGE ONLY												
2/10/2011	187.72	29.82	157.90	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/11/2011	187.72	27.65	160.07	no	GAUGE ONLY												
2/14/2012	187.72	28.92	158.80	no	<0.50	<0.50	0.062 J	0.38 J	<50	0.83	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/14/2012	187.72	30.20	157.52	no	GAUGE ONLY												
Field Point	**MW13**		***Well Screen Interval (feet):***	**70-90**		***Well Zone:***	***Upper Zone***										
10/16/1992		44.04	142.91	no	ND	0.3	ND	ND	ND								
11/30/1992		44.04	142.91	no													
2/24/1993		43.82	143.13	no	ND	ND	ND	ND	ND								
5/27/1993		42.13	144.82	no	ND	ND	ND	ND	ND								
8/25/1993		41.49	145.46	no	ND	ND	ND	ND	ND								
11/19/1993		41.41	145.54	no	ND	ND	ND	ND	ND								
2/7/1994		41.22	145.73	no	ND	ND	ND	ND	ND								
5/31/1994		40.71	146.24	no	ND	ND	ND	ND	ND								
9/14/1994		42.25	144.7	no	ND	ND	ND	ND	ND								
12/22/1994		43	143.95	no	ND	ND	ND	ND	ND								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/20/1995		42.49	144.46	no	ND	ND	ND	ND	ND								
4/20/1995		40.76	146.19	no	ND	ND	ND	ND	ND								
7/27/1995		39.48	147.47	no	ND	ND	ND	ND	ND								
11/10/1995		39.73	147.22	no	ND	ND	ND	ND	ND								
1/4/1996		39.28	147.67	no	ND	ND	ND	ND	ND								
4/3/1996		38	148.95	no	ND	ND	ND	ND	ND								
1/6/1999 (j)		N/A	N/A	no													
12/10/2002 (p)		N/A	N/A	no													
3/17/2003		22.05	164.9	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		21.4	165.55	no	<0.50	0.7	<0.50	3	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	0.9
9/15/2003		21.6	165.35	no													
12/22/2003		21.9	165.05	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/25/2004		21.14	165.81	no	1.5	13.7	1.2	5.5	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/24/2004		21.55	165.4	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0			
9/22/2004		22.21	164.74	no													
12/29/2004		21.87	165.08	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100		
3/23/2005		69.5	117.45	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		18.77	168.18	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	1.8
9/15/2005		20.09	166.86	no													
11/21/2005		21.38	165.57	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<50.0	<0.500	<0.500
2/24/2006		20.72	166.23	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	2.7
5/26/2006		18.69	168.26	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/24/2006		25.5	161.45	no													
11/27/2006		25.62	161.33	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/11/2006		20.85	166.1	no													

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/21/2007		20.23	166.72	no													
5/29/2007		21.5	165.45	no													
8/28/2007	186.95	23.2	163.75	no													
12/5/2007	186.95			no	INACCESSIBLE - CITY MORATORIUM FOR SAMPLING STREET WELLS												
2/26/2008	186.95	26.56	160.39	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	2.5
5/15/2008	186.95	23.19	163.76	no	GAUGE ONLY												
8/13/2008	186.95	24.98	161.97	no	GAUGE ONLY 8-13-08												
11/6/2008	186.95	26.74	160.21	no	GAUGE ONLY												
2/19/2009	186.95	26.53	160.42	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/21/2009	186.95	26.89	160.06	no	GAUGE ONLY												
8/20/2009	186.95	26.24	160.71	no	GAUGE ONLY												
11/5/2009	186.95	29.06	157.89	no	GAUGE ONLY												
3/4/2010	186.95	28.12	158.83	no	<0.50	<0.50	0.054 J	0.19 J	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	186.95	29.92	157.03	no	GAUGE ONLY												
2/10/2011	186.95	30.11	156.84	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/11/2011	186.95	28.53	158.42	no	GAUGE ONLY												
2/14/2012	186.95	29.76	157.19	no	<0.50	<0.50	<0.50	0.30 J	<50	<0.50	<0.50	<0.50	<0.50	44	<50	<0.50	0.34 J
8/14/2012	186.95	31.05	155.90	no	GAUGE ONLY												
Field Point	**MW14**		***Well Screen Interval (feet):***	**70-90**		***Well Zone:***	***Upper Zone***										
10/16/1992		42.5	144.17	no	ND	0.3	ND	ND	ND								
11/30/1992		42.7	143.97	no													
2/24/1993		42.06	144.61	no	ND	ND	ND	ND	ND								
5/27/1993		40.53	146.14	no	ND	ND	ND	ND	ND								
8/25/1993		39.81	146.86	no	ND	ND	ND	ND	ND								
11/19/1993		39.75	146.92	no	ND	ND	ND	ND	ND								

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CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/7/1994		39.7	146.97	no	ND	ND	ND	ND	ND								
5/31/1994		39.05	147.62	no	ND	ND	ND	ND	ND								
9/14/1994		41.56	145.11	no	ND	ND	ND	ND	ND								
12/22/1994		42.1	144.57	no	ND	ND	ND	ND	ND								
2/20/1995		42.2	144.47	no	ND	ND	ND	ND	ND								
4/20/1995		39.99	146.68	no	ND	ND	ND	ND	ND								
7/27/1995		38.87	147.8	no	ND	ND	ND	ND	ND								
11/9/1995		39.21	147.46	no	ND	ND	ND	ND	ND								
1/4/1996		38.28	148.39	no	ND	ND	ND	ND	ND								
4/3/1996		37.1	149.57	no	ND	ND	ND	ND	ND								
9/17/1996 (e)		34.97	151.7	no	ND	ND	ND	ND	ND	ND (i)							
12/4/1996		34.92	151.75	no	ND	ND	ND	ND	ND	ND (i)							
2/11/1997		33.68	152.99	no	ND	ND	ND	ND	ND	ND (i)							
9/25/1997		31.5	155.12	no	ND	ND	ND	ND	ND	ND (i)							
2/12/1998		29.85	156.77	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
10/22/1998		26.15	160.47	no	<0.3	<0.3	<0.3	0.7	<50	<10 (i)							
1/6/1999		25.42	161.2	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
8/5/1999		24.9	161.72	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
2/9/2000		24.77	161.85	no	<0.30	<0.30	<0.30	<0.60	<50	<10 (i)							
7/24/2000		22.52	164.1	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
1/25/2001		23.97	162.65	no	<0.30	<0.30	<0.30	<0.60	<20	<1.0 (i)							
7/25/2001		20.95	165.67	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/8/2002		20.71	165.91	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/26/2002		20.88	165.74	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/18/2002 (o)		21.27	165.4	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
12/10/2002		21.8	164.87	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/17/2003		20.19	166.48	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		19.84	166.83	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/15/2003		19.94	166.73	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/22/2003		20.33	166.34	no	<0.50	2.2	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/24/2004		19.78	166.89	no	<0.50	2.6	<0.50	0.9	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		20.14	166.53	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/23/2004		20.69	165.98	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0			
12/29/2004		20.22	166.45	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100		
3/23/2005		17.65	169.02	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		17.29	169.38	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/15/2005		18.32	168.35	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<100	<0.500	<0.500
11/21/2005		19.4	167.27	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<50.0	<0.500	<0.500
2/23/2006		19.02	167.65	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		17.55	169.12	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/24/2006		18.9	167.77	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/11/2006		19.32	167.35	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
3/21/2007		18.84	167.83	no													
5/29/2007		19.86	166.81	no													
8/28/2007	186.67	21.05	165.62	no													
12/5/2007	186.67	21.75	164.92	no	NOT SAMPLED - WELL REDUCTION PROGRAM												
2/26/2008	186.67	20.70	165.97	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	186.67	21.15	165.52	no	GAUGE ONLY												
8/13/2008	186.67	22.93	163.74	no	GAUGE ONLY 8-13-08												
11/6/2008	186.67	24.56	162.11	no	GAUGE ONLY												

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/19/2009	186.67	24.44	162.23	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	2.9 J		<0.50	<0.50
5/20/2009	186.67	24.93	161.74	no	GAUGE ONLY												
8/19/2009	186.67	26.24	160.43	no	GAUGE ONLY												
11/5/2009	186.67	27.03	159.64	no	GAUGE ONLY												
3/3/2010	186.67	26.10	160.57	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	186.67	27.63	159.04	no	GAUGE ONLY												
2/9/2011	186.67	27.63	159.04	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/10/2011	186.67	26.34	160.33	no	GAUGE ONLY												
2/13/2012	186.67	27.71	158.96	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/14/2012	186.67	29.01	157.66	no	GAUGE ONLY												
Field Point	**MW15**		***Well Screen Interval (feet):***			***Well Zone:***											
9/14/1994 (h)		39.77	147.7*	yes	0.94												
12/22/1994		44.96	141.81	no	14	6.4	1.5	29	390								
2/20/1995		44.54	142.23	no	46	38	ND	51	650								
4/20/1995		58.63	128.14	no	13	5.9	ND	14	140								
7/27/1995		58.04	128.73	no	42	14	0.71	25	210								
11/9/1995		43.33	143.44	no	43	0.6	ND	1.4	86								
1/4/1996		N/A	N/A	no	2.8	0.99	0.91	3.9	64								
4/3/1996		40.73	146.04	no	0.83	ND	ND	ND	ND								
9/17/1996		30.1	156.67	no	4,900	40	260	1,300	19,000	4,300 (i)							
12/4/1996 (g)		N/A	N/A	no													
2/11/1997		34	152.77	no	6,100	ND	1,400	1,500	23,000	6,000 (i)							
2/11/1997 Dup		NM	N/A	no	6,600	ND	1,400	1,600	23,000	6,900 (i)							
9/25/1997 (h)		N/A	N/A	no						6,400 (i)							
9/25/1997		31.8	154.97	no	4,500	62	1,200	1,100	25,000	5,800 (i)							

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CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/12/1998		29.85	156.92	no	2,400	12	1,100	300	21,000	17,000 (i)							
10/22/1998		N/A	N/A	no						17,000 (i)							
10/22/1998		26.25	160.52	no	1,200	<1	600	240	21,000	16,000 (i)							
1/6/1999		25.57	161.2	no	640	1.2	390	49	17,000	16,000 (i)							
8/5/1999		25.11	161.66	no	470	1	220	64	8,100	11,000 (i)							
8/5/1999 Dup		N/A	N/A	no	460	1.2	230	68	9,000	11,000 (i)							
8/5/1999		N/A	N/A	no						11,000 (i)							
2/9/2000		24.44	162.33	no	43	<1.0	6	<15	14,000	21,000 (i)							
7/24/2000		22.39	164.38	no	1,600	<20	980	210	23,000	15,000	<20	<20	<20	5,900			
7/24/2000 Dup/(o)		N/A	N/A	no	1,600	<10	1,000	220	23,000	16,000	<10	<10	12	6,100			
1/25/2001		23.97	162.8	no	2	<1	<1	<1	560	900	<1	<1	<1	910			
7/25/2001		16.92	169.85	no	18	<1	4	<1	220	190	<1	<1	<1	560			
1/7/2002		21.18	165.59	no	<1	<1	<1	<1	740	810	<1	<1	<1	290			
6/25/2002		20.42	166.35	no													
9/18/2002 (o)		20.87	165.35	no	632	2.79	93.8	13.8	2,560	1,360	<0.50	<0.50	<0.50	19,600	<50.0	<0.50	<0.50
12/10/2002		20.22	166	no													
3/17/2003		19.46	166.76	no	920	7.4	320	156	14,500	8,350	<0.50	<0.50	<0.50	4,300		<0.50	<0.50
Field Point	**MW16**		***Well Screen Interval (feet):***			***Well Zone:***											
9/14/1994		37.92	147.75	no	11	9.7	0.58	12	130								
12/22/1994		45	140.67	no	55	1	0.3	4.5	150								
2/20/1995		44.54	141.13	no	ND	ND	ND	ND	ND								
4/20/1995		44.58	141.09	no	2.7	1.9	3.2	9.5	380								
7/27/1995 (c)		N/A	N/A	no	3.7	ND	0.75	0.91	ND								
11/9/1995 (c)		N/A	N/A	no	46	0.36	ND	0.7	86								
1/4/1996		N/A	N/A	no	7.3	3.7	ND	6.8	85								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
4/3/1996		40.21	145.46	no	5.8	1.7	ND	2	ND								
9/17/1996		33.16	152.51	no	ND	0.39	ND	ND	ND	ND (i)							
12/4/1996		33.85	151.82	no	180	69	79	310	2,000	160 (i)							
2/11/1997		32.55	153.12	no	110	35	32	150	1,400	170 (i)							
9/25/1997		29.6	156.07	no	33	21	33	72	1,000	47 (i)							
2/12/1998 (c)		27.17	158.5	no													
10/22/1998 (k)		N/A	N/A	no													
1/6/1999 (k)		N/A	N/A	no													
8/5/1999 (c)		23.52	162.15	no													
2/9/2000 (m)		22.33	163.34	no													
7/24/2000 (c)		19.18	166.49	no													
1/25/2001		21.23	164.44	no	<1	<1	<1	<1	<20	7	<1	<1	<1	<20			
7/25/2001		18.61	167.06	no	<1	<1	<1	<1	<50	10	<1	<1	<1	<10			
1/7/2002		19.34	166.33	no	<1	<1	<1	<1	<50	2	<1	<1	<1	<10			
6/25/2002		18.63	167.04	no													
9/19/2002 (o)		19	165.71	no	<0.50	<0.50	<0.50	<0.50	<50.0	9.94	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
12/10/2002		18.49	166.22	no													
3/17/2003		17.54	167.17	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
Field Point	**MW17**		***Well Screen Interval (feet):***			***Well Zone:***											
9/14/1994 (h)		38.35	147.98*	yes	0.01												
12/22/1994		47.46	138.86	no	8.6	12	2.4	27	260								
2/20/1995		45.04	141.28	no	3.1	2.7	ND	2.5	57								
4/20/1995		60.08	126.24	no	5.9	5	ND	4.3	59								
7/27/1995		55.5	130.82	no	61	17	ND	29	300								
11/9/1995		40.5	145.82	no	0.46	0.43	ND	0.88	ND								

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
1/4/1996		N/A	N/A	no	5.5	2.1	ND	2.9	56								
4/3/1996		39.78	146.54	no	1.1	0.32	ND	ND	ND								
9/17/1996		33.75	152.57	no	720	170	17	210	2,600	ND (i)							
12/4/1996		34.63	151.69	no	42	8.8	6.2	48	3,700	23 (i)							
2/11/1997 Dup		N/A	N/A	no	200	65	23	180	1,300	ND (i)							
2/11/1997		33.29	153.03	no	190	60	21	170	1,200	ND (i)							
9/25/1997 (h)		N/A	N/A	no	20	1	ND	8.7	310	ND (i)							
9/25/1997		30.2	156.12	no	15	0.9	ND	6.5	270	ND (i)							
2/12/1998		28.15	158.17	no	3,400	4,400	950	5,800	41,000	390 (i)							
10/22/1998		23.56	162.76	no	12	6.6	4.5	23	690	<10 (i)							
10/22/1998 Dup		NM	N/A	no	24	14	6.5	31	760	<10 (i)							
1/6/1999		20.85	165.47	no	2	3.8	3.3	21	410	<10 (i)							
8/5/1999		21.58	164.74	no	56	13	10	31	630	<10 (i)							
8/5/1999 Dup		NM	N/A	no	54	12	9.4	30	820	<10 (i)							
2/9/2000		22.88	163.44	no	5.9	0.91	1.3	2.6	52	<10 (i)							
7/24/2000		20.75	165.57	no	130	14	12	23	660	<5	<1	<1	<1	<20			
1/25/2001		21.11	165.21	no	<0.30	<0.30	<0.30	<0.60	<20	2.1 (i)							
7/25/2001		16.76	169.56	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/7/2002		16.46	169.86	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		19.25	167.07	no	43.8	57.2	58.2	208	2,050	<0.50	<0.50	<0.50	<0.50	65.2	<100	<0.50	<0.50
9/18/2002 (o)		19.52	165.72	no													
12/11/2002		18.6	166.64	no	151	45.9	27.5	72.2	1,080	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/17/2003		17.97	167.27	no													
6/19/2003				no	WELL DESTROYED BETWEEN 3/17/2003 AND 6/19/2003												

Field Point **MW18** ***Well Screen Interval (feet):*** ***Well Zone:***

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
9/14/1994 (h)		39.02	147.68*	yes 0.15													
12/22/1994		46.5	140.09	no	750	1,700	93	3,200	20,000								
2/20/1995		46.5	140.09	no	1,800	1,400	ND	1,700	17,000								
4/20/1995		50.04	136.55	no	300	330	ND	350	4,000								
7/27/1995		42.5	144.09	no	58	19	0.68	34	280								
11/9/1995		40.25	146.34	no	ND	ND	ND	ND	ND								
1/4/1996		N/A	N/A	no	890	480	ND	790	4,500								
4/3/1996		39.67	146.92	no	52	8.7	ND	37	290								
9/17/1996 (c)		N/A	N/A	no													
12/4/1996 (g)		N/A	N/A	no													
2/11/1997 (f)		N/A	N/A	no													
9/25/1997		30.7	155.89	no	120	1.6	ND	9	580	ND (i)							
2/12/1998		28.3	158.29	no	120	140	46	200	3,400	<100 (i)							
2/12/1998 Dup		NM	N/A	no	160	200	55	230	4,800	72 (i)							
10/22/1998		21.75	164.84	no	2.7	0.6	<0.3	1.4	140	68 (i)							
1/6/1999		21.95	164.64	no	40	46	8.3	24	740	22 (i)							
8/5/1999		14.75	171.84	no	43	83	14	70	640	89 (i)							
2/9/2000		23.83	162.76	no	39	28	6.1	28	220	<10 (i)							
7/24/2000		21.16	165.43	no	8	1	7	7	1,100	100	<1	<1	<1	89			
1/25/2001		21.61	164.98	no	<1	<1	<1	<1	<20	11	<1	<1	<1	44			
7/25/2001		18.57	168.02	no	2	<1	<1	<1	620	630	<1	<1	<1	990			
1/7/2002		19.18	167.41	no	<1	<1	<1	<1	<50	50	<1	<1	<1	<10			
6/25/2002		19.48	167.11	no													
9/18/2002 (o)		20.75	164.72	no	<0.50	<0.50	<0.50	<0.50	441	388	<0.50	<0.50	<0.50	2,210	<50.0	<0.50	<0.50
12/10/2002		18.92	166.55	no													

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/18/2003		18.25	167.22	no	36.8	34.4	20.6	65.7	948	127	<0.50	<0.50	<0.50	1,000		<0.50	<0.50
6/19/2003				no	WELL DESTROYED BETWEEN 3/18/2003 AND 6/19/2003												
Field Point	**MW19**		***Well Screen Interval (feet):***			***Well Zone:***											
9/14/1994 (h)		38.95	147.94*	yes	0.08												
12/22/1994		47.25	139.58	no	140	300	6.5	730	4,700								
2/20/1995		47.21	139.62	no	210	150	ND	220	3,000								
4/20/1995		50.04	136.79	no	53	50	3.3	73	950								
7/27/1995		45.67	141.16	no	60	20	0.53	38	320								
11/9/1995		40.88	145.95	no	190	11	4.4	98	1,200								
1/4/1996		N/A	N/A	no	3.5	0.93	ND	1.8	52								
4/3/1996		40.29	146.54	no	0.76	0.45	ND	2	71								
9/17/1996 (c)		43	143.83	no													
12/4/1996		47.25	139.58	no	1.5	0.8	0.81	3.6	430	ND (i)							
12/4/1996 Dup		NM	N/A	no	1	0.51	ND	1	130	11 (i)							
2/11/1997		43.3	143.53	no	ND	ND	ND	ND	ND	33 (i)							
9/25/1997		31.3	155.53	no	140	2.8	ND	5	930	79 (i)							
2/12/1998 (j)		29.32	157.51	no													
10/22/1998		25.23	161.6	no	10	0.4	2.3	5.6	160	22 (i)							
1/6/1999		24.13	162.7	no	2	<0.3	0.4	<0.6	<50	16 (i)							
8/5/1999		24.79	162.04	no	30	0.6	5.7	<10	210	12 (i)							
2/9/2000		23.5	163.33	no	12	<1.0	4.4	39	610	190 (i)							
7/24/2000		21.41	165.42	no	25	<1	6	2	1,100	480	<1	<1	<1	460			
1/25/2001		22.45	164.38	no	7	<1	6	2	420	540	<1	<1	<1	190			
7/25/2001		19.26	167.57	no	<1	<1	<1	<1	<50	17	<1	<1	<1	<10			
1/7/2002		19.45	167.38	no	<1	<1	<1	<1	100	130	<1	<1	<1	18			

TABLE 1
CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
6/25/2002		19.64	167.19	no	33.2	0.9	21.6	8.2	364	80.1	<0.50	<0.50	<0.50	171	<100	<0.50	3
9/18/2002 (o)		20.06	165.55	no													
12/10/2002		19	166.61	no	9.7	<0.50	7.2	2.6	219	65.9	<0.50	<0.50	<0.50	92.8		<0.50	4.4
3/18/2003		18.24	167.37	no	1.9	<0.50	4.4	6	148	72.9	<0.50	<0.50	<0.50	85.5		<0.50	<0.50
6/19/2003				no	WELL DESTROYED BETWEEN 3/18/2003 AND 6/19/2003												
Field Point	**MW26**		***Well Screen Interval (feet):***	**10-30**		***Well Zone:***	***Shallow Zone***										
6/19/2003		18	167.13	no	<0.50	<0.50	<0.50	1.8	<50.0	52.6	<0.50	<0.50	<0.50	27.4		<0.50	<0.50
9/15/2003		17.52	167.61	no	<0.50	<0.50	<0.50	<0.50	84.9	86.6	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/22/2003		18.58	166.55	no	<0.50	1.9	<0.50	<0.50	<50.0	39.3	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/24/2004		18.09	167.04	no	1.8	14.5	1.2	5.6	103	134	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		18.26	166.87	no	<0.50	<0.50	<0.50	<0.50	<50.0	72.1	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/23/2004		19.69	165.44	no	<0.50	<0.50	<0.50	<0.50	68.5	<0.50	<0.50	<0.50	<0.50	<10.0			
12/29/2004		18.3	166.83	no	<0.50	<0.50	<0.50	<0.50	118	71.9	<0.50	<0.50	<0.50	<10.0	<100		
3/23/2005		15.25	169.88	no	<0.50	<0.50	<0.50	<0.50	58.3	77.7	<0.50	<0.50	<0.50	17.6	<100	<0.50	<0.50
6/22/2005		15.52	169.61	no	<0.50	<0.50	<0.50	<0.50	57.2	64.7	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/15/2005		16.37	168.76	no	<0.500	<0.500	<0.500	<0.500	68.2	57.8	<0.500	<0.500	<0.500	<10.0	<100	<0.500	<0.500
11/21/2005		17.35	167.78	no	<0.500	<0.500	<0.500	<0.500	<50.0	58.8	<0.500	<0.500	<0.500	<10.0	<50.0	<0.500	<0.500
2/23/2006		17.11	168.02	no	<0.50	<1.0	<1.0	<2.0	<100	51	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		15.7	169.43	no	<0.50	<1.0	<1.0	<1.0	<100	31	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/24/2006		17	168.13	no	1,900	1,600	290	1,100	6,400	640	<2.0	<2.0	<2.0	6,500	<100	<1.0	<0.50
11/27/2006		17.32	167.81	no													
12/11/2006		17.56	167.57	no	<0.50	<1.0	<1.0	<1.0	<100	100	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
3/22/2007		17	168.13	no	<0.50	<1.0	<1.0	<1.0	<100	57	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/29/2007		17.94	167.19	no	<0.50	<1.0	<1.0	<1.0	<100	26	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/28/2007	185.13	19.2	165.93	no	<0.50	<1.0	<1.0	<1.0	<100	2.2	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50

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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
12/5/2007	185.13	20.32	164.81	no	5.2	8.4	2.0	6.5	67 J	1.9	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/26/2008	185.13	18.47	166.66	no	0.29 J	0.36 J	0.39 J	0.81 J	<100	19	<2.0	<2.0	<2.0	<10		<1.0	<0.50
5/15/2008	185.13	19.28	165.85	no	1.5	1.1	0.98 J	1.0	<100	7.8	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/13/2008	185.13	20.96	164.17	no	0.70	0.82 J	0.85 J	3.6	<100	14	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008	185.13	22.54	162.59	no	5.9	1.4	2.0	2.8	68 J	19	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/19/2009	185.13	22.47	162.66	no	<0.50	<0.50	<0.50	<0.50	<50	20	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/20/2009	185.13	23.03	162.10	no	0.94	0.50 J	0.65	1.7	<50	8.7	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/19/2009	185.13	24.31	160.82	no	0.58	<0.50	0.52	0.70	<50	14	<0.50	<0.50	<0.50	<10		<0.50	<0.50
11/5/2009	185.13	25.06	160.07	no	2.9	2.6	4.8	8.1	99	9.2	<0.50	<0.50	<0.50	<10		<0.50	<0.50
3/3/2010	185.13	24.05	161.08	no	<0.50	<0.50	<0.50	<0.50	<50	5.2	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010	185.13	25.63	159.50	no	<0.50	<0.50	<0.50	<0.50	<50	5.9	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/9/2011	185.13	25.68	159.45	no	1.6	<0.50	0.081 J	0.39 J	<50	2.5	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/10/2011	185.13	24.43	160.70	no	4.3	0.40 J	1.1	2.0	<50	3.5	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/13/2012	185.13	25.87	159.26	no	1.4	0.96	1.7	3.8	<50	1.6	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/14/2012	185.13	27.15	157.98	no	<0.500	<0.500	<0.500	<0.500	<50.0	2.32	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
Field Point	**QCEB BAILER**		***Well Screen Interval (feet):***			***Well Zone:***											
8/23/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/24/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/9/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	9.3 J		<0.50	<0.50
2/10/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/10/2011				no	<0.50	<0.50	<0.50	<0.50	<50	0.27 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/11/2011				no	<0.50	<0.50	<0.50	<0.50	<50	0.30 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/13/2012				no	<0.50	<0.50	<0.50	<0.50	<50	0.14 J	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
2/14/2012				no	<0.50	<0.50	<0.50	<0.50	<50	1.7	<0.50	<0.50	<0.50	<10	67	<0.50	<0.50
8/13/2012				no	<0.500	<0.500	<0.500	<0.500	<50.0	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500

TABLE 1
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FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
8/14/2012				no	<0.500	<0.500	<0.500	<0.500	<50.0	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
Field Point	**QCEB PUMP**		***Well Screen Interval (feet):***			***Well Zone:***											
8/23/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/24/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/9/2011				no	<0.50	<0.50	<0.50	<0.50	<50	0.17 J	<0.50	<0.50	<0.50	42		<0.50	<0.50
2/10/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/10/2011				no	<0.50	<0.50	<0.50	<0.50	<50	0.41 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/11/2011				no	<0.50	<0.50	<0.50	<0.50	<50	0.29 J	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/13/2012				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
2/14/2012				no	<0.50	<0.50	<0.50	<0.50	<50	0.15 J	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/13/2012				no	<0.500	<0.500	<0.500	<0.500	39.2 J	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
8/14/2012				no	<0.500	<0.500	<0.500	<0.500	40.3 J	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500
Field Point	**TRIP BLANK**		***Well Screen Interval (feet):***			***Well Zone:***											
11/9/1995		NM	N/A	no	ND	ND	ND	ND									
1/4/1996			N/A	no	ND	ND	ND	ND									
4/3/1996		NM	N/A	no	ND	ND	ND	ND									ND
9/17/1996		NM	N/A	no	ND	ND	ND	ND									
12/4/1996		NM	N/A	no	ND	ND	ND	ND									
2/11/1997		NM	N/A	no	ND	ND	ND	ND									
9/25/1997		NM	N/A	no	ND	ND	ND	ND		ND (i)							
9/26/1997		NM	N/A	no	ND	ND	ND	ND		ND (i)							
2/12/1998		NM	N/A	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
10/22/1998		NM	N/A	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							
1/6/1999		NM	N/A	no	<0.3	<0.3	<0.3	<0.6	<50	<50 (i)							
8/5/1999		NM	N/A	no	<0.3	<0.3	<0.3	<0.6	<50	<10 (i)							

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SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
2/9/2000		NM	N/A	no	<0.30	<0.30	<0.30	<0.60	<50	<10 (i)							
7/24/2000		NM	N/A	no	<1	<1	<1	<1	<20	<5	<1	<1	<1	<20			
1/25/2001		N/A	N/A	no	<0.30	<0.30	<0.30	<0.60	<20	<1.0 (i)							
7/25/2001		N/A	N/A	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
1/7/2002		N/A	N/A	no	<1	<1	<1	<1	<50	<2	<1	<1	<1	<10			
6/25/2002		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/26/2002		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/18/2002		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
9/19/2002		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<50.0	<0.50	<0.50
12/10/2002		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
12/11/2002		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/17/2003		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/18/2003		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/19/2003		N/A	N/A	no	<0.50	0.6	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/20/2003		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/15/2003		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	<10.0			
9/16/2003		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	<10.0			
12/22/2003		N/A	N/A	no	<0.50	0.6	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/24/2004		N/A	N/A	no	1.6	14	1.1	4.8	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
3/25/2004		N/A	N/A	no	<0.50	1.4	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
6/23/2004		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0			
9/22/2004		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0		<0.50	<0.50
9/23/2004		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0			
12/29/2004		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100		

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CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
3/23/2005		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
3/24/2005		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/22/2005		N/A	N/A	no	<0.50	<0.50	<0.50	<0.50	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
6/23/2005		N/A	N/A	no	<0.50	<0.50	<0.50	0.9	<50.0	<0.50	<0.50	<0.50	<0.50	<10.0	<100	<0.50	<0.50
9/15/2005		N/A	N/A	no					<50.0								
11/21/2005		N/A	N/A	no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0	<50.0	<0.500	<0.500
2/23/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
2/24/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/25/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/26/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/24/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
11/27/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/11/2006		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/12/2006		N/A	N/A	no	<0.50	0.34J	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
3/21/2007		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
3/22/2007		N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/29/2007		N/A	N/A	no	<0.50	5.8	0.43J	0.55J	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/27/2007	N/A	N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/28/2007	N/A	N/A	N/A	no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
12/5/2007				no	<0.50	<1.0	<1.0	<2.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/25/2008				no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/26/2008				no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/27/2008				no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
5/15/2008				no	<0.50	<1.0	<1.0	1.0	<100	<1.0	<2.0	<2.0	<2.0	<10	<100	<1.0	<0.50
8/13/2008				no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50

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CARDNO ERI 1006

Date	*Well Elev (feet MSL)*	*GW Depth (feet-TOC)*	*GW Elev (feet-MSL*	*NAPL (feet)*	*Benzene (ug/l)*	*Toluene (ug/l)*	*Ethyl-benzene (ug/l)*	*Xylenes (ug/l)*	*TPHg (ug/l)*	*MTBE (ug/l)*	*DIPE (ug/l)*	*ETBE (ug/l)*	*TAME (ug/l)*	*TBA (ug/l)*	*Ethanol (ug/l)*	*EDB (ug/l)*	*EDC (ug/l)*
8/14/2008				no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
11/6/2008				no	<0.50	<1.0	<1.0	<1.0	<100	<1.0	<2.0	<2.0	<2.0	<10		<1.0	<0.50
2/18/2009				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/19/2009				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
5/20/2009				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/19/2009				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
11/5/2009				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
3/3/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
3/4/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/23/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/24/2010				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/9/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
2/10/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/10/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
8/11/2011				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10		<0.50	<0.50
2/13/2012				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
2/14/2012				no	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<0.50	<0.50	<0.50	<10	<50	<0.50	<0.50
8/13/2012				no	<0.500	<0.500	<0.500	<0.500	<50.0	<0.500	<0.500	<0.500	<0.500	<10.0		<0.500	<0.500
8/14/2012				no	<0.500	<0.500	<0.500	<0.500	40.4 J	<1.00	<1.00	<1.00	<1.00	<10.0		<0.500	<0.500

TABLE 1

CUMULATIVE WATER LEVEL MEASUREMENTS AND GROUNDWATER ANALYSES

FORMER EXXONMOBIL STATION 18KFK

100 SOUTH LA CUMBRE ROAD

SANTA BARBARA, CALIFORNIA

CARDNO ERI 1006

Explanation:
ELEV = elevation
EPA = Environmental Protection Agency
GW = groundwater
feet-MSL = feet above mean sea level
feet-TOC = feet below top of casing
DIPE = di-isopropyl ether
EDB = 1,2-dibromoethane
EDC = 1,2-dichloroethane
ETBE = ethyl tertiary butyl ether
TAME = tertiary amyl methyl ether
TBA = tertiary butyl alcohol
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
MTBE = methyl tertiary butyl ether
MTBE analyzed by EPA Method 8260B unless otherwise noted
NAPL = non-aqueous phase liquid
Unless stated otherwise, groundwater elevations are adjusted for NAPL thickness using a relative density of 0.75.
J = estimated value between method detection limit and practical quantitation limit
Dup = duplicate sample
N/A = not applicable
NM = not measured
ND = not detected
(a) = a free product recovery system was installed in February 1991 and shut down on June 6, 1994
(b) = well MW03 was not sampled due to the prior presence of free product in the well
(c) = unable to sample due to pump stuck in well
(d) = no parameters taken due to low volume
(e) = well pad replaced in August 1996 and well not yet resurveyed; therefore, groundwater elevation is not accurate
(f) = unable to locate well
(g) = unable to measure well; lid could not be removed
(h) = pre-purge sample
(i) = MTBE result listed in table is via EPA Method 8020/8021
(j) = well inaccessible
(k) = pump stuck in well; unable to measure, purge or sample
(l) = unable to purge or sample; car parked over well
(m) = unable to purge or sample; pump stuck in well
(n) = well paved over
(o) = well resurveyed to MSL datum by a licensed surveyor on November 15, 2001
(p) = not accessible due to holiday moratorium
(q) = covered by dirt
(r) = deemed unsafe, unable to monitor
Well elevation, groundwater depth and groundwater elevation reported in feet.
Data prior to third quarter 2007 taken from previous consultant's table.
<10000 = not detected at or above stated laboratory reporting limit
ug/l = micrograms per liter
Environmental Resolutions, Inc. (ERI) became known as Cardno ERI on October 18, 2010

TABLE 2
SOIL ANALYTICAL RESULTS
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Sample Number	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPHg (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Ethanol (mg/kg)
Samples collected by Cardno ERI on February 24, 2012.												
S-20-AS/SVE1	20	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.25
S-35-AS/SVE1	35	0.18 J	<2.5	13	14	1100	<2.5	<25	<5.0	<5.0	<5.0	<120
S-40-AS/SVE1	40	1.7	0.34 J	0.12	0.91	6.7	<0.0050	0.15	<0.010	<0.010	<0.010	<0.25
S-45-AS/SVE1	45	0.049	0.0072	0.059	0.10	0.84	<0.0050	0.011 J	<0.010	<0.010	<0.010	<0.25
S-55-AS/SVE1	55	0.0084	0.046	0.040	0.29	11	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.25

EXPLANATION:
mg/kg = milligrams per kilogram
DIPE = di-isopropyl ether
ETBE = ethyl tertiary butyl ether
MTBE = methyl tertiary butyl ether analyzed by Environmental Protection Agency Method 8260B
TAME = tertiary amyl methyl ether
TBA = tertiary butyl alcohol
TPHg = total petroleum hydrocarbons as gasoline
J = estimated value between method detection limit and practical quantitation limit
< = not detected at or above the stated laboratory reporting limit

TABLE 3
VAPOR SAMPLE ANALYTICAL RESULTS
FORMER EXXONMOBIL STATION 18KFK
100 SOUTH LA CUMBRE ROAD
SANTA BARBARA, CALIFORNIA
CARDNO ERI 1006

Sample Number	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TPHg	MTBE	TBA
Samples collected by Cardno ERI on May 10, 11 and 14, 2012. Concentrations reported in ppmv.							
INFLUENT							
V-INF-AS/SVE-1	1.6	45	24	140	1600	<0.80	<2.0
V-INF-AS/SVE-1-3	11	21	6.9	27	7200	<1.0	<2.5
V-INF-AS/SVE-2	0.24	1.5	0.94	4.7	80	<0.032	<0.080
V-INF-MW25-1	28	19	3.0	11	19000	<1.0	<2.5
V-INF-MW25-2	7.1	22	6.6	26	2400	<1.0	<2.5
EFFLUENT							
V-EFF-AS/SVE1	<0.00050	0.0075	0.00054	<0.0020	<3.0	<0.0020	<0.0050
DESTRUCTION EFFICIENCY *	99.97%	99.98%	100.00%	100.00%	99.81%	99.75%	99.75%

Explanation:
ppmv = parts per million by volume
MTBE = methyl tertiary butyl ether analyzed by Environmental Protection Agency Method TO-15M
TBA = tertiary butyl alcohol
TPHg = total petroleum hydrocarbons as gasoline
< = not detected at or above the stated laboratory reporting limit
* = for samples in which the concentration was at or below the laboratory reporting limit, the reporting limit value was used as the concentration for calculation purposes

Former ExxonMobil Station 18KFK

APPENDIX A

CORRESPONDENCE

Cardno ERI

Shaping the Future

Fire Department

"Serving the community since 1926"

HEADQUARTERS

4410 Cathedral Oaks Road
Santa Barbara, CA 93110-1042
(805) 681-5500 FAX: (805) 681-5553

Michael W. Dyer
Fire Chief
County Fire Warden

Christian J. Hahn
Deputy Fire Chief

December 22, 2011

Lee Hanley
ExxonMobil Business Resources Corporation
1464 Madera Road, Suite N, #265
Simi Valley, CA 93065

Avenue 26 Holdings, LLC
Horowitz Family Trust
Larry & Laura Worchell Family Trust
4221 Wilshire Blvd, #430
Los Angeles, CA 90010

Dear Mr. Responsible Parties:

Subject: ExxonMobil Station #18-KFK
100 S. La Cumbre Road, Santa Barbara, California
LUFT Site #51622

The Santa Barbara County Fire Department, Fire Prevention Division (FPD) LUFT Program has reviewed the document prepared by your consultant, Cardno ERI (Cardno), titled *Work Plan for Vapor Extraction/Air Sparge Test (Work Plan)*, dated November 22, 2011. The *Work Plan* proposes to install one air sparge/soil vapor extraction (AS/SVE) well in the area of residual contamination and conduct a 24-hour vapor extraction and air sparge test. Upon successful completion of the test, a corrective action plan will be prepared. After careful review of the document and site file, FPD approves the *Work Plan* with the following conditions:

- A well permit for the AS/SVE well shall be obtained from FPD. Please contact the City of Santa Barbara to determine their permitting requirements. All required permits shall be in hand prior to initiating fieldwork.

- Please notify me at least 48 hours in advance of fieldwork. Fieldwork shall begin by **February 3, 2012**.

If you have any questions regarding the aforementioned, please do not hesitate to call me at (805) 686-8176. Written correspondence regarding this matter should be sent to FPD at 1430 Mission Drive, Solvang, CA 93463, or via facsimile to (805) 686-8183.

Sincerely,

Thomas M. Rejzek
Professional Geologist #6461
Certified Hydrogeologist #601
LUFT Program

pc: Mr. James Anderson, Environmental Resolutions, Inc.
GeoTracker Database

51622 12_11

Fire Department

"Serving the community since 1926"

HEADQUARTERS

4410 Cathedral Oaks Road
Santa Barbara, CA 93110-1042
(805) 681-5500 FAX: (805) 681-5563

Michael W. Dyer
Fire Chief
County Fire Warden

Christian J. Hahn
Deputy Fire Chief

September 22, 2011

Lee Hanley
ExxonMobil Business Resources Corporation
1464 Madera Road, Suite N, #265
Simi Valley, CA 93065

Avenue 26 Holdings, LLC
Horowitz Family Trust
Larry & Laura Worchell Family Trust
4221 Wilshire Blvd, #430
Los Angeles, CA 90010

Dear Mr. Responsible Parties:

Subject: *First Half 2011 Groundwater Monitoring and Status Report*
ExxonMobil Station #18-KFK
100 S. La Cumbre Road, Santa Barbara, California
LUFT Site #51622

The Santa Barbara County Fire Department, Fire Prevention Division (FPD) LUFT Program has reviewed the document prepared by your consultant, Environmental Resolutions, Inc. (ERI), titled *First Half 2011 Groundwater Monitoring and Status Report (Report)*, dated August 3, 2011. The *Report* presents data collected from site groundwater wells in February 2011. After careful review of the *Report* and site file, FPD has the following comments and directives:

- Quarterly reports are required for each site, even if no groundwater sampling is conducted. In quarters without groundwater sampling, a one page summary of activities, if any, is sufficient. As groundwater sampling was performed in the First Quarter 2011, the complete sampling report was due 20 days after the end of the quarter, which would have been April 20, 2011. The Second Quarter 2011 Report was due on July 20, 2011, but not received by FPD until August 8, 2011. You are hereby directed to submit quarterly reports no later than the 20th day following the end of the quarter (i.e. January 20, April 20, July 20, and October 20). Failure to meet these deadlines will result in a Notice of Violation and possible enforcement action.

- A review of the data indicates that free product was detected in well MW-4B. Please install the absorbent sock in this well as proposed in the *Report* by **September 30, 2011**. Provide estimates of the amount of product recovered in subsequent quarterly reports.

- A review of groundwater data indicates the persistence of gasoline related hydrocarbons in groundwater in the vicinity of wells B-11, MW-01, MW-02, MW-4A, and MW4CR. The plume does not appear to be reducing at a sufficient rate via natural attenuation processes. Therefore, FPD requires the submittal by **November 4, 2011** of a Corrective Action Plan that addresses groundwater impacts in this area.

If you have any questions regarding the aforementioned, please do not hesitate to call me at (805) 686-8176. Written correspondence regarding this matter should be sent to FPD at 4410 Cathedral Oaks Road, Santa Barbara, CA 93110, or via facsimile to (805) 686-8183.

Sincerely,

Thomas M. Rejzek
Professional Geologist #6461
Certified Hydrogeologist #601
LUFT Program

pc: Mr. James Anderson, Environmental Resolutions, Inc.
GeoTracker Database

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Former ExxonMobil Station 18KFK

APPENDIX B

HISTORICAL SOIL ANALYTICAL RESULTS

Cardno ERI

Shaping the Future

TABLE 3.
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
EXXONMOBIL OIL CORPORATION FORMER SERVICE STATION #18-KFK, SANTA BARBARA, CALIFORNIA

SAMPLE SOURCE	DATE SAMPLED	DEPTH (fbg)	SAMPLE ID	TPH AS GASOLINE (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	EDC (mg/kg)	EDB (mg/kg)	ETHANOL (mg/kg)	LEAD (mg/kg)	REF
EPA ANALYTICAL METHOD				8015B/8015B (M)	8260B												6010B	N/A
FPD INVESTIGATION LEVEL				100	0.1	15	70	175	0.05	0.12	†	†	†	0.005	0.0002	†	50	N/A
MW-4E	1-17-03	20	MW-4E-20	<5	0.0038	0.0043	0.0013J	<0.002	<0.002	<0.05	<0.01	<0.002	<0.002	<0.002	<0.002	--	--	A
	1-17-03	23	MW-4E-23	<5	0.0018J	<0.002	<0.002	<0.002	<0.002	<0.05	<0.01	<0.002	<0.002	<0.002	<0.002	--	--	A
MW-26	5-8-03	10	MW-26-10	<5.0	<0.002	<0.002	<0.002	<0.002	0.0956	<0.05	<0.01	<0.002	<0.002	<0.002	<0.002	--	--	A
	5-8-03	20	MW-26-20	<5.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.05	<0.01	<0.002	<0.002	<0.002	<0.002	--	--	A
	5-8-03	30	MW-26-30	<5.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.05	<0.01	<0.002	<0.002	<0.002	<0.002	--	--	A
B-27	4-15-04	10	B-27-10	1,570	3.68	0.639	7.75	147	<0.101	<2.52	<0.101	<0.101	<0.101	--	--	<10.1	8.06	B
	4-15-04	15	B-27-15	<5.03	<0.002	<0.002	<0.002	0.0034	0.0037	<0.0499	<0.002	<0.002	<0.002	--	--	<0.2	6.61	B
	4-15-04	20	B-27-20	<4.97	0.0045	0.0041	0.0027	0.0099	<0.002	<0.0497	<0.002	<0.002	<0.002	--	--	<0.199	6.27	B
	4-15-04	25	B-27-25	<5.02	<0.002	<0.002	<0.002	0.0025	<0.002	<0.0504	<0.002	<0.002	<0.002	--	--	<0.202	5.87	B
	4-15-04	30	B-27-30	<4.95	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0496	<0.002	<0.002	<0.002	--	--	<0.198	6.35	B
B-28	4-15-04	10	B-28-10	<4.96	0.0032	<0.002	<0.002	<0.002	0.0163	<0.0496	<0.002	<0.002	<0.002	--	--	<0.198	6.81	B
	4-15-04	15	B-28-15	<4.98	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0502	<0.002	<0.002	<0.002	--	--	0.267	6.6	B
	4-15-04	20	B-28-20	<4.95	<0.002	<0.002	<0.002	<0.002	0.0079	<0.0496	<0.002	<0.002	<0.002	--	--	<0.198	5.71	B
	4-15-04	25	B-28-25	<5.01	<0.002	<0.002	<0.002	<0.002	<0.002	0.175	<0.002	<0.002	<0.002	--	--	<0.199	5.04	B
	4-15-04	30	B-28-30	<4.96	<0.002	<0.002	<0.002	<0.002	<0.002	0.531	<0.002	<0.002	<0.002	--	--	<0.2	5.03	B
B-29	4-15-04	10	B-29-10	<5.03	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0503	<0.002	<0.002	<0.002	--	--	<0.201	4.57	B
	4-15-04	15	B-29-15	<5.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0503	<0.002	<0.002	<0.002	--	--	<0.201	6.59	B
	4-15-04	20	B-29-20	<4.95	0.0029	0.0025	<0.002	<0.002	<0.002	<0.0499	<0.002	<0.002	<0.002	--	--	<0.2	5.07	B
	4-15-04	25	B-29-25	<5	<0.002	<0.002	<0.002	<0.002	<0.002	0.0519	<0.002	<0.002	<0.002	--	--	<0.2	4	B
	4-15-04	30	B-29-30	<4.99	0.0032	0.0023	<0.002	<0.002	<0.002	<0.0495	<0.002	<0.002	<0.002	--	--	<0.198	7.65	B
B-30	4-15-04	10	B-30-10	<5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0498	<0.002	<0.002	<0.002	--	--	<0.199	6.99	B
	4-15-04	15	B-30-15	<4.98	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0505	<0.002	<0.002	<0.002	--	--	<0.202	4.19	B
	4-15-04	20	B-30-20	<5.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0499	<0.002	<0.002	<0.002	--	--	<0.2	3.23	B
	4-15-04	25	B-30-25	<4.97	0.0021	<0.002	<0.002	<0.002	<0.002	<0.0495	<0.002	<0.002	<0.002	--	--	<0.198	9.78	B
	4-15-04	30	B-30-30	<5.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0503	<0.002	<0.002	<0.002	--	--	<0.201	7	B
B-31	4-15-04	10	B-31-10	6.86	0.167	0.758	0.99	4.96	<0.101	<2.53	<0.101	<0.002	<0.101	--	--	<10.1	10.7	B
	4-15-04	15	B-31-15	<4.84	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0495	<0.002	<0.002	<0.002	--	--	<0.198	6.94	B
	4-15-04	20	B-31-20	<4.89	<0.002	<0.002	<0.002	0.0028	<0.002	0.0842	<0.002	<0.002	<0.002	--	--	<0.2	5.71	B
	4-15-04	25	B-31-25	<4.85	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0499	<0.002	<0.002	<0.002	--	--	<0.2	3.7	B
	4-15-04	30	B-31-30	<4.9	<0.002	<0.002	<0.002	<0.002	0.0072	0.812	<0.002	<0.002	<0.002	--	--	<0.199	10.9	B
B-32	4-15-04	10	B-32-10	<4.92	<0.002	<0.002	<0.002	<0.002	0.0034	<0.0498	<0.002	<0.002	<0.002	--	--	<0.199	5.28	B
	4-15-04	15	B-32-15	<4.92	0.0022	<0.002	<0.002	<0.002	<0.002	<0.0495	<0.002	<0.002	<0.002	--	--	<0.198	4.84	B
	4-15-04	20	B-32-20	<5.07	<0.002	<0.002	<0.002	<0.002	0.0061	<0.0505	<0.002	<0.002	<0.002	--	--	<0.202	6.29	B
	4-15-04	25	B-32-25	<4.81	<0.002	<0.002	<0.002	<0.002	0.191	0.464	<0.002	<0.002	<0.002	--	--	<0.2	6.05	B
	4-15-04	30	B-32-30	<5.05	0.0027	0.0025	<0.002	<0.002	0.0167	1.27	<0.002	<0.002	<0.002	--	--	<0.2	5.33	B

TABLE 3.
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
EXXONMOBIL OIL CORPORATION FORMER SERVICE STATION #18-KFK, SANTA BARBARA, CALIFORNIA

SAMPLE SOURCE	DATE SAMPLED	DEPTH (fbg)	SAMPLE ID	TPH AS GASOLINE (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	EDC (mg/kg)	EDB (mg/kg)	ETHANOL (mg/kg)	LEAD (mg/kg)	REF
EPA ANALYTICAL METHOD				8015B/8015B (M)	8260B												6010B	N/A
B-34	3-2-05	5	B-34-5	343	2.09	0.698	11.0	60.9	0.0054	<0.0502	<0.0020	<0.0020	<0.0020	<0.0020	<0.00201	<0.201	--	C
	3-2-05	12	B-34-12	<5.01	0.0070	0.0062	0.0020	0.0127	0.0298	<0.0502	<0.0020	<0.0020	<0.0020	<0.0020	<0.00201	<0.201	--	C
	3-2-05	15	B-34-15	<4.98	0.0051	0.0057	0.0033	0.0086	0.0443	<0.0505	<0.0020	<0.0020	<0.0020	<0.0020	<0.00202	<0.201	--	C
B-35	3-2-05	5	B-35-5	36.8	0.311	1.47	0.673	4.56	<0.0020	<0.0502	<0.0020	<0.0020	<0.0020	<0.0020	<0.00201	<0.201	--	C
	3-2-05	10	B-35-10	<4.99	0.0020	0.0028	0.0012J	0.0085	<0.0020	<0.0504	<0.0020	<0.0020	<0.0020	<0.0020	<0.00202	<0.202	--	C
	3-2-05	15	B-35-15	<5.01	0.0048	0.0027	0.0098	0.0039	0.0039	<0.0495	<0.0020	<0.0020	<0.0020	<0.0020	<0.00198	<0.198	--	C
B-36	3-2-05	5	B-36-5	<5.00	0.530	0.645	1.08	4.01	<0.0020	<0.0500	<0.0020	<0.0020	<0.0020	<0.0020	<0.00200	<0.200	--	C
	3-2-05	10	B-36-10	<5.05	<0.0020	0.0010J	<0.0020	0.0040	<0.0020	<0.0502	<0.0020	<0.0020	<0.0020	<0.0020	<0.00201	<0.201	--	C
	3-2-05	15	B-36-15	<4.99	<0.0020	0.0014J	<0.0020	0.0056	<0.0020	<0.0495	<0.0020	<0.0020	<0.0020	<0.0020	<0.00198	<0.198	--	C
B-37	3-2-05	5	B-37-5	<4.95	0.0961	0.0039	0.0146	0.0674	<0.0020	<0.0502	<0.0020	<0.0020	<0.0020	<0.0020	<0.00201	<0.201	--	C
	3-2-05	10	B-37-10	<5.01	0.0011J	0.0014J	<0.0020	0.0020J	<0.0020	<0.0501	<0.0020	<0.0020	<0.0020	<0.0020	<0.00200	<0.200	--	C
	3-2-05	15	B-37-15	<5.02	0.0036	0.0030	0.0016J	0.0048	<0.0020	<0.0497	<0.0020	<0.0020	<0.0020	<0.0020	<0.00199	<0.199	--	C
B-38	3-16-07	10	B-38-10	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	3-16-07	15	B-38-15	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	3-16-07	20	B-38-20	<0.50	<0.0050	0.0012J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	3-16-07	25	B-38-25	<0.50	<0.0050	0.0012J	<0.0050	<0.0050	0.0021J	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
B-39	3-16-07	10	B-39-10	1.2	0.012	0.0032J	0.049	0.0098J	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	3-16-07	15	B-39-15	<0.50	0.0087	0.00062J	<0.0050	0.00086J	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	3-16-07	20	B-39-20	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	3-16-07	25	B-39-25	<0.50	<0.0050	0.00075J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
B-40	4-3-07	10	B-40-10	<0.50	<0.0050	0.00056J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	4-3-07	15	B-40-15	<0.50	<0.0050	0.00059J	<0.0050	0.0067J	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	4-3-07	20	B-40-20	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D
	4-3-07	25	B-40-25	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.0050	<0.0050	<0.25	--	D

† = not established. <# = not detected at reporting limit indicated. -- = not sampled or not analyzed.

A = Holguin, Fahan & Associates, Inc.'s (HFA's) report dated July 16, 2003.

B = HFA's report dated June 2, 2004.

C = HFA's report dated August 29, 2005.

D = HFA's current report.

TABLE 1.
SUMMARY OF EXCAVATION SOIL SAMPLE ANALYTICAL RESULTS
EXXONMOBIL OIL CORPORATION FORMER SERVICE STATION #18-KFK, SANTA BARBARA, CALIFORNIA

SAMPLE SOURCE	DATE SAMPLED	DEPTH (fbg)	SAMPLE ID	TPH AS GASOLINE (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	ETHANOL (mg/kg)	LEAD (mg/kg)	REF
EPA ANALYTICAL METHOD				8015B (M)	8260B										6010B	N/A
FPD INVESTIGATION LEVEL				100	0.1	15	70	175	0.05	0.12	†	†	†	†	50	N/A
WESTERN DISPENSER ISLANDS	10-6-05	3.5	S-10-3.5	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-6-05	3.5	S-11-3.5	<0.50	0.08	0.0030J	0.51	0.4698	<0.0050	0.055	<0.01	<0.01	<0.01	<0.25	--	A
	10-6-05	5	S-12-5	<0.50	<0.0050	<0.0050	0.00060J	<0.0050	0.039	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-6-05	4	S-13-4	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-6-05	5	S-14-5	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	0.0096	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	5	S-15-5	<0.50	<0.0050	<0.0050	<0.0050	0.0011J	0.026	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	5	S-16-5	0.24J	0.0017J	<0.0050	0.0022J	0.00307J	0.0043J	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	5	S-17-5	35	0.095	0.0037J	0.57	0.5273	<0.0050	0.042J	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	5	S-18-5	49	1.2	1.2	14	30	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	10-7-05	4	S-19-4	0.39J	<0.0050	<0.0050	0.00054J	0.0012J	0.15	0.51	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	3	S-20-3	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	0.0017J	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	3	S-21-3	590	0.022	0.015	6	2.18	<0.0050	0.02J	<0.01	<0.01	<0.01	<0.25	--	A
	10-12-05	5	S-22-5	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	0.0014J	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-12-05	7	S-23-7	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-12-05	7	S-24-7	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	0.0029J	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-12-05	6	S-25-6	<0.50	0.00087J	<0.0050	0.00060J	0.0017J	0.0059	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-12-05	8	S-26-8	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-12-05	6	S-27-6	<0.50	<0.0050	<0.0050	<0.0050	0.0028J	0.048	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-13-05	4	S-28-4	91	0.98	0.55	0.57	1.77	0.059	0.062	<0.01	<0.01	<0.01	<0.25	--	A
	10-13-05	4	S-29-4	35	0.25	0.049	0.21	0.52	<0.0050	0.059	<0.01	<0.01	<0.01	<0.25	--	A
	10-13-05	7	S-30-7	2.0	<0.0050	0.0011J	0.0048J	0.0185	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-13-05	5	S-31-5	<0.50	0.0031J	0.00066J	0.00086J	0.00099J	0.073	0.13	<0.01	<0.01	<0.01	<0.25	--	A
	11-16-05	7	S-60-7	11	0.025	0.13	0.2	0.83	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	11-16-05	11	S-61-11	<0.50	<0.0050	0.00095J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	11-16-05	6	S-62-6	0.21J	<0.0050	0.00082J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	11-16-05	12	S-63-12	<0.50	<0.0050	0.00068J	<0.0050	<0.0050	0.0039J	<0.05	<0.01	<0.01	<0.01	<0.25	--	A

TABLE 1.
SUMMARY OF EXCAVATION SOIL SAMPLE ANALYTICAL RESULTS
EXXONMOBIL OIL CORPORATION FORMER SERVICE STATION #18-KFK, SANTA BARBARA, CALIFORNIA

SAMPLE SOURCE	DATE SAMPLED	DEPTH (fbg)	SAMPLE ID	TPH AS GASOLINE (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	ETHANOL (mg/kg)	LEAD (mg/kg)	REF
EPA ANALYTICAL METHOD				8015B (M)	8260B										6010B	N/A
FPD INVESTIGATION LEVEL				100	0.1	15	70	175	0.05	0.12	†	†	†	†	50	N/A
SOUTHERN DISPENSER ISLAND	10-21-05	8	S-32-8	2.0	0.00057	0.0018J	0.0045J	0.0275	<0.0050	0.019J	<0.01	<0.01	<0.01	<0.25	--	A
	10-21-05	13	S-33-13	85	0.51	0.62	12	33	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	10-21-05	8	S-34-8	20	0.23	0.0051	0.26	0.4642J	<0.0050	0.026J	<0.01	<0.01	<0.01	<0.25	--	A
	10-21-05	7	S-35-7	19	0.35	0.0019J	0.35	0.1829J	<0.0050	0.032J	<0.01	<0.01	<0.01	<0.25	--	A
	10-21-05	6	S-36-6	150	0.72	1.1	5.2	21.2	<0.25	<2.5	<0.5	<0.5	<0.5	<13	--	A
	10-21-05	7	S-37-7	65	0.14	0.7	4.5	25.8	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	10-25-05	13	S-38-13	6.1	0.0035J	0.00063J	0.011	0.0424	0.0053	<0.05	<0.01	<0.01	<0.01	<0.25	5.10	A
	10-25-05	7	S-39-7	7.1	0.46	0.015	0.37	0.49	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-27-05	7	S-40-7	4,800	2	11	6.6	44	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	10-27-05	5	S-41-5	730	4.6	41	22	159	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	10-27-05	6	S-42-6	280	0.35	2.8	4	28.5	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	11-1-05	9	S-43-9	0.68	0.0036J	0.00090J	0.0065	0.01989J	<0.0050	0.018J	<0.01	<0.01	<0.01	<0.25	--	A
	11-1-05	7	S-44-7	<0.50	0.0052	0.0015J	0.0037J	0.0142J	<0.0050	0.026J	<0.01	<0.01	<0.01	<0.25	--	A
	11-1-05	8	S-45-8	<0.50	0.0046J	0.0013J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	11-1-05	14	S-46-14	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	4.10	A
	11-2-05	14	S-47-14	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	0.0030J	0.025J	<0.01	<0.01	<0.01	<0.25	6.02	A
	11-2-05	14	S-48-14	37	<0.13	<0.13	0.04J	0.261J	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	8.12	A
	11-3-05	7	S-50-7	0.27J	0.14	0.0015J	0.0027J	0.00870J	0.0078	0.058	<0.01	<0.01	<0.01	<0.25	--	A
	11-3-05	5	S-51-5	240	0.64	1.9	2.7	19.1	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	--	A
	11-3-05	6	S-52-6	0.77	0.22	0.0056	0.13	0.1297	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	11-7-05	6	S-53-6	690	0.4	0.29	3.2	9.8	<0.13	<1.3	<0.25	<0.25	<0.25	<6.3	9.41	A
	11-7-05	5	S-54-5	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	7.67	A
	11-7-05	5	S-55-5	<0.50	<0.0050	0.00068J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	15.0	A
	11-7-05	5	S-56-5	<0.50	<0.0050	0.00073J	<0.0050	<0.0050	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	13.0	A
	11-7-05	7	S-57-7	<0.50	0.012	0.00062J	0.00091J	0.00459J	0.0075	<0.05	<0.01	<0.01	<0.01	<0.25	8.54	A
	11-15-05	10	S-58-10	<0.50	<0.0050	0.00078J	<0.0050	<0.0050	0.0036J	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	11-15-05	10	S-59-10	<0.50	<0.0050	0.00076J	<0.0050	<0.0050	0.011	0.041J	<0.01	<0.01	<0.01	<0.25	--	A
	11-16-05	7	S-64-7	0.16J	0.00065J	0.00087J	<0.0050	<0.0050	0.0071	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
STOCKPILE	10-7-05	N/A	SP-2-S1	<0.50	<0.0050	<0.0050	0.0018J	0.00358J	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A
	10-7-05	N/A	SP-2-S2	1.1	0.00083J	0.0037J	0.023	0.11	<0.0050	<0.05	<0.01	<0.01	<0.01	<0.25	--	A

-- = not sampled or not analyzed. † = not established. <# = not detected at the reporting limit indicated.

= sample removed by additional excavations.

A = Holguin, Fahan & Associates, Inc.'s report dated February 8, 2006.

Former ExxonMobil Station 18KFK

APPENDIX C

PERMIT

Cardno ERI

Shaping the Future

Hazardous Materials
Well Permit Application

COUNTY OF SANTA BARBARA
FIRE PREVENTION DIVISION
195 W. Hwy 246
Buellton, California 93427
Phone: 805-686-8170 Fax: 805-686-8183

Well Permit # 16402

SMU/LUFT # 51622

Name of Well Owner: ExxonMobil Oil Corporation c/o Lee W Hanley

Mailing Address: 1464 Madera Rd Ste N 265 Simi Valley CA 93065 805-527-4860
Street /P.O. Box | City | State | Zip Code | Telephone

Well Site Location **VICINITY MAP REQUIRED**

Assessor's Parcel #: 051-022-027 Street Address: 100 S La Cumbre Road

Township: Range: Section:

Well Drilling Company: JDK Drilling

Business Address: 2372 North Batavia Street, Orange, CA 92865

Contractor's License #: 887038

Permit Type (Check ✓)		**Well Use (Check ✓)**		**Drilling Method (Check ✓)**	
Construction	☒	**Monitoring**	☒	**Air/Mud Rotary**	☐
Repair/Modification	☐	**Injection/Extraction**	☐	**Hollow Stem Auger**	☒
Destruction	☐	**Vapor Well**	☐	**Other:**	☐

Borehole Data

Proposed Depth 45 ft.

Well Bore Dia. 10 in.

Casing Information

Type: Steel ☐ PVC ☒ Other ☐

Diameter 2 in.

Annular Seal Depth 2 - 7, and 20-35 ft.

Consultants Well ID#(s) AS/SVE1

Sealing Material (Check ✓)

Bentonite/Cement	☒	Clay	☐
Cement Grout	☐	Concrete	☒

I hereby agree to comply with the California Well Standards and Regulations of the County of Santa Barbara pertaining to well construction, repair, modification, destruction and inactivation. The property owner, well driller, or agent will furnish the Protection Services Division a complete well log and final well location map upon completion of well constuction, or destruction.

Signed: [signature] Applicant Date: 1/18/12

FOR DEPARTMENTAL USE ONLY

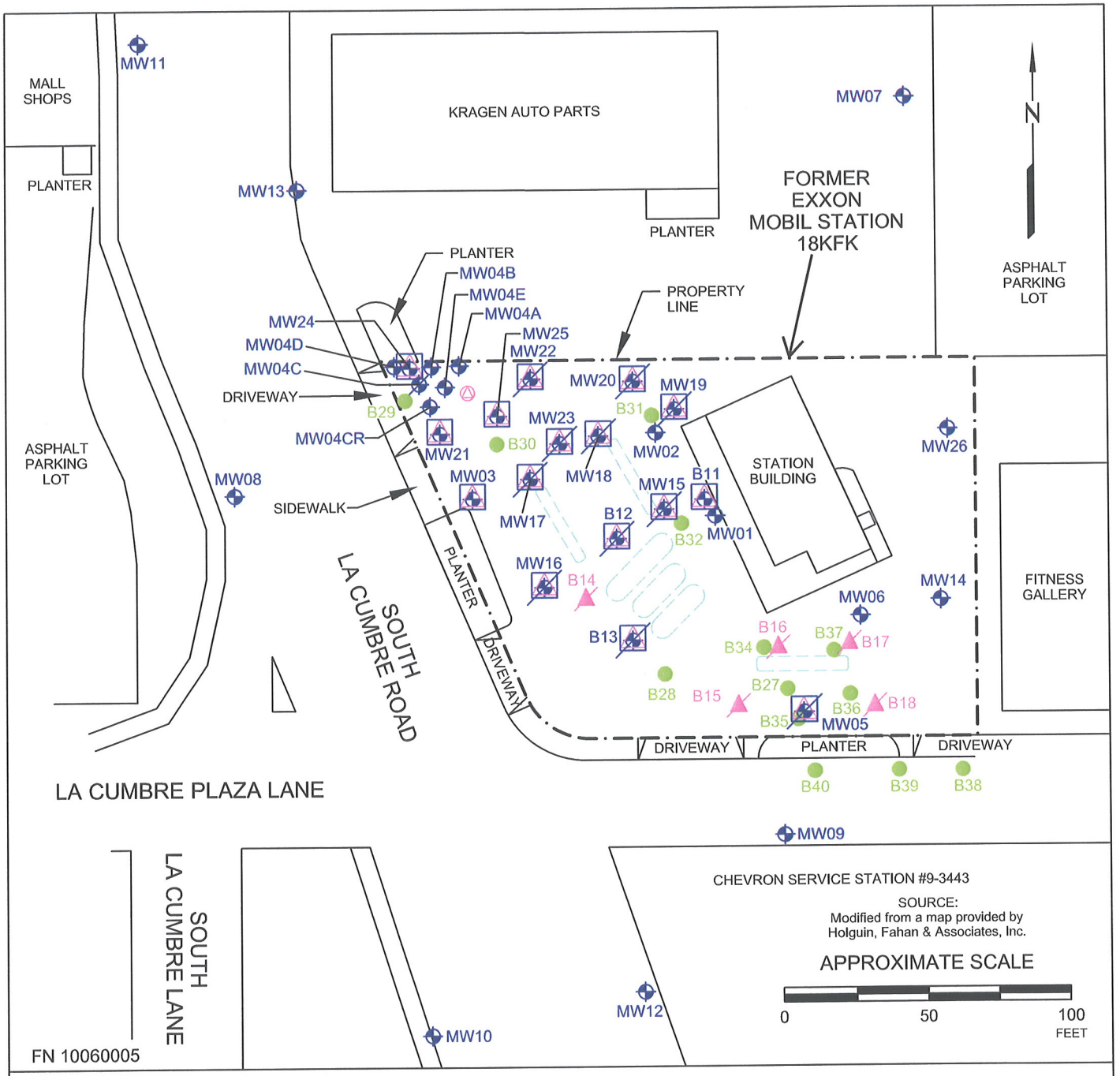
$ Fee Paid on: Receipt #:

Name: Re Jzzk

Comments:

Application Disposition:
Approved: ☒
Denied : ☐
Date: 1/19/12

A COUNTY FIRE PREVENTION DIVISION SPECIALIST MUST SIGN THIS PERMIT. NOTIFY THE SPECIALIST, A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO ALL SEALING OPERATIONS. NOTE: THIS PERMIT EXPIRES ONE YEAR FROM DATE ISSUED.



EXPLANATION

MW26	Groundwater monitoring well	B18	Destroyed soil vapor extraction well
MW25	Dual-phase extraction well		Former dispenser island
B40	Soil boring		Former underground storage tank
	Proposed air sparge/soil vapor extraction well		
MW04C	Abandoned groundwater monitoring well		
MW23	Destroyed dual-phase extraction well		

Cardno ERI
Shaping the Future

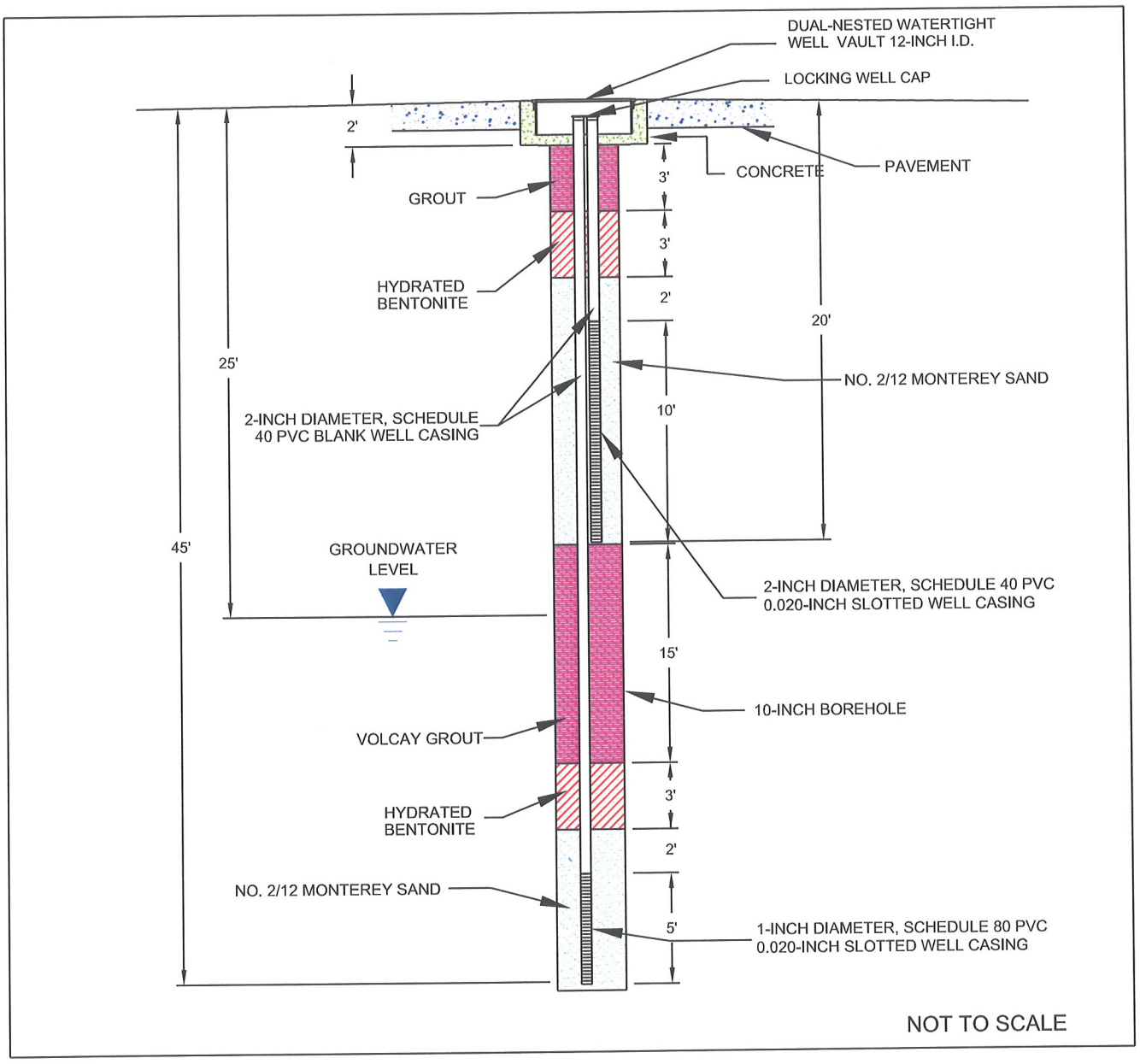
GENERALIZED SITE PLAN

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 1

DATE: 11/14/11



FN 1006WELL02

Cardno ERI
Shaping the Future

PROPOSED WELL CONSTRUCTION DETAILS

FORMER EXXONMOBIL STATION 18KFK
100 South La Cumbre Road
Santa Barbara, California

PROJECT NO. 1006

PLATE 7

DATE: 11/14/11

Former ExxonMobil Station 18KFK

APPENDIX D

BORING LOG

Cardno ERI

Shaping the Future

Cardno ERI

Shaping the Future

Boring Log AS/SVE1

(Page 1 of 1)

Project No.	: ERI 1006
Site	: Former ExxonMobil Station 18KFK
Logged By	: Ian Desjarlais
Reviewed By	: Majd Nima PG# 8872
Signature	:

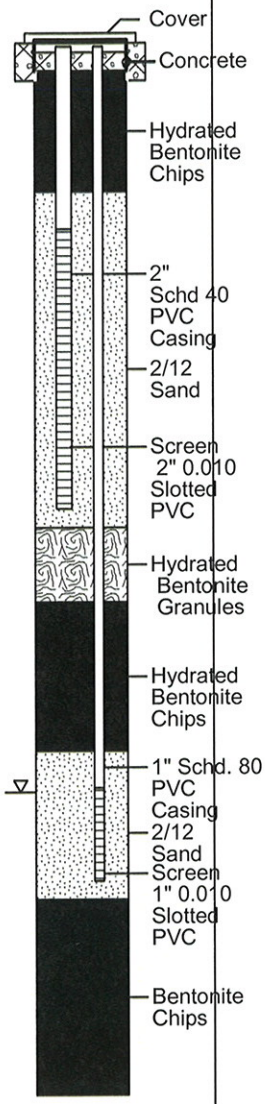
Date Drilled:	: 2/24/2012
Drilling Co.:	: JDK Drilling
Drilling Method:	: Hollow Stem Auger
Sampling Method:	: CA Modified Split Spoon
Borehole Diameter:	: 10"
Casing Diameter:	: SVE: 2", AS: 1"
Location:	: N/A
Total Depth:	: 56.5' bgs
GW Encountered:	: 40' bgs

Sample Condition: No Recovery; Sampled Interval; Described Sample; Preserved Sample

Water Levels: NA; GW during drilling: 40' bgs

Well1: deep (AS)
Well2: shallow (SVE)
Elev.: NA

Depth (ft)	Blow Count	PID (ppmv)	USCS	DESCRIPTION
0			AR	6" of asphalt was removed. Borehole was cleared to 8 feet bgs using hand auger.
5				Not logged.
10	8 9 9	2.7	ML	SILT: brown, dry, non-plastic, with fine-grained sand [0/85/15/0].
15	7 10 12	3.5		Same as above, except with clay [15/75/10/0].
20	9 9 10	66.0		Clayee SILT: brown, moist, medium plasticity, trace very fine-grained sand [35/60/5/0].
25	10 12 14	4.6		Same as above
30	10 12 14	40.6		Same as above.
35	7 10 12	57.4		Sandy SILT: red-brown with gray stains, moist, non-plastic, sand is very fine-grained [0/80/20/0].
40	5 10 12	1050.0		Same as above, except with more sand, wet [0/55/45/0].
45	5 5 7	148.0	SP	SAND: fine- to medium-grained, light brown, wet, with silt [0/15/85/0].
50	6 8 9	152.0	SM	Silty SAND: fine- to medium-grained, light brown, wet, with fine gravel [0/30/55/15].
55	10 15 18	73.6	ML	SILT: brown, moist, non-plastic, trace fine-grained sand [0/95/5/0].
60				Boring TD: 56.5' bgs 2/12 Sand (38-46'); Hydrated bentonite chips (56.5-46'), (38-21) and (8-2). 1" AS Well set to 45' bgs ; screened from 40-45' bgs. 2" SVE Well set to 20' bgs; screened from 10-20' bgs.
65				
70				



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Former ExxonMobil Station 18KFK

APPENDIX E

FIELD PROTOCOL

Cardno
Shaping the Future

Cardno ERI
Soil Vapor Sampling Well Installation and Sampling
Field Protocol

Preliminary Activities

Prior to the onset of field activities at the site, Cardno ERI obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. Cardno ERI marks the borehole locations and contacts the local one call utility locating service at least 48 hours prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Prior to drilling, the borehole location is cleared in accordance with the client's procedures. Fieldwork is conducted under the advisement of a registered professional geologist and in accordance with an updated site-specific safety plan prepared for the project, which is available at the job site during field activities.

Well Construction

The borehole is advanced to the desired depth using either a direct-push rig, hand auger, or air vacuum rig. Lithologic conditions are recorded on a boring log during borehole advancement, and select soil matrix sampling may be conducted based on soil characteristics.

Each soil vapor sampling (SVS) well is constructed using inert screen material attached to $^{1}/_{8}$- to ¼-inch outer diameter inert tubing. A gas-tight vacuum fitting or valve is attached to the top of each length of tubing using a female compression fitting. Each screen is set within a minimum of a 12-inch thick appropriately sized sand pack, with a minimum of 3 inches of sand pack above the top of the screen. A minimum of 4 inches of dry granular bentonite is set above each screen and associated sand pack. In SVS wells with multiple and separate casings and screens, the annular space between the top of the dry granular bentonite above the deep screen and the bottom of the sand pack associated with the shallow screen is sealed with a minimum of 18 inches of hydrated bentonite. The remainder of the annular space of the well is sealed with hydrated bentonite to 1 foot below ground surface. Wellheads are finished with traffic-rated well boxes set in concrete flush with the surrounding grade. No glues, chemical cements, or solvents are used in well construction.

A boring log is completed with the construction details for each well, including the materials of construction, depth of the borehole, screen length, and annular seal thickness.

Soil Vapor Sampling

Samples are collected using a soil vapor purging and sampling manifold consisting of a flow regulator, vacuum gauges, vacuum pump, and laboratory-prepared, gas-tight, opaque containers such as Summa™ canisters. Samples may also be collected using a syringe and analyzed by a mobile laboratory. Prior to use, Summa™ canisters are checked to ensure they are under the laboratory induced vacuum between 31 and 25 inches of mercury (in. Hg). New inert tubing is used to purge and sample each well. Prior to purging and sampling each SVS well, the sampling manifold is connected to the gas-tight vacuum fitting or valve at the wellhead, and the downstream tubing and fittings are vacuum tested at approximately 24 to 28 in. Hg. Purging and sampling are conducted only on SVS wells when the tubing and fittings hold the applied vacuum for 10 minutes per vacuum gauge reading.

When required, Cardno ERI conducts a purge volume versus constituent concentration test on at least one SVS well prior to purging and sampling activities. The purge volume test well is selected based on the location of the anticipated source of chemical constituents at the site and on the location of anticipated maximum soil vapor concentrations based on lithologic conditions. If the SVS well has been in place for more than 1 week, it is assumed that soil vapor in the sand pack has equilibrated with the surrounding soil, and only the screen and tubing volumes are included in the purge volume calculation. If the SVS well has been in place for less than 1 week, the volume of the sand pack around the screen is included in the purge volume calculation. A photo-ionization detector (PID) or on-site mobile laboratory is used to evaluate concentrations of chemical constituents in the vapor stream after 1, 3, and 7 volumes of vapor have been purged from the SVS well.

Purging is conducted at a rate of 100 to 200 milliliters per minute (ml/min). The purge volume exhibiting the highest concentration is the volume of vapor purged from each SVS well prior to sampling.

During sampling, a leak test is performed at each SVS wellhead valve and fitting to check for leaks in the sampling manifold and bentonite seal. An agency approved leak detection compound (such as 1,1-difluoroethane) is applied around the wellhead, or gauze strips soaked in isopropyl alcohol are applied to the down-hole side of the wellhead valve, and a shroud is placed over the system downstream of the sampling container. The soil vapor sample is collected in the sample container while the shroud is in place. Sampling is conducted at approximately the same rate of purging, at 100 to 200 ml/min. Soil vapor samples are submitted under chain-of-custody protocol for the specified laboratory analyses.

At a minimum, weather conditions (temperature, barometric pressure and precipitation), the sampling flow rate, the purge volume, the leak detection chemical, the sample canister identification number, the method of sample collection, and the vacuum of the sampling canister at the start and end of sample collection (if applicable) are recorded on a log for each SVS well purged and sampled.

Decontamination Procedures

If soil samples are collected, Cardno ERI or the contracted driller decontaminates the soil sampling equipment between each sampling interval using a non-phosphate solution, followed by a minimum of two tap water rinses. De-ionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned or triple-rinsed prior to advancing each borehole.

Waste Treatment and Disposal

Soil cuttings generated from the well installation are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. The soil is removed from the site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Decontamination water is stored on site in labeled, regulatory-approved storage containers, and is subsequently transported under manifest to a client- and regulatory-approved facility for disposal or treated with a permitted mobile or fixed-base carbon treatment system.

Former ExxonMobil Station 18KFK

APPENDIX F

LABORATORY REPORT

Cardno ERI

Shaping the Future

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

Additional requested analyses have been added to the original report.

CALSCIENCE

WORK ORDER NUMBER: 12-02-1589

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Cardno ERI

Client Project Name: ExxonMobil 18KFK / 081006

Attention: James Anderson
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Approved for release on 03/12/2012 by:
Cecile deGuia
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

March 09, 2012 09:29

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Attn: James Anderson

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
PO Number: 4514678359
Date Received: 02/27/12 17:00

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
S-10-AS/SVE1	12-02-1589-1	02/24/12 11:39
S-15-AS/SVE1	12-02-1589-2	02/24/12 11:44
S-20-AS/SVE1	12-02-1589-3	02/24/12 11:51
S-25-AS/SVE1	12-02-1589-4	02/24/12 11:58
S-30-AS/SVE1	12-02-1589-5	02/24/12 12:06
S-35-AS/SVE1	12-02-1589-6	02/24/12 12:15
S-40-AS/SVE1	12-02-1589-7	02/24/12 12:20
S-45-AS/SVE1	12-02-1589-8	02/24/12 12:23
S-50-AS/SVE1	12-02-1589-9	02/24/12 12:53
S-55-AS/SVE1	12-02-1589-10	02/24/12 13:02

Calscience Environmental Laboratories, Inc.

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Client:	Cardno ERI	Work Order:	12-02-1589
	4572 Telephone Road, Suite 916	Project Name:	ExxonMobil 18KFK / 081006
	Ventura, CA 93003-5663	Received:	02/27/12 17:00
Attn:	James Anderson		

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	RL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: 3 (S-20-AS/SVE1, Solid) Sampled: 02/24/12 11:51									
EPA 8015B (M) TPH Gasoline (Sample: 12-02-1589-3-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
TPH as Gasoline	ND	U	mg/kg	0.42	0.50	1	02/29/12 03:12	EPA 8015B (M)	120228B02
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*78%*						*02/29/12 03:12*	*EPA 8015B (M)*	*120228B02*
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-3-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Benzene	ND	U	mg/kg	0.00013	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Toluene	ND	U	mg/kg	0.00052	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Ethylbenzene	ND	U	mg/kg	0.00015	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Xylenes (total)	ND	U	mg/kg	0.00056	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	0.00030	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	0.0052	0.050	1	02/28/12 12:55	EPA 8260B	120228L01
Diisopropyl Ether (DIPE)	ND	U	mg/kg	0.00048	0.010	1	02/28/12 12:55	EPA 8260B	120228L01
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	0.00051	0.010	1	02/28/12 12:55	EPA 8260B	120228L01
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	0.00035	0.010	1	02/28/12 12:55	EPA 8260B	120228L01
Ethanol	ND	U	mg/kg	0.084	0.25	1	02/28/12 12:55	EPA 8260B	120228L01
1,2,4-Trimethylbenzene	ND	U	mg/kg	0.00059	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
1,3,5-Trimethylbenzene	ND	U	mg/kg	0.00055	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Isopropylbenzene	ND	U	mg/kg	0.00055	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Naphthalene	ND	U	mg/kg	0.00081	0.050	1	02/28/12 12:55	EPA 8260B	120228L01
n-Butylbenzene	ND	U	mg/kg	0.00016	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
n-Propylbenzene	ND	U	mg/kg	0.00050	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
p-Isopropyltoluene	ND	U	mg/kg	0.00063	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
sec-Butylbenzene	ND	U	mg/kg	0.00058	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
tert-Butylbenzene	ND	U	mg/kg	0.00015	0.0050	1	02/28/12 12:55	EPA 8260B	120228L01
Surr: 1,4-Bromofluorobenzene (60-132%)	*94%*						*02/28/12 12:55*	*EPA 8260B*	*120228L01*
Surr: Dibromofluoromethane (63-141%)	*117%*						*02/28/12 12:55*	*EPA 8260B*	*120228L01*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*131%*						*02/28/12 12:55*	*EPA 8260B*	*120228L01*
Surr: Toluene-d8 (80-120%)	*101%*						*02/28/12 12:55*	*EPA 8260B*	*120228L01*
Sample ID: 6 (S-35-AS/SVE1, Solid) Sampled: 02/24/12 12:15									
EPA 8015B (M) TPH Gasoline (Sample: 12-02-1589-6-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
TPH as Gasoline	1100		mg/kg	42	50	100	03/08/12 03:57	EPA 8015B (M)	120307B02
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*101%*						*03/08/12 03:57*	*EPA 8015B (M)*	*120307B02*
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-6-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Benzene	0.18	J	mg/kg	0.065	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Toluene	ND	U	mg/kg	0.26	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Ethylbenzene	13		mg/kg	0.076	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Xylenes (total)	14		mg/kg	0.28	2.5	500	03/07/12 20:38	EPA 8260B	120307L02

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Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00
Attn:	James Anderson		

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	RL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: 6 (S-35-AS/SVE1, Solid) Sampled: 02/24/12 12:15									
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-6-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	0.15	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	2.6	25	500	03/07/12 20:38	EPA 8260B	120307L02
Diisopropyl Ether (DIPE)	ND	U	mg/kg	0.24	5.0	500	03/07/12 20:38	EPA 8260B	120307L02
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	0.25	5.0	500	03/07/12 20:38	EPA 8260B	120307L02
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	0.18	5.0	500	03/07/12 20:38	EPA 8260B	120307L02
Ethanol	ND	U	mg/kg	42	120	500	03/07/12 20:38	EPA 8260B	120307L02
1,2,4-Trimethylbenzene	110		mg/kg	0.59	5.0	1000	03/08/12 14:52	EPA 8260B	120308L02
1,3,5-Trimethylbenzene	32		mg/kg	0.27	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Isopropylbenzene	2.4	J	mg/kg	0.27	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Naphthalene	14	J	mg/kg	0.41	25	500	03/07/12 20:38	EPA 8260B	120307L02
n-Butylbenzene	12		mg/kg	0.078	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
n-Propylbenzene	12		mg/kg	0.25	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
p-Isopropyltoluene	1.0	J	mg/kg	0.31	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
sec-Butylbenzene	1.7	J	mg/kg	0.29	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
tert-Butylbenzene	ND	U	mg/kg	0.075	2.5	500	03/07/12 20:38	EPA 8260B	120307L02
Surr: 1,4-Bromofluorobenzene (60-132%)	*105%*						*03/07/12 20:38*	*EPA 8260B*	*120307L02*
Surr: Dibromofluoromethane (63-141%)	*91%*						*03/07/12 20:38*	*EPA 8260B*	*120307L02*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*95%*						*03/07/12 20:38*	*EPA 8260B*	*120307L02*
Surr: Toluene-d8 (80-120%)	*101%*						*03/07/12 20:38*	*EPA 8260B*	*120307L02*
Sample ID: 7 (S-40-AS/SVE1, Solid) Sampled: 02/24/12 12:20									
EPA 8015B (M) TPH Gasoline (Sample: 12-02-1589-7-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
TPH as Gasoline	6.7		mg/kg	0.42	0.50	1	02/29/12 04:44	EPA 8015B (M)	120228B02
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*78%*						*02/29/12 04:44*	*EPA 8015B (M)*	*120228B02*
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-7-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Benzene	1.7		mg/kg	0.013	0.50	100	03/01/12 19:46	EPA 8260B	120301L02
Toluene	0.34	J	mg/kg	0.052	0.50	100	03/01/12 19:46	EPA 8260B	120301L02
Ethylbenzene	0.12		mg/kg	0.00015	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
Xylenes (total)	0.91		mg/kg	0.027	0.50	100	03/01/12 19:46	EPA 8260B	120301L02
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	0.00030	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
Tert-Butyl Alcohol (TBA)	0.15		mg/kg	0.0052	0.050	1	03/01/12 19:18	EPA 8260B	120301L01
Diisopropyl Ether (DIPE)	ND	U	mg/kg	0.00048	0.010	1	03/01/12 19:18	EPA 8260B	120301L01
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	0.00051	0.010	1	03/01/12 19:18	EPA 8260B	120301L01
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	0.00035	0.010	1	03/01/12 19:18	EPA 8260B	120301L01
Ethanol	ND	U	mg/kg	0.084	0.25	1	03/01/12 19:18	EPA 8260B	120301L01
1,2,4-Trimethylbenzene	0.52		mg/kg	0.059	0.50	100	03/01/12 19:46	EPA 8260B	120301L02
1,3,5-Trimethylbenzene	0.11		mg/kg	0.00055	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
Isopropylbenzene	0.012		mg/kg	0.00055	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01

Calscience Environmental Laboratories, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI	Work Order:	12-02-1589
	4572 Telephone Road, Suite 916	Project Name:	ExxonMobil 18KFK / 081006
	Ventura, CA 93003-5663	Received:	02/27/12 17:00
Attn:	James Anderson		

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	RL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: 7 (S-40-AS/SVE1, Solid) Sampled: 02/24/12 12:20									
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-7-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Naphthalene	0.11		mg/kg	0.00081	0.050	1	03/01/12 19:18	EPA 8260B	120301L01
n-Butylbenzene	0.017		mg/kg	0.00016	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
n-Propylbenzene	0.043		mg/kg	0.00050	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
p-Isopropyltoluene	0.0017	J	mg/kg	0.00063	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
sec-Butylbenzene	0.0029	J	mg/kg	0.00058	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
tert-Butylbenzene	ND	U	mg/kg	0.00015	0.0050	1	03/01/12 19:18	EPA 8260B	120301L01
Surr: 1,4-Bromofluorobenzene (60-132%)	*102%*						*03/01/12 19:18*	*EPA 8260B*	*120301L01*
Surr: Dibromofluoromethane (63-141%)	*95%*						*03/01/12 19:18*	*EPA 8260B*	*120301L01*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*98%*						*03/01/12 19:18*	*EPA 8260B*	*120301L01*
Surr: Toluene-d8 (80-120%)	*99%*						*03/01/12 19:18*	*EPA 8260B*	*120301L01*
Sample ID: 8 (S-45-AS/SVE1, Solid) Sampled: 02/24/12 12:23									
EPA 8015B (M) TPH Gasoline (Sample: 12-02-1589-8-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
TPH as Gasoline	0.84		mg/kg	0.42	0.50	1	03/02/12 15:32	EPA 8015B (M)	120302B01
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*84%*						*03/02/12 15:32*	*EPA 8015B (M)*	*120302B01*
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-8-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Benzene	0.049		mg/kg	0.00013	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Toluene	0.0072		mg/kg	0.00052	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Ethylbenzene	0.059		mg/kg	0.00015	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Xylenes (total)	0.10		mg/kg	0.00056	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	0.00030	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Tert-Butyl Alcohol (TBA)	0.011	J	mg/kg	0.0052	0.050	1	03/01/12 20:14	EPA 8260B	120301L01
Diisopropyl Ether (DIPE)	ND	U	mg/kg	0.00048	0.010	1	03/01/12 20:14	EPA 8260B	120301L01
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	0.00051	0.010	1	03/01/12 20:14	EPA 8260B	120301L01
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	0.00035	0.010	1	03/01/12 20:14	EPA 8260B	120301L01
Ethanol	ND	U	mg/kg	0.084	0.25	1	03/01/12 20:14	EPA 8260B	120301L01
1,2,4-Trimethylbenzene	0.044		mg/kg	0.00059	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
1,3,5-Trimethylbenzene	0.013		mg/kg	0.00055	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Isopropylbenzene	0.0051		mg/kg	0.00055	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Naphthalene	0.020	J	mg/kg	0.00081	0.050	1	03/01/12 20:14	EPA 8260B	120301L01
n-Butylbenzene	0.0062		mg/kg	0.00016	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
n-Propylbenzene	0.017		mg/kg	0.00050	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
p-Isopropyltoluene	ND	U	mg/kg	0.00063	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
sec-Butylbenzene	0.0016	J	mg/kg	0.00058	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
tert-Butylbenzene	ND	U	mg/kg	0.00015	0.0050	1	03/01/12 20:14	EPA 8260B	120301L01
Surr: 1,4-Bromofluorobenzene (60-132%)	*102%*						*03/01/12 20:14*	*EPA 8260B*	*120301L01*
Surr: Dibromofluoromethane (63-141%)	*94%*						*03/01/12 20:14*	*EPA 8260B*	*120301L01*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*96%*						*03/01/12 20:14*	*EPA 8260B*	*120301L01*
Surr: Toluene-d8 (80-120%)	*99%*						*03/01/12 20:14*	*EPA 8260B*	*120301L01*

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00
Attn:	James Anderson		

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	RL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: 8 (S-45-AS/SVE1, Solid) Sampled: 02/24/12 12:23									
Sample ID: 10 (S-55-AS/SVE1, Solid) Sampled: 02/24/12 13:02									
EPA 8015B (M) TPH Gasoline (Sample: 12-02-1589-10-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
TPH as Gasoline	11		mg/kg	0.42	0.50	1	02/29/12 05:46	EPA 8015B (M)	120228B02
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*85%*						*02/29/12 05:46*	*EPA 8015B (M)*	*120228B02*
EPA 8260B Volatile Organics + Oxygenates (Sample: 12-02-1589-10-A)									
-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.									
Benzene	0.0084		mg/kg	0.00013	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Toluene	0.046		mg/kg	0.00052	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Ethylbenzene	0.040		mg/kg	0.00015	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Xylenes (total)	0.29		mg/kg	0.00056	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	0.00030	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	0.0052	0.050	1	03/01/12 20:41	EPA 8260B	120301L01
Diisopropyl Ether (DIPE)	ND	U	mg/kg	0.00048	0.010	1	03/01/12 20:41	EPA 8260B	120301L01
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	0.00051	0.010	1	03/01/12 20:41	EPA 8260B	120301L01
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	0.00035	0.010	1	03/01/12 20:41	EPA 8260B	120301L01
Ethanol	ND	U	mg/kg	0.084	0.25	1	03/01/12 20:41	EPA 8260B	120301L01
1,2,4-Trimethylbenzene	0.12		mg/kg	0.00059	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
1,3,5-Trimethylbenzene	0.032		mg/kg	0.00055	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Isopropylbenzene	0.0028	J	mg/kg	0.00055	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Naphthalene	0.041	J	mg/kg	0.00081	0.050	1	03/01/12 20:41	EPA 8260B	120301L01
n-Butylbenzene	0.0088		mg/kg	0.00016	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
n-Propylbenzene	0.013		mg/kg	0.00050	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
p-Isopropyltoluene	0.00075	J	mg/kg	0.00063	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
sec-Butylbenzene	0.0013	J	mg/kg	0.00058	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
tert-Butylbenzene	ND	U	mg/kg	0.00015	0.0050	1	03/01/12 20:41	EPA 8260B	120301L01
Surr: 1,4-Bromofluorobenzene (60-132%)	*104%*						*03/01/12 20:41*	*EPA 8260B*	*120301L01*
Surr: Dibromofluoromethane (63-141%)	*95%*						*03/01/12 20:41*	*EPA 8260B*	*120301L01*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*101%*						*03/01/12 20:41*	*EPA 8260B*	*120301L01*
Surr: Toluene-d8 (80-120%)	*99%*						*03/01/12 20:41*	*EPA 8260B*	*120301L01*

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Client:	Cardno ERI	Work Order:	12-02-1589
	4572 Telephone Road, Suite 916	Project Name:	ExxonMobil 18KFK / 081006
	Ventura, CA 93003-5663	Received:	02/27/12 17:00
Attn:	James Anderson		

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	QC Batch	Lab Number	Analyzed Date/Time
EPA 8015B (M) TPH Gasoline						
099-14-571-205						
TPH as Gasoline	ND	U	mg/kg	120228B02	099-14-571-205	02/29/12 01:09
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*76%*			*120228B02*	*099-14-571-205*	*02/29/12 01:09*
099-14-571-209						
TPH as Gasoline	ND	U	mg/kg	120302B01	099-14-571-209	03/02/12 10:58
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*83%*			*120302B01*	*099-14-571-209*	*03/02/12 10:58*
099-14-571-220						
TPH as Gasoline	ND	U	mg/kg	120307B02	099-14-571-220	03/07/12 14:40
Surr: 1,4-Bromofluorobenzene - FID (42-126%)	*89%*			*120307B02*	*099-14-571-220*	*03/07/12 14:40*
EPA 8260B Volatile Organics + Oxygenates						
099-12-882-1,285						
Benzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Toluene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Ethylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Xylenes (total)	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Diisopropyl Ether (DIPE)	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Ethanol	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
1,2,4-Trimethylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
1,3,5-Trimethylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Isopropylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Naphthalene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
n-Butylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
n-Propylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
p-Isopropyltoluene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
sec-Butylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
tert-Butylbenzene	ND	U	mg/kg	120228L01	099-12-882-1,285	02/28/12 12:00
Surr: 1,4-Bromofluorobenzene (60-132%)	*96%*			*120228L01*	*099-12-882-1,285*	*02/28/12 12:00*
Surr: Dibromofluoromethane (63-141%)	*115%*			*120228L01*	*099-12-882-1,285*	*02/28/12 12:00*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*125%*			*120228L01*	*099-12-882-1,285*	*02/28/12 12:00*
Surr: Toluene-d8 (80-120%)	*101%*			*120228L01*	*099-12-882-1,285*	*02/28/12 12:00*
099-12-882-1,293						
Benzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Toluene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Ethylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Xylenes (total)	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22

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Client:	Cardno ERI	Work Order:	12-02-1589
	4572 Telephone Road, Suite 916	Project Name:	ExxonMobil 18KFK / 081006
	Ventura, CA 93003-5663	Received:	02/27/12 17:00
Attn:	James Anderson		

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	QC Batch	Lab Number	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates						
099-12-882-1,293						
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Diisopropyl Ether (DIPE)	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Ethanol	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
1,2,4-Trimethylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
1,3,5-Trimethylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Isopropylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Naphthalene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
n-Butylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
n-Propylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
p-Isopropyltoluene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
sec-Butylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
tert-Butylbenzene	ND	U	mg/kg	120301L01	099-12-882-1,293	03/01/12 12:22
Surr: 1,4-Bromofluorobenzene (60-132%)	*96%*			*120301L01*	*099-12-882-1,293*	*03/01/12 12:22*
Surr: Dibromofluoromethane (63-141%)	*104%*			*120301L01*	*099-12-882-1,293*	*03/01/12 12:22*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*111%*			*120301L01*	*099-12-882-1,293*	*03/01/12 12:22*
Surr: Toluene-d8 (80-120%)	*98%*			*120301L01*	*099-12-882-1,293*	*03/01/12 12:22*
099-12-882-1,294						
Benzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Toluene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Ethylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Xylenes (total)	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Diisopropyl Ether (DIPE)	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Ethanol	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
1,2,4-Trimethylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
1,3,5-Trimethylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Isopropylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Naphthalene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
n-Butylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
n-Propylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
p-Isopropyltoluene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
sec-Butylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
tert-Butylbenzene	ND	U	mg/kg	120301L02	099-12-882-1,294	03/01/12 12:50
Surr: 1,4-Bromofluorobenzene (60-132%)	*96%*			*120301L02*	*099-12-882-1,294*	*03/01/12 12:50*
Surr: Dibromofluoromethane (63-141%)	*97%*			*120301L02*	*099-12-882-1,294*	*03/01/12 12:50*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*101%*			*120301L02*	*099-12-882-1,294*	*03/01/12 12:50*
Surr: Toluene-d8 (80-120%)	*99%*			*120301L02*	*099-12-882-1,294*	*03/01/12 12:50*

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Client:	Cardno ERI	Work Order:	12-02-1589
	4572 Telephone Road, Suite 916	Project Name:	ExxonMobil 18KFK / 081006
	Ventura, CA 93003-5663	Received:	02/27/12 17:00
Attn:	James Anderson		

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	QC Batch	Lab Number	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates						
099-12-882-1,306						
Benzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Toluene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Ethylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Xylenes (total)	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Diisopropyl Ether (DIPE)	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Ethanol	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
1,2,4-Trimethylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
1,3,5-Trimethylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Isopropylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Naphthalene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
n-Butylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
n-Propylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
p-Isopropyltoluene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
sec-Butylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
tert-Butylbenzene	ND	U	mg/kg	120307L02	099-12-882-1,306	03/07/12 12:47
Surr: 1,4-Bromofluorobenzene (60-132%)	*97%*			*120307L02*	*099-12-882-1,306*	*03/07/12 12:47*
Surr: Dibromofluoromethane (63-141%)	*92%*			*120307L02*	*099-12-882-1,306*	*03/07/12 12:47*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*96%*			*120307L02*	*099-12-882-1,306*	*03/07/12 12:47*
Surr: Toluene-d8 (80-120%)	*98%*			*120307L02*	*099-12-882-1,306*	*03/07/12 12:47*
099-12-882-1,308						
Benzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Toluene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Ethylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Xylenes (total)	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Methyl-t-Butyl Ether (MTBE)	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Tert-Butyl Alcohol (TBA)	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Diisopropyl Ether (DIPE)	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Ethyl-t-Butyl Ether (ETBE)	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Tert-Amyl-Methyl Ether (TAME)	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Ethanol	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
1,2,4-Trimethylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
1,3,5-Trimethylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Isopropylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Naphthalene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
n-Butylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
n-Propylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
p-Isopropyltoluene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
sec-Butylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	Cardno ERI	Work Order:	12-02-1589
	4572 Telephone Road, Suite 916	Project Name:	ExxonMobil 18KFK / 081006
	Ventura, CA 93003-5663	Received:	02/27/12 17:00
Attn:	James Anderson		

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	QC Batch	Lab Number	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates						
099-12-882-1,308						
tert-Butylbenzene	ND	U	mg/kg	120308L02	099-12-882-1,308	03/08/12 12:33
Surr: 1,4-Bromofluorobenzene (60-132%)	*96%*			*120308L02*	*099-12-882-1,308*	*03/08/12 12:33*
Surr: Dibromofluoromethane (63-141%)	*95%*			*120308L02*	*099-12-882-1,308*	*03/08/12 12:33*
Surr: 1,2-Dichloroethane-d4 (62-146%)	*98%*			*120308L02*	*099-12-882-1,308*	*03/08/12 12:33*
Surr: Toluene-d8 (80-120%)	*99%*			*120308L02*	*099-12-882-1,308*	*03/08/12 12:33*

Calscience Environmental Laboratories, Inc.

The difference is service

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order: Project Name: Received:	12-02-1589 ExxonMobil 18KFK / 081006 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val.	Q	Units	Spike Conc.	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
EPA 8015B (M) TPH Gasoline										
12-02-1589-3										
TPH as Gasoline	ND	8.937		mg/kg	10.00	89	48-114	120228S02	12-02-1589-3	02/29/12 03:43
12-02-1766-19										
TPH as Gasoline	ND	7.384		mg/kg	10.00	74	48-114	120302S01	12-02-1766-19	03/02/12 13:40
EPA 8260B BTEX + Oxygenates										
12-03-0258-2										
Benzene	ND	5.094		mg/kg	5.000	102	61-127	120308S01	12-03-0258-2	03/08/12 13:56
Toluene	ND	5.081		mg/kg	5.000	102	63-123	120308S01	12-03-0258-2	03/08/12 13:56
Ethylbenzene	3.938	8.656		mg/kg	5.000	94	57-129	120308S01	12-03-0258-2	03/08/12 13:56
Methyl-t-Butyl Ether (MTBE)	ND	4.759		mg/kg	5.000	95	57-123	120308S01	12-03-0258-2	03/08/12 13:56
Tert-Butyl Alcohol (TBA)	ND	20.68		mg/kg	25.00	83	30-168	120308S01	12-03-0258-2	03/08/12 13:56
Diisopropyl Ether (DIPE)	ND	5.111		mg/kg	5.000	102	57-129	120308S01	12-03-0258-2	03/08/12 13:56
Ethyl-t-Butyl Ether (ETBE)	ND	4.986		mg/kg	5.000	100	55-127	120308S01	12-03-0258-2	03/08/12 13:56
Tert-Amyl-Methyl Ether (TAME)	ND	4.778		mg/kg	5.000	96	58-124	120308S01	12-03-0258-2	03/08/12 13:56
Ethanol	ND	45.50		mg/kg	50.00	91	17-167	120308S01	12-03-0258-2	03/08/12 13:56
1,1-Dichloroethene	ND	5.031		mg/kg	5.000	101	47-143	120308S01	12-03-0258-2	03/08/12 13:56
1,2-Dibromoethane	ND	4.671		mg/kg	5.000	93	64-124	120308S01	12-03-0258-2	03/08/12 13:56
1,2-Dichlorobenzene	ND	5.035		mg/kg	5.000	101	35-131	120308S01	12-03-0258-2	03/08/12 13:56
1,2-Dichloroethane	ND	5.040		mg/kg	5.000	101	80-120	120308S01	12-03-0258-2	03/08/12 13:56
Carbon Tetrachloride	ND	4.326		mg/kg	5.000	87	51-135	120308S01	12-03-0258-2	03/08/12 13:56
Chlorobenzene	ND	5.117		mg/kg	5.000	102	57-123	120308S01	12-03-0258-2	03/08/12 13:56
Trichloroethene	ND	5.066		mg/kg	5.000	101	44-158	120308S01	12-03-0258-2	03/08/12 13:56
Vinyl Chloride	ND	5.000		mg/kg	5.000	100	49-139	120308S01	12-03-0258-2	03/08/12 13:56
EPA 8260B Volatile Organics										
12-03-0267-1										
Benzene	ND	0.05155		mg/kg	0.05000	103	61-127	120307S02	12-03-0267-1	03/07/12 16:28
Toluene	ND	0.05074		mg/kg	0.05000	101	63-123	120307S02	12-03-0267-1	03/07/12 16:28
Ethylbenzene	ND	0.05127		mg/kg	0.05000	103	57-129	120307S02	12-03-0267-1	03/07/12 16:28
Methyl-t-Butyl Ether (MTBE)	ND	0.04919		mg/kg	0.05000	98	57-123	120307S02	12-03-0267-1	03/07/12 16:28
Tert-Butyl Alcohol (TBA)	ND	0.2603		mg/kg	0.2500	104	30-168	120307S02	12-03-0267-1	03/07/12 16:28
Diisopropyl Ether (DIPE)	ND	0.05072		mg/kg	0.05000	101	57-129	120307S02	12-03-0267-1	03/07/12 16:28
Ethyl-t-Butyl Ether (ETBE)	ND	0.04990		mg/kg	0.05000	100	55-127	120307S02	12-03-0267-1	03/07/12 16:28
Tert-Amyl-Methyl Ether (TAME)	ND	0.04754		mg/kg	0.05000	95	58-124	120307S02	12-03-0267-1	03/07/12 16:28
Ethanol	ND	0.5765		mg/kg	0.5000	115	17-167	120307S02	12-03-0267-1	03/07/12 16:28
1,1-Dichloroethene	ND	0.05286		mg/kg	0.05000	106	47-143	120307S02	12-03-0267-1	03/07/12 16:28
1,2-Dibromoethane	ND	0.04703		mg/kg	0.05000	94	64-124	120307S02	12-03-0267-1	03/07/12 16:28
1,2-Dichlorobenzene	ND	0.04731		mg/kg	0.05000	95	35-131	120307S02	12-03-0267-1	03/07/12 16:28
1,2-Dichloroethane	ND	0.04766		mg/kg	0.05000	95	80-120	120307S02	12-03-0267-1	03/07/12 16:28
Carbon Tetrachloride	ND	0.04866		mg/kg	0.05000	97	51-135	120307S02	12-03-0267-1	03/07/12 16:28
Chlorobenzene	ND	0.04857		mg/kg	0.05000	97	57-123	120307S02	12-03-0267-1	03/07/12 16:28
Trichloroethene	ND	0.06686		mg/kg	0.05000	134	44-158	120307S02	12-03-0267-1	03/07/12 16:28

Calscience Environmental Laboratories, Inc.

The difference is service

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val.	Q	Units	Spike Conc.	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
EPA 8260B Volatile Organics										
Vinyl Chloride	ND	0.05740		mg/kg	0.05000	115	49-139	120307S02	12-03-0267-1	03/07/12 16:28
EPA 8260B Volatile Organics + Oxygenates										
12-02-1589-3										
Benzene	ND	0.05294		mg/kg	0.05000	106	61-127	120228S01	12-02-1589-3	02/28/12 13:51
Toluene	ND	0.05185		mg/kg	0.05000	104	63-123	120228S01	12-02-1589-3	02/28/12 13:51
Ethylbenzene	ND	0.05101		mg/kg	0.05000	102	57-129	120228S01	12-02-1589-3	02/28/12 13:51
Methyl-t-Butyl Ether (MTBE)	ND	0.05066		mg/kg	0.05000	101	57-123	120228S01	12-02-1589-3	02/28/12 13:51
Tert-Butyl Alcohol (TBA)	ND	0.2226		mg/kg	0.2500	89	30-168	120228S01	12-02-1589-3	02/28/12 13:51
Diisopropyl Ether (DIPE)	ND	0.05374		mg/kg	0.05000	107	57-129	120228S01	12-02-1589-3	02/28/12 13:51
Ethyl-t-Butyl Ether (ETBE)	ND	0.04784		mg/kg	0.05000	96	55-127	120228S01	12-02-1589-3	02/28/12 13:51
Tert-Amyl-Methyl Ether (TAME)	ND	0.04903		mg/kg	0.05000	98	58-124	120228S01	12-02-1589-3	02/28/12 13:51
Ethanol	ND	0.5202		mg/kg	0.5000	104	17-167	120228S01	12-02-1589-3	02/28/12 13:51
1,1-Dichloroethene	ND	0.05346		mg/kg	0.05000	107	47-143	120228S01	12-02-1589-3	02/28/12 13:51
1,2-Dibromoethane	ND	0.04893		mg/kg	0.05000	98	64-124	120228S01	12-02-1589-3	02/28/12 13:51
1,2-Dichlorobenzene	ND	0.04531		mg/kg	0.05000	91	35-131	120228S01	12-02-1589-3	02/28/12 13:51
1,2-Dichloroethane	ND	0.05590		mg/kg	0.05000	112	80-120	120228S01	12-02-1589-3	02/28/12 13:51
Carbon Tetrachloride	ND	0.05324		mg/kg	0.05000	106	51-135	120228S01	12-02-1589-3	02/28/12 13:51
Chlorobenzene	ND	0.04878		mg/kg	0.05000	98	57-123	120228S01	12-02-1589-3	02/28/12 13:51
Trichloroethene	ND	0.05264		mg/kg	0.05000	105	44-158	120228S01	12-02-1589-3	02/28/12 13:51
Vinyl Chloride	ND	0.06301		mg/kg	0.05000	126	49-139	120228S01	12-02-1589-3	02/28/12 13:51
12-02-1732-1										
Benzene	ND	24.37		mg/kg	25.00	97	61-127	120301S02	12-02-1732-1	03/01/12 16:59
Toluene	ND	26.26		mg/kg	25.00	105	63-123	120301S02	12-02-1732-1	03/01/12 16:59
Ethylbenzene	ND	26.43		mg/kg	25.00	106	57-129	120301S02	12-02-1732-1	03/01/12 16:59
Methyl-t-Butyl Ether (MTBE)	ND	23.05		mg/kg	25.00	92	57-123	120301S02	12-02-1732-1	03/01/12 16:59
Tert-Butyl Alcohol (TBA)	ND	114.9		mg/kg	125.0	92	30-168	120301S02	12-02-1732-1	03/01/12 16:59
Diisopropyl Ether (DIPE)	ND	24.96		mg/kg	25.00	100	57-129	120301S02	12-02-1732-1	03/01/12 16:59
Ethyl-t-Butyl Ether (ETBE)	ND	23.91		mg/kg	25.00	96	55-127	120301S02	12-02-1732-1	03/01/12 16:59
Tert-Amyl-Methyl Ether (TAME)	ND	23.18		mg/kg	25.00	93	58-124	120301S02	12-02-1732-1	03/01/12 16:59
Ethanol	ND	255.5		mg/kg	250.0	102	17-167	120301S02	12-02-1732-1	03/01/12 16:59
1,1-Dichloroethene	ND	24.63		mg/kg	25.00	99	47-143	120301S02	12-02-1732-1	03/01/12 16:59
1,2-Dibromoethane	ND	23.56		mg/kg	25.00	94	64-124	120301S02	12-02-1732-1	03/01/12 16:59
1,2-Dichlorobenzene	ND	25.78		mg/kg	25.00	103	35-131	120301S02	12-02-1732-1	03/01/12 16:59
1,2-Dichloroethane	ND	23.46		mg/kg	25.00	94	80-120	120301S02	12-02-1732-1	03/01/12 16:59
Carbon Tetrachloride	ND	21.91		mg/kg	25.00	88	51-135	120301S02	12-02-1732-1	03/01/12 16:59
Chlorobenzene	ND	25.59		mg/kg	25.00	102	57-123	120301S02	12-02-1732-1	03/01/12 16:59
Trichloroethene	ND	23.86		mg/kg	25.00	95	44-158	120301S02	12-02-1732-1	03/01/12 16:59
Vinyl Chloride	ND	25.94		mg/kg	25.00	104	49-139	120301S02	12-02-1732-1	03/01/12 16:59

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ACCREDITED IN ACCORDANCE WITH nelac

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup

Analyte	Orig Val.	Duplicate	Q	Units	Spike Conc.	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8015B (M) TPH Gasoline												
12-02-1589-3												
TPH as Gasoline	ND	8.863		mg/kg	10.00	89	48-114	1	0-23	120228S02	12-02-1589-3	02/29/12 04:14
12-02-1766-19												
TPH as Gasoline	ND	7.022		mg/kg	10.00	70	48-114	5	0-23	120302S01	12-02-1766-19	03/02/12 14:13
EPA 8260B BTEX + Oxygenates												
12-03-0258-2												
Benzene	ND	5.240		mg/kg	5.000	105	61-127	3	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Toluene	ND	5.335		mg/kg	5.000	107	63-123	5	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Ethylbenzene	3.938	9.017		mg/kg	5.000	102	57-129	4	0-22	120308S01	12-03-0258-2	03/08/12 14:24
Methyl-t-Butyl Ether (MTBE)	ND	5.062		mg/kg	5.000	101	57-123	6	0-21	120308S01	12-03-0258-2	03/08/12 14:24
Tert-Butyl Alcohol (TBA)	ND	24.17		mg/kg	25.00	97	30-168	16	0-34	120308S01	12-03-0258-2	03/08/12 14:24
Diisopropyl Ether (DIPE)	ND	5.369		mg/kg	5.000	107	57-129	5	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Ethyl-t-Butyl Ether (ETBE)	ND	5.291		mg/kg	5.000	106	55-127	6	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Tert-Amyl-Methyl Ether (TAME)	ND	5.030		mg/kg	5.000	101	58-124	5	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Ethanol	ND	53.59		mg/kg	50.00	107	17-167	16	0-47	120308S01	12-03-0258-2	03/08/12 14:24
1,1-Dichloroethene	ND	5.258		mg/kg	5.000	105	47-143	4	0-25	120308S01	12-03-0258-2	03/08/12 14:24
1,2-Dibromoethane	ND	4.841		mg/kg	5.000	97	64-124	4	0-20	120308S01	12-03-0258-2	03/08/12 14:24
1,2-Dichlorobenzene	ND	5.239		mg/kg	5.000	105	35-131	4	0-25	120308S01	12-03-0258-2	03/08/12 14:24
1,2-Dichloroethane	ND	5.216		mg/kg	5.000	104	80-120	3	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Carbon Tetrachloride	ND	4.569		mg/kg	5.000	91	51-135	5	0-29	120308S01	12-03-0258-2	03/08/12 14:24
Chlorobenzene	ND	5.319		mg/kg	5.000	106	57-123	4	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Trichloroethene	ND	5.239		mg/kg	5.000	105	44-158	3	0-20	120308S01	12-03-0258-2	03/08/12 14:24
Vinyl Chloride	ND	5.426		mg/kg	5.000	109	49-139	8	0-47	120308S01	12-03-0258-2	03/08/12 14:24
EPA 8260B Volatile Organics												
12-03-0267-1												
Benzene	ND	0.05396		mg/kg	0.05000	108	61-127	5	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Toluene	ND	0.05331		mg/kg	0.05000	107	63-123	5	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Ethylbenzene	ND	0.05463		mg/kg	0.05000	109	57-129	6	0-22	120307S02	12-03-0267-1	03/07/12 17:24
Methyl-t-Butyl Ether (MTBE)	ND	0.05117		mg/kg	0.05000	102	57-123	4	0-21	120307S02	12-03-0267-1	03/07/12 17:24
Tert-Butyl Alcohol (TBA)	ND	0.2482		mg/kg	0.2500	99	30-168	5	0-34	120307S02	12-03-0267-1	03/07/12 17:24
Diisopropyl Ether (DIPE)	ND	0.05247		mg/kg	0.05000	105	57-129	3	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Ethyl-t-Butyl Ether (ETBE)	ND	0.05213		mg/kg	0.05000	104	55-127	4	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Tert-Amyl-Methyl Ether (TAME)	ND	0.04944		mg/kg	0.05000	99	58-124	4	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Ethanol	ND	0.4707		mg/kg	0.5000	94	17-167	20	0-47	120307S02	12-03-0267-1	03/07/12 17:24
1,1-Dichloroethene	ND	0.05547		mg/kg	0.05000	111	47-143	5	0-25	120307S02	12-03-0267-1	03/07/12 17:24
1,2-Dibromoethane	ND	0.04976		mg/kg	0.05000	100	64-124	6	0-20	120307S02	12-03-0267-1	03/07/12 17:24
1,2-Dichlorobenzene	ND	0.05053		mg/kg	0.05000	101	35-131	7	0-25	120307S02	12-03-0267-1	03/07/12 17:24
1,2-Dichloroethane	ND	0.05006		mg/kg	0.05000	100	80-120	5	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Carbon Tetrachloride	ND	0.05200		mg/kg	0.05000	104	51-135	7	0-29	120307S02	12-03-0267-1	03/07/12 17:24

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The difference is service

ACCREDITED IN ACCORDANCE WITH nelac

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup

Analyte	Orig Val.	Duplicate	Q	Units	Spike Conc.	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8260B Volatile Organics												
Chlorobenzene	ND	0.05158		mg/kg	0.05000	103	57-123	6	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Trichloroethene	ND	0.06658		mg/kg	0.05000	133	44-158	0	0-20	120307S02	12-03-0267-1	03/07/12 17:24
Vinyl Chloride	ND	0.05929		mg/kg	0.05000	119	49-139	3	0-47	120307S02	12-03-0267-1	03/07/12 17:24
EPA 8260B Volatile Organics + Oxygenates												
12-02-1589-3												
Benzene	ND	0.05059		mg/kg	0.05000	101	61-127	5	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Toluene	ND	0.04998		mg/kg	0.05000	100	63-123	4	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Ethylbenzene	ND	0.04861		mg/kg	0.05000	97	57-129	5	0-22	120228S01	12-02-1589-3	02/28/12 14:18
Methyl-t-Butyl Ether (MTBE)	ND	0.05085		mg/kg	0.05000	102	57-123	0	0-21	120228S01	12-02-1589-3	02/28/12 14:18
Tert-Butyl Alcohol (TBA)	ND	0.2259		mg/kg	0.2500	90	30-168	1	0-34	120228S01	12-02-1589-3	02/28/12 14:18
Diisopropyl Ether (DIPE)	ND	0.05248		mg/kg	0.05000	105	57-129	2	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Ethyl-t-Butyl Ether (ETBE)	ND	0.04791		mg/kg	0.05000	96	55-127	0	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Tert-Amyl-Methyl Ether (TAME)	ND	0.04821		mg/kg	0.05000	96	58-124	2	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Ethanol	ND	0.4823		mg/kg	0.5000	96	17-167	8	0-47	120228S01	12-02-1589-3	02/28/12 14:18
1,1-Dichloroethene	ND	0.05166		mg/kg	0.05000	103	47-143	3	0-25	120228S01	12-02-1589-3	02/28/12 14:18
1,2-Dibromoethane	ND	0.04835		mg/kg	0.05000	97	64-124	1	0-20	120228S01	12-02-1589-3	02/28/12 14:18
1,2-Dichlorobenzene	ND	0.04495		mg/kg	0.05000	90	35-131	1	0-25	120228S01	12-02-1589-3	02/28/12 14:18
1,2-Dichloroethane	ND	0.05431		mg/kg	0.05000	109	80-120	3	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Carbon Tetrachloride	ND	0.05316		mg/kg	0.05000	106	51-135	0	0-29	120228S01	12-02-1589-3	02/28/12 14:18
Chlorobenzene	ND	0.04716		mg/kg	0.05000	94	57-123	3	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Trichloroethene	ND	0.05013		mg/kg	0.05000	100	44-158	5	0-20	120228S01	12-02-1589-3	02/28/12 14:18
Vinyl Chloride	ND	0.05826		mg/kg	0.05000	117	49-139	8	0-47	120228S01	12-02-1589-3	02/28/12 14:18
12-02-1732-1												
Benzene	ND	24.32		mg/kg	25.00	97	61-127	0	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Toluene	ND	26.33		mg/kg	25.00	105	63-123	0	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Ethylbenzene	ND	26.57		mg/kg	25.00	106	57-129	1	0-22	120301S02	12-02-1732-1	03/01/12 17:27
Methyl-t-Butyl Ether (MTBE)	ND	23.77		mg/kg	25.00	95	57-123	3	0-21	120301S02	12-02-1732-1	03/01/12 17:27
Tert-Butyl Alcohol (TBA)	ND	119.8		mg/kg	125.0	96	30-168	4	0-34	120301S02	12-02-1732-1	03/01/12 17:27
Diisopropyl Ether (DIPE)	ND	25.23		mg/kg	25.00	101	57-129	1	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Ethyl-t-Butyl Ether (ETBE)	ND	24.57		mg/kg	25.00	98	55-127	3	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Tert-Amyl-Methyl Ether (TAME)	ND	23.96		mg/kg	25.00	96	58-124	3	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Ethanol	ND	262.1		mg/kg	250.0	105	17-167	3	0-47	120301S02	12-02-1732-1	03/01/12 17:27
1,1-Dichloroethene	ND	24.63		mg/kg	25.00	99	47-143	0	0-25	120301S02	12-02-1732-1	03/01/12 17:27
1,2-Dibromoethane	ND	24.00		mg/kg	25.00	96	64-124	2	0-20	120301S02	12-02-1732-1	03/01/12 17:27
1,2-Dichlorobenzene	ND	26.23		mg/kg	25.00	105	35-131	2	0-25	120301S02	12-02-1732-1	03/01/12 17:27
1,2-Dichloroethane	ND	23.37		mg/kg	25.00	93	80-120	0	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Carbon Tetrachloride	ND	21.94		mg/kg	25.00	88	51-135	0	0-29	120301S02	12-02-1732-1	03/01/12 17:27
Chlorobenzene	ND	25.68		mg/kg	25.00	103	57-123	0	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Trichloroethene	ND	24.03		mg/kg	25.00	96	44-158	1	0-20	120301S02	12-02-1732-1	03/01/12 17:27
Vinyl Chloride	ND	25.69		mg/kg	25.00	103	49-139	1	0-47	120301S02	12-02-1732-1	03/01/12 17:27

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
EPA 8015B (M) TPH Gasoline								
099-14-571-205								
TPH as Gasoline	10.00	9.470		mg/kg	95	70-124	120228B02	02/29/12 01:40
099-14-571-209								
TPH as Gasoline	10.00	8.391		mg/kg	84	70-124	120302B01	03/02/12 11:31
099-14-571-220								
TPH as Gasoline	10.00	9.550		mg/kg	96	70-124	120307B02	03/07/12 13:30
EPA 8260B Volatile Organics + Oxygenates								
099-12-882-1,285								
Benzene	0.05000	0.05250		mg/kg	105	78-120	120228L01	02/28/12 10:31
Toluene	0.05000	0.05134		mg/kg	103	77-120	120228L01	02/28/12 10:31
Ethylbenzene	0.05000	0.04989		mg/kg	100	76-120	120228L01	02/28/12 10:31
Methyl-t-Butyl Ether (MTBE)	0.05000	0.05277		mg/kg	106	77-120	120228L01	02/28/12 10:31
Tert-Butyl Alcohol (TBA)	0.2500	0.2201		mg/kg	88	68-122	120228L01	02/28/12 10:31
Diisopropyl Ether (DIPE)	0.05000	0.05341		mg/kg	107	78-120	120228L01	02/28/12 10:31
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.04894		mg/kg	98	78-120	120228L01	02/28/12 10:31
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.05119		mg/kg	102	75-120	120228L01	02/28/12 10:31
Ethanol	0.5000	0.4875		mg/kg	97	56-140	120228L01	02/28/12 10:31
1,1-Dichloroethene	0.05000	0.05433		mg/kg	109	74-122	120228L01	02/28/12 10:31
1,2-Dibromoethane	0.05000	0.04816		mg/kg	96	80-120	120228L01	02/28/12 10:31
1,2-Dichlorobenzene	0.05000	0.04322		mg/kg	86	75-120	120228L01	02/28/12 10:31
1,2-Dichloroethane	0.05000	0.05657		mg/kg	113	80-120	120228L01	02/28/12 10:31
Carbon Tetrachloride	0.05000	0.05504		mg/kg	110	49-139	120228L01	02/28/12 10:31
Chlorobenzene	0.05000	0.04812		mg/kg	96	79-120	120228L01	02/28/12 10:31
Trichloroethene	0.05000	0.05226		mg/kg	105	80-120	120228L01	02/28/12 10:31
Vinyl Chloride	0.05000	0.05809		mg/kg	116	68-122	120228L01	02/28/12 10:31

Total number of LCS compounds:	17
Total number of ME compounds:	0
Total number of ME compound allowed:	1
LCS ME CL validation result:	Pass

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates								
099-12-882-1,293								
Benzene	0.05000	0.04970		mg/kg	99	78-120	120301L01	03/01/12 10:48
Toluene	0.05000	0.04906		mg/kg	98	77-120	120301L01	03/01/12 10:48
Ethylbenzene	0.05000	0.05088		mg/kg	102	76-120	120301L01	03/01/12 10:48
Methyl-t-Butyl Ether (MTBE)	0.05000	0.04738		mg/kg	95	77-120	120301L01	03/01/12 10:48
Tert-Butyl Alcohol (TBA)	0.2500	0.2512		mg/kg	100	68-122	120301L01	03/01/12 10:48
Diisopropyl Ether (DIPE)	0.05000	0.05033		mg/kg	101	78-120	120301L01	03/01/12 10:48
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.04845		mg/kg	97	78-120	120301L01	03/01/12 10:48
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.04931		mg/kg	99	75-120	120301L01	03/01/12 10:48
Ethanol	0.5000	0.5456		mg/kg	109	56-140	120301L01	03/01/12 10:48
1,1-Dichloroethene	0.05000	0.04974		mg/kg	99	74-122	120301L01	03/01/12 10:48
1,2-Dibromoethane	0.05000	0.05108		mg/kg	102	80-120	120301L01	03/01/12 10:48
1,2-Dichlorobenzene	0.05000	0.05347		mg/kg	107	75-120	120301L01	03/01/12 10:48
1,2-Dichloroethane	0.05000	0.05043		mg/kg	101	80-120	120301L01	03/01/12 10:48
Carbon Tetrachloride	0.05000	0.04915		mg/kg	98	49-139	120301L01	03/01/12 10:48
Chlorobenzene	0.05000	0.05300		mg/kg	106	79-120	120301L01	03/01/12 10:48
Trichloroethene	0.05000	0.04902		mg/kg	98	80-120	120301L01	03/01/12 10:48
Vinyl Chloride	0.05000	0.05400		mg/kg	108	68-122	120301L01	03/01/12 10:48

Total number of LCS compounds:	17
Total number of ME compounds:	0
Total number of ME compound allowed:	1
LCS ME CL validation result:	Pass

Calscience Environmental Laboratories, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates								
099-12-882-1,294								
Benzene	0.05000	0.04970		mg/kg	99	78-120	120301L02	03/01/12 10:48
Toluene	0.05000	0.04906		mg/kg	98	77-120	120301L02	03/01/12 10:48
Ethylbenzene	0.05000	0.05088		mg/kg	102	76-120	120301L02	03/01/12 10:48
Methyl-t-Butyl Ether (MTBE)	0.05000	0.04738		mg/kg	95	77-120	120301L02	03/01/12 10:48
Tert-Butyl Alcohol (TBA)	0.2500	0.2512		mg/kg	100	68-122	120301L02	03/01/12 10:48
Diisopropyl Ether (DIPE)	0.05000	0.05033		mg/kg	101	78-120	120301L02	03/01/12 10:48
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.04845		mg/kg	97	78-120	120301L02	03/01/12 10:48
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.04931		mg/kg	99	75-120	120301L02	03/01/12 10:48
Ethanol	0.5000	0.5456		mg/kg	109	56-140	120301L02	03/01/12 10:48
1,1-Dichloroethene	0.05000	0.04974		mg/kg	99	74-122	120301L02	03/01/12 10:48
1,2-Dibromoethane	0.05000	0.05108		mg/kg	102	80-120	120301L02	03/01/12 10:48
1,2-Dichlorobenzene	0.05000	0.05347		mg/kg	107	75-120	120301L02	03/01/12 10:48
1,2-Dichloroethane	0.05000	0.05043		mg/kg	101	80-120	120301L02	03/01/12 10:48
Carbon Tetrachloride	0.05000	0.04915		mg/kg	98	49-139	120301L02	03/01/12 10:48
Chlorobenzene	0.05000	0.05300		mg/kg	106	79-120	120301L02	03/01/12 10:48
Trichloroethene	0.05000	0.04902		mg/kg	98	80-120	120301L02	03/01/12 10:48
Vinyl Chloride	0.05000	0.05400		mg/kg	108	68-122	120301L02	03/01/12 10:48

Total number of LCS compounds:	17
Total number of ME compounds:	0
Total number of ME compound allowed:	1
LCS ME CL validation result:	Pass

Calscience Environmental Laboratories, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates								
099-12-882-1,306								
Benzene	0.05000	0.04702		mg/kg	94	78-120	120307L02	03/07/12 10:46
Toluene	0.05000	0.04675		mg/kg	93	77-120	120307L02	03/07/12 10:46
Ethylbenzene	0.05000	0.04667		mg/kg	93	76-120	120307L02	03/07/12 10:46
Methyl-t-Butyl Ether (MTBE)	0.05000	0.04940		mg/kg	99	77-120	120307L02	03/07/12 10:46
Tert-Butyl Alcohol (TBA)	0.2500	0.2215		mg/kg	89	68-122	120307L02	03/07/12 10:46
Diisopropyl Ether (DIPE)	0.05000	0.04868		mg/kg	97	78-120	120307L02	03/07/12 10:46
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.04903		mg/kg	98	78-120	120307L02	03/07/12 10:46
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.04710		mg/kg	94	75-120	120307L02	03/07/12 10:46
Ethanol	0.5000	0.4451		mg/kg	89	56-140	120307L02	03/07/12 10:46
1,1-Dichloroethene	0.05000	0.04751		mg/kg	95	74-122	120307L02	03/07/12 10:46
1,2-Dibromoethane	0.05000	0.04620		mg/kg	92	80-120	120307L02	03/07/12 10:46
1,2-Dichlorobenzene	0.05000	0.04480		mg/kg	90	75-120	120307L02	03/07/12 10:46
1,2-Dichloroethane	0.05000	0.04606		mg/kg	92	80-120	120307L02	03/07/12 10:46
Carbon Tetrachloride	0.05000	0.04340		mg/kg	87	49-139	120307L02	03/07/12 10:46
Chlorobenzene	0.05000	0.04500		mg/kg	90	79-120	120307L02	03/07/12 10:46
Trichloroethene	0.05000	0.04636		mg/kg	93	80-120	120307L02	03/07/12 10:46
Vinyl Chloride	0.05000	0.05155		mg/kg	103	68-122	120307L02	03/07/12 10:46

Total number of LCS compounds:	17
Total number of ME compounds:	0
Total number of ME compound allowed:	1
LCS ME CL validation result:	Pass

Calscience Environmental Laboratories, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Cardno ERI 4572 Telephone Road, Suite 916 Ventura, CA 93003-5663	Work Order:	12-02-1589
		Project Name:	ExxonMobil 18KFK / 081006
		Received:	02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates								
099-12-882-1,308								
Benzene	0.05000	0.05133		mg/kg	103	78-120	120308L02	03/08/12 10:34
Toluene	0.05000	0.05124		mg/kg	102	77-120	120308L02	03/08/12 10:34
Ethylbenzene	0.05000	0.05035		mg/kg	101	76-120	120308L02	03/08/12 10:34
Methyl-t-Butyl Ether (MTBE)	0.05000	0.04968		mg/kg	99	77-120	120308L02	03/08/12 10:34
Tert-Butyl Alcohol (TBA)	0.2500	0.2344		mg/kg	94	68-122	120308L02	03/08/12 10:34
Diisopropyl Ether (DIPE)	0.05000	0.05089		mg/kg	102	78-120	120308L02	03/08/12 10:34
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.04974		mg/kg	99	78-120	120308L02	03/08/12 10:34
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.04990		mg/kg	100	75-120	120308L02	03/08/12 10:34
Ethanol	0.5000	0.4984		mg/kg	100	56-140	120308L02	03/08/12 10:34
1,1-Dichloroethene	0.05000	0.05170		mg/kg	103	74-122	120308L02	03/08/12 10:34
1,2-Dibromoethane	0.05000	0.05066		mg/kg	101	80-120	120308L02	03/08/12 10:34
1,2-Dichlorobenzene	0.05000	0.05084		mg/kg	102	75-120	120308L02	03/08/12 10:34
1,2-Dichloroethane	0.05000	0.05184		mg/kg	104	80-120	120308L02	03/08/12 10:34
Carbon Tetrachloride	0.05000	0.04952		mg/kg	99	49-139	120308L02	03/08/12 10:34
Chlorobenzene	0.05000	0.05234		mg/kg	105	79-120	120308L02	03/08/12 10:34
Trichloroethene	0.05000	0.05098		mg/kg	102	80-120	120308L02	03/08/12 10:34
Vinyl Chloride	0.05000	0.05369		mg/kg	107	68-122	120308L02	03/08/12 10:34

Total number of LCS compounds:	17
Total number of ME compounds:	0
Total number of ME compound allowed:	1
LCS ME CL validation result:	Pass

Calscience Environmental Laboratories, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	LCS Val.	Duplicate	Q	Units	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8015B (M) TPH Gasoline											
099-14-571-205											
TPH as Gasoline	10.00	9.436		mg/kg	94	70-124	0	0-18	120228B02	099-14-571-205	02/29/12 02:11
099-14-571-209											
TPH as Gasoline	10.00	8.300		mg/kg	83	70-124	1	0-18	120302B01	099-14-571-209	03/02/12 12:03
099-14-571-220											
TPH as Gasoline	10.00	9.848		mg/kg	98	70-124	3	0-18	120307B02	099-14-571-220	03/07/12 14:05
EPA 8260B Volatile Organics + Oxygenates											
099-12-882-1,285											
Benzene	0.05000	0.05065		mg/kg	101	78-120	4	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Toluene	0.05000	0.05026		mg/kg	101	77-120	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Ethylbenzene	0.05000	0.04869		mg/kg	97	76-120	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Methyl-t-Butyl Ether (MTBE)	0.05000	0.05031		mg/kg	101	77-120	5	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Tert-Butyl Alcohol (TBA)	0.2500	0.2112		mg/kg	84	68-122	4	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Diisopropyl Ether (DIPE)	0.05000	0.05185		mg/kg	104	78-120	3	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.04785		mg/kg	96	78-120	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.04938		mg/kg	99	75-120	4	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Ethanol	0.5000	0.4626		mg/kg	93	56-140	5	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
1,1-Dichloroethene	0.05000	0.05115		mg/kg	102	74-122	6	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
1,2-Dibromoethane	0.05000	0.04762		mg/kg	95	80-120	1	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
1,2-Dichlorobenzene	0.05000	0.04514		mg/kg	90	75-120	4	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
1,2-Dichloroethane	0.05000	0.05444		mg/kg	109	80-120	4	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Carbon Tetrachloride	0.05000	0.05376		mg/kg	108	49-139	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Chlorobenzene	0.05000	0.04699		mg/kg	94	79-120	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59
Trichloroethene	0.05000	0.05100		mg/kg	102	80-120	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59

Calscience Environmental Laboratories, Inc.

The difference is service

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	LCS Val.	Duplicate	Q	Units	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates											
Vinyl Chloride	0.05000	0.05675		mg/kg	113	68-122	2	0-20	120228L01	099-12-882-1,285	02/28/12 10:59

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

099-12-882-1,293											
Benzene	0.05000	0.05053		mg/kg	101	78-120	2	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Toluene	0.05000	0.04984		mg/kg	100	77-120	2	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Ethylbenzene	0.05000	0.05209		mg/kg	104	76-120	2	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Methyl-t-Butyl Ether (MTBE)	0.05000	0.05003		mg/kg	100	77-120	5	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Tert-Butyl Alcohol (TBA)	0.2500	0.2446		mg/kg	98	68-122	3	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Diisopropyl Ether (DIPE)	0.05000	0.05194		mg/kg	104	78-120	3	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.05079		mg/kg	102	78-120	5	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.05113		mg/kg	102	75-120	4	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Ethanol	0.5000	0.5027		mg/kg	101	56-140	8	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
1,1-Dichloroethene	0.05000	0.05026		mg/kg	101	74-122	1	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
1,2-Dibromoethane	0.05000	0.05299		mg/kg	106	80-120	4	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
1,2-Dichlorobenzene	0.05000	0.05404		mg/kg	108	75-120	1	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
1,2-Dichloroethane	0.05000	0.05116		mg/kg	102	80-120	1	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Carbon Tetrachloride	0.05000	0.05044		mg/kg	101	49-139	3	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Chlorobenzene	0.05000	0.05383		mg/kg	108	79-120	2	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Trichloroethene	0.05000	0.04957		mg/kg	99	80-120	1	0-20	120301L01	099-12-882-1,293	03/01/12 11:16
Vinyl Chloride	0.05000	0.05303		mg/kg	106	68-122	2	0-20	120301L01	099-12-882-1,293	03/01/12 11:16

Calscience Environmental Laboratories, Inc.

The difference is service

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	LCS Val.	Duplicate	Q	Units	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates											
Total number of LCS compounds: 17											
Total number of ME compounds: 0											
Total number of ME compounds allowed: 1											
LCS ME CL validation result: Pass											
099-12-882-1,294											
Benzene	0.05000	0.05053		mg/kg	101	78-120	2	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Toluene	0.05000	0.04984		mg/kg	100	77-120	2	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Ethylbenzene	0.05000	0.05209		mg/kg	104	76-120	2	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Methyl-t-Butyl Ether (MTBE)	0.05000	0.05003		mg/kg	100	77-120	5	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Tert-Butyl Alcohol (TBA)	0.2500	0.2446		mg/kg	98	68-122	3	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Diisopropyl Ether (DIPE)	0.05000	0.05194		mg/kg	104	78-120	3	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.05079		mg/kg	102	78-120	5	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.05113		mg/kg	102	75-120	4	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Ethanol	0.5000	0.5027		mg/kg	101	56-140	8	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
1,1-Dichloroethene	0.05000	0.05026		mg/kg	101	74-122	1	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
1,2-Dibromoethane	0.05000	0.05299		mg/kg	106	80-120	4	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
1,2-Dichlorobenzene	0.05000	0.05404		mg/kg	108	75-120	1	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
1,2-Dichloroethane	0.05000	0.05116		mg/kg	102	80-120	1	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Carbon Tetrachloride	0.05000	0.05044		mg/kg	101	49-139	3	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Chlorobenzene	0.05000	0.05383		mg/kg	108	79-120	2	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Trichloroethene	0.05000	0.04957		mg/kg	99	80-120	1	0-20	120301L02	099-12-882-1,294	03/01/12 11:16
Vinyl Chloride	0.05000	0.05303		mg/kg	106	68-122	2	0-20	120301L02	099-12-882-1,294	03/01/12 11:16

Calscience Environmental Laboratories, Inc.

The difference is service

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	LCS Val.	Duplicate	Q	Units	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates											
Total number of LCS compounds: 17											
Total number of ME compounds: 0											
Total number of ME compounds allowed: 1											
LCS ME CL validation result: Pass											
099-12-882-1,306											
Benzene	0.05000	0.05262		mg/kg	105	78-120	11	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Toluene	0.05000	0.05204		mg/kg	104	77-120	11	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Ethylbenzene	0.05000	0.05213		mg/kg	104	76-120	11	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Methyl-t-Butyl Ether (MTBE)	0.05000	0.05312		mg/kg	106	77-120	7	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Tert-Butyl Alcohol (TBA)	0.2500	0.2466		mg/kg	99	68-122	11	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Diisopropyl Ether (DIPE)	0.05000	0.05340		mg/kg	107	78-120	9	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.05360		mg/kg	107	78-120	9	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.05178		mg/kg	104	75-120	9	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Ethanol	0.5000	0.4989		mg/kg	100	56-140	11	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
1,1-Dichloroethene	0.05000	0.05257		mg/kg	105	74-122	10	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
1,2-Dibromoethane	0.05000	0.05005		mg/kg	100	80-120	8	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
1,2-Dichlorobenzene	0.05000	0.04873		mg/kg	97	75-120	8	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
1,2-Dichloroethane	0.05000	0.05005		mg/kg	100	80-120	8	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Carbon Tetrachloride	0.05000	0.04972		mg/kg	99	49-139	14	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Chlorobenzene	0.05000	0.04948		mg/kg	99	79-120	9	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Trichloroethene	0.05000	0.05210		mg/kg	104	80-120	12	0-20	120307L02	099-12-882-1,306	03/07/12 11:14
Vinyl Chloride	0.05000	0.05541		mg/kg	111	68-122	7	0-20	120307L02	099-12-882-1,306	03/07/12 11:14

Calscience Environmental Laboratories, Inc.

The difference is service

ACCREDITED IN ACCORDANCE WITH nelac

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	LCS Val.	Duplicate	Q	Units	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
EPA 8260B Volatile Organics + Oxygenates											
Total number of LCS compounds:	17										
Total number of ME compounds:	0										
Total number of ME compounds allowed:	1										
LCS ME CL validation result:	Pass										
099-12-882-1,308											
Benzene	0.05000	0.05369		mg/kg	107	78-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Toluene	0.05000	0.05352		mg/kg	107	77-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Ethylbenzene	0.05000	0.05218		mg/kg	104	76-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Methyl-t-Butyl Ether (MTBE)	0.05000	0.05148		mg/kg	103	77-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Tert-Butyl Alcohol (TBA)	0.2500	0.2363		mg/kg	95	68-122	1	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Diisopropyl Ether (DIPE)	0.05000	0.05317		mg/kg	106	78-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Ethyl-t-Butyl Ether (ETBE)	0.05000	0.05198		mg/kg	104	78-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Tert-Amyl-Methyl Ether (TAME)	0.05000	0.05154		mg/kg	103	75-120	3	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Ethanol	0.5000	0.5156		mg/kg	103	56-140	3	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
1,1-Dichloroethene	0.05000	0.05381		mg/kg	108	74-122	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
1,2-Dibromoethane	0.05000	0.05114		mg/kg	102	80-120	1	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
1,2-Dichlorobenzene	0.05000	0.05294		mg/kg	106	75-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
1,2-Dichloroethane	0.05000	0.05348		mg/kg	107	80-120	3	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Carbon Tetrachloride	0.05000	0.05194		mg/kg	104	49-139	5	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Chlorobenzene	0.05000	0.05416		mg/kg	108	79-120	3	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Trichloroethene	0.05000	0.05320		mg/kg	106	80-120	4	0-20	120308L02	099-12-882-1,308	03/08/12 11:01
Vinyl Chloride	0.05000	0.05487		mg/kg	110	68-122	2	0-20	120308L02	099-12-882-1,308	03/08/12 11:01

Calscience Environmental Laboratories, Inc.

The difference is service

Client: Cardno ERI
4572 Telephone Road, Suite 916
Ventura, CA 93003-5663

Work Order: 12-02-1589
Project Name: ExxonMobil 18KFK / 081006
Received: 02/27/12 17:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	LCS Val.	Duplicate	Q	Units	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time

EPA 8260B Volatile Organics + Oxygenates

Total number of LCS compounds: 17
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 12-02-1589

Qualifier	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 matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
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.
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 a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
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 and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
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.
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/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
U	Undetected at detection limit.

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.
MPN - Most Probable Number

Sandy Tat

From: James D. Anderson [james.anderson@cardno.com]
Sent: Wednesday, March 07, 2012 12:01 PM
To: Sandy Tat
Cc: Robert Serrato
Subject: RE: ExxonMobil 18KFK / 081006 / CEL 12-02-1589

Sandy,

Could you please analyze the 35 foot sample for the same constituents on a standard TAT

Robert,

Do you have a boring log?

Thank you.

James Anderson
Major Projects Group Manager
Senior Program Manager
Cardno ERI
4572 Telephone Road, Suite 916, Ventura, CA 93003
Phone: 805 644 4157 **Extension:** 181805 **Mobile:** 805 701 1420 **Fax:** 805 644 5610

From: Sandy Tat [mailto:stat@calscience.com]
Sent: Wednesday, March 07, 2012 11:44 AM
To: ERI-EIMLABS; geotracker08; James D. Anderson
Subject: ExxonMobil 18KFK / 081006 / CEL 12-02-1589

Hi James,

Do you need further analyses? Please advise. Thanks!

Best Regards,

Sandy Tat
Project Manager Assistant
Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone: 714-895-5494 x220
Fax: 714-894-7501
stat@calscience.com

Cecile de Guia

From: Robert Serrato [robert.serrato@cardno.com]
Sent: Monday, March 05, 2012 8:43 AM
To: Cecile de Guia
Cc: James D. Anderson; Sandy Tat
Subject: RE: ExxonMobil 18KFK; 12-02-1589

Hi Cecile,

The global ID is T0608300588

From: Cecile de Guia [mailto:cdeguia@calscience.com]
Sent: Tuesday, February 28, 2012 2:26 PM
To: Robert Serrato
Cc: James D. Anderson; Sandy Tat
Subject: ExxonMobil 18KFK; 12-02-1589
Importance: High

Good afternoon Robert,

Please include the Global ID for 18KFK for the attached COC. Thank you.

Cecile de Guia
Project Manager
Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone: 714-895-5494 x221
Fax: 714-894-7501
cdeguia@calscience.com

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The client or recipient of any attached analytical report is specifically prohibited from making material changes to said report and, to

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

ExxonMobil

12-02-1589

Consultant Name: Cardno-Environmental Resolutions, Inc. **Account #:** NA **PO#:** 4514678359
Consultant Address: 4572 Telephone Rd **Invoice To:** EXXONMOBIL
Consultant City/State/Zip: Ventura, California, 93003 **Report To:** JAMES ANDERSON
ExxonMobil Project Mgr: LEE HANLEY **ERI Project #/Activity #:** 08100605
Consultant Project Mgr: James Anderson **ExxonMobil Site #:** 18KFK **Major Project (AFE #):**
Consultant Telephone Number: (805) 644-4157 **Fax No.:** (805) 644-5610 **Site Address:** 100 S LA CUMBRE
Sampler Name (Print): ALEJANDRO CHAIREZ **Site City, State, Zip:** SANTA BARBARA, CA 93109
Sampler Signature: FOR AC **Oversight Agency:** SBFPD

	Sample ID	Field Point Name/ Location ID	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):	Analyze For: 8260B BTEX+OXYS RECALCITRANTS	TPH$_g$ 8015M						HOLD	RUSH TAT (Pre-Schedule)	5-day TAT	Standard 10-day TAT	Due Date of Report
1	S-10-AS/SVE1	AS/SVE1	2/24/12	1139	1	X										X							X											X				
2	S-15-AS/SVE1	AS/SVE1	2/24/12	1144	1	X										X							X											X				
3	S-20-AS/SVE1	AS/SVE1	2/24/12	1151	1	X										X							X			X	X										X	
4	S-25-AS/SVE1	AS/SVE1	2/24/12	1158	1	X										X							X											X				
5	S-30-AS/SVE1	AS/SVE1	2/24/12	1206	1	X										X							X											X				
6	S-35-AS/SVE1	AS/SVE1	2/24/12	1215	1	X										X							X											X				
7	S-40-AS/SVE1	AS/SVE1	2/24/12	1220	1	X										X							X			X	X										X	
8	S-45-AS/SVE1	AS/SVE1	2/24/12	1223	1	X										X							X			X	X										X	
9	S-50-AS/SVE1	AS/SVE1	2/24/12	1253	1	X										X							X											X				
10	S-55-AS/SVE1	AS/SVE1	2/24/12	1302	1	X										X							X			X	X										X	

Comments/Special Instructions:
OXY'S INCLUDE MTBE, DIPE, ETBE, TAME, TBA, ETHANOL

PLEASE E-MAIL ALL PDF FILES TO
janderson@eri-us.com
ERI-EIMLABS@eri-us.com
geotracker08@eri-us.com

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

GLOBAL ID #

Relinquished by:		Date	Time	Received by:	Date	Time
		2/27/12	1300	CEL	2/27/12	1300
Relinquished by:		**Date**	**Time**	**Received by (Lab personnel):**	**Date**	**Time**
		2/27/12	1700		2/27/12	1700

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

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 12-02-1589

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: CARDNO ERI

DATE: 02/27/12

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 2.4 °C - 0.3 °C (CF) = 2.1 °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.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: _____

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: _____

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: _____

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** PS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** PT

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** PT

Former ExxonMobil Station 18KFK

APPENDIX G

SITE SAFETY PLAN

Cardno
Shaping the Future

SITE SAFETY PLAN

Former ExxonMobil Service Station 18KFK
100 South La Cumbre Road
Santa Barbara, CA 93105

Revision: June 29, 2013

Emergency Contact Information:

Andrew Nelson

(805) 258-8856
Telephone Number

6/29/12
Date

Cardno ERI Approval:

Branch H&S Manager:

for Majd Nima

(805) 290-3169
Telephone Number

6/29/12
Date

Amendments or modifications to this plan may be written on a separate page and attached to this plan. Any amendments or modifications must be reviewed and approved by the personnel named above.

SAFETY OBJECTIVES

1. ***The first and foremost priority during this project is to maintain a safe and healthy work environment.***
2. ***Work will not be performed until every necessary safety precaution has been taken.***
3. ***No project objectives will knowingly be allowed to put at risk human health and the environment.***

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APPENDICES

Appendix A: Heat Stress Protocol
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Appendix F: Personal Protective Clothing/Gloves Inspection and Donning and Doffing Procedures
Appendix G: ExxonMobil Work Permit

1.0 INTRODUCTION

Former ExxonMobil Station 18KFK is located in the city of Santa Barbara in the county of Santa Barbara. The site is currently a vacant lot with a service station building.

This site safety plan was created in compliance with 29 CFR 1910.120 and CCR Title 8, Section 5192 to describe the safety and health requirements of each phase of operation including the requirements and procedures for employee protection. The provisions set forth in this plan apply to the employees of Cardno ERI and its subcontractors working to conduct the following tasks: **Environmental Assessment Investigations and associated remediation activities including drilling, well installation, and well destruction.** The subcontractors may elect to modify these provisions or have a separate supplemental health and safety plan, but only to upgrade or increase the safety requirements, and only with the concurrence of Cardno ERI, as designated and accepted in writing.

This site safety plan will address the expected potential hazards that may be encountered at the work site for this project. If changes in site or working conditions occur as activities progress, addenda to this plan will be provided by Cardno ERI.

THIS SITE SAFETY PLAN WILL BE ON SITE ANYTIME EMPLOYEES ARE PRESENT TO WORK AT OR ACCESS THE SITE.

1.1 Authority for Site Safety

The Project Manager and the Site Safety Officer are responsible for project safety. The Health and Safety Coordinator is responsible for the overall Cardno ERI Health and Safety Program and may choose to audit the site for compliance and take appropriate action to correct deficiencies. The Project Manager is responsible for implementing the provisions of this plan, for providing a copy of this plan to the Site Safety Officer, and for advising the Site Safety Officer on health and safety matters. The Project Manager and Site Safety Officer have the authority to audit site activities for compliance with the provisions of this plan. They may suspend or modify work practices or dismiss subcontractors whose conduct does not meet the requirements specified in this plan.

The Site Safety Officer is responsible for communicating the information contained in this plan to Cardno ERI personnel assigned to this project and to the responsible representative of each subcontractor working for Cardno ERI on this project.

The Site Safety Officer will be the senior Cardno ERI employee on site and is responsible for addressing the following items:

- Implementing the site safety plan, company policies, and procedures.
- Requiring and maintaining adequate safety supplies and equipment inventory on site.
- Conducting daily safety and orientation meetings and advising workers regarding hazards.
- Site control, decontamination, and contamination reduction procedures.
- Reporting accidents or incidents.
- Conducting inspections to determine the effectiveness of the site safety plan and to report any deficiencies to the corporate Health and Safety Coordinator for correction.
- Evaluate presentation of tailgate meeting by Short Service Employee (SSE) if present. SSE is employee who has been with the company less than one year.

The Site Safety Officer does not act as the Confined Space Supervisor for subcontractor work.

All personnel working on site have the authority to suspend work at any time that he or she finds the provisions of the plan are inadequate for worker safety. The Site Safety Officer will promptly inform the Project Manager and the Health and Safety Coordinator of deficiencies within the plan or individuals or subcontractors whose conduct is not consistent with the requirements of this plan.

1.2 Confined Space Entry

Cardno ERI personnel are not allowed to enter or perform work in a confined space (or permit required confined space) without direct authorization from a Corporate Officer of the company. A separate confined space entry permit will need to be completed for Cardno ERI personnel to conduct work. This health and safety plan does not cover confined space hazards, protocols, or emergency procedures. Subcontractors who are under contract are required to have their confined space entry site safety plan sent to Cardno ERI prior to commencing with any work. Their site safety plan will be on site and will be the governing document to be followed for specific task(s) involving confined space entry (permit required or otherwise).

2.0 MEDICAL SURVEILLANCE

Cardno ERI personnel and subcontractors engaged in project activities must participate in a medical surveillance program and must be cleared by the examining physician(s) to wear respiratory protection devices and protective clothing for working with hazardous materials. The applicable requirements under both CCR Title 8 Section 5192 and 29 CFR 1910.120 of the Code of Federal Regulations will be observed.

3.0 SAFETY AND ORIENTATION MEETING

Cardno ERI field personnel and subcontractors will attend a safety and orientation meeting (meeting) for safety issues and will review the project tasks before beginning work. The meeting will be led by the Project Manager

or Site Safety Officer. In addition, positive and negative seal checks of respiratory protective devices will be conducted as part of the safety orientation meeting when the use of a respirator may be required.

3.1 Employee Training

During the safety and orientation meeting described in Section 3.0, the Site Safety Officer will confirm all employees and subcontractors working on site have the following current certifications of employee training depending on work being performed and exposure risk.

1) **40-hour HAZWOPER card or certificate:** Initial (with three days of documented supervision) or refresher card for general site workers. These workers engage in hazardous substance removal or other activities **which expose or potentially expose** workers to hazardous substances.
2) **Workers who are engaged in activities which will not expose or potentially expose** workers to hazardous substances over the permissible exposure limits (PELs) are not required to have HAZWOPER certification. Workers will not be exposed to impacted vapor, soil or water (groundwater included) or enter remediation compounds. Typical activities where this would occur are subcontractors for: land surveying, geophysical surveying, landscaping services, asphalt/concrete work (does not include saw cutting), crane operations, and deliveries of equipment or materials.
3) **Current LPS Certification:** Current Loss Prevention System (LPS) certification is required for all workers used more than once per quarter and must have a Valid Loss Prevention Training (LPS) signed training card. Subcontractors who are not used more than once per quarter require having LPS light conducted. The Site Safety Officer will conduct LPS light for these infrequent subcontractors. Certification cards are not required for equipment or material delivery services, such as Federal Express, UPS, or rental equipment, or regulatory agency representatives, and property owners.

Employees or subcontractors who cannot provide proof of training **are not allowed** on site or within the exclusion zone and **are not permitted to conduct any work**.

3.2 Site Visitors

Any non-Cardno ERI or subcontractor personnel who wishes to gain access to fenced off-site or established exclusion zones when work is occurring at an active facility open to the public are required to attend the safety and orientation meeting and meet all other requirements listed within this site safety plan, such as proof of training and proper personal protective equipment (PPE).

Authorized visitors to the site or the exclusion zone are the client and federal, state, or local government agents. If visitors do not meet minimum requirements, they **are not allowed** on site or within exclusion zones.

3.3 Emergency Relocation Area

In the event that there is an emergency where a fire, significant release, or safety hazard exists at the site, all personnel will assemble at the location identified during the safety and orientation meeting. Factors to consider are: direction of wind (locate up wind), proximity to traffic (should not be in the way of emergency vehicles or exposed to street vehicle hazards), and location of emergency (should not be down hill where a release could move towards you).

3.4 Work Permit System

Evaluation of site activities may require the issuance and compliance with ExxonMobil's work permit system. A blank work permit is included in Appendix G of this site safety plan. Work permits are issued for the following job activities:

1) Confined Space or Permit Required Confined Space Entry.
2) Hot Work.
3) Excavation Work.
4) Cold Work.
5) Gas Testing.
6) Energy Control ("Lockout / Tagout").

The permit system description and detailed instructions and definitions of permit required tasks are also included in Appendix G in the document titled "Global Remediation Work Permit Document." Any additional questions should be directed to your project manager.

4.0 HAZARD RISK ASSESSMENT

4.1 General

The major hazards expected to be encountered on this project are addressed in the task-specific Job Safety Analysis (JSA) included in Appendix E of this site safety plan. The JSAs, depending on the task(s), may list additional PPE not shown here in the general site safety plan. Wear the highest level of protection prescribed by either document.

The major chemicals expected to be encountered on this project are fuel-related hydrocarbon compounds. Anticipated chemicals and their exposure standards are listed in Table 1.

Potential levels of exposure are not anticipated to reach the PEL or threshold limit values (TLV). Inhalation and dermal contact are the most prevalent exposure pathways. Protective clothing will be mandatory for field personnel as specified in this plan.

Respiratory protective devices are required to be worn by each person on site or to be within easy reach should monitoring of the breathing air approach any PELs or irritating odors are detected or irritation of the respiratory tract occurs.

Hearing conservation program adherence is mandatory to be in compliance with this site safety plan. The anticipated level and duration of noise exposure and which hearing protective devices will be worn will be discussed during the safety and orientation meeting.

4.2 Biological

For the purposes of this health and safety plan, biological hazards are discussed in general terms such as venomous snakes, stinging and biting insects, and infectious agents from animal droppings. It is important for employees to discuss known local biological hazards.

4.2.1 Venomous Snake Safe Practices

How to Avoid Snake Bites

- Do not handle snakes! A person may be bitten when holding a snake or when attempting to pick it up or kill it.
- Never play with or tease snakes! Remain at a safe distance more than two snake body lengths away. Most snakes can strike and hit at a distance of half their length.
- Keep hands and feet out of areas into which you can not see. "Sweep" or prod around blind areas at low levels with a stick, especially if it is a warm area around vibrating equipment.
- Do not pick up a "dead" snake. It may only be injured, stunned, or playing dead.

Proper Procedures for Treatment of Snakebites

- Keep the victim calm. Have him or her lie flat with little movement. Treat for shock.
- Wash the bite with soap and water.
- Contrary to popular belief, **do not** use a knife to cut an "X" on the fang wounds to suck out the venom - this doesn't work!!
- Immobilize the bitten limb, using a splint if needed, and position the limb well below the level of the heart. A bandage wrapped 2 to 4 inches above the bite may help slow the venom. The bandage should not cut off blood flow from a vein or artery. A good rule of thumb is to make the band loose enough that a finger could slip under it.
- If the victim has collapsed or is not breathing, call 911.
- Get the victim to a hospital as soon as possible, lying flat with the bitten appendage kept below heart-level.
- If possible, get a description of the snake so that the doctor will know which anti-venom to use. Injecting the wrong anti-venom is useless and will endanger the victim.

4.2.2 Stinging and Biting Insects

While everyone considers being bitten or stung by an insect unpleasant, we need to be aware of the more serious ramifications of such events. Here are a few tips on how to avoid being bitten or stung.

- Wear long sleeves, neck covering and pants.
- Wear white or light colors.
- Do not wear cologne or perfume.
- Use insect repellent.
- Do not swat at insects.
- Wear gloves.
- Do not reach under objects that you have not inspected first.

One serious consequence of insect stings is anaphylaxis, a severe life-threatening allergic reaction. Symptoms of anaphylaxis include: feeling faint or passing out, difficulty breathing, swelling of the tongue, hives, wheezing, and/or coughing. Symptom onset may occur within seconds and usually within twenty minutes. Individuals who have had severe reactions to previous stings should keep an anaphylaxis kit (e.g., Ana-Kit or Epi-Pen) nearby if there is any risk of a sting. If stung, epinephrine should be injected into the muscle of the upper outer thigh. Application of ice to the sting location can help minimize the effects of the poison as well taking an over the counter antihistamine.

4.2.3 Infectious Agents

Serious illness can occur after exposure to various infectious agents found in some rodent and bird droppings. One situation to be concerned about is a site covered in large amounts of droppings from rodents or pigeons. This situation typically occurs at closed or vacant sites where structures have not been occupied for a long period of time.

When droppings are disturbed, in addition to dust and other materials becoming airborne, various fungi, bacteria, and viruses are also typically put into the air, which can be breathed in by the worker. Prohibited actions include:

- Entering buildings with visible dropping on horizontal surfaces.
- Dry sweeping in locations where bird and rodent dropping are present.

Three human diseases are known to be associated with pigeon droppings: histoplasmosis, cryptococcosis, and psittacosis. Hantavirus Pulmonary Syndrome (HPS), a rodent related infection, is a potentially deadly respiratory

illness caused by certain types of hantaviruses, which are viruses found in the saliva, urine, and droppings of some rodents.

When large quantities of droppings are present, stop work and have the site evaluated. Have the droppings removed and disposed of by a professional before continuing work.

4.2.4 Blood Borne Pathogens

Treat all human blood and body fluids as if they are infected. Take the following precautions when assisting someone when there is the potential to come into contact with bodily fluids:

- Cover cuts, rashes, and broken skin.
- Wash your hands and exposed skin with soap and water or an alcohol-based disinfectant handrub immediately after exposure to infectious fluids.
- Use a disinfectant solution to clean and decontaminate any area where fluids have spilled.
- Avoid splashes and spills of body fluids.
- Use a pocket mask or other protective device if performing cardiopulmonary resuscitation (CPR).

4.3 Assured Grounding Program

At no time is an Cardno ERI or subcontractor of Cardno ERI to jeopardize themselves by using electrical equipment without being tested and approved for ground fault circuit interruption equipment (GFCI). All 120-volt, AC, single-phase, 15- and 20-ampere receptacle outlets will have approved ground-fault circuit interrupters for personnel protection. Receptacles on a two-wire, single-phase portable, or vehicle-mounted generator rated not more than 5 kilowatts (KW), where the circuit conductors of the generator are insulated from the generator frame and all their grounded surfaces, will also require ground-fault circuit interrupt.

This Assured Equipment Grounding Conductor Program (AEGCP) will be used in conjunction with GFCIs for ground-fault protection. The following minimum requirements apply:

- Document during the safety and orientation meeting where and when electrical equipment is to be used. If so, document the condition of the equipment on the form for future reference.
- The Site Safety Officer is to conduct the inspections of electrical equipment prior to each use.
- The inspection will cover all cord sets, attachment caps, plugs, receptacles, and any equipment connected by a cord and/or a plug. If any external damage (e.g., deformed or missing pins, damaged insulation) or internal damage is found, take the equipment out of use until it is repaired.

4.4 Chemical Descriptions/Exposure

This section describes the prevalent chemical compounds found in fuel-related hydrocarbons. It provides the chemical name, a physical description, fire or explosion hazards, incompatible materials, common exposure symptoms, target organs affected, and routes of exposure. Refer to the material safety data sheets in Appendix C for more information on select chemicals.

4.4.1 Benzene

Benzene is a colorless, aromatic liquid. Benzene may create an explosion hazard. Benzene is incompatible with strong oxidizers, chlorine, and bromine with iron. Benzene is irritating to the eyes, nose, and respiratory system. Prolonged exposure may result in giddiness, headache, nausea, staggering gait, fatigue, bone marrow depression, or abdominal pain. Routes of entry include inhalation, absorption, ingestion, and skin or eye contact. The target organs are the blood, the central nervous system (CNS), skin, bone marrow, the eyes, and the respiratory system. Benzene is carcinogenic.

4.4.2 Ethylbenzene

Ethylbenzene is a colorless, aromatic liquid that may create an explosion hazard. It is incompatible with strong oxidizers. Ethylbenzene is irritating to the eyes and mucous membranes. Prolonged exposure may result in headache, dermatitis, narcosis, or coma. Routes of entry include inhalation, ingestion, and skin or eye contact. The target organs are the eyes, the upper respiratory system, the skin, and the CNS.

4.4.3 Toluene

Toluene is a colorless, aromatic liquid. Toluene may create an explosion hazard. Toluene is incompatible with strong oxidizers. Prolonged exposure may result in fatigue, confusion, euphoria, dermatitis, or photophobia. Routes of entry are inhalation, absorption, ingestion, and skin or eye contact. The target organs are the CNS, the liver, the kidneys, and the skin.

4.4.4 Xylene Isomers

Xylene is a colorless, aromatic liquid. Xylene may create an explosion hazard. Xylene is incompatible with strong oxidizers. Xylene is irritating to the eyes, nose, and throat. Prolonged exposure may result in dizziness, excitement, drowsiness, staggering gait, corneal vacuolization, vomiting, abdominal pain, or dermatitis. Routes of entry are inhalation, absorption, ingestion, and skin or eye contact. The target organs are the CNS, the eyes, the gastrointestinal tract, the blood, the liver, the kidneys, and the skin.

4.4.5 Methyl Tertiary Butyl Ether

Methyl tertiary butyl ether (MTBE) is a colorless, aromatic liquid that can create an explosion hazard. It is incompatible with strong oxidizers and acids. Inhaling vapors can irritate the respiratory tract and cause CNS defects. Breathing high concentrations in the air can cause lightheadedness, dizziness, weakness, nausea, and headache. Routes of entry are ingestion and skin and eye contact. MTBE is a potential human carcinogen.

4.4.6 Naphthalene

Naphthalene is a colorless to brown solid with an odor of mothballs. Naphthalene is a flammable solid, which is highly reactive with oxidizing agents. It is very hazardous in case of ingestion. It is hazardous in eye contact, inhalation, and skin contact as an irritant. It is toxic to the blood, the kidneys, the CNS, the liver, the mucous membranes, the gastrointestinal tract, and the upper respiratory tract. Routes of entry are dermal contact, eye contact, inhalation, and ingestion. Naphthalene is a carcinogen.

4.4.7 Ethanol

Ethanol is a colorless liquid with a pleasant alcoholic odor detectable at 49 to 716 parts per million (ppmv). Ethanol is an extremely flammable liquid and vapor. In vapor form, it can flash fire. It is stable under normal ambient conditions. Avoid mixing with strong oxidizing agents. Ethanol is an eye irritant and contact may cause stinging, watering, redness, and/or swelling. Skin contact may cause redness, itching, burning, and skin damage. There is low to moderate exposure of toxicity through inhalation and ingestion. Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, vomiting, flushing, transient excitement followed by signs of nervous depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation, and fatigue), blurred vision, drunkenness, stupor, tremors, respiratory failure, unconsciousness, convulsions, and death. Target organs are the CNS, the stomach, the liver, the male reproductive system, and the heart.

4.4.8 Tetraethyl lead

Tetraethyl lead is a colorless liquid or is dyed red, orange, or blue with a slight musty odor. It is a class two flammable combustible liquid. Vapors may travel back to source and flash back. It is not compatible with oxidizing agents and class three reactive materials, and it may explode in a fire. Symptoms of exposure are irritation to the eyes, with possible loss of vision, and irritation to the nose and throat, causing coughing and wheezing. High exposure can cause headaches, irritability, reduced memory, disturbed sleep, tiredness, personality changes, convulsions, and death. Repeated exposure can lead to lead poisoning. Target organs are the blood cells, the brain, and the kidneys. Routes of exposure are inhalation, dermal contact, and ingestion.

4.4.9 1,2-Dibromoethane or Ethylene Dibromide

1,2-dibromoethane (EDB) is a colorless liquid or solid with a mild sweet odor detectable at 10 ppmv. EDB is non flammable. In liquid form it is not compatible with magnesium and aluminum; strong alkalis and alkali metals may cause violent chemical reaction. Polypropylene, polyvinyl chloride, and rubber are incompatible. EDB is an irritant to the eyes, the respiratory tract, and the mucous membranes. Inhalation causes headaches, decreased appetite, inability to sleep, nausea, and dizziness. Dermal contact may result in intense burning pain and blistering. EDB targets the dermal, the lungs (pulmonary edema), the liver, and the kidneys. Routes of exposure are inhalation, dermal contact, and ingestion

4.4.10 1,2-Dichloroethane or Ethylene Dichloride

1,2-dichloroethane (1,2-DCA or EDC) is a clear liquid with a sweet odor like chloroform. It is a solvent and wetting agent. It is flammable but otherwise stable. 1,2-DCA should be handled with extreme caution as a carcinogen. It is extremely hazardous when ingested, very hazardous as an eye irritant, and is an irritant for inhalation and skin contact. It is corrosive to the skin and the eyes on contact and causes tissue damage when misted to mucous membranes of the eyes, the mouth, and the respiratory tract. Skin contact may produce burns.

4.4.11 Asbestos

Asbestos is a naturally occurring mineral. It is distinguished from other minerals by the fact that it crystals form long, thin fibers. Asbestos is broken into two groups: amphiboles and serpentine. Chrysotile is the only mineral in the serpentine group and is the most common form of asbestos used in building products. It is known as white asbestos. Asbestos is non-flammable. It is non reactive Asbestos causes the lung disease asbestosis, cancer, and mesothelioma.

4.4.12 Hydrogen Sulfide

Hydrogen sulfide is a gas which is Irritating to the eyes, mucous membranes and respiratory system. Inhaled gas inhibits cellular respiration resulting in pulmonary paralysis, sudden collapse and death. At concentrations of 4.0% up to 44.0% are the LEL and UEL limits making H_2S extremely flammable. Continuous exposure to low (15-50 ppm) concentrations will generally cause irritation to mucous membranes, and may also cause headache, dizziness or nausea. Higher concentrations (200-300 ppm) may result in respiratory arrest leading to coma or unconsciousness. Exposures for more than 30 minutes at concentrations greater than 700 ppm have been fatal. Continuous inhalation of low concentrations may cause olfactory fatigue or paralysis of the sense of smell. Thus, detection of hydrogen sulfide by its odor is not effective.

TABLE 1 EXPOSURE LIMITS OF ANTICIPATED CHEMICALS

Chemical	PEL[A]	TWA[A]	STEL[A]
1,2-Dibromoethane [carc] [skin]	0.13	0.045	0.13
1,2-Dichloroethane [carc] [skin	1.0	1.0	2.0
Asbestos	0.1[C]	0.1[C]	---
Benzene[1] [skin] & [carc]	1	0.1	1
Ethanol [skin]	1,000	1,000	---
Ethylbenzene [skin]	100	100	125
Gasoline[2]	300	300	500
Hydrogen Sulfide	20	10	15
Methyl Tertiary Butyl Ether [carc]	10	10	15
Naphthalene	40	40	---
Tetraethyl lead [skin]	0.075[B]	0.075[B]	---
Toluene [skin]	50	100	150
Xylene [skin] (m, o, & p isomers)	100	100	150

PEL = Permissible exposure limit: 8-hour, time-weighted average (Occupational Safety and Health Administration [OSHA]).
TWA = Time-weighted average: 8 hour, [same as TLV], American Conference of Governmental Industrial Hygienists [ACGIH]).
STEL = Short-term exposure limit: 15 minute time-weighted average (ACGIH).
[carc] = Substance identified as a suspected or confirmed carcinogen.
[skin] = Substance may be absorbed through the skin, the mucous membranes, or the eyes.
1 = Federal OSHA benzene limits given for PEL and STEL; STEL has a 50-minute duration limit.
2 = Federal OSHA gasoline limit given for PEL; STEL is the same for FED-OSHA and ACGIH.
--- = No exposure limits published for the listed chemical.
A = All chemical concentrations are in parts of gas or vapor per million parts air (ppmv) unless otherwise noted.
B = Milligrams of substance per cubic meter of air (mg/m^3).
C = Measured as fiber per cubic centimeter of air.

These brief descriptions of the physical characteristics, incompatibilities, toxic effects, routes of entry, and target organs were summarized from the *NIOSH Pocket Guide to Chemical Hazards*. This information is used in safety and orientation meetings to alert personnel to the hazards associated with expected contaminants.

4.5 Fall Protection

All employees who use ladders (fixed or extension) or work from elevated platforms where the distance to the next level below is greater six feet will implement fall protection and safe work practices described in the following subsections.

4.5.1 Ladder Safety

- All ladders will be inspected before use, any damage or missing slip resistant shoes, lose or missing rungs, for A frame ladders damaged or missing locks will render the ladder inoperable and be tagged and removed from service.
- Metal/conductive ladders will not be used around electrical work or overhead lines.
- Manufacturer information must be legible and followed in order to use the ladder.
- Extension ladders must maintain the 4:1 ratio, must extend 3 feet above elevated surface and be tied off or secured by a second person.
- A frame warning must be followed and not work above manufacturer recommendations.
- A frame ladders must be completely extended and locked out before use.
- All ladders must be set on firm surfaces, clear of obstructions, and not on slick surfaces.
- Weight limits of ladders must be followed and to include any tools or materials being carried.
- Three points of contact (two hands with one leg or one hand with two legs) must be maintained at all times when climbing up or down the ladder.
- Ladder must be faced at all times.

4.5.2 Elevated Platforms

Elevated platforms for the purposes of this site safety plan will include work on scaffolds, aerial-lifts, man-baskets, powered industrial trucks, roofs, ladder jacks, raised platforms, unprotected edges, and openings in floors where workers will be able to fall six feet.

- All workers who will be working where a fall is equal or greater than six feet will be trained on how to work on that surface safely, (i.e., trained operator of scissor- or aerial-lifts)
- All workers are required to use, to know how to use and inspect personal fall arrest and/or restraint systems.
- Fall protection systems must be used in accordance with manufacture and/or regulatory requirements: guard rail, safety nets, personal fall arrest, personal fall restraint, and positioning device systems.
- Fall arrest or restraint systems will be anchored to support 5,000 pounds (lbs) and 3,000 lbs per worker.
- A competent person must install, build or operate any equipment or structure where workers are at risk of falling. Proof of competency must be provided before work beings in accordance with Federal and State OSHA standards. Typical proof is a wallet card stating worker met the training requirements for that specific area of expertise

5.0 GENERAL PROJECT SAFETY REQUIREMENTS

Project activities will be conducted in accordance with the following minimum safety requirements:

- Eating, drinking, and smoking will be restricted to a designated area.
- All personnel will be required to wash their hands and faces before eating, drinking, smoking, or applying cosmetics in the aforementioned designated areas.
- Gross decontamination and removal of all PPE will be performed before leaving the site. Contaminated clothing will be removed and collected in a drum for disposal.
- Shaking or blowing dust or other materials off potentially contaminated clothing or equipment to remove dust or other materials is not permitted.
- The Site Safety Officer will be responsible for taking steps to protect employees from physical hazards including:
    - Falling objects, such as tools or equipment.
    - Falls from elevations.
    - Tripping over hoses, pipes, tools, or equipment.
    - Slipping on wet or oily surfaces.
    - Insufficient or faulty protective equipment.
    - Insufficient or faulty equipment or tools.
- Field personnel will be cautioned to inform each other of the non-visual effects of the presence of toxins, such as:
    - Headaches.
    - Dizziness.
    - Nausea.
    - Blurred vision.
    - Cramps.
    - Irritation of eyes, skin, or respiratory tract.
    - Changes in complexion or skin discoloration.
    - Changes in apparent motor coordination.
    - Changes in personality or demeanor.
    - Excessive salivation or changes in pupillary response.
    - Changes in speech ability or pattern.

6.0 PROTECTIVE EQUIPMENT REQUIREMENTS

The PPE mentioned in this site safety plan is meant protect employees from the general construction hazards as well as the chemical exposure hazards described in Section 4.0. Respiratory protection is covered in section 7.0, while inspection and donning and doffing procedures for gloves and Tyvek™ are included in Appendix F.

All PPE shall be maintained and stored in a clean environment. Where the shape of the PPE is critical for use, a hard container shall be used for storage to maintain integrity. No defective or heavily soiled PPE shall be worn while performing work. In the event that PPE becomes torn or damaged during use, it will be replaced immediately upon exiting the exclusion zone and after any required decontamination is completed, as described in Section 12.0.

Field personnel, subcontractors, and visitors are required to wear the following protective clothing and equipment as a minimum **while in the work area at the job site**:

- Class II ANSI Rated 107-2004 Traffic safety vest.
- Safety glasses meeting ANSI standard ANSI Z87.1-2003.
- Safety goggles meeting ANSI standard ANSI Z87.1-2003 [When working in/with exposed soil]
- Safety-Toe footwear, meeting ANSI standard Z41.1-1967.
- Cut resistant Gloves Level 3 or better must be on person at all times.
- Hearing protection (as dictated Section 8.0).

Field personnel **engaged** in work are required to wear the following equipment:

- Hard hat.* **
- High visibility safety vest/clothing (Class II or Class III ANSI rate vest, Standard 107-2004***)
- Safety glasses.
- Safety-Toe footwear, meeting ANSI standard Z41.1-1967
- Standard Tyvek™ coveralls (when potential for impacted soil, water, or dust hazard exists or when mandated by the Site Safety Officer).
- Respirator with P-100 and organic vapor cartridges (if lowest PEL or TLV is exceeded in the breathing zone or the Site Safety Officer decides respirators should be worn).
- Hearing protection (as mandated in Section 8.0 of this plan).
- Hand protection as based on task specific JSA (Appendix E). At a minimum, level three cut resistant for all site activities and chemical resistant for listed chemical exposure).
- Arm and neck covering when working in vegetative areas
- Temperature variations are to be considered when wearing PPE. Appendix A “Heat Stress” and Appendix B “Cold Stress” shall be reviewed prior beginning work to establish warning signs of exposure and adequacy/hazards of protection.

*Exception to PPE Requirement: If there is **no potential exposure** to overhead hazards, falling or flying debris, or electrical shock hazards, **the hard hat is not required** to perform the job tasks described in this site safety plan; however, considerations should be made to take into account exposure to weather elements such as sun exposure and high heat conditions.

**Short Service Employee of less than 1-year must were orange colored hardhat or ball cap if no over overhead hazards, falling or flying debris, or electrical shock hazards are present.

***Class II reflective clothing is to be worn where employees are exposed to vehicle traffic up to 50 miles per hour (mph). Class III reflective clothing is to be worn when employees are exposed to traffic speeds in excess of 50 mph.

7.0 RESPIRATORY PROTECTION PROGRAM

This section summarizes the Cardno ERI Respiratory Protection Program. Cardno ERI subcontractors must have company medical surveillance and respiratory protection programs including adequate training of their employees. Subcontractors must provide PPE as required in this site safety plan for their employees. Cardno ERI will attempt to verify worker training but does not assume the responsibility of the employer in any way. The following subsections outline the Cardno ERI Respiratory Protection Program.

Respirators are not issued to employees until the company physician conducts a complete physical and decides the employee can wear PPE and a respirator. After the physician has issued written approval to Cardno ERI, the Health and Safety Coordinator will conduct the required training including these basic topics:

- Applicable OSHA regulations 1910.134 and 1910.120 and CCR Title 8, Section 5192 and 5144.
- Nature of respiratory hazards to be encountered in the work environment and how to select proper respiratory equipment.
- Use of respirators and proper fitting.
- Functions and limitations of respirators.
- Cleaning, disinfection, inspection, maintenance, and storage of respirators.

7.1 Functions and Limitations of Respirators

Respirators are not intended for and may not be used in atmospheres that are, or may become, immediately dangerous to life or health or in atmospheres where the identity or concentration of the chemical(s) is unknown. Respirators may not be used in atmospheres containing less than 19.5% oxygen.

Cartridges or canisters for respirators are selected and supplied to employees by the Health and Safety Coordinator. The failure to choose or use a respirator equipped with cartridges or filters suitable for the chemicals(s) in the atmosphere or likely to be released in the atmosphere may result in the respirator providing little or no protection against the contaminated atmosphere. The site safety plan specifies the chemicals(s) to be encountered and the type of cartridge or canister appropriate for personal protection.

Assuming that the respirator is properly fitted, in good condition, free from leaks, and has the proper cartridges for the contaminant(s) present, the length of time the respirator will provide protection also depends on the conditions of use.

The conditions of use include, but are not limited to, the following:

- The concentration of chemical(s) in the atmosphere.
- The temperature and humidity of the ambient atmosphere.
- Any previous use of the cartridges and filters.
- The elapsed time since the removal of the cartridges or filters from their protective packaging.
- The emotional state of the wearer.
- The level of physical activity of the wearer.

Cartridges designed and specified to protect the wearer against airborne particles are not appropriate for protection against gases and vapors. Cartridges designed and specified for protection against specific gases and vapors are not appropriate for protection against airborne particles or other gases or vapors beyond the scope of that type of cartridge. If the label is missing or the type of cartridge is inappropriate, the cartridge may not be used under any circumstances; it will provide little or no protection to the wearer.

Cartridge schedule for petroleum related hydrocarbons require a single shift changeout, unless breakthrough indicators require an earlier changeout. Do not reuse cartridges after the packaging is removed or the cartridge has been used for respiratory protection. Reuse of cartridges can cause exposure since petroleum hydrocarbons will desorbs off the respirator if left over night.

Breakthrough Times (minutes)

Name	Constituent Concentration (ppm)				
	50	100	200	500	1,000
Benzene	Work Shift	Limited to a maximum concentration of 50 ppm for negative pressure APR			
	See the Benzene Standard - 1910.1028(g)				
Toluene	1,018	562	307	135	72
Ethylbenzene	1,133	604	319	135	70
m-Xylene	1,143	608	321	136	70
Ethanol	123	105	85	60	43
1,2-Dichloroethane	482	310	194	101	60

1. Cartridge use rates we based on normal breathing rates, increase in activity such as heavy lifting or shoveling will reduce the life span of the cartridge. Be prepared for more frequent cartridge changeouts (two per shift).
2. Humidity will reduce the lifespan of the cartridge; decrease the time allotment by a factor of 2 when humidity exceeds 65%.
3. 480 minutes equals an 8-hour work shift time frame.
4. Work Shift Indicates that the service life for this constituent is limited to a single work shift by the OSHA Standard.

7.2 Danger Signals Indicating Possible Respirator Failure

If any of the danger signals in the following list are experienced while wearing a respirator, immediately return to a fresh air environment. The cartridges or filters may be inappropriate or used up, or abnormal conditions may be creating vapor concentrations which are beyond the limits of the cartridges or filters. Danger is indicated when the individual subject to exposure:

- Smells or tastes chemicals or if eyes, nose, or throat become irritated.
- Has difficulty breathing.
- Notices that the breathing air becomes uncomfortably warm.
- Experiences headaches, dizziness, cramps, nausea, or blurred vision.
- Experiences changes in complexion or skin discoloration.
- Experiences changes in motor coordination, personality, or demeanor.
- Experiences changes in speech ability or pattern.
- Experiences excessive salivation or changes in pupillary response.

7.3 Positive and Negative Respirator Pressure Seal Checks

Qualitative seal check testing of each respirator must be conducted before the respirator may be used to ensure a good fit is obtained. The following steps should be taken in qualitative seal checks of the respirator:

- Don the face piece with cartridge or filters in place. Pull straps together equally to avoid distorting the mask.
- Adjust the face piece. Do not over-tighten it.
- Negative pressure seal check: Close off both inlet connections with palms of hands, inhale slowly, and hold breath momentarily. No leakage should be detected, and the face piece should be drawn slightly to the face.
- Positive pressure seal check: Close opening in the exhalation valve guard by placing palm of one hand over face of guard; exhale slowly maintaining slight positive pressure. No leakage should be detected between the face seal and the face.
- Should any leakage be noted:
    - Adjust the head straps and face piece slightly; recheck for leakage.

- Check condition of exhalation valve and seat. Check that both inlet gaskets are present and in proper condition.
- In the event the face piece cannot be adjusted so there is no leakage, **do not enter the area requiring protection**. Due to your particular facial features, a different style or size face piece may be required to obtain a proper facial fit.

Note: Failure to perform qualitative seal checks of the respirator each time the respirator is donned may result in little or no respiratory protection.

7.4 Inspection, Cleaning, and Storage

The respirator should be inspected, cleaned, and properly stored after use each day. The steps listed in the following subsections are the basic elements of each procedure.

Inspection

- Examine face seal for rips, tears, holes, deformation, or stiffness.
- Examine face piece plastic center shell for cracks, missing components, or damaged threads.
- Examine harness for breaks, cuts, frays, tears, and missing or damaged hardware.
- Examine inhalation and exhalation valves and valve seats for cuts, cracks, or foreign matter which may not allow the valve to close completely. Check that valves are properly installed and are not distorted.
- Examine cartridges for signs of abuse or damage. Discard damaged items.
- Any respirator malfunction or deficiencies noted must be reported to the Health and Safety Coordinator who will issue a new respirator or correct the deficiencies using only approved spare parts from the manufacturer of the specific model in need of repair. Spare parts from any other manufacturer may not be used under any conditions. Instructions in the manual provided by the manufacturer should be followed when the respirator needs repairing or replacing.

Cleaning

- Unthread cartridges or filters.
- Wash the face piece with warm water and a mild detergent after each use.
- Disinfect the face piece if it was used by another person. The mask should routinely (once per month) be disinfected even if the respirator is used solely by one individual. A hypochlorite solution may be used (i.e., 2 tablespoons chlorine bleach per gallon of water for an acceptable solution).
- After cleaning and air-drying, check that the face piece is not damaged and that components removed prior to cleaning have been installed properly.

Storage

- Place the respirator in its storage box in a heat-sealed or re-sealable plastic bag. Store the respirator in a flat position to prevent the face seal from taking a permanent “set.”
- Replacement components should be stored in sealed packages in a cool, clean, low-humidity location until ready for use.

The Health and Safety Coordinator will explain Cardno ERI's Respiratory Protection Program to each new employee who must wear a respirator. The employee will be asked whether or not he or she understands the information provided. If the company physician has cleared the employee for respirator use and the Health and Safety Coordinator has checked the fit of the respirator, the employee will then be issued a respirator. A written record is signed and dated by the employee and Health and Safety Coordinator and kept in the new employee's Safety Record.

8.0 HEARING CONSERVATION PROGRAM

This section summarizes the Cardno ERI Hearing Conservation Program. Cardno ERI employees and subcontractors must have hearing protection available on site for working conditions that can result in hearing damage. Due to the changing working environment, engineering controls are typically not applicable to mitigate noise in the field environment; therefore, hearing protection such as plugs, canal blocks, or muffs are employed. Subcontractors must provide PPE as required in this site safety plan for their employees. Cardno ERI will attempt to verify worker training but does not assume the responsibility of the employer in any way. The following subsections outline the Cardno ERI Hearing Conservation Program. Cardno ERI's the Health and Safety Coordinator will conduct the required training, including these basic topics:

- Applicable OSHA regulation 1910.95 and CCR Title 8, Section 5095-5100.
- Audiometric testing program (initial and annually thereafter).
- Training on the use of hearing conservation devices and their limitations.
- Nature of noise hazards to be encountered in the work environment.
- Length of time noise exposure can occur which will result in hearing damage.

Anytime during work when the decibel (dB) noise level exceeds 85 over a time weight average of eight hours requires the Hearing Conservation Program. For noise measurements greater than 85 dB, the exposure periods are shown on the following table.

Daily Duration (Hours)	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115
None acceptable	>140

Table provided from 29CFR 1910.95, Table G-16

Hearing protection devices are not all created equal. Each manufacturer establishes a noise reduction rating (NRR) for their product. The NRR is established by evaluating hearing protectors under laboratory conditions specified by the American National Standards Institute in ANSI S3.19-1974. OSHA's experience and the published scientific literature indicate that laboratory-obtained real ear attenuation for hearing protectors can seldom be achieved in the workplace. Based on the type of noise exposure anticipated (see Appendix D for typical noise ratings on commonly used powered hand tools), use the following equations to determine if the hearing protection is adequate.

A common method used for **single protection** (either muffs or plugs) is as follows:

- Determine the laboratory-based noise attenuation provided by the hearing protection device (HPD). This is the NRR and is listed on the packaging.
- Subtract seven from the NRR to account for spectral uncertainty divide that number by two and subtract that number from the A-weighted TWA workplace noise level, as follows:
    - **Estimated Exposure (dBA) = TWA (dBC) – [(NRR-7)/2]**

For **double protection** (ear muffs and plugs are used simultaneously) use the following:

- Determine the laboratory-based NRR for the **higher** rated protector (NRR).
- Subtract 7 dB from NRR if using A-weighted sound level data.
- Add 5 dB to the field-adjusted NRR to account for the use of the second hearing protector.
- Subtract the remainder from the TWA as follows:

- **Estimated Exposure (dBA) = TWA (dBA) - [(NRR_h- 7) + 5]**

In either case, if the noise reduction level is protective of hearing (less than 90 dB for an 8-hr work day), move forward with the work. In the event that the noise reduction does not provide adequate hearing protection, contact your manager and do not proceed with the work.

For subcontractors using heavy equipment, it is their responsibility to provide the dBA noise level measurements for their equipment.

9.0 WORK ZONES AND SECURITY MEASURES

This section describes the work zone requirements for keeping the public and employees safe by identifying where the exclusion zone exists. Security measures for the protection of workers on site and client and contractor materials, equipment, and structures are described in the following subsections.

9.1 Work Zones

Cones, high-visibility fencing, delineators with caution tape, barricades, or a suitable alternative will be used to deny public access to the critical zone or the area where work is being performed. Cones and warning signs will also be used to define an exclusion zone which redirects motorists and pedestrians away from the critical zone. The general public will not be allowed close to the work area under any conditions. If for any reason the safety of a member of the public (e.g., motorist or pedestrian) may be endangered, work will cease until the situation is remedied.

Work zones will be established based on traffic control figures created for the site work. Please reference the traffic control plan figure 2.

For sites where public or workers need to be informed of possible hazards, the site will be posted with any applicable signs. For example:

- Hard hat required
- No Smoking
- Prop 65 (California Only)
- OSHA Construction Bill of Rights Notice
- Hearing Protection Required
- Authorized Personnel Only

9.2 Site Security

Site security measures require employees to be aware of their surroundings at all times. Site security does not require additional personal or private security to conduct the work described in the site safety plan. Work will not take place at night therefore security fencing is not required.

Managing equipment on site while working requires employees and subcontractors to keep tools and equipment secured while not being used. This includes locking truck utility beds.

Prior to leaving the site, ensure all fences are locked, equipment is secured and materials are not left out in the open to provide an easy theft opportunity. No equipment will be left on-site.

10.0 EXPOSURE MONITORING

It is not anticipated that project personnel exposure will exceed the TLVs or PELs of the materials; however, in the event it is anticipated that exposure limits could be exceed in the working area and breathing zones, Cardno ERI will implement engineering and administrative controls prior to donning respirators. In the event these

controls are impractical or ineffective in sufficiently lowering the air contaminant levels, respirators will be used within the established protection factors and oxygen levels.

10.1 Lead

If site conditions indicate the possibility of elevated lead levels, air monitoring will be performed to determine whether personnel are exposed to airborne concentrations above the CAL-OSHA Action Level (30 micrograms per cubic meter [$\mu g/m^3$]) for lead. Portable air sampling pumps will be used with 37 millimeter, 0.8 micro (µ) Mixed Cellulose Ester (MCE) filter cassettes. At least one full-shift (7 hour minimum) personal air sample will be taken for each job classification in each work area. Monitoring and analytical techniques will have a confidence limit of 95% of not less than plus or minus 25% for airborne concentrations of lead greater than or equal to 30 $\mu g/m^3$.

Air samples will be submitted under Chain-of-Custody protocol to an American Industrial Hygiene Association (AIHA) accredited analytical laboratory for analysis. Sample results will be available five days after submittal and will be provided to monitored employees. If results indicate exposure at or above the action level, additional monitoring at least seven days apart will be performed until at least two consecutive measurements are below the action level (30 $\mu g/m^3$). Calibration of air sampling pumps certificates will be obtained from the supplier and be on site for inspection. Trip and field blanks will be submitted per frequency established by a certified industrial hygienist.

10.2 Organic Vapors

If site conditions indicate the possibility of elevated organic compound levels, air monitoring will be performed to determine whether personnel were exposed to airborne concentrations above the PELs listed in Table 1. Since identifying specific compounds will be difficult using current organic vapor or photo-ionization detector (PID) technology the cumulative reading will require action if the gasoline PEL is exceeded. The exception is where a specific known chemical or group of chemicals has been identified, then specific analyzers will be used. All air monitoring equipment will show calibration data within manufacturer specifications and the manufacturer's instruction manual will be on site. Be sure to know and understand the response factor of the calibration gas to your particular instrument for the chemicals listed in Table 1 so that you can establish when you are approaching an exposure limit.

10.3 Possible Explosive Atmospheres

Gasoline has a flammable range from approximately 1.4 to 7.6 percent by volume in air. One percent in air is equivalent to 10,000 ppmv; thus, the LEL is 14,000 ppmv. Normally explosive levels may be reached in tanks, pits, or other confined spaces. Any area suspected of containing potentially explosive levels of gasoline will be evaluated with an intrinsically safe or explosion-proof combustible gas indicator (CGI). All air monitoring equipment will show data of last calibration within manufacturer specifications and the manufacturer's instruction manual will be on site.

Personnel response will be based on the following action levels from CGI readings. Please note that the crucial number is 10% of the LEL. When using a PID, 1,400 ppmv corresponds to 10% of the LEL.

- If less than 10% of LEL, then continue activities and monitoring (<1,400 ppmv on the PID meter).
- If 10 to 25% of LEL, then continue monitoring with extreme caution as higher levels are encountered. Begin to initiate engineering controls (rinsing, degassing, dry ice) to reduce the level before doing any other work (1,400 to 3,500 ppmv).
- If greater than 25% of LEL, then there is an explosion hazard[1]. Cease activities and vacate area immediately (>3,500 ppmv).

Note: CGI readings are provided in percent of LEL; organic vapor meters (OVMs) or PIDs provide results in ppmv.

1. The one exception to working in environments greater than 25% LEL is during UST removal, specifically after the tank has the fuel removed and prior to triple rinsing the tank cavity. During this period LEL levels commonly exceed 25%, management of this hazard will be detailed in your subcontractor's JSA and SOP.

If an explosion potential is present on site beyond 25% of the LEL, Cardno ERI's personnel and subcontractors must immediately withdraw from the site. The hazard potential will be evaluated by Cardno ERI's management, and a plan of action will be assessed.

10.4 Bump Testing

Bump testing is required to ensure the proper operation of air monitoring equipment. Bump testing is measuring a known concentration of gas against the measured reading provided by the air monitoring instrument. Instrumentation readings that fall within the technical specifications of the instrument are within calibration. This site safety plan requires bump testing when there exists conditions for hydrogen sulfide gas to be present or an environment where personnel can work in an oxygen deficient or enriched atmosphere.

10.4.1 H_2S Monitors

All H_2S personal gas monitors must be bump tested within the last 24 hours prior to or during use. The daily bump test prior to use is done to ensure the device is not defective. Any H_2S monitor that fails the initial bump test shall not be used.

Note: Records of the bump test results will be documented on the daily field notes, any client require permits, as well as in the equipment calibration log.

10.4.2 O_2 Monitors

Personnel shall perform a bump test for the O_2 personal monitor every day the meter is in use or at least every 6 months to ensure that the personal gas monitor is not defective. Any O_2 monitor that fails the initial bump test shall not be used.

Note: Records of the bump test results will be documented on the daily field notes, any client require permits, as well as in the equipment calibration log.

11.0 DECONTAMINATION PROCEDURES

If warranted, work equipment and PPE will undergo gross decontamination on site. This gross decontamination will include washing contaminated equipment with a trisodium phosphate (TSP), Liqui-Nox® solution or Simple Green®.

Grossly contaminated or used PPE (Tyvek™, gloves, and P-100 filters) will be disposed of in Department of Transportation (DOT) certified 55-gallon drums that are labeled identifying the contaminant.

At the completion of the project work, the drum will be sealed and disposed of per state or federal regulations. Respirators will be washed and decontaminated per manufacturer's specifications.

12.0 SPILL CONTAINMENT

All hazardous substances and contaminated soils, liquids, and other residues are to be contained, stored, and labeled in accordance with federal, state, and local regulations. When drumming wastes ensure the following practices are implemented:

- Ensure waste material is compatible with the container (i.e., do not put highly acidic or alkaline wastes in steel drums).
- Drums shall be inspected before waste is put inside. Ensure drums are not rusted or damaged.
- Ensure proper labeling is applied that identifies the type of waste, date, and contact information on to drum before placing waste.
- Only leave drums open when adding or removing the contents, otherwise drums are to be closed, which means the bung or drum ring is on and securely snug.
- Preferred spacing of drums for on-site storage shall be 36 inches whenever possible. Drums need to be visibility inspected and readily accessible for emergency response.

Spill containment materials shall be on site during management of drums in the event of failure or leak.

Locations of drums and bins should minimize the possibility of contents leaving the site in the event of a failure of the containment.

For containers containing flammable materials, fire extinguishing equipment shall be present and ready for use to control incipient fires.

Drums shall not be used to work from or stand upon.

13.0 EMERGENCY RESPONSE PROCEDURES

In the event of a fire, explosion, or property damage, Cardno ERI will be immediately notified. If necessary, local fire or response agencies will be called. Where possible, a land line telephone such as a pay phone or the station phone shall be used when calling the local fire or response agency. Once notifications to the local fire or response agency are made (if necessary), contact your branch project manager, if he or she is unavailable; talk with another PM, branch manager or officer of the company. Provide details of the event to management at which point they notify the client of the incident.

In the event of a small contained fire, 9-1-1 will be contacted and properly trained Cardno ERI personnel may attempt to extinguish the fire provided personnel are not in danger of being trapped and will use the 20 pound fire extinguishers on hand. If the fire can not be extinguished, the above procedures should be followed

In the event of an accident resulting in physical injury, first aid will be administered, and the injured worker will be transported to the nearest hospital or emergency medical clinic for emergency treatment. A physician's attention is required regardless of the severity of the injury. Subcontractors may already have arrangements with a different occupational medical clinic or urgent care facility. Cardno ERI shall allow an injured subcontractor employee to be taken to a location authorized by their company and allow the subcontractor company to implement their case management policies and procedures. IF you think the injured person require treatment beyond first aid call 9-1-1 and make a request for an ambulance.

13.1 Spills or Releases

Spills or releases can occur in the event a below ground utility is damaged during work. Before beginning work identify the following disconnects at a site: electrical, water, gasoline emergency shut-off, and natural gas. Be prepared to disconnect that utility in the event it is damaged during the performance of our work. In the event of a release from a remediation system, drum, or tank such as a temporary storage tank (i.e., baker tank), employees are to conduct the following evaluation:

- Am I in imminent danger from explosion, fire, or contamination? If so leave the area immediately.
- Contact your local office and inform them of the nature and extent of the release.
- If additional help is required, call the contingency numbers listed in this section.
- If safe to do so, turn off or close off the source of the leak.
- Dike any openings to storm drains and try to contain spilled materials.
- Based on resources available, begin cleanup of material, place into new tanks or drums, label, and leave drums and tanks secured and closed.

13.2 Overt Personnel Exposure

If overt personnel exposure occurs during the project, typical responses should include the following:

- Skin or eye contact: Wash and rinse affected area thoroughly with copious amounts of soap and water, and then provide appropriate medical attention. Eyes and skin should be rinsed for a minimum of 15 minutes upon chemical contamination.
- Puncture wound: Decontaminate and transport to emergency hospital.

13.3 Emergency Telephone Numbers:

Fire and Police 911

Local Police Number……... (805) 897-2300

Local Fire Department Number……... (805) 965-5254

Primary location for employees who require first aid/medical treatment which is not life threatening are to use the listed occupational medical clinic during hours of operation. When work is occurring outside operational days and times of the listed occupational clinic, employees are directed to seek medical professional assistance at the hospital's emergency services location as the 24-hour alternative listed below.

Occupational Medical Clinic ..... …….. **(805) 965-3011**

The Medcenter Inc.
319 N Milpas Street
Santa Barbara, CA 93103
Operating Hours:
Open: 8:00 am to 8:00 pm; Monday – Friday

Directions: Exit site by turning RIGHT onto La Cumbre Lane. Turn LEFT at traffic lights onto La Cumbre Rd. Proceed over highway overpass in left lane and turn LEFT onto US 101, proceed 4.8 miles. Exit RIGHT at Milpas off-ramp. At end of ramp turn LEFT onto Milpas. Continue on Milpas through traffic circle. Continue to 319 N Milpas; building will be on Left.

Hospital ..... …….. **(805) 569-7210**

Santa Barbara Cottage Hospital
320 West Pueblo Street
Santa Barbara, CA 93105

Directions: Exit site by turning right on La Cumbre Plaza Lane and turn left on South La Cumbre Road
toward Calle Real and continue for 0.2 miles. Turn left to merge onto US-101 South and continue for 1.7 miles. Take the Mission Street exit. Turn left (northeast) on West Mission

Street and continue for 0.1 miles. Turn left (northwest) on Castillo Street and continue for 0.3
miles. Turn right (northeast) on West Pueblo Street and continue for 410 feet. The hospital will
be on the left-hand side. Follow the posted signs to the EMERGENCY entrance (see attached map).

Local Public Utility Service Providers:

Gas Number..... **(800) 427-2200**
Southern California Gas
Electric Utility Number..... **(800) 655-4555**
Southern California Edison
Sewer/Water Number..... **(805) 564-5343**
Santa Barbara City Water District
Cable/TV Number..... **(800) 683-6651**
Cox Cable
Telecommunications Number..... **(800) 483-1000**
Verizon

Additional Contingency Telephone Numbers

Cardno ERI, Ventura, California ..... (805) 644-4157

Cardno ERI, Lake Forest, California ..... (949) 457-8950

EXXONMOBIL ENVIRONMENTAL SERVICES (Nick Puig) .....(909) 394-6116

Local or State Department of Occupational Safety & Health Administration ... (559) 454-1295

Chemical Transportation Emergency Center (CHEMTREC) .....(800) 424-9300

Note: CHEMTREC is a public service of the American Chemistry Council (formerly known as the Chemical Manufacturers Association). CHEMTREC can usually provide hazard information, warnings, and guidance when given the identification number or the name of the product and the nature of the problem. CHEMTREC can also get personnel in contact with the appropriate experts.

Site: 18KFK Cardno ERI # 1006
100 South La Cumbre Road
Santa Barbara, California, 93105

We, the undersigned, agree that all activities conducted during and for completion of this project will be performed in accordance with the site-specific health and safety plan and with the following common safety objectives:

1) The first and foremost priority during this project is to maintain a safe and healthy work environment.
2) No work will be performed until every necessary safety precaution has been taken.
3) No project objectives will knowingly be allowed to put at risk human health and the environment.

We, the undersigned, have also confirmed that site-specific health and safety plan and the appropriate Material Safety Data Sheets have been provided, reviewed, and understood.

If at any time during the performance of activities on this project, there is an unsafe condition, then we will immediately take action to alleviate the unsafe condition. If we are unable to cause the cessation of the unsafe condition, then we will immediately contact the ExxonMobil Staff Engineer/Geologist listed below.

ExxonMobil Environmental Staff Engineer/Geologist: Project Manager – Nick Puig
Office Phone: (909) 394-6116
Mobile Phone: _____
Home Phone: _____

The undersigned have read and understood the Health and Safety Plan and agree to abide by its contents		
Printed Name	**Signature**	**Date**

FIGURES

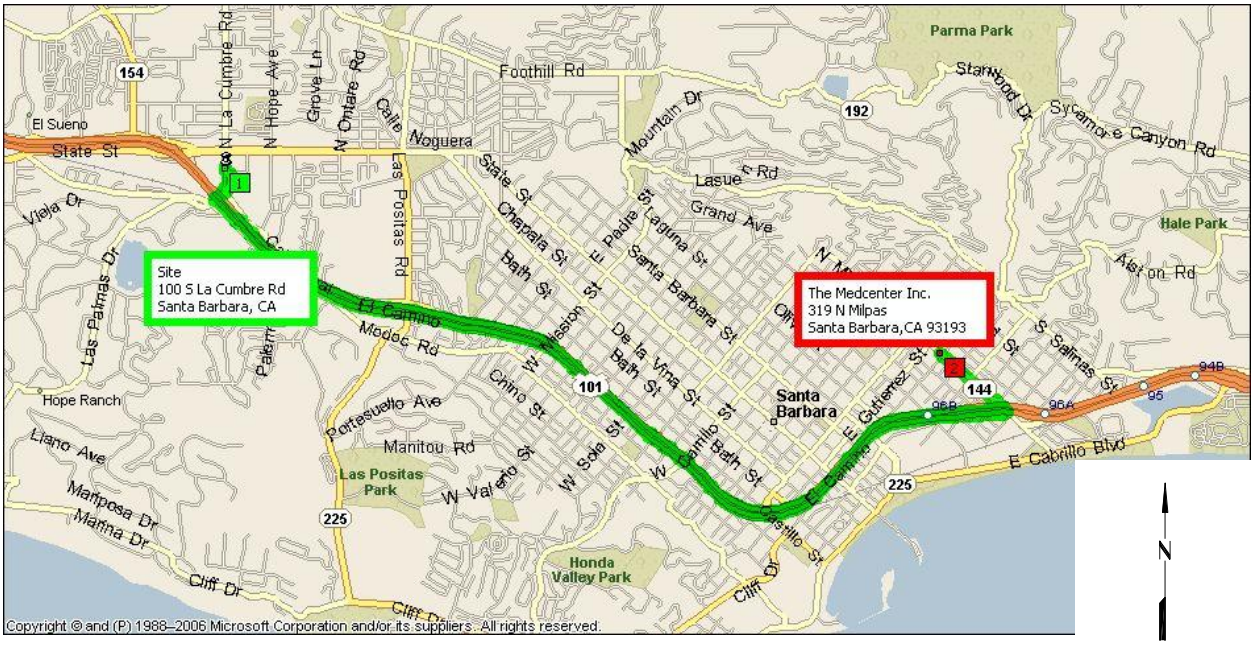
OCCUPATIONAL MEDICAL CLINIC

The Medcenter Inc.

319 North Milpas Rd

Santa Barbara, CA 93103

(805) 682-7411

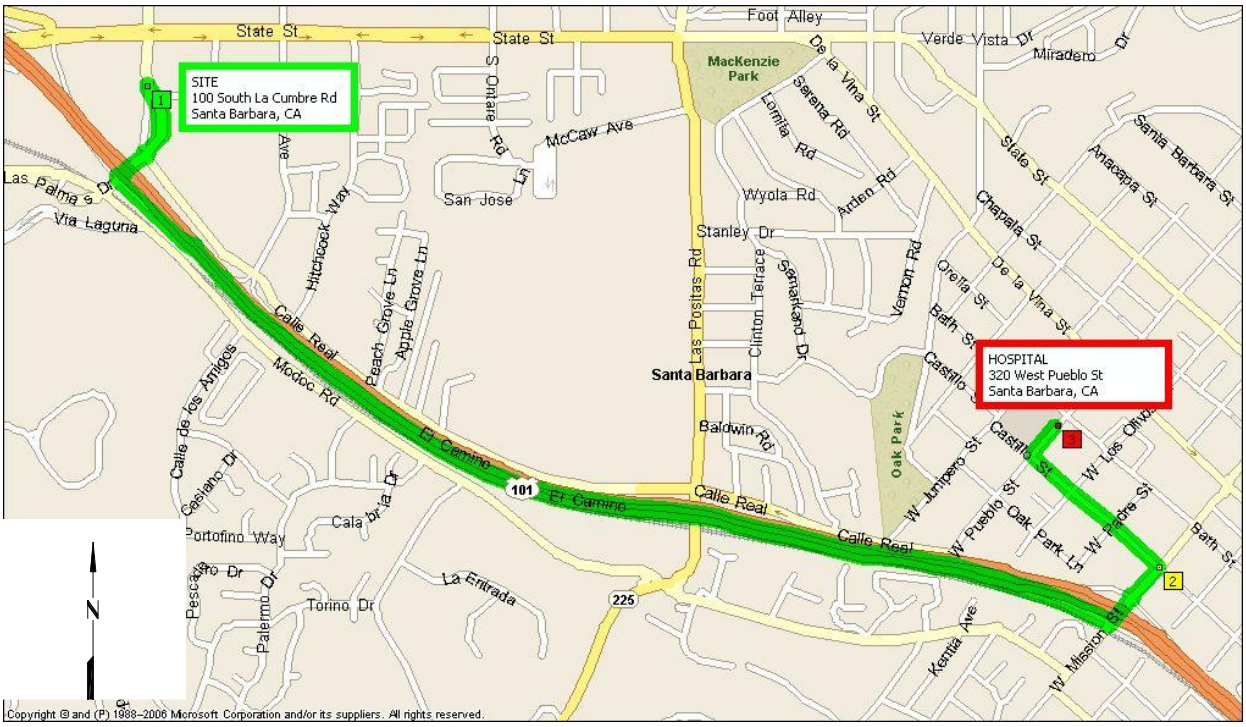


Directions:

- Exit site by turning RIGHT onto La Cumbre Lane.
- Turn LEFT at lights onto La Cumbre Rd.
- Proceed over highway overpass and turn LEFT onto US 101, proceed 4.8 miles.
- Exit RIGHT at Milpas off ramp.
- At end of ramp turn LEFT onto Milpas Rd.
- Continue on Milpas through traffic circle.
- Continue to 319 N Milpas, building will be on Left.

HOSPITAL MAP

Santa Barbara Cottage Hospital
320 West Pueblo Street
Santa Barbara, California 93105
(805) 569-7210



Directions:

- Exit site by turning right on La Cumbra Plaza Lane and turn left on South La Cumbre Road toward Calle Real and continue for 0.2 miles.
- Turn left to merge onto US-101 South and continue for 1.7 miles.
- Take the Mission Street exit.
- Turn left (northeast) on West Mission Street and continue for 0.1 miles.
- Turn right (northeast) on West Pueblo Street and continue for 410 feet.
- The hospital will be on the left-hand side.
- Follow the posted signs to the EMERGENCY entrance.

APPENDICES

APPENDIX A

HEAT STRESS

HEAT STRESS PROTOCOL

If the ambient air temperature is above 80 degrees F, the need for heat stress and heat exhaustion monitoring will be evaluated. Heat stress and heat exhaustion monitoring will be required if the temperatures exceed 90 degrees F. Heat stroke is a life-threatening situation in which the victim's temperature control system, which produces sweating to cool the body, stops working. Body temperature can rise quickly to elevations causing brain damage and death. Heat exhaustion is less dangerous and results from the loss of body fluids. This fluid loss causes blood flow to decrease in vital organs resulting in a form of shock. High humidity (>70% relative humidity) may retard evaporation resulting in inadequate cooling of the body. Heat cramps are muscular spasms due to heavy exertion. These cramps usually involve the abdominal and leg muscles and are due to the loss of water and salt from heavy sweating.

	Signs/Symptoms	First Aid
Heat Fatigue	• Early warning sign of heat stress • Too tired and weak to concentrate on doing job	• Move to cool place • Drink water every 15 minutes
Heat Cramps	• Develops when a person sweats out more salt than the body takes in and the muscles cramp	• Move to cool place • Drink water every 15 minutes • Gatorade can help replace necessary salt
Heat Exhaustion	• Cool, pale, moist skin • Heavy sweating • Normal body temperature • Dilated (large) pupils • Headache and nausea • Dizziness and vomiting	• Move to cool area • Have victim lie down • Slightly elevate feet • Loosen clothing • Apply wet towels • Give a glass of water every 15 minutes
Heat Stroke	• Hot, red skin • Constricted pupils • High body temperature • Little or no perspiration • Chills, confusion and strong rapid pulse	• Call EMS (911) • Check ABCs (airway, breathing, circulation) • Immerse in cool water or • Wrap in wet towels • Give nothing by mouth

Be sure there is adequate shade at or near the site for employees to rest. Have two gallons of water (or electrolyte solution/Gatorade) per employee at the site. Encourage employees to drink plenty of fluids and implement the following break schedule:

- Work for 1 to 1.5 hours.
- Break for 15 minutes.
- Count the radial pulse of all personnel for 30 seconds (and multiply by 2 to get beats per minute) at the beginning of the break period.
- If the heart rate exceeds 110 beats per minute (BPM), shorten the next work cycle by 1/3 and keep the rest periods at 15 minutes.
- If the heart rate exceeds 110 BPM at the next rest period, shorten the next work cycle by 1/3 again, keeping the 15 minute breaks.
- If the heart rate ever exceeds 120 BPM, the employee will be required to rest for 30-45 minutes to allow the heart rate to decrease.

The Site Safety Officer (Project Manager, Staff Geologist/Staff Engineer or senior Cardno ERI employee) will institute these procedures and monitor employees for signs of heat stress. Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat injuries.

APPENDIX B

COLD STRESS

COLD STRESS PROTOCOL

If the ambient air temperature is below 50 degrees Fahrenheit (F) in wet conditions, or if the field employee feels cold, the need for cold stress monitoring will be evaluated. Cold stress, hypothermia, and frost bite monitoring will be required if the temperatures fall below 50 degrees F in wet conditions. Cold stress is a life-threatening situation in which the victim's temperature control system, which regulates blood flow and inner core body temperature, makes adjustments to protect vital organs when exposed to prolonged cold and/or wet conditions. Body temperature can fall quickly to elevations causing hypothermia, frost bite, and death.

Layered Clothing System

Select the proper type and amount of clothing. Regulate your clothing according to your activity rate. This is the most effective way to ensure comfort. Pay attention to your bodies' signals. Do not wait until you are cold to put on more clothing. Act when you first begin to feel cooler.

Clothing layers:

- Long, thermal underwear
- Sweater, light jacket
- Long, thermal underwear
- Wind or rain pants
- Insulating socks wool or wool blend
- Footwear, steel-toe boots waterproofed
- Gloves and mittens
- Polypropylene shirt or inner layer
- Wind or rain gear
- Polypropylene, wool, or wool blend inner pants
- Wicking inner socks polypropylene
- Boot liners insulated insoles
- Head coverings

Types of Cold

Wet cold: 50º F to 14º F

This is the most dangerous range. Wide temperature variations from melting during the day to freezing at night makes proper dressing difficult and important. Damp conditions from melting snow or rain makes keeping dry difficult.

Dry cold: 14º F to -20º F

The ground is frozen and snow is dry and crystallized. Strong winds cause the most concern with keeping warm. Extra clothing layers and wind-proof outer garments should be added.

Arctic cold: below -20º F

This range requires the most insulation and wind-proofing. Many materials change physical properties, becoming brittle. Do not work in these conditions.

Loss of Body Heat

Homeostasis

This is the body's process for maintaining an even temperature. The arms and legs are used as a radiator to remove excess heat from the body. This process dilates the blood vessels, allowing more blood to flow to the skin surfaces. When the body temperature drops, these blood vessels constrict, decreasing blood flow, and thereby, heat loss. This is why hands and feet get numb when cold, and why they are particularly vulnerable to frostbite. Since your brain needs oxygen to function, your body can't cut off the flow of blood to your head in order to conserve heat. Consequently, much of your body heat can be lost through an uncovered head and neck.

Radiation is the reason for up to 55% reduction of heat loss. Heat is lost directly from exposed skin and the head. The head may lose up to one-half of the body's total heat production at 40 degrees F, and up to three quarters at 5 degrees F.

Evaporation is the reason for up to 21% reduction of heat loss. This loss is caused by evaporation of sweat and moisture from the skin. Lung exhalation also produces substantial heat loss. There is little that can be done about this. We need to allow for this by using breathable fabrics to allow this moisture to pass out freely.

Conduction (along with convection) is the reason for up to 15% reduction of heat loss. This is caused by skin contact with cold objects, primarily the hands, and wet or tight clothing. Handling gasoline and other super-cooled liquids at low temperatures is especially dangerous.

Convection is the heat loss caused by the wind carrying away heat from the surface of the skin. This includes wind-chill effects.

Respiration causes 2-9% of heat loss. This is caused from inhaling cold air and exhaling warm air.

Cold Weather First Aid

Dehydration

Excessive loss of body water impairs the ability to reason, so the victim may not react properly.

Prevention

- Drink at least 2 quarts of water a day.
- Increase fluid intake at first signs of darker yellow urine.
- Avoid dehydrating foods (high protein) and fluids (e.g., coffee, caffeine).

Symptoms

1 to 5 % deficiency

- Increased pulse rate
- Dark urine or constipation
- Thirst
- Nausea and loss of appetite
- Irritability and fatigue

6 to 10 % deficiency

- Headache, dizziness
- Tingling
- Inability to walk
- Labored breathing
- Absence of salivation
- Cyanosis (bluish or grayish skin color)

11 to 20 % deficiency

- Swollen tongue, inability to swallow
- Shriveled, numb skin
- Delirium, unconsciousness, and death
- Blurred vision and deafness
- Painful urination

Treatment

Mild cases - drink liquids, keep warm.

More severe cases require professional medical treatment.

Hypothermia

This is the lowering of the inner core temperature of the body. This can and usually does happen above freezing. The victim may not recognize the symptoms and may not be able to think clearly enough to react. Injury or death may result.

Predisposing Conditions

- Poor physical condition
- Thin build
- Getting wet
- Exhaustion
- Inadequate nutrition and water intake
- Non-protective clothing
- Inadequate protection from wind, rain and snow

Symptoms

- Loss of ability to reason
- Slowing, drowsiness, and fatigue
- Thickness of speech
- Irrationality and poor judgment
- Cyanosis (blueness of skin)
- Stupor
- Shivering
- Stumbling
- Amnesia
- Hallucinations
- Dilation of pupils of eyes
- Decreased heart/respiration rate

Treatment

- Shelter the victim from wind and weather.
- Insulate the victim from the ground.
- Change wet clothing.
- Put on windproof, waterproof gear.
- Increase exercise, if possible.
- Wrap in blanket.
- Give hot drinks.
- Follow with candy or other high-sugar foods.
- Apply external heat.
- Huddle for body heat from others.
- Place victim in a tub of 105 degrees F water, never above 110 degrees F.

Prevention

- Keep rested, maintain good nutrition.
- Consume plenty of high-energy food.
- Use proper clothing.
- Discontinue working if tired.
- Get plenty of exercise. Do not sit around much.
- Watch each other for signs.
- Take immediate corrective action for any signs.

Frostbite

This is tissue injury involving the actual freezing of the skin and underlying tissues. Recovery is slow; severe frostbite can lead to gangrene. Once exposed, the victim will be predisposed to frostbite in the future.

Predisposing Conditions

- Prolonged exposure to temperatures 32 degrees F or below.
- Brief exposure at extremely low temperatures (-25 degrees F and below)
- Exposed body parts
- Restriction of circulation.
- Fatigue, poor nutrition, low liquid intake, and poor physical condition.
- Previous case of frostbite or other cold injury

Symptoms

First Degree (Frostnip)

- Redness, pain, burning, stinging, or prickly sensation
- Pain disappears and there is a sudden blanching of the skin
- The skin may look mottled
- Skin is firm to the touch, but resilient underneath
- On thawing, there is aching pain or brownness. Skin may peel off, and the part may remain cold for some time.

Second Degree (Superficial Frostbite, Frostbite)

- No pain, the part may feel dead
- Numbness, hard to move the part
- Tissue and layers underneath are hard to the touch
- After thawing (takes 3 to 20 days) pain, large blisters, and sweating
- Black or discolored skin sloughs off, leaving tender new skin

Third degree (Severe Frostbite)

- Full thickness of the skin is involved
- After thawing, pain continues for 2 to 5 weeks

Fourth degree (Severe Frostbite)

- Skin and bone are frozen
- Swelling and sweating occur
- Gangrene may develop, amputation may be necessary

Treatment

- Do not rub affected area with snow. Hold it over fire or use cold water to thaw it.
- Exercise the affected area to promote blood circulation.
- Use any warmth available to thaw area.
- Do not attempt to thaw frostbitten limbs in the field. It is less harmful for the victim to walk out on a frostbitten limb than to thaw it in the field. Thawing only risks additional injury and the victim will be in too much pain to walk.
- Check for hypothermia.
- For more severe cases, refer to more complete instructions.

Prevention

- Proper clothing
- Good nutrition, drink water, maintain core temperature
- Use buddy system to check face, nose, and ears
- Immediate treatment of minor symptoms
- Do not work in cold conditions, if it can be avoided

APPENDIX C

MATERIAL SAFETY DATA SHEETS

ExxonMobil

123455-20 GASOLINE, UNLEADED AUTOMOTIVE
MATERIAL SAFETY DATA BULLETIN

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1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: GASOLINE, UNLEADED AUTOMOTIVE
SUPPLIER: EXXONMOBIL OIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA 22037

24 - Hour Health and Safety Emergency (call collect): 609-737-4411

24 - Hour Transportation Emergency:
CHEMTREC: 800-424-9300 202-483-7616
LUBES AND FUELS: 281-834-3296

Product and Technical Information:
Lubricants and Specialties: 800-662-4525 800-443-9966
Fuels Products: 800-947-9147
MSDS Fax on Demand: 713-613-3661
MSDS Internet Website: http://www.exxon.com, http://www.mobil.com

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2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: GASOLINE AND PROPRIETARY ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

Substance Name	Approx. Wt%
GASOLINE	100

COMPONENT(S) OF PRODUCT INGREDIENTS INCLUDE:

METHYL-TERT-BUTYL ETHER (1634-04-4)	< 16
ETHANOL (64-17-5)	< 11
XYLENE (1330-20-7)	10
TRIMETHYL BENZENE (25551-13-7)	8
TOLUENE (108-88-3)	6

ETHYL BENZENE (100-41-4)	3
N-HEXANE (110-54-3)	3
BENZENE (71-43-2)	2
NAPHTHALENE (91-20-3)	0.5

NOTE: The concentration of the components shown above may vary substantially. In certain countries benzene content may be limited to lower levels (eg. US reformulated gasoline). Oxygenates such as tertiary-amyl-methyl ether, ethanol, di-isopropyl ether, and ethyl-tertiary-butyl ether may be present (eg. concentration to provide a minimum oxygen content of 1.5 Wt% in the US). Because of volatility considerations, gasoline vapor may have concentrations of components very different from those of liquid gasoline. The major components of gasoline vapor are: butane, isobutane, pentane and isopentane. The reportable component percentages, shown in the Regulatory Information section, are based on API's evaluation of a typical gasoline mixture.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

This product is considered hazardous according to regulatory guidelines (See Section 15).

EMERGENCY OVERVIEW: Clear (May Be Dyed) Liquid. EXTREMELY FLAMMABLE, HIGH HAZARD. Liquid can release considerable vapor at temperatures below ambient which readily form flammable mixtures. Vapors settle to ground level and may reach, via drains and other underground passages, ignition sources remote from the point of escape. Product can accumulate a static charge which may cause a fire or explosion. DOT ERG No. : 128

POTENTIAL HEALTH EFFECTS: Skin irritation. May cause eye and respiratory irritation, headache, dizziness, nausea, loss of consciousness, and in cases of extreme exposure, possibly death. Low viscosity material-if swallowed may enter the lungs and cause lung damage. Overexposure to benzene may result in cancer, blood disorders and damage to the bone marrow. Long-term exposure to gasoline vapor has caused kidney and liver cancer in laboratory animals. Case reports of chronic gasoline abuse (such as sniffing) and chronic misuse as a solvent or as a cleaning agent have shown a range of nervous system effects, sudden deaths from heart attacks, blood effects and leukemia. These effects are not expected to occur at exposure levels encountered in the distribution and use of gasoline as a motor fuel.

POTENTIAL ENVIRONMENTAL EFFECTS: Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

For further health effects/toxicological data, see Section 11.

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4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Wash contact areas with soap and water. Immediately remove contaminated clothing, including shoes. (See Section 16 - Injection Injury)

INHALATION: Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with mechanical device or use mouth-to-mouth resuscitation.

INGESTION: Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIANS: Material if ingested may be aspirated into the lungs and can cause chemical pneumonitis. PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE: Skin contact may aggravate an existing dermatitis. Benzene- Individuals with liver disease may be more susceptible to toxic effects. Hexane- Individuals with neurological disease should avoid exposure.

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5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon Dioxide, Foam, Dry Chemical, Water Fog.

SPECIAL FIRE FIGHTING PROCEDURES: Evacuate area. For large spills, fire fighting foam is the preferred agent and should be applied in sufficient quantities to blanket the product surface. Water may be ineffective, but water should be used to keep fire-exposed containers cool. Water spray may be used to flush spill away from exposures, but good judgement should be practiced to prevent spreading of the product into sewers, streams or drinking water supplies. If a leak or spill has not ignited, apply a foam blanket to suppress the release of vapors. If foam is not available, a water spray curtain can be used to disperse vapors and to protect personnel attempting to stop the leak.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EXTREMELY FLAMMABLE, HIGH HAZARD. Liquid can release considerable vapor at temperatures below ambient which readily form flammable mixtures. Vapors settle to ground level and may reach, via drains and other underground passages, ignition sources remote from the point of escape. Product can accumulate a static charge which may cause a fire or explosion.

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C(F): < -40(-40) (ASTM D-56).

Flammable Limits (approx.% vol.in air) - LEL: 1.4%, UEL: 7.6%

NFPA HAZARD ID: Health: 1, Flammability: 3, Reactivity: 0

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6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to

appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Eliminate sources of ignition. Warn occupants in downwind areas of fire and explosion hazard. Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping using explosion-proof equipment or contain spilled liquid with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Eliminate sources of ignition. Advise occupants and ships in the vicinity in downwind areas of fire and explosion hazard and warn them to stay clear. Notify port and other relevant authorities. Do not confine in area of leakage. Allow liquid to evaporate from the surface. Do not use dispersants.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

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7. HANDLING AND STORAGE

HANDLING: USE NON-SPARKING TOOLS AND EXPLOSION-PROOF EQUIPMENT. NEVER SIPHON GASOLINE BY MOUTH. GASOLINE SHOULD NOT BE USED AS A SOLVENT OR AS A CLEANING AGENT. Avoid contact with skin. Avoid inhalation of vapors or mists. Use in well ventilated area away from all ignition sources. This liquid is volatile and gives off invisible vapors. Either the liquid or vapor may settle in low areas or travel some distance along the ground or surface to ignition sources where they may ignite or explode. Use product with caution around heat, sparks, pilot lights, static electricity, and open flames. It is unlawful and dangerous to put gasoline into unapproved containers. Do not fill container in or on a vehicle. Static electricity may ignite vapors and cause fire. Place container on ground when filling and keep nozzle in contact with container. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Drums must be grounded and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters. Store away from all ignition sources in a cool, well ventilated area equipped with an automatic sprinkling system. Outside or detached storage preferred. Storage containers should be grounded and bonded.

SPECIAL PRECAUTIONS: To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers, etc.) in or around any fueling operation or storage area unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Electrical equipment and fittings must comply with local fire

prevention regulations for this class of product. Use the correct grounding procedures. Refer to national or local regulations covering safety at petroleum handling and storage areas for this product.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

ExxonMobil recommends an 8-hour time-weighted average (TWA) exposure of 300 mg/m3 (100 ppm vapor).

Substance Name (CAS-No.)	Source	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3	NOTE
GASOLINE						
	OSHA	300	900	500	1500	
	ACGIH	300	890	500	1480	
METHYL-TERT-BUTYL ETHER (1634-04-4)						
	ACGIH	40	144			
	XOM	25		75		
ETHANOL (64-17-5)						
	OSHA	1000	1900			
	ACGIH	1000	1880			
XYLENE (1330-20-7)						
O, M, P, -Isomers	OSHA	100	435	150	655	
O, M, P, -Isomers	ACGIH	100	434	150	651	
TRIMETHYL BENZENE (25551-13-7)						
	OSHA	25	125			
	ACGIH	25	123			
TOLUENE (108-88-3)						
	OSHA	100	375	150	560	
Skin	ACGIH	50	188			
	XOM		200			
ETHYL BENZENE (100-41-4)						

	OSHA	100	435	125	545
	ACGIH	100	434	125	543
N-HEXANE (110-54-3)					
	OSHA	50	180		
Other Isomers	OSHA	500	1800	1000	3600
N-Hexane Skin	ACGIH	50	176		
Other Isomers	ACGIH	500	1760	1000	3500
BENZENE (71-43-2)					
	OSHA	1		5	
Skin	ACGIH	0.5	1.6	2.5	8
NAPHTHALENE (91-20-3)					
	OSHA	10	50	15	75
	ACGIH	10	52	15	79

NOTE: Limits shown for guidance only. Follow applicable regulations.

VENTILATION: Ventilation equipment must be explosion proof.
RESPIRATORY PROTECTION: Approved respiratory equipment must be used when airborne concentrations are unknown or exceed the recommended exposure limit. Self-contained breathing apparatus may be required for use in confined or enclosed spaces.
EYE PROTECTION: If splash with liquid is possible, chemical type goggles should be worn.
SKIN PROTECTION: Impervious gloves should be worn. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid
COLOR: Clear (May Be Dyed)
ODOR: Gasoline
ODOR THRESHOLD-ppm: NE
pH: NA
BOILING POINT C(F): > 20(68)
MELTING POINT C(F): NA
FLASH POINT C(F): < -40(-40) (ASTM D-56)
FLAMMABILITY (solids): NE
AUTO FLAMMABILITY C(F): NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: > 200.0
VAPOR DENSITY: 3.0
EVAPORATION RATE: NE
RELATIVE DENSITY, 15/4 C: 0.79
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: > 1
VISCOSITY AT 40 C, cSt: < 1.0
VISCOSITY AT 100 C, cSt: NA
POUR POINT C(F): NA

FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: NE
DMSO EXTRACT, IP-346 (WT.%): NA
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

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10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Heat, sparks, flame and build up of static electricity.
INCOMPATIBILITY (MATERIALS TO AVOID): Halogens, strong acids, alkalies, and oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION: Will not occur.

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11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.
EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.
SKIN IRRITATION (RABBITS): Irritant. (Primary Irritation Index: 3 or greater but less than 5). ---Based on testing of similar products and/or the components.
OTHER ACUTE TOXICITY DATA: Inhalation of high concentrations of vapors or aerosols/mists, especially deliberate or abuse exposure, may cause respiratory system irritation and damage. These exposures may also result in central nervous system depression and damage, possibly leading to death. Prolonged skin contact with gasoline may cause severe skin irritation similar to a chemical burn. The above effects, which may result from the whole gasoline or some of the gasoline components, are well documented in the medical literature. HAZARDS OF COMBUSTION PRODUCTS: Exposure to high concentrations of carbon monoxide can cause loss of consciousness, heart damage, brain damage and death.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

Two dermal studies resulted in significant irritation in rabbits but no significant systemic toxicity. 90-day inhalation exposures (approximately 1500 ppm vapor) in rats and monkeys produced light hydrocarbon nephropathy in male rats, but no other significant systemic toxicity.

---NEUROTOXICOLOGY (SUMMARY)---

Exposure to high concentrations of unleaded gasoline in rodents caused reversible central nervous system depression, however, no persistent neurotoxic effects were observed in subchronic inhalation studies of gasoline blending streams. No neurotoxic effects, as measured by a functional observation battery, motor activity, and neuropathology, were observed in rats exposed to light alkylate naphtha for 13 weeks at concentrations up to 6600 ppm. The medical literature clearly documents neurotoxic effects in humans from abusive gasoline inhalation (sniffing).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

Two separate inhalation teratology studies of unleaded gasoline vapor at exposures up to 1600 ppm and 9000 ppm for 6 hours/day on days 6-20 did not result in any significant developmental effects in rats. No significant effects were observed in the mothers or offspring. A two-generation inhalation reproductive study (CONCAWE) of unleaded gasoline showed no reproductive or developmental effects in rats exposed to concentrations up to 20, 000 mg/m3 (approx. 8000 ppm).

---CHRONIC TOXICOLOGY (SUMMARY)---

A lifetime mouse skin painting study of unleaded gasoline applied at 50 microliters, three times weekly, resulted in some severe skin irritation and changes, but no statistically significant increase in skin cancer or cancer to any other organ. A lifetime inhalation study of vaporized unleaded gasoline at up to 2000 ppm caused liver tumors in female mice and increased kidney tumors in male rats. The kidney tumors resulted from the formation of a compound unique to male rats, and are not considered relevant to humans. The U.S. EPA Risk Assessment Forum concluded that the male rat kidney tumor results are not relevant for human risk assessment. The implications for the female mice liver tumor data for human risk assessment have not been fully determined. Multiple short-term cancer predicative tests (Ames Test, etc.) have routinely been negative (no cancer or mutagenic potential) for unleaded gasoline.

---SENSITIZATION (SUMMARY)---

Unleaded gasoline was not a skin sensitizer in tests in a Buehler Guinea Pig Sensitization Assay.

---OTHER TOXICOLOGY DATA---

Gasoline and Refinery Streams: Isolated constituents of gasoline may display these or other potential hazards in laboratory tests. Gasoline consists of a complex blend of petroleum/processing derived paraffinic, olefinic, naphthenic and aromatic hydrocarbons which include up to 5% benzene (with 1-2 % typical in the U.S.), n-hexane, mixed xylenes, toluene, ethylbenzene and trimethyl benzene. Benzene has also caused damage to the fetus of test animals in developmental studies. Benzene has tested positive (mutagenic) in a number of short-term cancer/mutation predicative tests. Repeated exposures to low levels of benzene (50-500 ppm) have been reported to result in blood abnormalities including anemia and, in rare cases, leukemia in both animals and humans. Prolonged exposure to n-hexane may result in a condition known as peripheral neuropathy. This is nervous system damage

and is characterized by numbness of the extremities and, in extreme cases, paralysis. This product contains ethylbenzene. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and classified it as possibly carcinogenic to humans (Group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans. Methyl Tertiary Butyl Ether (MTBE) was tested for carcinogenicity, neurotoxicity, chronic, reproductive, and developmental toxicity. The NOAEL for all end points evaluated in three animal species was 400 ppm or greater. An increase in kidney tumors/damage and liver tumors was observed in animals exposed to high concentrations of MTBE. Some embryo/fetal toxicity and birth defects were observed in the offspring of pregnant mice exposed to maternally toxic doses of MTBE, however the offspring of exposed pregnant rabbits were unaffected. The significance of the animal findings at high exposures are not believed to be directly related to potential human health hazards in the workplace.

---

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative substances.

ECOTOXICITY: Based on test results for similar products, this substance may be toxic to aquatic organisms such as algae and daphnia (EL50/ IrL50 =1-10 mg/L). This substance has also been shown to be toxic to fish (LL50 = 1-10 mg/L).

MOBILITY: Dissolution of the higher molecular weight hydrocarbon components in water will be limited, but losses through sediment adsorption may be significant.

PERSISTENCE AND DEGRADABILITY: The majority of the components in this product are expected to be inherently biodegradable. When released into the environment, some of the constituents of gasoline will volatilize and be photodegraded in the atmosphere. The less volatile, more water-soluble components which are aromatic hydrocarbons will also undergo aqueous photodegradation.

BIOACCUMULATIVE POTENTIAL: Not established.

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13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning for fuel value in compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity, or

toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP).

BENZENE: 2.0000 PCT (TCLP)
FLASH: < -40(-40) C(F)

14. TRANSPORT INFORMATION

USA DOT:

SHIPPING NAME:	Gasoline
HAZARD CLASS & DIV:	3
ID NUMBER:	UN1203
ERG NUMBER:	128
PACKING GROUP:	PG II
STCC:	NE
DANGEROUS WHEN WET:	No
POISON:	No
LABEL(s):	Flammable Liquid
PLACARD(s):	Flammable
PRODUCT RQ:	NA
MARPOL III STATUS:	NA

RID/ADR:

HAZARD CLASS:	3
PACKING GROUP:	II
LABEL:	3
DANGER NUMBER:	33
UN NUMBER:	1203
SHIPPING NAME:	Gasoline
REMARKS:	NA

IMO:

HAZARD CLASS & DIV:	3
UN NUMBER:	1203
PACKING GROUP:	PG II
SHIPPING NAME:	Gasoline
LABEL(s):	Flammable Liquid
MARPOL III STATUS:	NA

ICAO/IATA:

HAZARD CLASS & DIV:	3
ID/UN Number:	1203
PACKING GROUP:	PG II
SHIPPING NAME:	Gasoline
SUBSIDIARY RISK:	NA
LABEL(s):	Flammable Liquid

STATIC ACCUMULATOR (50 picosiemens or less): YES

15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.

EU Labeling: Product is dangerous as defined by the European Union

Dangerous Substances/Preparations Directives.

Symbol: F+ T N Extremely flammable, Toxic, Dangerous for the environment.

Risk Phrase(s): R12-45-38-65-67-51/53.
Extremely flammable. May cause cancer. Irritating to skin. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrase(s): S16-53-45-2-23-24-29-43-62.
Keep away from sources of ignition - No smoking. Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Keep out of the reach of children. Do not breathe vapor. Avoid contact with skin. Do not empty into drains. In case of fire use foam/drypowder/CO2. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Contains: Low Boiling Point Naphtha.

Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KOREA, and PHILIPPINES.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES:
FIRE CHRONIC ACUTE

This product contains the following SARA (313) Toxic Release Chemicals:

CHEMICAL NAME	CAS NUMBER	CONC.
BENZENE(COMPONENT ANALYSIS)	71-43-2	2%
PSEUDOCUMENE (1,2, 4-TRIMETHYLBENZENE)(COMPONENT ANALYSIS)	95-63-6	3%
ETHYL BENZENE(COMPONENT ANALYSIS)	100-41-4	3%
TOLUENE(COMPONENT ANALYSIS)	108-88-3	6%
N-HEXANE(COMPONENT ANALYSIS)	110-54-3	3%
XYLENES(COMPONENT ANALYSIS)	1330-20-7	10%
METHYL-TERT-BUTYL ETHER(COMPONENT ANALYSIS)	1634-04-4	<16%

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS *

GASOLINE		1, 8, 19, 20, 21, 23, 25
ETHYL ALCOHOL (COMPONENT ANALYSIS)	64-17-5	1, 6, 10, 18, 19, 20, 21, 23, 25, 26
BENZENE (COMPONENT ANALYSIS) (2.00%)	71-43-2	1, 2, 4, 6, 9, 10, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26
NAPHTHALENE (COMPONENT ANALYSIS) (0.50%)	91-20-3	16, 22
PSEUDOCUMENE (1,2, 4-TRIMETHYLBENZENE) (COMPONENT ANALYSIS)	95-63-6	1, 20, 24, 25
ETHYL BENZENE (COMPONENT ANALYSIS)	100-41-4	1, 8, 10, 18, 19, 20, 21, 23, 24, 25, 26
TOLUENE (COMPONENT ANALYSIS) (6.00%)	108-88-3	1, 10, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26
N-HEXANE (COMPONENT ANALYSIS)	110-54-3	1, 10, 18, 19, 20, 21, 23, 24, 25, 26
XYLENES (COMPONENT ANALYSIS) (10.00%)	1330-20-7	1, 10, 18, 19, 20, 21, 22, 23, 24, 25, 26
METHYL-TERT-BUTYL ETHER (COMPONENT ANALYSIS)	1634-04-4	1, 21, 24, 25
TRIMETHYL BENZENE (COMPONENT ANALYSIS)	25551-13-7	1, 10, 18, 19, 20, 21, 23, 25, 26

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.
Code key:CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

16. OTHER INFORMATION

USE: UNLEADED MOTOR FUEL

NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES ARE NOT FORMULATED TO CONTAIN PCBS.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be

considered:

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Precautionary Label Text:

CONTAINS GASOLINE, BENZENE, AND ETHYLBENZENE

DANGER!

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CAUSES SKIN IRRITATION. RESPIRATORY IRRITATION, HEADACHE, DIZZINESS, NAUSEA, LOSS OF CONSCIOUSNESS, AND IN CASES OF EXTREME EXPOSURE, POSSIBLY DEATH. LOW VISCOSITY MATERIAL-IF SWALLOWED, MAY BE ASPIRATED AND CAN CAUSE SERIOUS OR FATAL LUNG DAMAGE.

OVEREXPOSURE TO BENZENE MAY RESULT IN CANCER, BLOOD DISORDERS, AND DAMAGE TO THE BONE MARROW. LONG-TERM EXPOSURE TO GASOLINE VAPOR HAS CAUSED KIDNEY AND LIVER CANCER IN LABORATORY ANIMIALS, BLOOD EFFECTS, AND NERVOUS SYSTEM DAMAGE.

Keep away from heat, sparks, and flame. Avoid all personal contact. Avoid prolonged breathing of vapor. Use with adequate ventilation. Keep container closed. Approved portable containers must be properly grounded when transferring fuel. For use as a motor fuel only. Misuse of gasoline may cause serious injury or illness. Never siphon by mouth. Not to be used as a solvent or skin cleaning agent.

FIRST AID: In case of contact, wash skin with soap and water. Immediately remove contaminated clothing, including shoes. Destroy or wash clothing before reuse. If swallowed, seek immediate medical attention. Do not induce vomiting. Only induce vomiting at the instruction of a physician.

This warning is given to comply with California Health and Safety Code 25249.6 and does not constitute an admission or a waiver of rights. This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm. Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm are created by the combustion of this product. Refer to product Material Safety Data Sheet for further safety and health information.

****

For Internal Use Only: MHC: 1* 1* 1* 1* 2*, MPPEC: CF, TRN: 123455-20, CMCS97: EMGF20, REQ: PS+C, SAFE USE: G
EHS Approval Date: 03APR2003

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Prepared by: ExxonMobil Oil Corporation
Environmental Health and Safety Department, Clinton, USA

MATERIAL SAFETY DATA SHEET (MSDS)

Methyl Tert-Butyl Ether

(PRODUCT NAME)

Lyondell

(MANUFACTURED BY)

This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA hazard communication standard, 29 CFR 1910.1200. The information in this MSDS should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product. Gallade Chemical believes this information to be reliable and up to date as of the date of publication but, makes no warranty that it is.

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LYONDELL

Material Safety Data Sheet

MSDS No.:	BE273
Variant:	U.S.A.-EN
Version No:	1.4
Validation Date:	04/17/2002

ARCOPURE® (HIGH PURITY MTBE)

SECTION 1: IDENTIFICATION

Product Name: ARCOPURE® (HIGH PURITY MTBE)

Product Number: 000000000000499113

Chemical Name: t-Butyl Methyl Ether

CAS Number: 1634-04-4

Chemical Family: Alkyl ethers

Synonyms: High Purity Tert-Butyl Methyl Ether, High Purity MTBE, Tert-Butyl Methyl Ether

Manufacturer:
Lyondell Chemical Company
One Houston Center, Suite 1600
1221 McKinney St.
P.O. Box 2583
Houston Texas 77252-2583

Telephone Numbers:
Emergency: CHEMTREC 800 424-9300
LYONDELL 800-245-4532

Non-Emergency: CUSTOMER SERVICE
888 777-0232
PRODUCT SAFETY
800 700-0946

SECTION 2 : Composition/Information on Ingredients

Component Name:	CAS #.	EU Inventory Number:	Concentration by Wt./Mol% Avg.	Min.	Max.
t-Butyl Methyl Ether	1634-04-4	EINECS 216-653-1		99.9	

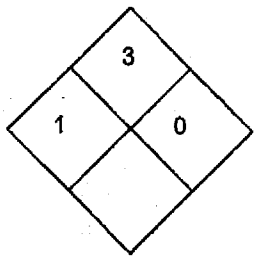
SECTION 3: HAZARD IDENTIFICATION

Emergency Overview This material is HAZARDOUS by OSHA Hazard Communication definition.

Signal Word: DANGER.

Hazards: Extremely flammable liquid. Skin and eye irritant. Mucous membrane irritant. Inhalation hazard. Aspiration hazard.

NFPA



HMIS®

Health	1
Flammability	3
Reactivity	0

Physical State: Liquid.

Color: Clear, colorless.

Odor: Terpene-like odor.

Odor Threshold: 0.051 ppm / Odor is not an adequate warning of potentially hazardous ambient air concentrations.

Potential Health Effects

Routes of Exposure: Skin. Eye Inhalation

Signs and Symptoms of Acute Exposure: See component summary.

- *t-Butyl Methyl Ether* — Eye irritant. Moderate skin irritant. Mucous membrane irritant. Overexposure may produce anesthetic or narcotic effects. Aspiration hazard.

Skin: May cause moderate skin irritation. No significant signs or symptoms indicative of any health hazard are expected to occur as a result of skin absorption exposure.

Inhalation: Prolonged overexposure may cause coughing, shortness of breath, dizziness and intoxication.

Eye: May cause minor eye irritation.

Ingestion: Ingestion of this material may result in aspiration into the lungs causing chemical pneumonia.

Chronic Health Effects: See component summary.

- *t-Butyl Methyl Ether* — Breathing mist or vapors may cause mucous membrane or upper respiratory tract irritation Prolonged exposure may produce anesthetic and narcotic effects. Chronic animal toxicity studies exposing rats and mice to MTBE have been performed. A description of these studies and an assessment of their results is presented elsewhere in this document.

Conditions Aggravated by Exposure: Medical information regarding special health effects is not conclusive. This material may aggravate pulmonary/bronchial disease and/or cause breathing difficulty.

SECTION 4: FIRST AID MEASURES

General: Assess rapidly and aggressively., Resuscitation may be indicated.

Inhalation: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain medical attention if breathing difficulty persists.

Eye: Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention.

Skin: Promptly remove soiled clothing/wash thoroughly before reuse. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

Ingestion: If large quantity swallowed, give lukewarm water (pint/ 1/2 litre) if victim completely conscious/alert. Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

Physician's Detoxification Procedures: Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIRE FIGHTING MEASURES

Flammability Classification: OSHA/NFPA Class IC Flammable Liquid.

Flash Point / Method: ~ -28 °C(-18.4 °F)(SETA)

Auto-Ignition Temperature: 374 °C (705 °F)

Flammable Limits: **LOWER:** 1.3 vol%

UPPER: 8 vol%

Hazardous Combustion Products: Thermal decomposition may produce carbon monoxide and other toxic vapors.

Special Conditions to Avoid: Releases flammable vapors below normal ambient temperatures. Flammable vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.

Extinguishing Media: **Suitable:** SMALL FIRE: Use dry chemicals, CO_2, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

Unsuitable: Do not use solid water stream/may spread fire.

Fire Fighting Instructions: **Protective Equipment/Clothing:** Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.

INSTRUCTIONS: Move containers form fire area if you can do it without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not use straight streams. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Release Response: Highly flammable liquid. Release can cause fire or explosion. Eliminate all sources of ignition. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Water spray may reduce vapor; but may not prevent ignition in closed spaces. Dike large

spills and place materials in salvage containers.

Regulation	Component	TPQ	RQ
EPA/DOT RQ	Methyl Tertiary Butyl Ether / CAS# 1634-04-4.		454 KG / 1,000 lbs

SECTION 7: HANDLING AND STORAGE

Handling: For industrial use only. Keep container tightly closed when not in use. Extinguish all ignition sources. Wear recommended personal protective equipment. Containers must be properly grounded before beginning transfer. All electrical equipment should be grounded and conform to applicable electric codes and regulatory requirements. Check atmosphere for explosiveness and oxygen deficiencies. Observe precautions pertaining to confined space entry. Use only non-sparking tools. Carefully vent any internal pressure before removing closure. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Handle empty containers with care; vapor/residue may be flammable.

Storage: Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Soft steel; avoid most plastics, Viton and Flourel. Store closed drums with bung in up position. Vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Both local exhaust and good general room ventilation must be provided not only to control exposure but also to prevent formation of flammable mixtures.

Personal Protection:

Inhalation: A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use.

Skin: Wear chemical resistant gloves such as: Nitrile. or Polyvinyl Alcohol. Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn.

Eye: Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor.

Other Hygienic Practices: Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Recommended Work Practices Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse.

Occupational Exposure Limits:

Component Name:	Source / Date	Value / Units	Type	Notation	Carcinogenic Listing*
t-Butyl Methyl Ether	US (ACGIH) / 2001	50 ppm 180 mg/m3	8 HRS / TWA.	No	4

	US (OSHA) / 2001	N/L			4

*1 = OSHA 2 = IARC 3 = NTP 4 = Others N/L = Not Listed See Section 11 for more information

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Gravity: ~0.74, @ (20 °C/68 °F), (Water = 1.0 at 4°C (39.2°F))

Vapor: ~3, @ (20 °C/68 °F), (Air = 1.0)

Boiling Point: ~ 55 °C/131 °F, @ 760 mm Hg

pH: Not applicable.

Vapor Pressure: ~ 245 mm Hg, @ (25 °C /77 °F)

Viscosity: ~ 0.3 mPa.s, @ (25 °C/77 °F)

Solubility: **Solubility (Water):**
Moderate (1 to less than 10 Percent).

Octanol/Water Partition Coefficient in Kow: Log Pow = -0.8 to -1.33

Melting/ Freezing Point: ~ -109 °C/-164 °F

Evaporation Rate: No Data Available.

Molecular Weight: 88.17 g/mol

Other Physical & Chemical Properties: Additional properties may be listed in Sections 3 and 5.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: This material is stable when properly handled and stored.

Conditions to Avoid: Heat, sparks, open flame, other ignition sources, and oxidizing conditions.

Incompatibility with: 2-Flourel(TM). Viton(TM). Strong oxidizing agents.

Hazardous Polymerization: Not expected to occur.

Reactions with Air and Water: Not expected to occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary: (See Component Toxicity Information).

CARCINOGENICITY: See component summary.

Component Summary:

t-Butyl Methyl Ether

LC50 (Inhl)

Rat	23,576 PPM	4 HOURS

LD50 (Oral)

Rat	4 GM/KG

Target Organ Effects Methyl tertiary butyl ether (MTBE) showed a positive response in the mouse lymphoma assay. However, all other mutagenicity assays (Ames, SCE, chromosomal aberrations, Drosophila, in-vivo SCE) were negative. There has been a high incidence of false positives in the mouse lymphoma, and therefore, it can be concluded that this single positive finding does not indicate that MTBE is a potential mutagen.

Repeated Dose Toxicity Information on the subchronic and chronic toxicity of MTBE to humans was not found in the secondary sources searched. Laboratory rodents exposed to high doses or concentrations of MTBE exhibit blood chemistry changes and kidney abnormalities. The no observable effect level was reported to be 800 ppm. Chronic toxicity studies have been completed for MTBE. In these studies mice and rats were exposed to 400, 3000, or 8000 ppm MTBE vapors 6 hour/day, 5 days/week for life. Few adverse effects were noted for either rats or mice. Male and female mice exposed to 8000 ppm MTBE vapors developed a slightly higher incidence of benign liver tumors during their lifetime. No other adverse effects or increases in tumor incidences were found. Male and female rats exposed to MTBE vapors developed an increasing incidence of chronic progressive kidney damage - an effect typically noted in aging rats. These effects were most severe in 3000 and 8000 ppm exposure groups and were accompanied by an increased incidence of kidney tumors (males only). These findings are consistent with kidney damage associated with accumulation of protein in cells - an effect which may be unique to the male rat. Benign testicular tumors were numerically increased in high-dose MTBE male rats, but this is an age-related lesion which typically occurs in a very high proportion of control untreated rats. All of these effects either occur in tissues prone to the development of tumors or may occur by a mechanism not considered relevant to humans. The significance of these findings for human health hazard estimation is unclear.

CARCINOGENICITY: ACGIH list MTBE as A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s), or by mechanism(s) not considered relevant to workers exposure. Available epidemiologic studies do not confirm an increased risk of cancer in humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

Reproductive / Development Effects MTBE, at very high exposure levels (8000 ppm), did induce developmental toxicity in mice, but only at levels where there was also maternal toxicity. In rabbits exposed to the same MTBE levels, there were no indications of any adverse health effects on the offspring, even in the presence of maternal toxicity. The abnormal findings in the mice (cleft palate, etc.) are well-recognized effects of stress in the pregnant mouse and have no correlation with developmental hazards in humans.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: This material is expected to be non-hazardous to aquatic species.

Toxicity to Fish:/Amphibians

Test type	Species	Value / Units
LC50 / 96 HOURS	fathead minnow	706 mg/l

Toxicity to Aquatic: Inverterbrates:

Test type	Species	Value / Units
LC50 / 96 HOURS	Marine copepod.	> 1,000 mg/l

Environmental Fate: Abiotic Degradability: Oxidation Half-Life 5.7 days. Biotic Degradability: Theo BOD 1% (21 day). This material is volatile and water soluble. It may enter soil and may contaminate water. This material is likely to evaporate from soil and water.

Bioaccumulation: This material is not expected to bioaccumulate.

Biodegradation: This material is expected to be resistant to biodegradation.

SECTION 13: DISPOSAL CONSIDERATIONS

Contaminated products/soil/water may be Resource Conservation and Recovery Act (RCRA)/Occupational Safety and Health Administration (OSHA) hazardous waste due to low flash point (see 40 Code of Federal Regulations (CFR) 261 and 29 CFR 1910). Assure effluent complies with applicable regulations. Landfill solids at permitted sites. Use registered transporters. Burn concentrated liquids in systems designed for low flash point material. Avoid flame-outs. Assure emissions comply with applicable regulations. Avoid overloading/poisoning plant biomass. Dilute aqueous waste may biodegrade.

SECTION 14: TRANSPORT INFORMATION

Proper Shipping Name: Methyl tert-butyl ether

UN/NA ID: UN 2398

NAER Guidebook: 127

Marine Pollutant: No

Labels: Flammable liquid.

DOT Hazard Class: 3, PG II

IMDG Hazard Class: 3, PG II

ADR/VLG Hazard Class: 3

ICAO/IATA Hazard Class: 3, PG II

ADNR/VBG Hazard Class: 3

RID/VSG Hazard Class: 3

SECTION 15: REGULATORY INFORMATION

Regulatory Advisory: This material contains a component(s) with known CAS numbers classified as hazardous substances subject to the reporting of CERCLA (40 CFR 302) and/or to the release reporting requirements of SARA (Section 302) based on reportable quantities (RQs) (SEE SECTION 6).

Regulatory Status: All components of this product are listed or are exempt from listing on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below. Export notification required.

Methyl t-Butyl Ether — TSCA Section 4

SARA - Section 313 Emissions Reporting: This material contains the following chemicals with known CAS numbers subject to the reporting requirements of SARA Title III, Section 313 and 40 CFR 372:

Component Summary:	Reporting Threshold
Methyl t-Butyl Ether / CAS# 1634-04-4	1.0%

SARA - Section 311/312: Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Fire Hazard.
Immediate (Acute) Health Hazard.

State Reporting:

- This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

- Massachusetts Substances List (MSL) - Hazardous substances on the MSL must be identified when present in materials at levels greater than state specified criterion. The criterion is: >= 1%. Components with CAS numbers present in this material at a level which could require reporting under the statute are:

  Methyl Tertiary Butyl Ether / CAS# 1634-04-4.

- Hazardous Substances listed by the State of Pennsylvania must be identified when present in materials at levels greater than the state specified criterion. The criterion is >= 1%. Components with CAS numbers in this material at a level which could require reporting under the statute are:

  Methyl Tertiary Butyl Ether / CAS# 1634-04-4.

- Environmentally Hazardous Substances listed by the State of Pennsylvania must be identified when present in materials at levels greater than the state specified criterion. The criterion is >= 1%. Components with CAS numbers in this material at a level which could require reporting under the statute are:

  Methyl Tertiary Butyl Ether / CAS# 1634-04-4.

SECTION 16: OTHER INFORMATION

DISCLAIMER OF RESPONSIBILITY: This document is generated for the purpose of distributing health, safety, and environmental data. It is not a specification sheet nor should any displayed data be construed as a specification. The information on this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and

disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable.

Latest Revision(s): Revised Section(s): 14 Date of Revision: December 4 2001

END OF DOCUMENT

ExxonMobil

123455-22 DIESEL #2, ON-ROAD (LOW SULFUR)
MATERIAL SAFETY DATA BULLETIN

---

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: DIESEL #2, ON-ROAD (LOW SULFUR)
SUPPLIER: EXXONMOBIL OIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA 22037

24 - Hour Health and Safety Emergency (call collect): 609-737-4411

24 - Hour Transportation Emergency:
CHEMTREC: 800-424-9300 202-483-7616
LUBES AND FUELS: 281-834-3296

Product and Technical Information:
Lubricants and Specialties: 800-662-4525 800-443-9966
Fuels Products: 800-947-9147
MSDS Fax on Demand: 713-613-3661
MSDS Internet Website: http://www.exxon.com, http://www.mobil.com

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2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: HYDROCARBONS AND ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

Substance Name	Approx. Wt%
DIESEL FUEL (68334-30-5)	100

COMPONENT(S) OF PRODUCT INGREDIENTS INCLUDE:

NAPHTHALENE (91-20-3)	0.5
ETHYL BENZENE (100-41-4)	0.5

NOTE: Composition may contain up to 0.5% performance additive.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

This product is considered hazardous according to regulatory guidelines (See Section 15).

EMERGENCY OVERVIEW: Clear (May Be Dyed) Liquid. Material is combustible. Liquid can release vapors that readily form flammable mixtures at or above the flash point. Product can accumulate a static charge which may cause a fire or explosion. DOT ERG No. : 128

POTENTIAL HEALTH EFFECTS: Respiratory irritation, headache, dizziness, nausea, loss of consciousness, and in cases of extreme exposure, possibly death. Diesel exhaust may cause lung cancer. Prolonged, repeated skin contact may result in skin irritation or more serious skin disorders. Low viscosity material-if swallowed may enter the lungs and cause lung damage. Note: This product contains polycyclic aromatic hydrocarbons, some of which have been reported to cause skin cancer in test animals and in humans under conditions of poor personal hygiene and prolonged repeated contact.

POTENTIAL ENVIRONMENTAL EFFECTS: Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

For further health effects/toxicological data, see Section 11.

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Remove contaminated clothing. Dry wipe exposed skin and cleanse yourself with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. (See Section 16 - Injection Injury)

INHALATION: Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with mechanical device or use mouth-to-mouth resuscitation.

INGESTION: Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIANS: Material if aspirated into the lungs may cause chemical pneumonitis. PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE: Hydrocarbon Solvents/Petroleum Hydrocarbons- Skin contact may aggravate an existing dermatitis.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective, but water should be used to keep fire-exposed containers cool. Prevent runoff from fire control or dilution from entering streams,

sewers, or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Material is combustible. Liquid can release vapors that readily form flammable mixtures at or above the flash point. Product can accumulate a static charge which may cause a fire or explosion.

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C(F): > 55(131) (ASTM D-93).

Flammable Limits (approx.% vol.in air) - LEL: 0.6%, UEL: 7.0%

NFPA HAZARD ID: Health: 1, Flammability: 2, Reactivity: 0

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6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Eliminate sources of ignition. Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping using explosion-proof equipment or contain spilled liquid with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Eliminate sources of ignition and warn other ships in the vicinity to stay clear. Notify port and other relevant authorities. Confine with booms if skimming equipment is avaliable to recover the spill. Otherwise disperse in unconfined waters, if permitted by local authorities and environmental agencies. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

---

7. HANDLING AND STORAGE

HANDLING: Keep product away from high energy ignition sources, heat, sparks, pilot lights, static electricity, and open flame. Harmful in contact with or if absorbed through the skin. Avoid inhalation of vapors or mists. Use in well ventilated area away from all ignition sources. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Store in a cool area. Avoid sparking conditions. Ground and bond all transfer equipment.

SPECIAL PRECAUTIONS: To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or

ground product transfer system. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers, etc.) in or around any fueling operation or storage area unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Electrical equipment and fittings must comply with local fire prevention regulations for this class of product. Use the correct grounding procedures. Refer to national or local regulations covering safety at petroleum handling and storage areas for this product.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

ExxonMobil recommends an 8-hour time-weighted average (TWA) exposure of 500 mg/m3 total vapor (approx. 100 ppm) or 5 mg/m3 stable aerosols.

Substance Name (CAS-No.)	Source	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3	NOTE
NAPHTHALENE (91-20-3)						
	OSHA	10	50	15	75	
	ACGIH	10	52	15	79	
ETHYL BENZENE (100-41-4)						
	OSHA	100	435	125	545	
	ACGIH	100	434	125	543	

NOTE: Limits shown for guidance only. Follow applicable regulations.

VENTILATION: Use in well ventilated area with local exhaust ventilation. Ventilation equipment must be explosion proof. Use away from all ignition sources.

RESPIRATORY PROTECTION: Approved respiratory equipment must be used when airborne concentrations are unknown or exceed the recommended exposure limit. Self-contained breathing apparatus may be required for use in confined or enclosed spaces.

EYE PROTECTION: If splash with liquid is possible, chemical type goggles should be worn.

SKIN PROTECTION: Impervious gloves must be worn. If contact is likely

oil impervious clothing must be worn. Good personal hygiene practices should always be followed.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid
COLOR: Clear (May Be Dyed)
ODOR: Hydrocarbon
ODOR THRESHOLD-ppm: NE
pH: NA
BOILING POINT C(F): > 149(300)
MELTING POINT C(F): NA
FLASH POINT C(F): > 55(131) (ASTM D-93)
FLAMMABILITY (solids): NE
AUTO FLAMMABILITY C(F): NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: 0.5
VAPOR DENSITY: > 2.0
EVAPORATION RATE: NE
RELATIVE DENSITY, 15/4 C: 0.82-0.87
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: > 3.5
VISCOSITY AT 40 C, cSt: > 1.0
VISCOSITY AT 100 C, cSt: NE
POUR POINT C(F): < -7(20)
FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: NE
DMSO EXTRACT, IP-346 (WT.%): NA

NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

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10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.
INCOMPATIBILITY (MATERIALS TO AVOID): Halogens, strong acids, alkalies, and oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION: Will not occur.

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11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the

components.

INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

Repeated dermal application of middle distillates, heating oils and diesel oils to rabbits for 2-4 weeks at up to 1 gm/kg resulted in strong to severe skin irritation with some weight loss at the higher dose. Toxic effects ranging from weight loss to mortality was observed in rabbits treated repeatedly with very high doses (6 gm/kg) of these oils. Repeated inhalation exposure of middle distillate and diesel vapor and aerosol to rats for 2-4 weeks at up to 6 mg/l resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and some reduction in lung function.

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

Diesel fuel vapors were tested in an inhalation teratology (developmental toxicity) study in rats and when only minimal maternal toxicity was observed, no fetotoxic or developmental effects were observed. A developmental toxicity study of dermally applied middle distillates did indicate fetotoxicity (reduced litter size, litter weight, increased resorptions) at doses that also caused significant maternal toxicity.

---CHRONIC TOXICOLOGY (SUMMARY)---

Diesel fuel, heating oil and middle distillates have been shown to be carcinogenic in lifetime mouse skin painting bioassays. While in some cases, the tumor incidence is low in the test populations and possibly associated with skin irritation, concurrent evidence from short-term predicative tests (Modified Ames) does indicate some level of mutagenic activity associated with levels of polycylic aromatic compounds in certain test samples.

---SENSITIZATION (SUMMARY)---

Middle distillate oils were not skin sensitizers when tested in a Modified Buehler Guinea Pig Sensitization Assay.

---OTHER TOXICOLOGY DATA---

Overexposure to diesel exhaust fumes may result in eye irritation, headaches, nausea, and respiratory irritation. Animal studies involving lifetime exposure to high levels of diesel exhaust have produced variable results, with some studies indicating a potential for lung cancer. Limited evidence from epidemiological studies suggest an association between long-term occupational exposure to diesel engine emissions and lung cancer. Diesel engine exhaust typically consists of gases and particulates, including carbon dioxide, carbon monoxide, nitrogen compounds, oxides of sulfur, and hydrocarbons. Diesel exhaust composition will vary with fuel, engine type, load cycle, engine maintenance,

tuning and exhaust gas treatment. Use of adequate ventilation and/or respiratory protection in the presence of diesel exhaust is recommended to minimize exposures. This product contains ethylbenzene. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and classified it as possibly carcinogenic to humans (Group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans.

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12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative substances.

ECOTOXICITY: Based on test results for similar products, this substance may be toxic to aquatic organisms such as algae and daphnia (EL50/ IrL50 =1-10 mg/L). This substance has also been shown to be toxic to specific fish species (LL50 = 1-10 mg/L for rainbow trout, Atlantic silverside).

MOBILITY: Dissolution of the higher molecular weight hydrocarbon components in water will be limited, but losses through sediment adsorption may be significant.

PERSISTENCE AND DEGRADABILITY: The majority of the components in this product are expected to be inherently biodegradable. The consitituents of diesel fuels/heating oil which are volatilized will photodegrade in the atmosphere. The less volatile, more water-soluble components which are aromatic hydrocarbons will also undergo aqueous photodegradation.

BIOACCUMULATIVE POTENTIAL: Not established.

---

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning for fuel value in compliance with applicable laws and regulations.

RCRA INFORMATION: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity, or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP).

FLASH: > 55(131) C(F)

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14. TRANSPORT INFORMATION

NOTE:The flash point of this material is > 131F. Regulatory classifications vary as follows:

DOT: Flammable Liquid OR Combustible Liquid - (49CFR 173.120(b)(2))
OSHA: Combustible Liquid
IATA/IMO: Flammable Liquid

USA DOT:

SHIPPING NAME:	Diesel Fuel
HAZARD CLASS & DIV:	COMBUSTIBLE LIQUID
ID NUMBER:	NA1993
ERG NUMBER:	128
PACKING GROUP:	PG III
STCC:	NE
DANGEROUS WHEN WET:	No
POISON:	No
LABEL(s):	NA
PLACARD(s):	Combustible
PRODUCT RQ:	NA
MARPOL III STATUS:	NA

RID/ADR:

HAZARD CLASS:	3
PACKING GROUP:	III
LABEL:	3
DANGER NUMBER:	30
UN NUMBER:	1202
SHIPPING NAME:	Gas Oil
REMARKS:	NA

IMO:

HAZARD CLASS & DIV:	3
UN NUMBER:	1202
PACKING GROUP:	PG III
SHIPPING NAME:	Gas Oil
LABEL(s):	Flammable Liquid
MARPOL III STATUS:	NA

ICAO/IATA:

HAZARD CLASS & DIV:	3
ID/UN Number:	1202
PACKING GROUP:	PG III
SHIPPING NAME:	Gas Oil
SUBSIDIARY RISK:	NA
LABEL(s):	Flammable Liquid

STATIC ACCUMULATOR (50 picosiemens or less): YES

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15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.

EU Labeling: Product is dangerous as defined by the European Union Dangerous Substances/Preparations Directives.

Symbol: Xn N Harmful, Dangerous for the environment.

Risk Phrase(s): R40-65-66-51/53.
Limited evidence of a carcinogenic effect. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrase(s): S24-2-36/37-62.
Avoid contact with skin. Keep out of the reach of children. Wear suitable protective clothing and gloves. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Contains: Gas oil - unspecified.

Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KOREA, and PHILIPPINES.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES:
FIRE CHRONIC ACUTE

This product contains the following SARA (313) Toxic Release Chemicals:

CHEMICAL NAME	CAS NUMBER	CONC.
ETHYL BENZENE(COMPONENT ANALYSIS)	100-41-4	0.5%

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS *
NAPHTHALENE (COMPONENT ANALYSIS) (0.50%)	91-20-3	16, 22
ETHYL BENZENE (COMPONENT ANALYSIS)	100-41-4	1, 8, 24
DIESEL OIL..C9-20	68334-30-5	21, 26

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

Code key:CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

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16. OTHER INFORMATION

USE: DIESEL FUEL

NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES ARE NOT FORMULATED TO CONTAIN PCBS.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Precautionary Label Text:

CONTAINS DIESEL OIL.. C9-20

WARNING!

COMBUSTIBLE LIQUID AND VAPOR. RESPIRATORY IRRITATION, HEADACHE, DIZZINESS, NAUSEA, LOSS OF CONSCIOUSNESS, AND IN CASES OF EXTREME EXPOSURE, POSSIBLY DEATH. LOW VISCOSITY MATERIAL-IF SWALLOWED, MAY BE ASPIRATED AND CAN CAUSE SERIOUS OR FATAL LUNG DAMAGE.

MAY CAUSE SKIN CANCER ON PROLONGED, REPEATED SKIN CONTACT. ANIMAL SKIN ABSORPTION STUDIES RESULTED IN INCREASED MORTALITY, EFFECTS ON BODY WEIGHT, THE IMMUNE SYSTEM AND THE UNBORN CHILD. PROLONGED, REPEATED SKIN CONTACT MAY CAUSE IRRITATION. DIESEL EXHAUST MAY CAUSE LUNG CANCER.

Keep away from heat and flame. Avoid prolonged or repeated overexposure by skin contact or inhalation. Use with adequate ventilation. Keep container closed. Keep out of reach of children.

FIRST AID: If inhaled, remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation. In case of contact, remove contaminated clothing. Dry wipe the exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself and others. Wear impervious gloves. If swallowed, seek immediate medical attention. Do not induce vomiting. Only induce vomiting at the instruction of a physician.

This warning is given to comply with California Health and Safety Code 25249.6 and does not constitute an admission or a waiver of rights. This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm. Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm are created by the combustion of this product. Refer to product Material Safety Data Sheet for further safety and health information.

****
For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: C, TRN: 123455-22, CMCS97: EMGF22, REQ: PS+C, SAFE USE: C
EHS Approval Date: 03APR2003
****

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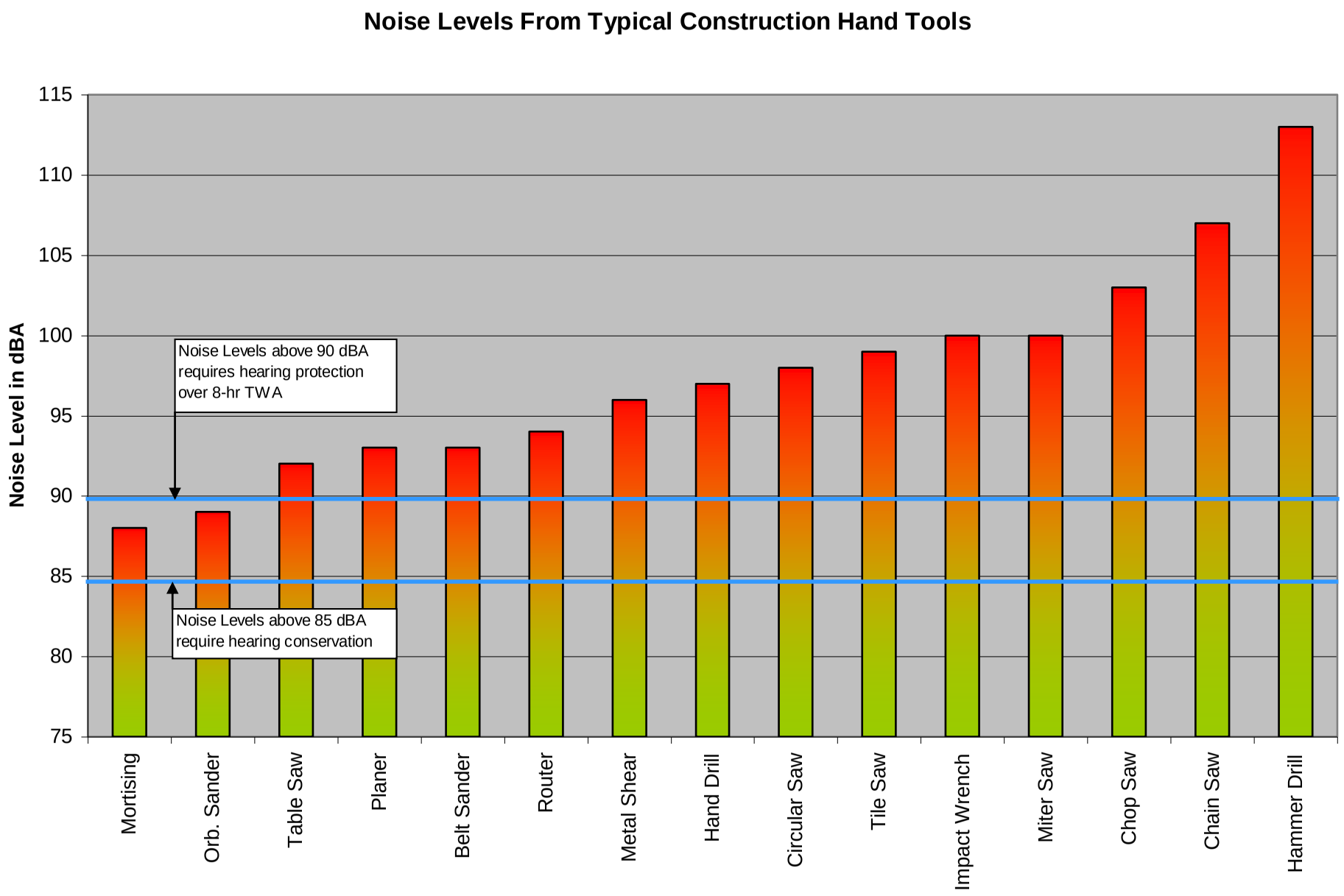
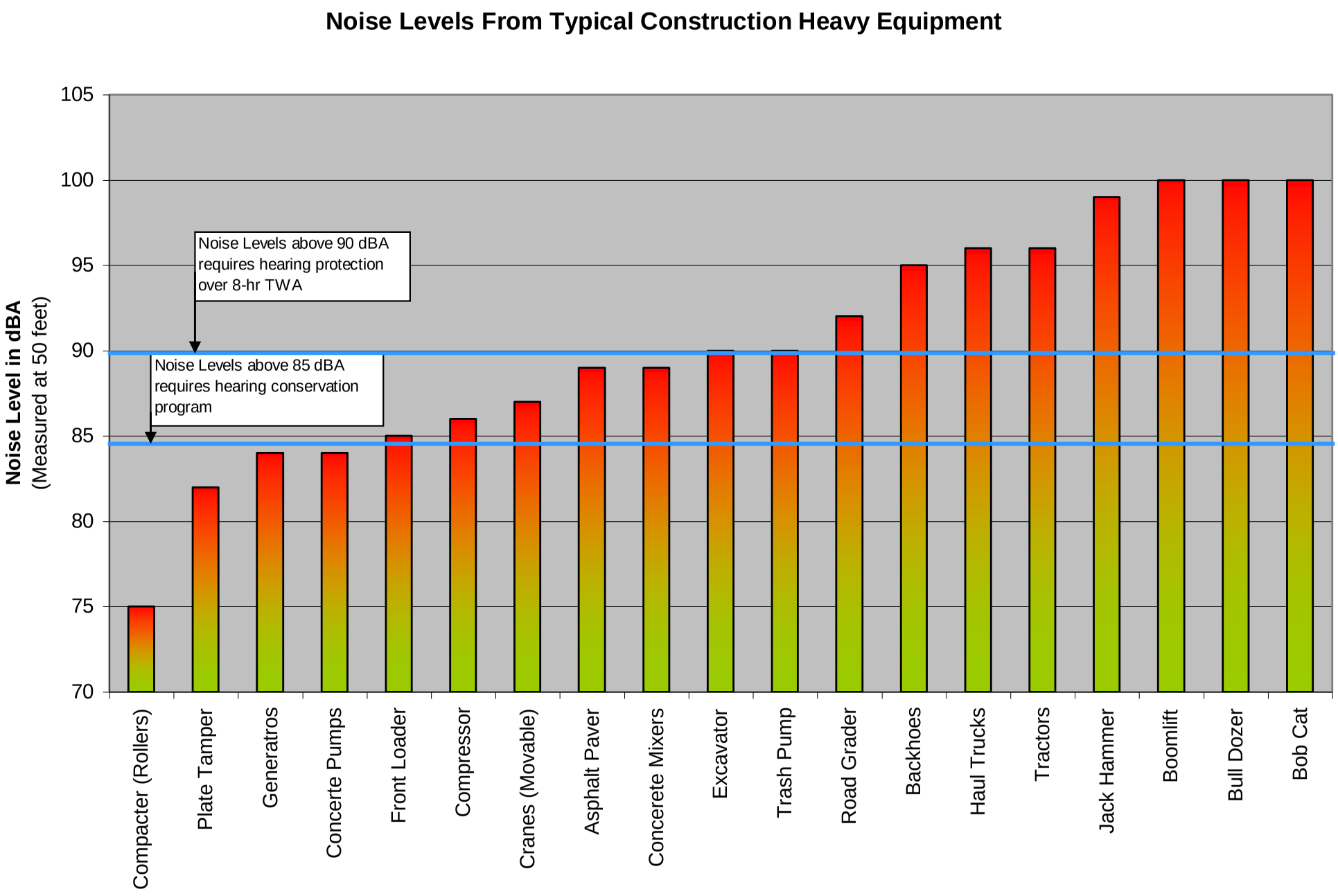
Prepared by: ExxonMobil Oil Corporation
Environmental Health and Safety Department, Clinton, USA

APPENDIX D

TYPICAL NOISE LEVEL MEASUREMENTS FROM CONSTRUCTION RELATED TOOLS


Noise Levels From Typical Construction Hand Tools
Noise Level in dBA
115
110
105
100
95
90
85
80
75
Noise Levels above 90 dBA requires hearing protection over 8-hr TWA
Noise Levels above 85 dBA require hearing conservation
Mortising
Orb. Sander
Table Saw
Planer
Belt Sander
Router
Metal Shear
Hand Drill
Circular Saw
Tile Saw
Impact Wrench
Miter Saw
Chop Saw
Chain Saw
Hammer Drill


Noise Levels From Typical Construction Heavy Equipment
Noise Level in dBA
(Measured at 50 feet)
105
100
95
90
85
80
75
70
Noise Levels above 90 dBA requires hearing protection over 8-hr TWA
Noise Levels above 85 dBA requires hearing conservation program
Compacter (Rollers)
Plate Tamper
Generatros
Concerte Pumps
Front Loader
Compressor
Cranes (Movable)
Asphalt Paver
Concerete Mixers
Excavator
Trash Pump
Road Grader
Backhoes
Haul Trucks
Tractors
Jack Hammer
Boomlift
Bull Dozer
Bob Cat

APPENDIX E

JOB SAFETY ANALYSIS DOCUMENTS FOR TASK SPECIFIC HAZARD MITIGATION

ExxonMobil Refining & Supply - Global Remediation

JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 2/11/09	3 PAGES

WORK ACTIVITY: **General Site Activity**

The purpose of the General Site Activity Job Safety Analysis (JSA) is to focus employee attention on common hazards that occur in the work environment keeping awareness high and focus on mitigating these hazards. This JSA must be used in conjunction with a task and/or site specific JSA. This JSA shall be reviewed anytime working conditions and or tasks change at the job site.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Dave Purdy	Project Manager	Peter Petro	Corporate Health & Safety Manager
Dave Klemme	Project Engineer		
James Matthiessen	Project Manager		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitrile and Level 3 Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[X] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. General Site Activities	• Mounting - Dismounting Equipment & Ladders - strains, broken bones, twisted joints, and falls	• Identify stable surface before stepping down on it (never jump off)
		• Use three points of contact when climbing up or down ladders or equipment
		• Always face equipment and ladders when mounting and dismounting
		• Make sure ladders are secure before using
	• Loose Clothing & Jewelry, Long Hair Caught by Rotating Equipment or Other Obstructions	• Ensure loose sleeves, tails, ties, frills, lapels, cuffs, or other loose clothing shall not be worn around machinery in which it might become entangled
		• Where there is a risk of injury from hair entanglements in moving parts of machinery or caught on fixed structures employees shall confine their hair to eliminate the hazard.
		• Where there is a risk of injury from jewelry entanglements in moving parts of machinery caught on fixed structures employees shall remove jewelry to eliminate the hazard.
	• Slips, Trips, Falls	• Keep work area free of excess materials and debris
		• Remove all trip hazards by keeping materials/objects organized and out of the walkways
		• Keep work surfaces dry when possible
		• Wear non-slip steel toe rubber boots if working on wet or slick surfaces
		• Install rough work surface covers where possible
		• Stay aware of footing and do not run
		• Ladders are to be secured by either manual support or strapping.
		• Working on platforms over 6 feet in height requires fall protection to be implemented. See Fall Protection JSA
	• Heat/Cold Stress	• Take breaks as needed
		• Hot environment requires consumption of non-caffeinated liquids, on average 1/2 liter per hour
		• Hot environment you should wear light clothing, use sun screen for exposed skin
		• Hot environment during rest breaks go to covered area in shade, if no shade idle vehicle with AC on.
		• Cold environment requires consumption of non-caffeinated sweet liquids, heavy meals
		• Cold environment wear layered clothing to adjust.
		• Review SSP Attachment for Heat and Cold Stress Protocols
		• If possible, adjust work schedule to avoid heat/cold stresses
	• Biological Hazards: Insects, Snakes, Wildlife, Vegetation, Feces, Blood	• Inspect work areas when arrive at site to identify hazard(s)
		• Long sleeves and neck protection are required when working in areas with vegetation (grass, weeds, etc) Do not conduct work if arms and neck are not covered
		• Use insect repellant as necessary, no perfumes
		• Use caution when opening enclosures
		• Stay alert and safe distance away from biological hazards
		• Use universal precautions if encountering needles or blood on-site

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
		• Areas with large amounts of rodent or bird feces, do not work in or create dust. Requires professional abatement, call PM
1. General Site Activities	• Biological Hazards: Insects, Snakes, Wildlife, Vegetation, Feces, Blood	• Wear level 3 cut resistant gloves, long pants, a long sleeve shirt or forearm protection if there is a probability of encountering biological hazards
	• Traffic (including pedestrian)	• Notify attendant and/or site owner/manager of work activities and location
		• Utilize cones, signs, flags and/or other traffic control devices as prescribed in the Traffic Control Plan
		• Use vehicle as protective barrier whenever possible to separate yourself from traffic
		• Set up exclusion zone surrounding work area
		• Wear high visibility clothing such as a reflective vest or reflective suit (Class II Minimum)
		• Continually watch out for vehicle traffic and plan a safe pathway to move clear of vehicles if they approach too closely.
		• Use buddy system in high risk traffic areas and when a second person is on site.
		• For work in high pedestrian areas use delineators with caution tape.
		• Inspect area behind vehicle prior to backing and use spotter
	• Fire/Explosion	• Post No Smoking signs around work area
		• Establish designated smoking area off site away from traffic, exclusion zone and other potential hazards
		• Ensure type ABC, 20-lb fully charged fire extinguisher(s) on-site and inspection certification <1year.
		• Establish Hot Work Permit including air monitoring using direct-reading, real-time instruments such as LEL/O2 meter
		• Stop work if hazardous conditions are identified (see SSP fire/explosion section)
	• Ambient Air Monitoring	• Is there a potential for work activities to exceed SSP constituent TWA or STEL values?
		• Critical air monitoring operating parameters: Oxygen concentrations must stay between 19.5 and 23.5%, LEL measurements must be below 10% or 1350 ppm for explosive gases - deviations from these values requires stop work and corrective measures
		• Approach and stay upwind of potential sources of vapors
		• Ensure personnel using have been trained on instrument use
		• Calibrate instrument per manufacture recommendations
	• High Noise Levels	• Hearing protection required when working around operation equipment if levels are suspected to be >85 dBA
		• General rule of thumb is if you have to raise your voice to be heard in performing a normal conversation (speaking to person within 2 feet) hearing protection should be worn.
		• Perform more visual searches for hazards when hearing protection is worn due to limited auditory cues of verbal warnings, instructions, or approaching traffic or heavy equipment.
	• Pinch points	• Beware of equipment and locations where fingers and hands can get caught and injured through operation of machinery or physical movement of materials
	• Cutting Hazards	• Cut rope or tubing with an appropriate non-bladed tool (i.e., wire cutters, snips) ERI's does not allow any use of "fixed blade" or "exacto-knives."
		• Make sure that the cutting surface is secure
		• Cut away from the body or hands, and keep blades retracted when not in use.
	• Head hazards from flying, falling, electrical, or bumping hazards.	• Whenever there may be a potential exposure to falling or flying objects, or electrical shock or burns, or bumping hazards, hard hat protection is required
	• Hand hazards from being caught, crushed, cut, pinched or otherwise damaged.	• Use the hands program when more than one person is working with the same equipment
		• No fixed blades are to used by ERI or ERI's subcontractors
		• Before you put your hands some where, ask yourself can they be cut, crushed, torn or damaged by what I am about to due
		• Use proper PPE: Level 3 cut resistant gloves for general work, and chemical resistant over glove for impacted soil, water and hazardous materials. Cut protection must be worn at all times while working.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. General Site Activities		• Use a tool to take the place of a hand when cutting or crushing hazards are present
	• Chemical Exposure (Solid/Liquid)	• Have appropriate tyvek coveralls protective of chemical exposure from splashes or dusts/solids.
	• Heavy Materials Handling	• Use correct hand tools to assist in moving/manipulating heavy objects: hand truck, drum dolly, wheel barrow, pallet jack, etc.
	• Heavy Materials Handling	• Use mechanical means such as a forklift for lifting if an object cannot be safely picked up
		• Keep hands and fingers away from pinch point when setting down heavy object
		• Request assistance if lifting material weighting greater than 40 lbs
		• Use proper bending/lifting techniques by bending and lifting with legs and not with back

1 Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (included slips and trips); **Exertion** -excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation / skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

3 Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective observable and quantified terms. Avoid subjective general statements such as "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS Revised January 2005

COMPANY/PROJECT NAME or ID/LOCATION (City, State)	DATE	[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **DRIVING**

The driving JSA covers the predrive hazards check, leaving and entering driveways, general driving, intersections, long distance driving, stopping and parking

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Jennifer Lacy	LPS Coordinator	Peter Petro	Corporate H&S Manager
Dave Klemme	Corporate Senior Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[ ] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[ ] GLOVES
[ ] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[ ] SAFETY GLASSES	[ ] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Engine Start & Initial Drive	• Mechanical Failure	Perform a complete vehicle inspection at the beginning of the drive: • Check the windows, are they clean? • Ensure the wipers work. • Check the tires for proper inflation and tread. • Check the registration/Insurance/Maintenance report, are they all current? • Check the horn, lights, and back-up alarm (if equipped) for proper operation. • Check the gauges on the instrument panel, are they working correctly and giving satisfactory readings? • Check for body damage; are there any unsafe parts ready to fall off during the drive? • Check under the vehicle; are there any leaks or obstructions? • Check and secure loose items in the cab, passenger area, trunk, and/or truck bed. • Adjust the belt/shoulder harness, seat, head rest and mirrors before driving. • Always wear the seat belt/shoulder harness when driving. • Before long trips and at every fuel tank fill, check the oil, coolant, transmission and brake fluid levels. Also ensure the fire extinguisher, first aid kit, triangles or cones, spare tire and jack are present and in good condition.
	• Collision with pedestrians, vehicles or property	• Always perform a "walk-around" before driving the vehicle, especially if you need to engage the reverse gear. • Look for small objects and pedestrians that you normally wouldn't see when looking from inside the vehicle. • Always use a spotter when available. • Review the use of hand signals with the spotter before maneuvering the vehicle. • Turn the headlights on while driving, even in the daytime, to make sure others see you.
2. Driving from the parking lot or driveway into a traffic lane	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• Always look over your shoulder when pulling out into traffic.
	• Mechanical Failure (Engine)	• Use slow, easy acceleration, avoid "jack-rabbit" starts.
3. General Driving	• Mechanical Failure/Collision (Loss of Steering Control)	• Maintain the hand position at 10 and 2 to avoid loss of control of the steering wheel. Steering loss can happen at any time from pot-holes, debris, and distractions.
	• Collision with pedestrians, vehicles or property	• Obey all traffic laws, signals and signs. • Always use the turn signals when turning or changing lanes. • Use the "SMOG" technique (Signal, Mirror check, look over Shoulder and Go) when making a lane change or entering into traffic.

4. Approaching Intersections	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• 30-40' back from the limit line of the intersection is the Point of No Return (PONR). • If the signal light is still green when passing the PONR, then look Left-Right-Left (L-R-L) and proceed through the intersection provided there are no red light runners from cross traffic. This can be done even if the light turns yellow after passing the PONR. • If the signal light turns yellow before the PONR, then ease slowly to a stop, 15' before the limit line or the vehicle in front.
	• Chain reaction collision from "rear-enders"	•Always plan to have 15' of space cushion in front of the vehicle when stopping at intersections. This will break up a "chain reaction".
	• "Car Jacking" or vehicle theft while stopped	• Keep the 15' space cushion in front of the vehicle. Car jackers look for those potential victims who continually trap themselves.
	• Mechanical Failure (Brakes and Transmission)	• Use slow, gradual deceleration techniques. Avoid hard braking.
5. Normal Driving between intersections and on long stretches of highway	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• Maintain a 15 second Eye Lead Time. • Avoid the fixed stare by keeping your eyes moving (every 5 to 8 seconds). • Scan the mirrors every 5-8 seconds to maintain the circle of awareness. • Maintain a space cushion of "4 seconds" in front of the vehicle. • Avoid driving in other driver's blind spots. Maintain a space cushion to the sides of the vehicle.
	• Collision from "tail-gators"	• Increase the following distance to the front of the vehicle • Make a convenient lane change to the right and allow the "tail-gator" to pass.
6. Stopping and Parking	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• Always obey signs and use signals when in a parking lot. • Do not exceed 15 mph in a parking lot. • Plan ahead and try to "pull-through" to avoid backing at the end of the visit. • If unable to "pull-through" then back into a perimeter slot or pull into a slot well away from every one else to maintain a space cushion when leaving. • Get Out and Look (GOAL) before backing into or from a parking slot. • Always set the **parking brake** and use **wheel chocks** when parked.

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JOB SAFETY ANALYSIS

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WORK ACTIVITY: **TRAFFIC CONTROL AND LANE CLOSURES**

Activity consists of addressing hazards with setting up, effectiveness and tare down of traffic control systems to perform work in city streets and on-site.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Gary DeCarlo	Groundwater Manager, So CA	Michael J. Mednick,	Branch Manager, So CA
David Purdy	Project Manager, So CA	Dave Klemme	Sr. Project Engineer, No CA
David Klemme	Senior Engineer, No CA	David Purdy	Project Manager, So CA

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Level 3 Cut Resistant)
[ ] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[X] PPE CLOTHING: Long pants, sleeved shirts	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Drive to job site.	• Load shift possibility	• Secure load in truck bed and double check prior to entering truck for trip to job site.
	• Light board trailer disconnect while vehicle is moving	• If towing a light board, inspect trailer hitch, ball and connection prior to entering truck for trip to job site.
		• Make sure that direction indicators are working properly (brake and turn signals) on trailer.
	• Auto collision	• Drive carefully and reduce speed if towing light board trailer. Use Smith System™ Inc. driving techniques
2. Pre-traffic Control Set Up Health and Safety Meeting/General Site Activities.	• Inattention to safety procedures.	• All employees assigned to this task will attend a pre-construction health and safety meeting, which will include the pertinent JSA, health and safety plan (HASP), traffic control plan, types of potential hazards and actual hazards present, and controls for those hazards.
		• Discuss and communicate the role of "Traffic Safety Watchman" with 2nd person.
3. Observe closure location, traffic flow, speed and street hazards.	• Trip and fall.	• Perform SPSA.
	• Exposure to moving vehicles.	• Face traffic at all times.
		• Make use of personnel designated as "Traffic Safety Watchman" to watch for oncoming traffic from the sidewalk and to communicate hazards to the employees working in the street. The watchman should have no other duties while acting as "Traffic Safety Watchman".
	• Possible additional factors (pot holes, traffic speed, construction activity) that could pose additional hazards associated with lane closure	• If additional factors identified, make adjustments lane closure/traffic control to mitigate the hazards associated with the additional factors.
4. Exit site to begin closure set up.	• Vehicle collision.	• Turn on directional arrow board to alert oncoming traffic to move over.
		• Turn on truck beacon and emergency flashers.
5. Exit truck cab to set advance warning signs.	• Heavy lifting injury.	• Lift with legs, do not use back while lifting.
	• Obstructions in truck bed.	• Avoid walking on or over devices. Move any devices that are obstructing safe movement.
	• Pedestrian traffic.	• Before opening vehicle door, check for pedestrians, vehicles or bicycles. Exit vehicle on side of vehicle that is less exposed to traffic (median side, sidewalk side).
	• Oncoming traffic threat.	• Park vehicle behind where sign placement is to occur, watch traffic keeping eye contact with drivers. Wear reflective vest.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
5. Exit truck cab to set advance warning signs.	• Oncoming traffic threat.	• Utilize remote control switch to operate lift gate on traffic control vehicle. Make sure to stand on side on side of vehicle that is less exposed to traffic. Keep an eye on oncoming vehicle traffic at all times.
	• Load shift.	• Secure load and close tailgate when moving through closure set up.
6. Placement of arrow board and cone taper.	• Heavy lifting injury.	• Use arrow board jack to remove from truck hitch
		• Lift no more than 7 cones at a time as not to exceed 50 pounds. Lift with legs, do not use back.
	• Pinching and poking hazards from traffic devices.	• Wear cut resistant level 3 gloves and may use additional heavy-duty over gloves.
	• Oncoming traffic threat.	• Watch traffic keeping eye contact with the drivers.
		• Utilize remote control switch to operate lift gate on traffic control vehicle.
		• Make sure to stand on side on side of vehicle that is less exposed to traffic. Keep an eye on oncoming vehicle traffic at all times.
7. Continue sign placement and cone taper to completion of closure.	• Heavy lifting injury.	• Use arrow board jack to remove from truck hitch
		• Lift no more than 7 cones at a time as not to exceed 50 pounds. Lift with legs, do not use back.
	• Oncoming traffic threat.	• Watch traffic keeping eye contact with the drivers.
	• Effects of unsafe maneuvering.	• Follow rules of the road including making U-turns at designated intersections and circling the block, if necessary.
	• Pinching and poking hazards from traffic devices.	• Visually check for pinch hazards on barricades and sign stands, check for staples in cones. Wear leve 3 cut resistant under and
8. Observe completed closure for accuracy and potential hazards to the workers and/or the driving public.	• Oncoming traffic threat.	• Watch traffic keeping in eye contact with drivers.
	• Driving public confused by lane closure.	• Adjust sign placement, arrow board placement and if necessary extend cone taper to insure the driving public completely understands that they are entering a construction zone.
		• Adjust placement as described above to ensure that drivers have plenty of time to adjust their speed and change lanes.
9. Enter truck and drive through closure to observe arrow board function and closure flow, impact on driving public.	• Auto collision.	• Drive defensively, courteously, wear seat belt.
	• Driving public confused by lane closure.	• Adjust sign placement, arrow board placement and if necessary extend cone taper to insure the driving public completely understands that they are entering a construction zone.
		• Adjust placement as described above to ensure that drivers have plenty of time to adjust their speed and change lanes.
10. Park truck in closure ahead of work zone if possible, if not, park on job site.	• Auto collision.	• Drive defensively, courteously, wear seat belt.
11. Advise workers that closure is complete and assist them in entering the work zone.	• Oncoming traffic threat.	• Watch traffic keeping in eye contact with drivers.
	• Risk of workers and their equipment being struck by vehicles.	• Communicate with workers the safest way to enter and exit the work zone.
		• If necessary, utilize flagmen to warn oncoming traffic of worker and equipment movement.
12. Monitor closure to ensure workers and their equipment do not breech the work zone. Ensure traffic control devices remain in place and restore moved devices.	• Oncoming traffic threat.	• Watch traffic keeping eye contact with drivers.
	• Risk of eye injury from flying debris.	• Wear safety glasses.
	• Loud noise from equipment.	• Wear hearing protection.
	• Pedestrian interference.	• Escort pedestrians from, in and around work zone. Utilize flagmen when necessary.
13. Closure removal.	• Same hazards exist removing	• Refer to all critical actions stated for closure installation.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
	closure that were faced while setting-up a closure	• Before opening vehicle door, check for pedestrians, vehicles or bicycles. Exit vehicle on side of vehicle that is less exposed to traffic (median side, sidewalk side).
13. Closure removal.	• Same hazards exist removing closure that were faced while setting-up a closure	• Utilize remote control switch to operate lift gate on traffic control vehicle. Make sure to stand on side on side of vehicle that is less exposed to traffic. Keep an eye on oncoming vehicle traffic at all times.
	• Pinching and poking hazards from traffic devices.	• Visually check for pinch hazards on barricades and sign stands, check for staples in cones. Wear cut resistant under and heavy-duty over gloves.
	• Load shift possibility once equipment is loaded in truck.	• Secure load in truck bed and double check prior to entering truck for return trip.
	• Light board trailer disconnect.	• Inspect ball and hitch when attaching arrow board trailer.
		• Make sure all indicators (brake lights, turn signals) are working.
		• Double check prior to entering truck for return trip.

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WORK ACTIVITY: **REMEDIATION SYSTEM OPERATIONS AND MAINTENANCE (O&M)**

Remediation System Operations and Maintenance hazard task identified are general O&M site activities, ambient air monitoring, equipment moving, and system operations.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Dave Purdy	Project Manager	Peter Petro	Corporate H&S Manager
Dave Klemme	Corporate Senior Engineer		
James Matthiessen	Project Manager		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitrile and level 3 Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[ ] SAFETY GLASSES	[X] SAFETY SHOES	[X] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tailgate Health and Safety Meeting	• Inattention to safety procedures	• All employees assigned to this task will attend a tailgate health and safety meeting, which will include a review of the JSA, the site-specific safety plan, the potential and actual hazards present, and controls for those hazards.
2. Ambient Air Monitoring	• Vapors	• There should be no hydrocarbon fugitive emission odors from operating systems. If present measure using PID, below 100 PPM no respirator is required, however you can wear it if concentrations are lower.
3. Equipment Moving	• Heavy Equipment Lifting/Moving	• Do not lift anything over 40lbs without assistance (another person or mechanical [drum dolly, etc.]
		• Use proper lifting technique, bend at knees, keep back straight, keep object close to body.
		• Walk pathway before moving object to remove any obstacles or tripping hazards.
		• Wear level 3 cut resistant gloves to prevent pinch and cut hazards.
4. System Operations and/or Maintenance	• Equipment containing Impacted, high temperature or pressurized liquids and gases (pneumatic pump compressors, air sparge systems) liquids/gases	• Wear PPE including level 3 cut resistant gloves, safety glasses with side shields or face shield, and long-sleeved shirt
		• Inspect all tools prior to use, if faulty or inappropriate do not use until repaired or replaced
		• Follow ERI's written Lock-Out Tag-Out program procedures, inclusive of site specific LOTO requirements
	• Vapors and Airborne Particulates	• Monitor air concentrations using direct-reading, real-time instruments such as Organic Vapor Analyzer and Photo-Ionization Detector
		• Stop work if hazardous conditions are identified until conditions are mitigated or use of PPE removes hazard
		• Wear PPE including safety glasses with side shields and if required respirators
	• Contaminated Materials	• Wear PPE including level 3 cut resistant under and Nitrile and rubber over gloves and safety glasses with side shields
		• When severe splash hazard exists, also wear Tyvek sleeves or full coverage chemical protective suits and face shield and goggles
	• Hot Surfaces	• Post warning signs for all high temperature equipment
		• Wear PPE including level 3 cut resistant gloves, and long-sleeves
		• Keeps hands and loose clothing away from hot surfaces
		• Allow hot equipment to cool down sufficiently before beginning work
	• Operating Equipment	• Keeps hands, loose clothing, loose jewelry away from operating equipment, keep long hair confined.
		• Ensure guards are on all potential moving equipment in work area and/or equipment is blocked out
	• Falls from Ladders or Platforms	• Inspect ladder prior to use to ensure rated for intended use
		• Do not use damaged or painted ladders

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
		• Ensure steps are free of ice, water, oil and other potentially slick liquids before climbing
		• Never stand on top step of ladder
4. System Operations and/or Maintenance	• Falls from Ladders or Platforms	• Tie off extension ladder, if accessing higher platform, ladder must extent 3 ft above platform
		• Fall protection (fall harness, restraint strap, or fall restraint lanyard) or other guard rail system must be used when working at heights greater than 6 feet above ground
	• Falls from Ladders	• Maintain three points of contact at all times when ascending and descending ladder.
		• Use backpack, tool belt or bucket with rope to transport tools.
		• Pitch ladders at 4:1 ratio (for every four feet high the ladder needs to be one foot away from wall or object ladder is leaning against)
	• Electrical Contact	• Ensure all electrical service has been shutdown and follow Lock-Out/Tag-Out procedures.
		• Only staff personnel who implemented the LOTO can remove locks unless specific instructions are followed for shift change or continuation of work the following day.
		• Use tools rated at a minimum of 600 volts for working on electrical equipment
		• Equipment producing sparks will not be used on-site without first obtaining and following requirements of a Hot Work Permit
		• Only trained personnel are allowed to work on electrical equipment. These personnel must meet company's training requirements.
		• All electrical cords must be grounded and plugged into a GFCI outlet
	• Environmental Release	• Field personnel must be properly trained and follow all manufacturer's operations manual instructions
		• Inspect compound prior to leaving, ensure all valves used for sampling and equipment that was maintained are properly closed and in correct position for operation of system.
		• Critical Safety Devices must be maintained and inspected per minimum OIMS requirements

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ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)			
Environmental Resolutions, Inc.		X NEW REVISED as of 3/3/2009	2 PAGES

WORK ACTIVITY **Liquid Ring Pump Removal**

JSA covers the hazards from disconnecting, lifting and moving a of liquid ring pump for servicing or decommissioning

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Matthew T. Herman	Project Engineer	Peter Petro	H&S Manager
Corey T. Weiand	O&M Manager	Jennifer Lacy	LPS Manager

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC

X	REFLECTIVE VEST		GOGGLES		AIR PURIFYING	X	GLOVES (Level 3 Cut Resistant)
X	HARD HAT		FACE SHIELD		RESPIRATOR	X	OTHER - long sleeves
	LIFELINE/HARNESS		HEARING PROTECTION		SUPPLIED RESPIRATOR		
X	SAFETY GLASSES	X	SAFETY SHOES		PPE CLOTHING		

[1] JOB STEPS	[2] POTENTIAL HAZAR	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tail Gate Health and Safety Meeting	• Inattention to safety procedures	• All employees assigned to this task prior to performing will hold a health and safety meeting, which will include review of the general site activity and pertinent JSAs, site safety plan (SSP), traffic control plan, types of potential hazards and actual hazards present, and controls for those hazards.
2. General Site Activates	• Slips, Trips, and Falls	• Be aware of standing water, loose parts, tools, and other obstacles that could cause a trip hazard. Maintain a clean work area; remove debris, trash, tools, etc. to mitigate the risk.
	• Biological Hazards	• The equipment should be visually inspected for spiders and insects prior to initiating work and between each step. Probe unseen areas with a long handled tool.
		• Cut resistant gloves and long sleeves are to be worn to mitigate the risk of spider and insect bites.
3. Disconnect Liquid Ring Pump	• Electrical Hazard	• Lock-out and tag-out the supply power to the liquid ring pump.
		• Check power feed (incoming wire) for voltage using multi-meter or voltage pen. Test meters on known live circuit to ensure proper operation
	• Pressure Hazard	• Equipment may contain residual pressure from system operation. Equipment should be isolated from the system using process valves. Lockout valve. Remove residual pressure using LOTO procedure for equipment. Face shield required to prevent spray hazard to face during this step.
	• Contact with contaminated liquids.	• Nitrile gloves should be worn over cut resistant gloves. The liquid ring pump should be manually drained of seal water. The pump and hoses may contain water and should be drained in the containment berm before being removed from the compound.
4. Liquid Ring Pump Removal	• Pinch Points, Crush Hazards	• Wear cut resistant glove level 3 or above while removing equipment and using the engine hoist. Test lifting points, ensure load is stable and secure by checking load raised no more than 1/2 inch from floor. Work slowly and inspect equipment for clearances and correct as needed. Allow the tools to do the work and do not force the equipment to move.

5. Load liquid ring pump into truck.	• Tipping of Hoist, Pining and Crush hazards	• Wear cut resistant glove level 3 or above while removing equipment and using the engine hoist. Visually inspect path hoist will take to move LRP from mounting to truck bed, remove all pebbles, rock, debris that could cause hoist to stop or tip. Watch for line of fire, don't position body between LRP and fixed point, i.e. truck, wall, or fence.
	• Back Strain, Body Positing Injury Over Exertion	• Wear cut resistant level 3 gloves when lifting the equipment into the truck by using the engine hoist. Work slowly and reposition equipment as needed. Allow the tools to do the work and do not force the equipment to move.
6. Securing Load	• Damage to LRP, LRP Damaging Truck or Falling Off Vehicle	• Ensure LRP is secured using tie down straps. Visually inspect straps to check for frays or cuts in strap. Do not use strap if damaged. Use at least two straps to secure load, second for backup.

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW as of [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **STRIPPER TRAY CHANGE OUT**

Stripper tray change out tasks associated with change out of large stripper trays and transporting off-site for sandblasting mineral deposits

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Mike Ecklund	Sr. Staff	Peter Petro	H&S Manager
Bill Fontenot	Branch Manager		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitrile & Level 3 Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER (as specified in HASP)
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tailgate Health and Safety Meeting	• Inattention to safety procedures	• All employees assigned to this task will attend a tailgate health and safety meeting, which will include the pertinent JSA, Site Safety plan (SSP), traffic control plan, types of potential hazards and actual hazards present, and
2. General Site Activities	• Electrical Contact	• Ensure all electrical service has been shutdown, follow Lock out/Tag out
		• Check individual circuits using voltage tester
		• Use red handle (600V) tools
		• Inspect power tools and electrical cords for damage
		• Test GFCI outlets before use
	• Slips/Trips/Falls	• Keep work area free of excess material and debris
		• Remove all trip hazards by keeping materials/tools organized and out of
		• Keep work surfaces dry when possible
		• If working on wet or slick surfaces, wear non-slip rubber boots
		• Stay aware of footing and do not run
	• Security	• Define work area, setup delineators and caution tape separating work area
	• Evening work	• Use flood lights for the outside of compound
		• Wear a high reflective Class II DOT approve traffic vest (Rated up to 50 mph)
3. Loading/Unloading Trays	• Lifting Heavy Equipment	• Do not lift anything greater than 40lbs without assistance of another person
		• Bend and lift using legs/arms, not your back
		• Wear level 3 cut resistant gloves and steel toed boots
		• Avoid pinch points, allow enough room around tray before moving
	• Traffic (including pedestrian)	• Ensure the sub-contracted traffic control service uses delineators as outlined in the Traffic Control Plan to establish a vehicle/ped exclusion zone
		• Wear reflective traffic vest Class II go upto 50 mph
		• Place tray trailer next to work area once traffic control is in effect
		• Use flood lights to illuminate exclusion zone
4. Disassembling/Assembling Trays	• Latches/Buckles/Lids/Covers	• Keep hands/fingers away from raised covers
		• Use hand tools to initially unbuckle trays
		• Lift with legs and arms, do not bend back to lift heavy covers and equipment
	• Sharp Objects/Materials	• Wear level 3 cut resistant gloves, beware of sharp edges when unbuckling tray latches and while applying gasket
	• Environmental Release	• Follow all manufacturer's operations and maintenance manuals, if not sure, call site engineer or PM
		• CE in stripper basin must be checked monthly and other CE's must be maintained and checked quarterly
5. Bottom Tray Cleaning	• Slips/Trips/Falls	• Keep work area free of excess material and debris
		• Remove all trip hazards by keeping materials/tools organized and out of walkways (special attention to extension cords)
		• Keep work surfaces dry when possible
		• If working on wet or slick surfaces, wear non-slip rubber boots
		• Stay aware of footing and do not run

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
5. Bottom Tray Cleaning	• Ingress/Egress	• Ensure level 3 cut resistant gloves are worn when entering the bottom tray or secondary containment
		• Use a three point stance when entering or exiting the work zone
	• Standing water; in the secondary containment or bottom tray	• Wear level 3 cut resistant under and nitrile or rubber over gloves, goggles and long sleeves/protection where splash hazards exist
		• Before entering bottom tray, remove all water
		• Before entering secondary containment, empty any water into stripper
	• Cleaning the Bottom Tray	• Ensure ear protection is used by everyone
		• Wear a face shield or safety goggles/glasses with side shields
		• Wear level 3 cut resistant gloves over nitrile gloves

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW as of [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **Carbon Change Out (Oversight) Greater than 200 Lb Vessels**

Activities include preparation of system for carbon vendor to change out spent carbon vessels and oversight of carbon change out actives

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Jennifer Lacy	LPS Manager	Peter Petro	Corporate Health & Safety Manager
Dave Klemme	Corporate Senior Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitrile and Level 3 Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER (as specified in HASP)
[ ] LIFELINE/HARNESS	[X] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Conduct Tail Gate Safely Meeting	• Inattention to Safety Procedures	• All employees prior to implementing this task will review the general site activity JSA, task specific JSAs and Health and Safety Plan to identify potential and actual hazards present, and controls for those hazards.
		• Get everyone involved in the meeting; ask questions; keep everyone engaged in the discussion.
2. Preparation for Carbon Change out	• Exposure to hazardous energies: pressurized water/air, or stored potential energy	• Shut down remediation equipment by following site specific lockout/tagout procedures for elimination of hazardous energy (vapor pressure, water pressure, inadvertent starting of remediation equipment) tied to carbon equipment.
		• Make sure liquid phase vessels are drained and depressurized
3. Position Truck for Carbon Removal	• Truck Movement: truck striking or hitting person or object	• Ensure vehicle has proper clearances when positioning for carbon removal.
		• Ensure spotter has visual of truck operator and that the spotter is always in position to observe the direction the truck is moving.
	• Truck rolling while engine engaged	• Truck needs to be left running to operate PTO to generate vacuum from blower unit. Ensure truck is in neutral, parking brake is engaged and working and the both sides of the truck tires are chocked (rear tire on left and right side, front and back of each tire).
4. Removal of carbon from Drums and Vessels	• High noise hazard	• Wear hearing protection. Plugs or muffs or a combination of both.
		• Confirm decibel level of equipment used to determine if double protection is required, ensure NRR of hearing protection is sufficient to lower db below 90 dbA.
	• Carbon Dust	• Employees engaged in removing carbon need to be wearing respirators with P100 respiratory cartridges
		• Stay upwind of carbon change-out or wear respirator with proper P-100 cartridge.
	• Hose Movement: Lifting Hazards, stored Potential Energy	• Observer employees to make sure proper lifting techniques are used for moving suction hose and drums. Don't over extend, keep the hose close to your body to minimize stress on your back, keep your back straight and lift with knees.
		• Be aware that hose connections if broken under vacuum can whip with damaging force. If hose connection has potential to snag, zip-tie clamps to ensure hose remains close during operation.
	• Falling from truck or ladders	• Maintain three points of contact at all times when climbing in and out of truck or up and down ladders.
		• If vacuum hose is needed , use buddy system and hand operator who is on the ladder the hose.
		• Avoid climbing ladders while carrying equipment.
		• Do not jump from truck.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
		• Ladder must be secured to vessel or have second person hold ladder while in use.
4. Removal of carbon from Drums and Vessels	• Overhead obstacles	• Protect against head injury from striking head against remediation equipment inside compound and striking head against ladders or vacuum hose by wearing hard hat at all times during carbon change out.
5. Rebedding Carbon Drums and Vessels	• Carbon Dust	• Employees engaged in removing carbon need to be wearing respirator with P100 respiratory cartridges
	• Hose Movement: Lifting Hazards, stored Potential Energy	• Observer employees to make sure proper lifting techniques are used for moving new carbon. Ensure employee's) are not in line of fire (underneath) if super sack is used for rebedding vessels.

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **PORTABLE GAS OR DIESEL POWERED GENERATORS**

Using portable gasoline or diesel powered generators to provide electrical power for electric tools, lights, pumps, etc.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
David M. Purdy	Sr. Project Manager, SCAL	Peter Petro	Corporate H&S Manager
Joe O'Connell	President		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES
[ ] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER:
[ ] LIFELINE/HARNESS	[X] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tailgate Health and Safety Meeting	• Inattention to safety procedures	• All employees assigned to this task will attend a tailgate health and safety meeting, which will include the pertinent JSA, health and safety plan (HASP), traffic control plan, types of potential hazards and actual hazards present, and controls for those hazards.
		• The pre-construction meeting will be conducted for all personnel and subcontractors.
2. Unloading/Loading Generator	• Back injury	• Do not lift anything >40 lbs without assistance bend and lift using legs/arms, not your back.
		• Lift and move generator using proper handles.
		• Use lift gate, hand cart, or wheel barrel to lift and move generator, if possible.
	• Injury from pinch points	• Wear level three cut resistant gloves.
	• Burns from hot surfaces	• Allow generator to cool prior to moving it.
	• Unsecured equipment	• Ensure that generator is secured against movement or jostling prior to transport.
3. Fueling Generator	• Eye or skin contact from fuel	• Wear safety glasses and fuel-resistant over gloves
	• Explosion and fire	• TURN OFF GENERATOR AND ALLOW TO COOL. Never fuel generator while it is operating or in an overheated condition.
	• Inhaling fumes from fuel	• Fuel generator in open air environment to avoid fumes.
4. Starting Generator	•Explosion and fire	• Ensure any spilled fuel has dried or is wiped off prior to starting generator.
		• Do not store fuel containers in the vicinity of the generator.
		• Inspect fuel lines for leakage. Keep generator properly maintained.
	• Electrical shock	• Ensure generator is properly grounded. Consult Owner's Manual prior to operation.
		• Dry your hands before touching generator.
		• If you must use a generator when it is wet outside, protect the generator from moisture but do not operate generator indoors.
		• Ensure generator is equipped with a Ground Fault Circuit Interrupter (GFCI). Test GFCI to ensure electrical power is interrupted.
		• If GFCI is not built-in to the generator, plug a GFCI into the generator followed by the electrical cord & test operation
		• Check that the entire length of each electrical cord is free of cuts or tears and that the plug has all three prongs prior to connecting to generator.
		• Protect the electrical cord from getting pinched or crushed.
		• Make sure the wattage rating for each cord exceeds the total wattage of all appliances connected to it.
4. Starting Generator	• Inhaling fumes from exhaust	• Never operate generator indoors or in confined areas without proper ventilation.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
	• Hearing damage	• Wear ear plugs if noise from operating generator exceeds 85 db.
5. Operating Generator	• Burns from hot surfaces	• Wear level three cut resistant under and heavy duty over gloves.
		• Avoid contact with generator while it is in operation.
	• Explosion and fire	• Do not store fuel containers in the vicinity of the generator.
		• Inspect fuel lines for leakage. Keep generator properly maintained.
		• Do not operate generator in the vicinity of combustible materials (paper, rags, clothing).
	• Electrical shock	• Dry your hands before touching generator.
		• If you must use a generator when it is wet outside, protect the generator from moisture but do not operate generator indoors.
		• NEVER plug generator into an electrical wall outlet (Back feeding).
		• Ensure generator is equipped with a Ground Fault Circuit Interrupter (GFCI). Test GFCI to ensure electrical power is interrupted.
		• If generator is not equipped with GFIC, plug a GFCI into the generator followed by the electrical cord & test operation.
		• Check that the entire length of each electrical cord is free of cuts or tears and that the plug has all three prongs prior to connecting to generator.
		• Protect the electrical cord from getting pinched or crushed.
		• Make sure the wattage rating for each cord exceeds the total wattage of all appliances connected to it.
	• Inhaling fumes from exhaust	• Never operate generator indoors or in confined areas without proper ventilation.
	• Hearing damage	• Wear ear plugs if noise from operating generator exceeds 85 db.
6. Cease Generator Operation	• Electrical shock	• Dry your hands before touching generator.
	• Equipment damage	• Turn off all appliances powered by the generator and then turn off generator.
	• Fuel Spill	• Turn off fuel valve when generator is done operating prior to transporting.

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **DRUM MANAGEMENT**

Includes inspection, labeling, opening, filling, closing and moving of non-hazardous soil and water drums generated from site investigation activities.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Amanda Balzer	Senior Staff Geologist, WA	Peter Petro	Corporate H&S Manager
James Matthiessen	Project Manager, WA		
Ryan Pozzuto	Staff Scientist, WA		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitril & Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER:
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

1 JOB STEPS	2 POTENTIAL HAZARDS	3 CRITICAL ACTIONS TO MITIGATE HAZARDS
1.Labeling and Inspecting the Drum	• Incorrect identification of drum contents resulting in exposure to hazardous constituents	• Do not approach or tamper with unknown drum that may have been dumped onsite. Contact PM for further instructions.
		• Identify the contents of the drum by reading the label.
		• Nitrile and leather gloves and safety glasses should be worn when inspecting any drum.
		• Ensure that the label properly identifies the contents and that it is securely attached to the drum.
	• Injury due to release of contents from pressurized drum	• Inspect the drum for signs of pressure (i.e., bulging).
2.Opening and Closing the Drum	• Exposure to drum contents, including soil or water containing petroleum hydrocarbons	• Nitrile and level 3 cut resistant gloves and safety glasses should be worn when opening/closing any drum. • Wear respiratory protection as directed in the SSP.
	• Injury Due to Pressurized Drum • Potential Explosion (Visible Signs of Bulging or Swelling of Drum)	• Pressure from a pressurized drum should be bled off slowly from the vent bung. Only use non-sparking tools
		• Drums known to contain liquid phase hydrocarbons that are pressurized ARE NOT TO BE HANDLED, POTENTIAL FOR EXPLOSION OR FIRE EXISTS, stop work contact PM
	• Cuts and/or pinched fingers	• Identify sharp edges on the drum rim and ring.
		• Avoid pinching hands in the drum ring.
	• Fire caused by flammable vapors	• Use a proper drum wrench (15/16 inches usually) and a non-sparking bung wrench.
		• Ensure the area where the drum is free of sources of ignition.
	• Head injury	• Wear head protection and use caution when shoveling into a drum.
	• Slips, trips and falls	• Place the drum ring and lid where it is not a tripping hazard.
3. Picking up drum	• Slips, trips and falls	• When moving a light or empty drum on its edge, keep both hands on the drum while it is in motion.
		• Use caution while walking on uneven ground and keep material area clean.
		• Pay attention to walking surfaces and avoid spills and slippery ground.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
3. Picking up drum	• Exposure to drum contents, including soil or water containing petroleum hydrocarbons	• Ensure that the drum is tightly closed before moving it.
	Back injury, sprains and strains	• DO NOT MOVE A LOADED DRUM WITHOUT A DRUM DOLLY
		• Do not lift anything over 40 lbs without assistance
	Back injury, sprains and strains	• Make sure top latch of drum dolly is SECURELY ATTACHED on drum
		• Make sure bottom two forks of drum dolly are completely SECURED under drum.
		• Make dolly strap secures drum to dolly, inspect strap for tares, if tore do not use.
	• Hand or foot injury, or pinched fingers and cuts	• Safety shoes ANSI Z41 and leather gloves should be worn when moving any drum, even an empty one.
	• Striking or being struck by a moving vehicle	• When moving a drum through traffic flow, a reflective safety vest must be worn. • Plan a path clear of all obstructions, making note of traffic and pedestrian flow. • Use a spotter when moving a drum through traffic.
4. Drop off drum	• Being struck by Dolly	• Pick a level spot to deposit the drum
		• Keep both hands securely on the dolly handles
		• Start with front foot on foot support slowly let the weight of the load pull forward using the leverage of the dolly for control
		• Keep rear foot on ground and your body well balanced over
5. Loading drums on truck	• Drums falling off	• Prior to loading drums, ensure vehicle is clear of obstacles and wheels are chocked, parking brake is set, engine is off and in gear.
		• When loading on lift gate, load one drum at a time
		• Have one person on truck and one person on the ground
		• Use dolly to move drums on truck
		• Never transport drums on lift gate
		• Before transport, truck must be secure with all gates on and lift gate stowed properly
6. Truck Leaving Site with Drums	• Drums Rolling Around, Damage to or Breakout of Vehicle	• Verify drums are strapped in place and have no space to gain momentum.
		• When driving practice slow starts and stops to keep inertia low

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		X NEW as of REVISED as of	1 PAGE

WORK ACTIVITY:

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

REFLECTIVE VEST	GOGGLES	AIR PURIFYING	GLOVES (Nitrile and Leather work)
HARD HAT	FACE SHIELD	RESPIRATOR	OTHER (as specified in HASP)
LIFELINE/HARNESS	HEARING PROTECTION	SUPPLIED RESPIRATOR	
SAFETY GLASSES	SAFETY SHOES	PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS

1 Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (included slips and trips); **Exertion** -excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation / skin haqards. Specify the hazards and do not limit the description to a single word such as "Caught'

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ExxonMobil Refining & Supply - Global Remediation

JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 2/11/09	3 PAGES

WORK ACTIVITY: **General Site Activity**

The purpose of the General Site Activity Job Safety Analysis (JSA) is to focus employee attention on common hazards that occur in the work environment keeping awareness high and focus on mitigating these hazards. This JSA must be used in conjunction with a task and/or site specific JSA. This JSA shall be reviewed anytime working conditions and or tasks change at the job site.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Dave Purdy	Project Manager	Peter Petro	Corporate Health & Safety Manager
Dave Klemme	Project Engineer		
James Matthiessen	Project Manager		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitrile and Level 3 Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[X] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. General Site Activities	• Mounting - Dismounting Equipment & Ladders - strains, broken bones, twisted joints, and falls	• Identify stable surface before stepping down on it (never jump off)
		• Use three points of contact when climbing up or down ladders or equipment
		• Always face equipment and ladders when mounting and dismounting
		• Make sure ladders are secure before using
	• Loose Clothing & Jewelry, Long Hair Caught by Rotating Equipment or Other Obstructions	• Ensure loose sleeves, tails, ties, frills, lapels, cuffs, or other loose clothing shall not be worn around machinery in which it might become entangled
		• Where there is a risk of injury from hair entanglements in moving parts of machinery or caught on fixed structures employees shall confine their hair to eliminate the hazard.
		• Where there is a risk of injury from jewelry entanglements in moving parts of machinery caught on fixed structures employees shall remove jewelry to eliminate the hazard.
	• Slips, Trips, Falls	• Keep work area free of excess materials and debris
		• Remove all trip hazards by keeping materials/objects organized and out of the walkways
		• Keep work surfaces dry when possible
		• Wear non-slip steel toe rubber boots if working on wet or slick surfaces
		• Install rough work surface covers where possible
		• Stay aware of footing and do not run
		• Ladders are to be secured by either manual support or strapping.
		• Working on platforms over 6 feet in height requires fall protection to be implemented. See Fall Protection JSA
	• Heat/Cold Stress	• Take breaks as needed
		• Hot environment requires consumption of non-caffeinated liquids, on average 1/2 liter per hour
		• Hot environment you should wear light clothing, use sun screen for exposed skin
		• Hot environment during rest breaks go to covered area in shade, if no shade idle vehicle with AC on.
		• Cold environment requires consumption of non-caffeinated sweet liquids, heavy meals
		• Cold environment wear layered clothing to adjust.
		• Review SSP Attachment for Heat and Cold Stress Protocols
		• If possible, adjust work schedule to avoid heat/cold stresses
	• Biological Hazards: Insects, Snakes, Wildlife, Vegetation, Feces, Blood	• Inspect work areas when arrive at site to identify hazard(s)
		• Long sleeves and neck protection are required when working in areas with vegetation (grass, weeds, etc) Do not conduct work if arms and neck are not covered
		• Use insect repellant as necessary, no perfumes
		• Use caution when opening enclosures
		• Stay alert and safe distance away from biological hazards
		• Use universal precautions if encountering needles or blood on-site

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
		• Areas with large amounts of rodent or bird feces, do not work in or create dust. Requires professional abatement, call PM
1. General Site Activities	• Biological Hazards: Insects, Snakes, Wildlife, Vegetation, Feces, Blood	• Wear level 3 cut resistant gloves, long pants, a long sleeve shirt or forearm protection if there is a probability of encountering biological hazards
	• Traffic (including pedestrian)	• Notify attendant and/or site owner/manager of work activities and location
		• Utilize cones, signs, flags and/or other traffic control devices as prescribed in the Traffic Control Plan
		• Use vehicle as protective barrier whenever possible to separate yourself from traffic
		• Set up exclusion zone surrounding work area
		• Wear high visibility clothing such as a reflective vest or reflective suit (Class II Minimum)
		• Continually watch out for vehicle traffic and plan a safe pathway to move clear of vehicles if they approach too closely.
		• Use buddy system in high risk traffic areas and when a second person is on site.
		• For work in high pedestrian areas use delineators with caution tape.
		• Inspect area behind vehicle prior to backing and use spotter
	• Fire/Explosion	• Post No Smoking signs around work area
		• Establish designated smoking area off site away from traffic, exclusion zone and other potential hazards
		• Ensure type ABC, 20-lb fully charged fire extinguisher(s) on-site and inspection certification <1year.
		• Establish Hot Work Permit including air monitoring using direct-reading, real-time instruments such as LEL/O2 meter
		• Stop work if hazardous conditions are identified (see SSP fire/explosion section)
	• Ambient Air Monitoring	• Is there a potential for work activities to exceed SSP constituent TWA or STEL values?
		• Critical air monitoring operating parameters: Oxygen concentrations must stay between 19.5 and 23.5%, LEL measurements must be below 10% or 1350 ppm for explosive gases - deviations from these values requires stop work and corrective measures
		• Approach and stay upwind of potential sources of vapors
		• Ensure personnel using have been trained on instrument use
		• Calibrate instrument per manufacture recommendations
	• High Noise Levels	• Hearing protection required when working around operation equipment if levels are suspected to be >85 dBA
		• General rule of thumb is if you have to raise your voice to be heard in performing a normal conversation (speaking to person within 2 feet) hearing protection should be worn.
		• Perform more visual searches for hazards when hearing protection is worn due to limited auditory cues of verbal warnings, instructions, or approaching traffic or heavy equipment.
	• Pinch points	• Beware of equipment and locations where fingers and hands can get caught and injured through operation of machinery or physical movement of materials
	• Cutting Hazards	• Cut rope or tubing with an appropriate non-bladed tool (i.e., wire cutters, snips) ERI's does not allow any use of "fixed blade" or "exacto-knives."
		• Make sure that the cutting surface is secure
		• Cut away from the body or hands, and keep blades retracted when not in use.
	• Head hazards from flying, falling, electrical, or bumping hazards.	• Whenever there may be a potential exposure to falling or flying objects, or electrical shock or burns, or bumping hazards, hard hat protection is required
	• Hand hazards from being caught, crushed, cut, pinched or otherwise damaged.	• Use the hands program when more than one person is working with the same equipment
		• No fixed blades are to used by ERI or ERI's subcontractors
		• Before you put your hands some where, ask yourself can they be cut, crushed, torn or damaged by what I am about to due
		• Use proper PPE: Level 3 cut resistant gloves for general work, and chemical resistant over glove for impacted soil, water and hazardous materials. Cut protection must be worn at all times while working.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. General Site Activities		• Use a tool to take the place of a hand when cutting or crushing hazards are present
	• Chemical Exposure (Solid/Liquid)	• Have appropriate tyvek coveralls protective of chemical exposure from splashes or dusts/solids.
	• Heavy Materials Handling	• Use correct hand tools to assist in moving/manipulating heavy objects: hand truck, drum dolly, wheel barrow, pallet jack, etc.
	• Heavy Materials Handling	• Use mechanical means such as a forklift for lifting if an object cannot be safely picked up
		• Keep hands and fingers away from pinch point when setting down heavy object
		• Request assistance if lifting material weighting greater than 40 lbs
		• Use proper bending/lifting techniques by bending and lifting with legs and not with back

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ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS Revised January 2005

COMPANY/PROJECT NAME or ID/LOCATION (City, State)	DATE	[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **DRIVING**

The driving JSA covers the predrive hazards check, leaving and entering driveways, general driving, intersections, long distance driving, stopping and parking

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Jennifer Lacy	LPS Coordinator	Peter Petro	Corporate H&S Manager
Dave Klemme	Corporate Senior Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[ ] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[ ] GLOVES
[ ] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[ ] SAFETY GLASSES	[ ] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Engine Start & Initial Drive	• Mechanical Failure	Perform a complete vehicle inspection at the beginning of the drive: • Check the windows, are they clean? • Ensure the wipers work. • Check the tires for proper inflation and tread. • Check the registration/Insurance/Maintenance report, are they all current? • Check the horn, lights, and back-up alarm (if equipped) for proper operation. • Check the gauges on the instrument panel, are they working correctly and giving satisfactory readings? • Check for body damage; are there any unsafe parts ready to fall off during the drive? • Check under the vehicle; are there any leaks or obstructions? • Check and secure loose items in the cab, passenger area, trunk, and/or truck bed. • Adjust the belt/shoulder harness, seat, head rest and mirrors before driving. • Always wear the seat belt/shoulder harness when driving. • Before long trips and at every fuel tank fill, check the oil, coolant, transmission and brake fluid levels. Also ensure the fire extinguisher, first aid kit, triangles or cones, spare tire and jack are present and in good condition.
	• Collision with pedestrians, vehicles or property	• Always perform a "walk-around" before driving the vehicle, especially if you need to engage the reverse gear. • Look for small objects and pedestrians that you normally wouldn't see when looking from inside the vehicle. • Always use a spotter when available. • Review the use of hand signals with the spotter before maneuvering the vehicle. • Turn the headlights on while driving, even in the daytime, to make sure others see you.
2. Driving from the parking lot or driveway into a traffic lane	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• Always look over your shoulder when pulling out into traffic.
	• Mechanical Failure (Engine)	• Use slow, easy acceleration, avoid "jack-rabbit" starts.
3. General Driving	• Mechanical Failure/Collision (Loss of Steering Control)	• Maintain the hand position at 10 and 2 to avoid loss of control of the steering wheel. Steering loss can happen at any time from pot-holes, debris, and distractions.
	• Collision with pedestrians, vehicles or property	• Obey all traffic laws, signals and signs. • Always use the turn signals when turning or changing lanes. • Use the "SMOG" technique (Signal, Mirror check, look over Shoulder and Go) when making a lane change or entering into traffic.

4. Approaching Intersections	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• 30-40' back from the limit line of the intersection is the Point of No Return (PONR). • If the signal light is still green when passing the PONR, then look Left-Right-Left (L-R-L) and proceed through the intersection provided there are no red light runners from cross traffic. This can be done even if the light turns yellow after passing the PONR. • If the signal light turns yellow before the PONR, then ease slowly to a stop, 15' before the limit line or the vehicle in front.
	• Chain reaction collision from "rear-enders"	•Always plan to have 15' of space cushion in front of the vehicle when stopping at intersections. This will break up a "chain reaction".
	• "Car Jacking" or vehicle theft while stopped	• Keep the 15' space cushion in front of the vehicle. Car jackers look for those potential victims who continually trap themselves.
	• Mechanical Failure (Brakes and Transmission)	• Use slow, gradual deceleration techniques. Avoid hard braking.
5. Normal Driving between intersections and on long stretches of highway	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• Maintain a 15 second Eye Lead Time. • Avoid the fixed stare by keeping your eyes moving (every 5 to 8 seconds). • Scan the mirrors every 5-8 seconds to maintain the circle of awareness. • Maintain a space cushion of "4 seconds" in front of the vehicle. • Avoid driving in other driver's blind spots. Maintain a space cushion to the sides of the vehicle.
	• Collision from "tail-gators"	• Increase the following distance to the front of the vehicle • Make a convenient lane change to the right and allow the "tail-gator" to pass.
6. Stopping and Parking	• Collision with pedestrians, cyclists, skateboarders or other vehicles	• Always obey signs and use signals when in a parking lot. • Do not exceed 15 mph in a parking lot. • Plan ahead and try to "pull-through" to avoid backing at the end of the visit. • If unable to "pull-through" then back into a perimeter slot or pull into a slot well away from every one else to maintain a space cushion when leaving. • Get Out and Look (GOAL) before backing into or from a parking slot. • Always set the **parking brake** and use **wheel chocks** when parked.

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JOB SAFETY ANALYSIS

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WORK ACTIVITY: **TRAFFIC CONTROL AND LANE CLOSURES**

Activity consists of addressing hazards with setting up, effectiveness and tare down of traffic control systems to perform work in city streets and on-site.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Gary DeCarlo	Groundwater Manager, So CA	Michael J. Mednick,	Branch Manager, So CA
David Purdy	Project Manager, So CA	Dave Klemme	Sr. Project Engineer, No CA
David Klemme	Senior Engineer, No CA	David Purdy	Project Manager, So CA

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Level 3 Cut Resistant)
[ ] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[X] PPE CLOTHING: Long pants, sleeved shirts	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Drive to job site.	• Load shift possibility	• Secure load in truck bed and double check prior to entering truck for trip to job site.
	• Light board trailer disconnect while vehicle is moving	• If towing a light board, inspect trailer hitch, ball and connection prior to entering truck for trip to job site.
		• Make sure that direction indicators are working properly (brake and turn signals) on trailer.
	• Auto collision	• Drive carefully and reduce speed if towing light board trailer. Use Smith System™ Inc. driving techniques
2. Pre-traffic Control Set Up Health and Safety Meeting/General Site Activities.	• Inattention to safety procedures.	• All employees assigned to this task will attend a pre-construction health and safety meeting, which will include the pertinent JSA, health and safety plan (HASP), traffic control plan, types of potential hazards and actual hazards present, and controls for those hazards.
		• Discuss and communicate the role of "Traffic Safety Watchman" with 2nd person.
3. Observe closure location, traffic flow, speed and street hazards.	• Trip and fall.	• Perform SPSA.
	• Exposure to moving vehicles.	• Face traffic at all times.
		• Make use of personnel designated as "Traffic Safety Watchman" to watch for oncoming traffic from the sidewalk and to communicate hazards to the employees working in the street. The watchman should have no other duties while acting as "Traffic Safety Watchman".
	• Possible additional factors (pot holes, traffic speed, construction activity) that could pose additional hazards associated with lane closure	• If additional factors identified, make adjustments lane closure/traffic control to mitigate the hazards associated with the additional factors.
4. Exit site to begin closure set up.	• Vehicle collision.	• Turn on directional arrow board to alert oncoming traffic to move over.
		• Turn on truck beacon and emergency flashers.
5. Exit truck cab to set advance warning signs.	• Heavy lifting injury.	• Lift with legs, do not use back while lifting.
	• Obstructions in truck bed.	• Avoid walking on or over devices. Move any devices that are obstructing safe movement.
	• Pedestrian traffic.	• Before opening vehicle door, check for pedestrians, vehicles or bicycles. Exit vehicle on side of vehicle that is less exposed to traffic (median side, sidewalk side).
	• Oncoming traffic threat.	• Park vehicle behind where sign placement is to occur, watch traffic keeping eye contact with drivers. Wear reflective vest.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
5. Exit truck cab to set advance warning signs.	• Oncoming traffic threat.	• Utilize remote control switch to operate lift gate on traffic control vehicle. Make sure to stand on side on side of vehicle that is less exposed to traffic. Keep an eye on oncoming vehicle traffic at all times.
	• Load shift.	• Secure load and close tailgate when moving through closure set up.
6. Placement of arrow board and cone taper.	• Heavy lifting injury.	• Use arrow board jack to remove from truck hitch
		• Lift no more than 7 cones at a time as not to exceed 50 pounds. Lift with legs, do not use back.
	• Pinching and poking hazards from traffic devices.	• Wear cut resistant level 3 gloves and may use additional heavy-duty over gloves.
	• Oncoming traffic threat.	• Watch traffic keeping eye contact with the drivers.
		• Utilize remote control switch to operate lift gate on traffic control vehicle.
		• Make sure to stand on side on side of vehicle that is less exposed to traffic. Keep an eye on oncoming vehicle traffic at all times.
7. Continue sign placement and cone taper to completion of closure.	• Heavy lifting injury.	• Use arrow board jack to remove from truck hitch
		• Lift no more than 7 cones at a time as not to exceed 50 pounds. Lift with legs, do not use back.
	• Oncoming traffic threat.	• Watch traffic keeping eye contact with the drivers.
	• Effects of unsafe maneuvering.	• Follow rules of the road including making U-turns at designated intersections and circling the block, if necessary.
	• Pinching and poking hazards from traffic devices.	• Visually check for pinch hazards on barricades and sign stands, check for staples in cones. Wear leve 3 cut resistant under and
8. Observe completed closure for accuracy and potential hazards to the workers and/or the driving public.	• Oncoming traffic threat.	• Watch traffic keeping in eye contact with drivers.
	• Driving public confused by lane closure.	• Adjust sign placement, arrow board placement and if necessary extend cone taper to insure the driving public completely understands that they are entering a construction zone.
		• Adjust placement as described above to ensure that drivers have plenty of time to adjust their speed and change lanes.
9. Enter truck and drive through closure to observe arrow board function and closure flow, impact on driving public.	• Auto collision.	• Drive defensively, courteously, wear seat belt.
	• Driving public confused by lane closure.	• Adjust sign placement, arrow board placement and if necessary extend cone taper to insure the driving public completely understands that they are entering a construction zone.
		• Adjust placement as described above to ensure that drivers have plenty of time to adjust their speed and change lanes.
10. Park truck in closure ahead of work zone if possible, if not, park on job site.	• Auto collision.	• Drive defensively, courteously, wear seat belt.
11. Advise workers that closure is complete and assist them in entering the work zone.	• Oncoming traffic threat.	• Watch traffic keeping in eye contact with drivers.
	• Risk of workers and their equipment being struck by vehicles.	• Communicate with workers the safest way to enter and exit the work zone.
		• If necessary, utilize flagmen to warn oncoming traffic of worker and equipment movement.
12. Monitor closure to ensure workers and their equipment do not breech the work zone. Ensure traffic control devices remain in place and restore moved devices.	• Oncoming traffic threat.	• Watch traffic keeping eye contact with drivers.
	• Risk of eye injury from flying debris.	• Wear safety glasses.
	• Loud noise from equipment.	• Wear hearing protection.
	• Pedestrian interference.	• Escort pedestrians from, in and around work zone. Utilize flagmen when necessary.
13. Closure removal.	• Same hazards exist removing	• Refer to all critical actions stated for closure installation.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
	closure that were faced while setting-up a closure	• Before opening vehicle door, check for pedestrians, vehicles or bicycles. Exit vehicle on side of vehicle that is less exposed to traffic (median side, sidewalk side).
13. Closure removal.	• Same hazards exist removing closure that were faced while setting-up a closure	• Utilize remote control switch to operate lift gate on traffic control vehicle. Make sure to stand on side on side of vehicle that is less exposed to traffic. Keep an eye on oncoming vehicle traffic at all times.
	• Pinching and poking hazards from traffic devices.	• Visually check for pinch hazards on barricades and sign stands, check for staples in cones. Wear cut resistant under and heavy-duty over gloves.
	• Load shift possibility once equipment is loaded in truck.	• Secure load in truck bed and double check prior to entering truck for return trip.
	• Light board trailer disconnect.	• Inspect ball and hitch when attaching arrow board trailer.
		• Make sure all indicators (brake lights, turn signals) are working.
		• Double check prior to entering truck for return trip.

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 1/1/09	PAGES 2

WORK ACTIVITY: **Pre-Ground Disturbance Clearance Activities**

Pre-Ground Disturbance Clearance Activities hazards identified are: tailgate safety meeting, ambient air monitoring, breaking up concrete, and soil clearance using hand tools, water and air lances.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Amanda Balzer	Sr. Staff Geologist	Peter Petro	Corporate H&S Manager
Ryan Pozzuto	Staff Scientist		
Phil Cordell	Staff Geologist		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[X] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitrile & Level 3 Cut Resistant)
[ ] HARD HAT	[X] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER
[ ] LIFELINE/HARNESS	[X] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[ ] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tailgate Health and Safety Meeting	• Inattention to safety procedures	• All employees assigned to this task will attend a tailgate health and safety meeting, which will include the pertinent JSA, Site Safety plan (SSP), traffic control plan, types of potential hazards and actual hazards present, and controls for those hazards.
2. All Pre-Ground Disturbance Clearance Activities including Site Inspection, Subsurface Features Mark-Out, Removal of Subsurface Cover and Ground Clearance	• Slips, trips and falls	• Review General Site Activity JSA for hazard mitigation of slips, trips and falls
		• If open boreholes are present, cover with a hole plate when not immediately working on the borehole.
		• Keep work surfaces dry when possible
	• Traffic (including pedestrian)	• Review General Site Activity JSA for hazard mitigation of traffic
	• Fire/Explosion	• Review General Site Activity JSA for hazard mitigation of fire/explosion
3. Ambient Air Monitoring	• Vapors	• Establish a Hot Work Permit.
		• Screen for hazardous vapors with PID or LEL meter 100 ppm in breathing zone, respirators must be worn.
		• If hazardous vapors are present, utilize the PPE specified in the SSP.
4. Breaking-Up and Removing Asphalt/Concrete Cover by Saw Cutting or with Heavy Equipment	• Heavy Equipment Movement	• Heavy equipment should be equipped with a back up alarm.
	• Suspended Loads	• Do not walk under suspended loads
		• Hard hat must be worn.
	• Ignition Sources	• Ensure electrical equipment is properly grounded
		• Apply water as necessary to address surface sparking potential, caution is to be used to not wet any electrical connections and ensure water usage does not create a contaminant run-off issue. Be prepared to dike areas where run-off could travel.
		• Heavy equipment must be equipped with a non-sparking bucket/blade.
	• High Noise Levels	Review General Site Activity JSA for hazard mitigation of high noise levels
	• Airborne Particulates and Debris	• Use water as necessary to control dust in the area
		• Wear appropriate PPE including face shield and goggles, dust mask, cut resistance level 3 gloves, and long sleeves.
	• Heavy Material Lifting	Review General Site Activity JSA for hazard mitigation of heavy materials handling
	• Sharp/Rough Materials	• Wear appropriate PPE including leather gloves, long pants, and steel-

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
5. Breaking-Up and Removing Asphalt/Concrete Cover by Saw Cutting or with Heavy Equipment (cont)	• Impact to Subsurface Lines	• Ensure all underground features have been identified in the area per SCP prior to start of activities.
		▪ Walk area prior to equipment use to inspect for potential hazards
	• Equipment Rollover	• Where unstable soil is suspected, have the area assessed by a qualified professional engineer to ensure safe conditions with implementation of design control measures prior to start or continuation of work.
6. Soil Clearance Using Hand Tools and/or Heavy Equipment (e.g. probe, auger, air knife rig, backhoe, etc.)	• Heavy Equipment Movement	• Heavy equipment should be equipped with a back up alarm.
		• Do not allow personnel to stand within the swing radius of equipment booms or arms when equipment is in operation.
		• Stabilize equipment with outriggers if available.
		• When approaching operating equipment, the approach should be made from the front and within the view of the operator.
		• Be sure to make eye contact with the operator and he or she signals you to approach, placing equipment in a safe standby mode removing hands from controls prior to approaching.
		• Level D PPE with the addition of a hard hat, steel-toed boots and a reflective clothing such as a vest must be worn at all times.
	• Physical Injury from Manning Equipment	• Take breaks as needed.
	• Ignition Sources	• Ensure equipment is properly bonded and grounded
		• Use sufficient hose so that equipment does not have to be located in the critical zone
		• Apply water as necessary to address sparking potential if equipment comes in contact with rocks/buried objects
		• Equip heavy equipment with a non-sparking bucket/blade.
	• High Noise Levels	Review General Site Activity JSA for hazard mitigation of high noise levels
	• Airborne Debris	• Wear appropriate PPE including cut resistant glove, long pants, face shield and goggles.
	• Vapors and Airborne Particulates	Review General Site Activity JSA for hazard mitigation of ambient air monitoring
	• Impact to Underground Lines/Tanks	• Ensure underground features in the area have been identified to the extent possible per Subsurface Clearance Protocol (e.g. line locators, as-builts, etc.)

1 Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (included slips and trips); **Exertion** -excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation / skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

3 Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective observable and quantified terms. Avoid subjective general statements such as "be careful" or "use as appropriate".

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **VAC TRUCK OPERATION**

Removal of pea gravel, rinse water and/or product, and purge water from the UST field, USTs, and 55-gallon drums or ploy tanks, respectively.

	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
David Klemme	Corporate Senior Engineer	Peter Petro	Corporate H&S Manager
Bill Fontenot	Project Manager		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X]	REFLECTIVE VEST	[X]	GOGGLES	[ ]	AIR PURIFYING	[X]	GLOVES: (Nitrile & Cut Resistant Level 3)
[X]	HARD HAT	[ ]	FACE SHIELD	[ ]	RESPIRATOR	[X]	OTHER
[ ]	LIFELINE/HARNESS	[X]	HEARING PROTECTION	[ ]	SUPPLIED RESPIRATOR		
[ ]	SAFETY GLASSES	[X]	SAFETY SHOES	[ ]	PPE CLOTHING		

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tail Gate Health and Safety Meeting	• Inattention to safety procedures resulting in injury	• All personnel assigned to this task will attend a health and safety meeting, which will include the pertinent JSAs, site safety procedures manual, types of potential hazards and actual hazards present, and controls for those hazards.
		• Post PPE requirements at all work site entrances.
		• Review ExxonMobil Tier II Vac Truck Operation prior to beginning work. Ensure safety procedures are in place and equipment meets minimum stated safety requirements.
2. Vac Truck Setup	• Vehicle / Pedestrian traffic	• Review General Site Activities hazard mitigation for traffic control
		• Have a second person on site to provide safety over sight on active sites.
	• Fire / Explosion Hazard	• Do not operate vac truck in critical zone.
		• Provide and use enough hose so that the truck and equipment can remain outside the critical zone to avoid fire / explosion risk.
		• Two 20lb, ABC fire extinguishers must be available at opposite ends of the work zone.
		• Properly ground the vac truck
	• Noise induced hearing loss (Double Protection Required, Muffs and Plugs)	• Hearing protection must be wore when working around operating equipment if noise levels are greater than 85 dBA or if hearing discomfort occurs.
		• Use of hearing protection can limit the ability to hear instructions, warnings, or approaching traffic, etc.
		• Use extra caution when wearing hearing protection to stay aware of safety issues/threats.
	• Trip / Slips / Falls - Physical Hazards	• Keep work area clean, notify all personnel on site of the trip hazards and clean up spills immediately.
3. Well cover / UST port / Drum access	• Inhalation of hazardous vapors/gases	• Establish a Hot Work Permit.
		• Screen for hazardous vapors with PID or LEL meter 100 ppm in breathing zone, respirators must be worn.
		• If hazardous vapors are present, utilize the PPE specified in the HASP.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
3. Well cover / UST port / Drum access	• Pinch points	• Wear nitrile over gloves and cut resistant level 3 under glove.
		• Use the correct hand tools when removing lids such as pry bar.
		• Wear steel toed boots and ensure the lid will not contact the feet of the on site personnel.
3. Well cover / UST port / Drum access	• Back Injuries	• Use proper bending/lifting techniques by lifting with the legs and not with the back.
		• Do not lift objects greater than 40 pounds without assistance.
		• If back feels stiff, stretch for 5 minutes before performing any tasks.
4. Operation of Vac Unit	• Liquid Splashing (eye & dermal contact)	• Wear goggles and face shield.
		• Wear cut resistant under and correct chem protective over gloves for the chemical or substance being vacuumed.
		• Wear chemical resistant Tyvek or apron if splash hazard exists
	• Noise induced hearing loss	• Double hearing protection must be wore when working around operating equipment.
		• Use of hearing protection can limit the ability to hear instructions, warnings, or approaching traffic, etc.
		• Use extra caution when wearing hearing protection to stay aware of safety issues/threats.
	• Fire / Explosion Hazard	• Do not operate vac truck in critical zone.
		• Provide and use enough hose so that the truck and equipment can remain outside the critical zone to avoid fire / explosion risk.
		• Two 20lb, ABC fire extinguishers must be available at opposite ends of the work zone.
		• Properly ground the vac truck
5. Clean-up and Depart Site	• Trip / Slips / Falls - Physical Hazards	• Ensure all well covers / lids are secure upon completion. Ensure all tools and equipment are removed from the site. Remove all trash and properly container

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3 Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective observable and quantified terms. Avoid subjective general statements such as "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)			NEW	3 PAGES
		X	REVISED as of 1/1/09	

WORK ACTIVITY: **Drilling**

Drilling hazard activities covered are: tailgate safety meeting, clearing boring location, drill rig setup, ground disturbance, ground intrusion, bin/drum management, and site cleanup and drum relocation.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Jennifer Lacy	LPS Manager	Peter Petro	Corporate H&S Manager
Ryan Pozzuto	Staff Scientist	David Daniels	Senior Staff Geologist
Phil Cordell	Staff Geologist	William Fotenot	Branch Manager

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

X	REFLECTIVE VEST		GOGGLES		AIR PURIFYING	X	GLOVES (Nitrile & Cut Resistant)
X	HARD HAT		FACE SHIELD		RESPIRATOR	X	WHEEL CHOCKS
	LIFELINE/HARNESS	X	HEARING PROTECTION		SUPPLIED RESPIRATOR		OTHER
X	SAFETY GLASSES	X	SAFETY SHOES		PPE CLOTHING		

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Conduct Tail Gate Safety Meeting	• Inattention to Safety Procedures	•All employees prior to implementing this task will review the general site activity JSA, task specific JSAs and Health and Safety Plan to identify potential and actual hazards present, and controls for those hazards
2. Review ExxonMobil Tier I Drill Rig Best Practice Check List	• Drilling hazards due to missing safety equipment or improperly maintained equipment	•Complete drill rig check list to verify drilling rig is in best possible operational shape for safe drilling.
		• Do not drill if significant safety issue or equipment has failed or is missing.
3. Clearing Boring Location	• Slips/Trips/Falls	• Keep work area free of excess materials and debris
		• Remove all trip hazards by keeping materials/objects organized
		• If open boreholes are present, cover with hole plate to secure when not immediately working on the borehole.
	• Contact with Underground Utilities	• Follow ExxonMobil's Subsurface Clearing Protocol
		• Use air knife equipment to clear hole to a minimum of 4 feet below grade with a diameter at least 3 inches larger than the auger.
		• In critical zone, the borehole must be cleared to 8 feet below grade.
		• If utilities are suspected below 8 feet, clear to 1/2 foot below deepest known dept, if depth exceeds borehole capabilities check with PM before drilling
		• Wear the appropriate PPE including goggles, level 3 cut resistant gloves, hard hat, and ear protection.
		• Contact Underground Services Alert (USA) 48 hours prior to digging
		• Contact a private utility locator to locate utilities prior to digging
4. Drill Rig Set Up	• Rig Roll Over	• Do not move rig with the mast raised
		• Cross all hills and obstructions head on
		• Set riggers prior to raising mast
		• Where unstable soil exists, the soil should be assessed by a qualified professional to ensure safe conditions exist.
	• Contact with Electric Lines and Other Overhead Obstructions	• Position rig to avoid overhead utility lines by distance defined by voltage and local regulations (minimum 10 ft for up to 35KV)
		• Use a spotter when raising mast to confirm clearance of overhead lines and other obstructions.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
4. Drill Rig Set Up	• Rig Movement	• Heavy equipment should be equipped with a back-up alarm or use horn and spotter when backing
		• Stay clear of operating equipment and rig when moving
		• Ensure that the "Hands Free" program is in use.
		• Inspect area behind vehicle before backing
		• Use a spotter when backing and agree on hand signals before moving rig.
5. Ground Disturbance: Auger Boring Advancement/Direct Push Drill Rods (Requires Hot Work Permit and OIMS Subsurface Protocol)	• Faulty or Inappropriate Equipment	• Qualified driller must inspect drill rig prior to use; if found faulty and/or inappropriate, do not proceed until repaired or replaced
		• Inspect all hand tools prior to use; if found faulty or inappropriate, do not proceed until repaired or replaced.
	• Operating Equipment	• Clear area of obstructions and communicate with all workers involved that drilling is beginning.
		• Stay clear of rotating auger/rods
		• Secure loose clothing, long hair and remove loose jewerly which can become entangled in or caugh on equipment
		• Wear PPE including level 3 cut resistant gloves, goggles, and safety shoes
		• Ensure that the "Hands Free" program is in use.
	• Suspended Loads	• Do not walk under suspended loads
		• When possible, remove overhead hazards promptly
		• Wear PPE including hard hat and safety shoes.
	• High Noise Levels	• Use hearing protection when equipment is operating
	• Vapors and Airborne Particulates	• Monitor air concentrations using direct-reading, real-time instruments such as a LEL and/or PID meter(s)
		• Stop work if hazardous conditions arise as identified in the SSP, until hazard is removed by taking the following actions in order: implementing administrative controls, implementing engineering controls, upgrade PPE.
		• Wear PPE including goggles, and dust masks or respirators
		• Stay upwind whenever possible
	• Impact to Subsurface Lines/Tanks	• Only drill in areas where underground features have been identified and cleared per SCP. If hole has to be moved, clear new location with air/water knife equipment first
		• Wear PPE including level 3 cut resistant gloves and hard hat.
6. Air Monitoring	• Exposure to vapor and airborne contaminants	• While monitoring the air near a boring, keep yourself as far away as possible from the potential contaminants
		• Set up the PID to retain the highest value to eliminate having to continually read the display screen
		• Consider the use of an extension for the PID/LEL to increase the distance between the bore hole and the monitoring personnel
		• Don a respirator if the concentration reaches 100 PPM in your breathing air or sooner if you feel bother by vapors
		• Notify all workers if the concentrations exceed 100 PPM in their breathing air
		• If the concentrations exceed 100 PPM, increase the monitoring frequency to 7 minutes or between each auger change
7. Ground Intrusion: Split Spoon Sampler (Requires Hot Work Permit and OIMS Subsurface Protocol)	• Faulty Equipment	• Ensure that driller inspects rope/cable/rod for wear, fraying, oils, and moisture prior to use; do not use if faulty until repaired or replaced
		• Ensure that driller inspects cathead for rust and rope grooves prior to use; do not use if faulty until repaired or replaced.
	• Moving Equipment	• Do not wrap rope around any part of the hand or body
		• Wear PPE including level 3 cut resistant and nitrile over gloves
8. Ensure bins/drums are properly secured and labeled	• Bins/drums could be removed from the sites and disposed of improperly or tampered with	▪ Ensure correct signage and labeling is present on each side of bin and/or drum
		• Ensure a chain and lock is present on the bin "picking eye" to discourage inadvertent bin removal.
		▪ Ensure bin top is secured and/or temporary fencing is secured

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
9. Perform site cleanup/drum relocation	• Back or muscle injury from moving heavy objects	▪ Conduct SPSA and keep alert for potential risk
		▪ Review Drum Management JSA
		▪ Wear appropriate PPE including: cut resistant under glove and nitril over glove and goggles
	• Slips/Trips and falls hazards	▪ Perform final site inspection to ensure well boxes are properly secured
10. Weather	• Lightning strike	▪ Count the seconds between the flash and bang.
		▪ Every 5 seconds equals one mile. Greater than 30 seconds you are clear, but 30 seconds are less means boom down and get to shelter.
		▪ All clear is 30 minutes from the last flash and bang that was 30 seconds or greater.
	• High wind	▪ Check with operator for maximum wind speeds at the end of the boom.
		▪ If wind approaches the maximum safe wind speed, boom down until wind speed decreases.
		▪ Wait 30 minutes after wind speed decreases.

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		X NEW REVISED as of 1/1/09	3 PAGES

WORK ACTIVITY: **DIRECTIONAL DRILLING**

Drilling hazard activities covered are: tailgate safety meeting, clearing boring location, directional boring rig setup, ground disturbance, ground intrusion, bin/drum management, and site cleanup and drum relocation.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Peter Petro	Corporate H&S Manager		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

X	REFLECTIVE VEST	X	GOGGLES		AIR PURIFYING	X	GLOVES (Nitrile and Level 3 Cut Resistant)
X	HARD HAT		FACE SHIELD		RESPIRATOR		
	LIFELINE/HARNESS	X	HEARING PROTECTION		SUPPLIED RESPIRATOR		
	SAFETY GLASSES	X	SAFETY SHOES		PPE CLOTHING		

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Conduct Tail Gate Safety Meeting	• Inattention to Safety Procedures	• All employees prior to implementing this task will review the general site activity JSA, task specific JSAs and Health and Safety Plan to identify potential and actual hazards present, and controls for those hazards
2. Establishment of Work Areas	• Pedestrian and Vehicle traffic, being struck or injurious contact to third party	• Ensure you have a defined exclusion zone using temporary fencing as a preferred method, or traffic barricades and/or delineators with caution tape.
		• Keep aware of surroundings when setting up exclusion zone, use traffic watch if busy area to be aware of traffic issues while setting up
		• Prevent unauthorized access by delineating the work area properly. Utilize physical barriers such as caution tape, fencing and barricades
		• Ensure proper signage is visible to indicate the work area (authorized personnel only, hard hat area, hearing protection must be
		• All wheeled vehicles are chocked.
3. Review ExxonMobil Drill Rig Best Practice Check List	• Drilling hazards due to missing safety equipment or improperly maintained equipment	• Do not drill if significant safety issue or equipment has failed or is missing.
		• Complete drill rig check list as applicable to directional boring equipment to verify equipment is in best possible operational shape for safe drilling.
4. Clearing Entry and Exit Locations for Directional Boring Rig (Requires Hot Work Permit and OIMS Subsurface Protocol)	• Slips/Trips/Falls	• Keep work area free of excess materials and debris
		• Remove all trip hazards by keeping materials/objects organized
		• If open locations are present, cover with hole plate to secure when not immediately working on the entry/exit location
	• Potential fire, explosion	• Entrance/Exit locations require clearance using HOT WORK permit, must provide fire watch and complete hot work permit taking LEL and O2 readings every fifteen minutes while clearing hole.
		• Work must stop if 25% LEL is reached personal go to emergency relocation area; review SSP for other action levels
	• Contact with Underground Utilities	• Follow ExxonMobil's Subsurface Clearing Protocol • Use air knife equipment to clear hole to meet the entry and exit specifications for the directional boring head.
		• Depth of clearance is determined by severity of angle directional head must obtain to meet required depth over distance.
		• Width of clearance hole must be 8 inches larger than reamer head for piping.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
4. Clearing Entry and Exit Locations for Directional Boring Rig (Requires Hot Work Permit and OIMS Subsurface Protocol)	• Contact with Underground Utilities	• In critical zone, the borehole must be cleared to 1 foot below total depth of exit location and 8 inches on either side of direct push head for boring.
		• Entry/Exit locations must be cleared at least 6 inches below any documented depth of nearby utility. If sewer maps shows lateral line at 9 feet, clearing to 8 feet will not do any good.
		• Wear the appropriate PPE including safety goggles, hard hat, cut resistant gloves, and hearing protection.
		• Contact Underground Services Alert (USA) 48 hours prior to digging
		• Use all available utility maps and as built diagrams to identify locations for all utilities.
		• Conduct interviews with property owners since they may know of utility work that has occurred at the site previously.
		• Contact a private utility locator to locate utilities prior to digging
5. Drill Rig Set Up	• Rig Roll Over	• Do not move rig with the mast raised
		• Cross all hills and obstructions head on
		• Set riggers prior to raising mast
		• Where unstable soil exists, the soil should be assessed by a qualified professional to ensure safe conditions exist. Stop work until evaluation is completed and work is safe to continue.
	• Rig Movement	• Heavy equipment should be equipped with (a back-up alarm or use horn) and must use a spotter when moving the rig in any direction.
		• Stay clear of operating equipment and rig when moving
		• Ensure that the "Hands Free" program is in use.
		• Inspect area behind vehicle before backing.
		• Use a spotter when backing and agree on hand signals before moving rig.
6. Ground Disturbance: Advancement Directional Drilling Rods (Requires Hot Work Permit and OIMS Subsurface Protocol)	• Faulty or Inappropriate Equipment	• Qualified driller must inspect drill rig prior to use; if found faulty and/or inappropriate, do not proceed until repaired or replaced
		• Inspect all hand tools prior to use; if found faulty or inappropriate, do not proceed until repaired or replaced.
	• Operating Equipment	• Clear area of obstructions and communicate with all workers involved that drilling is beginning.
		• Stay clear of moving parts
		• Secure loose clothing
		• Wear PPE including cut reisistant gloves, goggles and steel-toed boots
		• Ensure that the "Hands Free" program is in use.
	• High Noise Levels	• Use hearing protection when equipment is operating
	• Vapors and Airborne Particulates: Breathing and Explosion/Fire Hazards	• Monitor air concentrations using direct-reading, real-time instruments such as a LEL and/or PID meter(s)
		• HOT WORK permit is required
		• 100 PPM in breathing zones require engineering controls to be implemented
		• Stop work if hazardous conditions arise as identified in the SSP, until hazard is removed by taking the following actions in order: implementing engineering controls, implementing administrative controls, upgrade PPE.
		• Wear PPE including face shield or safety glasses with side shields, dust masks (for particulates only, does not work for vapors) or respirators, and pants
		• Identify windsock on mast or alternative means on nearby surroundings to determine wind direction
		• Stay upwind whenever possible

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
6. Ground Disturbance: Advancement Directional Drilling Rods (Requires Hot Work Permit and OIMS Subsurface Protocol)	• Impact to Subsurface Lines, Tanks and Utilities	• Each utility shown on a utility map or locator mark out to be crossed by the directional boring must be found using subsurface clearance protocol.
		• If utility is not found where marked, additional clearance to locate boring at depth must occur before drilling
		• Directional boring is to clear crossing of utility by a minimum of 2 feet either above or below utility
7. Air Monitoring	• Exposure to vapor and airborne contaminants	• While monitoring the air near a entrance/exit location keep yourself as far away as possible from the potential contaminants
		• Set up the PID to retain the highest value to eliminate having to read the display screen
		• Consider the use of an extension for the PID/LEL to increase the distance between the bore hole and the monitoring personnel
		• Don a respirator if the concentration reaches 100 PPM in your breathing air
		• Notify all workers if the concentrations exceed 100 PPM in their breathing air
		• If the concentrations exceed 100 PPM, increase the monitoring frequency to 7 minutes or between each auger change
9. Ensure bins/drums are properly secured and labeled	• Bins/drums could be removed from the sites and disposed of improperly or tampered	▪ Ensure correct signage and labeling is present on each side of bin and/or drum
		▪ Ensure a chain and lock is present on the bin "picking eye" to
		▪ Ensure bin top is secured and/or temporary fencing is secured
10. Perform site cleanup/drum relocation	Back or muscle injury from moving heavy objects	▪ Conduct SPSA and keep alert for potential risk
		▪ Review Drum Management JSA
		▪ Wear appropriate PPE including: cut resistant gloves and goggles
	• Slips/Trips and falls hazards	▪ Perform final site inspection to ensure well boxes are properly secured and all equipment is removed from site.
11. Weather	• Lightning strike	▪ Count the seconds between the flash and bang.
		▪ Every 5 seconds equals one mile. Greater than 30 seconds you are clear, but 30 seconds are less means boom down and get to shelter.
		▪ All clear is 30 minutes from the last flash and bang that was 30 seconds or greater.
	• High wind	▪ Check with operator for maximum wind speeds at the end of the
		▪ If wind approaches the maximum safe wind speed, boom down until wind speed decreases.
		▪ Wait 30 minutes after wind speed decreases.

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2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (included slips and trips); **Exertion** -excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation / skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

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JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		X NEW REVISED as of 3/10/09	2 PAGES

WORK ACTIVITY: **Well Abandonment - Chip In Place**

Drilling hazard activities covered are: tailgate safety meeting, clearing boring location, drill rig setup, ground disturbance, ground intrusion, bin/drum management, and site cleanup and drum relocation.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
		Peter Petro	Corporate H&S Manager

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

X	REFLECTIVE VEST	X	GOGGLES		AIR PURIFYING	X	GLOVES - Cut Rating 3
X	HARD HAT		FACE SHIELD		RESPIRATOR	X	WHEEL CHOCKS
	LIFELINE/HARNESS	X	HEARING PROTECTION		SUPPLIED RESPIRATOR		OTHER
	SAFETY GLASSES	X	SAFETY SHOES		PPE CLOTHING		

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Conduct Tail Gate Safety Meeting	• Inattention to Safety Procedures	•All employees prior to implementing this task will review the general site activity JSA, task specific JSAs and Health and Safety Plan to identify potential and actual hazards present, and controls for those hazards
2. Remove Well Box	• Noise, Flying Debris (Jackhammer)	•Double hearing protection is required - muffs and plugs
		• Cut resistant gloves level 3 goggles and face shield required
		• Inspect electrical or air lines for damage, air line require whip checks inorder to operate
3. Backfill Well with Bentonite Chips	• Slips/Trips and Falls Hazards	• Keep work area free of excess materials and debris
		• Walk path bentonite bags will travel from truck to well. Remove all trip hazards by keeping materials/objects organized.
		• Stage truck near well for destruction to limit distance bentonite has to be transported.
	• Back Strain	• Lift no more than 50 lbs alone, 100 lbs. with two people. Use dolly or wheel barrow to transport more than one bag.
		• Lifting bags bend with knees, keep load close to body about waist height, keep back straight while lifting, moving, and placing.
		• Pouring chips into borehole, maintain stable based, gradual release of chips into casing.
	• Cutting Hazard Opening Bags	• No fixed blade or exacto knives used, large shears, shovel point (keeping out of line of fire)
	• Breathing Bentonite Dust, Lung Hazard	• Wear NIOSH approved dust mask N95, N99, N100, and R95 meeting ANSI and NIOSH standards.
4. Cap Hole with Concrete	• Slips/Trips and Falls Hazards	• Keep work area free of excess materials and debris
		• Walk path bentonite bags will travel from truck to well. Remove all trip hazards by keeping materials/objects organized.
		• Stage truck near well for destruction to limit distance bentonite has to be transported.
	• Back Strain	• Lift no more than 50 lbs alone, 100 lbs. with two people. Use dolly or wheel barrow to transport more than one bag.
		• Lifting bags bend with knees, keep load close to body about waist height, keep back straight while lifting, moving, and placing.
	• Splash & Eye/Skin Contact Hazards, Dust Hazard	• Concrete as a mixture is caustic and will burn, have cut resistant level 3 gloves that are water proof.
		• Wear goggles and face shield to prevent eye-chemical contact.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
		• Wear NIOSH approved dust mask N95, N99, N100, and R95 meeting ANSI and NIOSH standards.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
5. Perform site cleanup/drum relocation	• Back or muscle injury from moving heavy objects	▪ Conduct SPSA and keep alert for potential risk
		▪ Review Drum Management JSA
		▪ Wear appropriate PPE including: cut resistant gloves level 3 and safety glasses
	• Slips/Trips and falls hazards	▪ Perform final site inspection to ensure well boxes are properly secured and all equipment is removed from site.

1 Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (included slips and trips); **Exertion** -excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation / skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

3 Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective observable and quantified terms. Avoid subjective general statements such as "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)			NEW	3 PAGES
		X	REVISED as of 3/11/09	

WORK ACTIVITY: **Well Destruction Pressure Grouting**

Well destruction activities covered are: tailgate safety meeting, review of Tier II best practice, remove well box, mix grouting, hooking up pressure system, pressure grouting, disconnecting, casing removal, and cementing hole.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
		Peter Petro	Corporate H&S Manager

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

X	REFLECTIVE VEST	X	GOGGLES		AIR PURIFYING	X	GLOVES - CUT PROTECTION LEVEL 3
X	HARD HAT		FACE SHIELD		RESPIRATOR	X	WHEEL CHOCKS
	LIFELINE/HARNESS	X	HEARING PROTECTION		SUPPLIED RESPIRATOR		OTHER
	SAFETY GLASSES	X	SAFETY SHOES		PPE CLOTHING		

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Conduct Tail Gate Safety Meeting	• Inattention to Safety Procedures	•All employees prior to implementing this task will review the general site activity JSA, task specific JSAs and Health and Safety Plan to identify potential and actual hazards present, and controls for those hazards
2. Review ExxonMobil Tier I Drill Rig Best Practice Check List	• Drilling hazards due to missing safety equipment or improperly maintained equipment	•Complete drill rig check list to verify drilling rig is in best possible operational shape for safe drilling.
		• Do not drill if significant safety issue or equipment has failed or is missing.
3. Remove Well Box	• Slips/Trips/Falls	• Keep work area free of excess materials and debris
		• Remove all trip hazards by keeping materials/objects organized
		• If open boreholes are present, cover with hole plate to secure when not immediately working on the borehole.
	• Noise, Flying Debris (Jackhammer)	•Double hearing protection is required - muffs and plugs
		• Cut resistant gloves level 3, goggles and face shield required
		• Inspect electrical or air lines for damage, air line require whip checks in order to operate
4. Mix Grout/Fill Casing	• Splash & Eye/Skin Contact Hazards	• Grout as a mixture is caustic and will burn, have cut resistant level 3 gloves that are water proof.
		• Wear goggles and face shield to prevent chemical-eye contact.
	• Dust Hazard	• Wear NIOSH approved dust mask N95, N99, N100, and R95 meeting ANSI and NIOSH standards.
		• Stand up-wind whenever possible
	• Strain or Entanglement Hazard	• Hand Mixing inspect tool prior to use for damage, use concrete hoe. Proper body position, remain upright, do not twist while pushing or pulling switch arms to prevent over exertion to one set of muscles
		• Electric mixer, follow manufacture guidelines. Do not reach into mixture while operating. Use guards to prevent hands, clothing from being caught by mixer.
5. Hook Up Pressure Grout System	• Make sure coupler is properly seated all the way down on casing	• Position rig to avoid overhead utility lines by distance defined by voltage and local regulations (minimum 10 ft for up to 35KV)
		• Secure manifold with auger bolt to spindle
		• Never pressure grout any well unless you can get your drill head on it
6. Pressure Grout System	• Injury Due to Blowout of Hose Casing, Flying Mud Dirt	• Whip checks must be used on all pressurized hose connections
		• Inspect casing for cracks and breaks
		• Use and watch pressure gauge, Do not exceed 50 psi
		• Back away from system while pressuring up
		• Safety goggles required

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
7. Disconnect Air Hose/Remove Manifold	• Struck By Air Hose	• Check gauge to make sure pressure is reduced to below 5 psi
		• Be aware of pressure still in casing when removing manifold
		• Protect face with hard hat and face shield
8. Remove Top Required Amount of Casing	• Flying Debris From Casing Breakage	• Make sure everybody but the Driller is at least 10 ft. away
		• Driller should be aware of possible flying debris
10. Cap Hole with Concrete	• Splash & Eye/Skin Contact Hazards	• Grout as a mixture is caustic and will burn, have cut resistant level 3 gloves that are water proof.
		• Wear goggles and face shield to prevent chemical-eye contact.
	• Dust Hazard	• Wear NIOSH approved dust mask N95, N99, N100, and R95 meeting ANSI and NIOSH standards.
		• Stand up-wind whenever possible
	• Strain or Entanglement Hazard	• Hand Mixing inspect tool prior to use for damage, use concrete hoe.
		• Electric mixer, follow manufacture guidelines. Do not reach into mixture while operating. Use guards to prevent hands, clothing from being caught by mixer.
11. Weather	• Lightning strike	▪ Count the seconds between the flash and bang.
		▪ Every 5 seconds equals one mile. Greater than 30 seconds you are clear, but 30 seconds are less means boom down and get to shelter.
		▪ All clear is 30 minutes from the last flash and bang that was 30 seconds or greater.
	• High wind	▪ Check with operator for maximum wind speeds at the end of the boom.
		▪ If wind approaches the maximum safe wind speed, boom down until wind speed decreases.
		▪ Wait 30 minutes after wind speed decreases.

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **DRUM MANAGEMENT**

Includes inspection, labeling, opening, filling, closing and moving of non-hazardous soil and water drums generated from site investigation activities.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
Amanda Balzer	Senior Staff Geologist, WA	Peter Petro	Corporate H&S Manager
James Matthiessen	Project Manager, WA		
Ryan Pozzuto	Staff Scientist, WA		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES (Nitril & Cut Resistant)
[X] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER:
[ ] LIFELINE/HARNESS	[ ] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

1 JOB STEPS	2 POTENTIAL HAZARDS	3 CRITICAL ACTIONS TO MITIGATE HAZARDS
1.Labeling and Inspecting the Drum	• Incorrect identification of drum contents resulting in exposure to hazardous constituents	• Do not approach or tamper with unknown drum that may have been dumped onsite. Contact PM for further instructions.
		• Identify the contents of the drum by reading the label.
		• Nitrile and leather gloves and safety glasses should be worn when inspecting any drum.
		• Ensure that the label properly identifies the contents and that it is securely attached to the drum.
	• Injury due to release of contents from pressurized drum	• Inspect the drum for signs of pressure (i.e., bulging).
2.Opening and Closing the Drum	• Exposure to drum contents, including soil or water containing petroleum hydrocarbons	• Nitrile and level 3 cut resistant gloves and safety glasses should be worn when opening/closing any drum. • Wear respiratory protection as directed in the SSP.
	• Injury Due to Pressurized Drum • Potential Explosion (Visible Signs of Bulging or Swelling of Drum)	• Pressure from a pressurized drum should be bled off slowly from the vent bung. Only use non-sparking tools
		• Drums known to contain liquid phase hydrocarbons that are pressurized ARE NOT TO BE HANDLED, POTENTIAL FOR EXPLOSION OR FIRE EXISTS, stop work contact PM
	• Cuts and/or pinched fingers	• Identify sharp edges on the drum rim and ring.
		• Avoid pinching hands in the drum ring.
	• Fire caused by flammable vapors	• Use a proper drum wrench (15/16 inches usually) and a non-sparking bung wrench.
		• Ensure the area where the drum is free of sources of ignition.
	• Head injury	• Wear head protection and use caution when shoveling into a drum.
	• Slips, trips and falls	• Place the drum ring and lid where it is not a tripping hazard.
3. Picking up drum	• Slips, trips and falls	• When moving a light or empty drum on its edge, keep both hands on the drum while it is in motion.
		• Use caution while walking on uneven ground and keep material area clean.
		• Pay attention to walking surfaces and avoid spills and slippery ground.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
3. Picking up drum	• Exposure to drum contents, including soil or water containing petroleum hydrocarbons	• Ensure that the drum is tightly closed before moving it.
	Back injury, sprains and strains	• DO NOT MOVE A LOADED DRUM WITHOUT A DRUM DOLLY
		• Do not lift anything over 40 lbs without assistance
	Back injury, sprains and strains	• Make sure top latch of drum dolly is SECURELY ATTACHED on drum
		• Make sure bottom two forks of drum dolly are completely SECURED under drum.
		• Make dolly strap secures drum to dolly, inspect strap for tares, if tore do not use.
	• Hand or foot injury, or pinched fingers and cuts	• Safety shoes ANSI Z41 and leather gloves should be worn when moving any drum, even an empty one.
	• Striking or being struck by a moving vehicle	• When moving a drum through traffic flow, a reflective safety vest must be worn. • Plan a path clear of all obstructions, making note of traffic and pedestrian flow. • Use a spotter when moving a drum through traffic.
4. Drop off drum	• Being struck by Dolly	• Pick a level spot to deposit the drum
		• Keep both hands securely on the dolly handles
		• Start with front foot on foot support slowly let the weight of the load pull forward using the leverage of the dolly for control
		• Keep rear foot on ground and your body well balanced over
5. Loading drums on truck	• Drums falling off	• Prior to loading drums, ensure vehicle is clear of obstacles and wheels are chocked, parking brake is set, engine is off and in gear.
		• When loading on lift gate, load one drum at a time
		• Have one person on truck and one person on the ground
		• Use dolly to move drums on truck
		• Never transport drums on lift gate
		• Before transport, truck must be secure with all gates on and lift gate stowed properly
6. Truck Leaving Site with Drums	• Drums Rolling Around, Damage to or Breakout of Vehicle	• Verify drums are strapped in place and have no space to gain momentum.
		• When driving practice slow starts and stops to keep inertia low

1 Each job or operation consists of a set of steps. Be sure to list all of the steps in the sequence in which they are performed. Specify the equipment or other details to set the basis for the associated hazards in column 2.

2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object;Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation / skin hazards. Specify the hazards and do not limit the description to a single word such as "caught."

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ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		[ ] NEW [X] REVISED as of 1/1/09	2 PAGES

WORK ACTIVITY: **PORTABLE GAS OR DIESEL POWERED GENERATORS**

Using portable gasoline or diesel powered generators to provide electrical power for electric tools, lights, pumps, etc.

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE
David M. Purdy	Sr. Project Manager, SCAL	Peter Petro	Corporate H&S Manager
Joe O'Connell	President		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

[X] REFLECTIVE VEST	[ ] GOGGLES	[ ] AIR PURIFYING	[X] GLOVES
[ ] HARD HAT	[ ] FACE SHIELD	[ ] RESPIRATOR	[ ] OTHER:
[ ] LIFELINE/HARNESS	[X] HEARING PROTECTION	[ ] SUPPLIED RESPIRATOR	
[X] SAFETY GLASSES	[X] SAFETY SHOES	[ ] PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Tailgate Health and Safety Meeting	• Inattention to safety procedures	• All employees assigned to this task will attend a tailgate health and safety meeting, which will include the pertinent JSA, health and safety plan (HASP), traffic control plan, types of potential hazards and actual hazards present, and controls for those hazards.
		• The pre-construction meeting will be conducted for all personnel and subcontractors.
2. Unloading/Loading Generator	• Back injury	• Do not lift anything >40 lbs without assistance bend and lift using legs/arms, not your back.
		• Lift and move generator using proper handles.
		• Use lift gate, hand cart, or wheel barrel to lift and move generator, if possible.
	• Injury from pinch points	• Wear level three cut resistant gloves.
	• Burns from hot surfaces	• Allow generator to cool prior to moving it.
	• Unsecured equipment	• Ensure that generator is secured against movement or jostling prior to transport.
3. Fueling Generator	• Eye or skin contact from fuel	• Wear safety glasses and fuel-resistant over gloves
	• Explosion and fire	• TURN OFF GENERATOR AND ALLOW TO COOL. Never fuel generator while it is operating or in an overheated condition.
	• Inhaling fumes from fuel	• Fuel generator in open air environment to avoid fumes.
4. Starting Generator	•Explosion and fire	• Ensure any spilled fuel has dried or is wiped off prior to starting generator.
		• Do not store fuel containers in the vicinity of the generator.
		• Inspect fuel lines for leakage. Keep generator properly maintained.
	• Electrical shock	• Ensure generator is properly grounded. Consult Owner's Manual prior to operation.
		• Dry your hands before touching generator.
		• If you must use a generator when it is wet outside, protect the generator from moisture but do not operate generator indoors.
		• Ensure generator is equipped with a Ground Fault Circuit Interrupter (GFCI). Test GFCI to ensure electrical power is interrupted.
		• If GFCI is not built-in to the generator, plug a GFCI into the generator followed by the electrical cord & test operation
		• Check that the entire length of each electrical cord is free of cuts or tears and that the plug has all three prongs prior to connecting to generator.
		• Protect the electrical cord from getting pinched or crushed.
		• Make sure the wattage rating for each cord exceeds the total wattage of all appliances connected to it.
4. Starting Generator	• Inhaling fumes from exhaust	• Never operate generator indoors or in confined areas without proper ventilation.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS
	• Hearing damage	• Wear ear plugs if noise from operating generator exceeds 85 db.
5. Operating Generator	• Burns from hot surfaces	• Wear level three cut resistant under and heavy duty over gloves.
		• Avoid contact with generator while it is in operation.
	• Explosion and fire	• Do not store fuel containers in the vicinity of the generator.
		• Inspect fuel lines for leakage. Keep generator properly maintained.
		• Do not operate generator in the vicinity of combustible materials (paper, rags, clothing).
	• Electrical shock	• Dry your hands before touching generator.
		• If you must use a generator when it is wet outside, protect the generator from moisture but do not operate generator indoors.
		• NEVER plug generator into an electrical wall outlet (Back feeding).
		• Ensure generator is equipped with a Ground Fault Circuit Interrupter (GFCI). Test GFCI to ensure electrical power is interrupted.
		• If generator is not equipped with GFIC, plug a GFCI into the generator followed by the electrical cord & test operation.
		• Check that the entire length of each electrical cord is free of cuts or tears and that the plug has all three prongs prior to connecting to generator.
		• Protect the electrical cord from getting pinched or crushed.
		• Make sure the wattage rating for each cord exceeds the total wattage of all appliances connected to it.
	• Inhaling fumes from exhaust	• Never operate generator indoors or in confined areas without proper ventilation.
	• Hearing damage	• Wear ear plugs if noise from operating generator exceeds 85 db.
6. Cease Generator Operation	• Electrical shock	• Dry your hands before touching generator.
	• Equipment damage	• Turn off all appliances powered by the generator and then turn off generator.
	• Fuel Spill	• Turn off fuel valve when generator is done operating prior to transporting.

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ExxonMobil Refining & Supply - Global Remediation

JOB SAFETY ANALYSIS

COMPANY/PROJECT NAME or ID/LOCATION (City, State)		X NEW as of REVISED as of	1 PAGE

WORK ACTIVITY:

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

REFLECTIVE VEST	GOGGLES	AIR PURIFYING	GLOVES (Nitrile and Leather work)
HARD HAT	FACE SHIELD	RESPIRATOR	OTHER (as specified in HASP)
LIFELINE/HARNESS	HEARING PROTECTION	SUPPLIED RESPIRATOR	
SAFETY GLASSES	SAFETY SHOES	PPE CLOTHING	

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS

1 Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

2 A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (included slips and trips); **Exertion** -excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation / skin haqards. Specify the hazards and do not limit the description to a single word such as "Caught'

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APPENDIX F

PERSONAL PROTECTIVE CLOTHING/GLOVES INSPECTION AND DONNING AND DOFFING PROCEDURES

Personal Protective Equipment
Donning and Doffing Instructions

Donning Non-Encapsulating Garments

1. Conduct a visual inspection of the garment before you begin donning: -garment should be free of discoloration, alterations or physical damage -inner gloves should be fully inserted into outer gloves
2. Remove all jewelry and personal items (pens, key rings, badges, pagers, knife cases, etc.) that might damage the garment.
3. Check function of respirator and place nearby donning location.
4. Visually check size and condition of outer boots and place nearby.
5. Open the garment closure completely.
6. Read the garment size label to assure proper fit.
7. Apply anti-fog to inside of visor, if present.
8. Remove your shoes. If the garment has attached socks, these socks are worn inside outer chemical boots. These socks do not have adequate durability or slip resistance to be worn as the outer footwear covering.
9. While sitting, insert your feet into the garment legs and down into socks, if so equipped. Stretch your legs out to maximum extension while pulling garment up around hips.
10. If the garment has outer boot top covers, pull the boot top covers up and don outer boots. Then pull boot top cover down over boots as far as possible. If the garment does not have socks, pull the garment cuff up before donning the boot, then pull the cuff down over the outside of the boot.
11. Place one hand in the sleeve and pull the garment sleeve to your shoulder. Make sure your hand is securely inside the glove, if attached.
12. Place your other hand in the sleeve and glove, if attached, and pull the garment over that shoulder.
13. If gloves are not attached to the garment, don the gloves. Pull the sleeves of the garment over the gauntlet of the gloves. Do not rely upon taping to provide a liquid-tight seal. Taping should only be used to hold the sleeve in position over the glove gauntlet. If a leak-proof seal between the glove and sleeve is required, then you should wear a garment with attached gloves.
14. Don your respirator facepiece and check its function. If using an SCBA, disconnect the air supply from the facepiece, if possible, to save air supply.
15. Don protective headgear, if it is worn underneath the garment hood, and communication equipment.
16. Place the attached hood, if present, over your head and close the zipper.
17. After checking that the zipper is completely closed, fold and secure the flaps over the closure.
18. In the case of an air-line breathing system, complete all connections and adjustments.
19. Connect your respirator facepiece to the air supply and make sure the respirator is functioning properly.
20. If applicable, place the separate hood over your head and attach the underarm straps.

Personal Protective Equipment
Donning and Doffing Instructions

Doffing Non-Encapsulating Garments

Gross decontamination and removal of all personal protective equipment will be performed before leaving the site. Contaminated clothing will be carefully removed to minimize the dislodgment of particulate and collected in a drum for disposal. Respiratory protection will be kept on until the removal of contaminated clothing has been completed.

Shaking or blowing dust or other materials off potentially contaminated clothing or equipment to remove dust or other materials is not permitted. If dust removal is required, a vacuum cleaner designed for the removal of toxic materials and outfitted with high-efficiency particulate filtration (HEPA) that is 99.97 percent efficient again particles of 0.3 micron size or larger

Non-Encapsulating Garments

1. If your garment has been contaminated or is suspected of being contaminated, you must first undergo field decontamination.
2. After field decontamination, if the garment has been contaminated or is suspected of being contaminated, you should continue to use your respirator until the garment has been doffed and removed.
3. An assistant should help you doff the garment after field decontamination. If your garment has been contaminated, your assistant should wear protective clothing and respiratory equipment.
4. Remove and discard the separate outer hood if present.
5. If you are wearing an SCBA or PAPR, your assistant should help you remove the backpack or filter unit without disconnecting the facepiece. The tank or filter unit should either be held by another person or placed in a dry, secure position. While you stand, your assistant should partially open the closure of your garment, pull down the hood, open the closure completely and peel the garment down and away from your shoulders. The assistant should help you remove your arms from the sleeves.
6. You assistant should lower the garment below your the hips without touching the inside of the garment.
7. While sitting, your assistant should help you remove your boots, pull the garment off your legs and take the garment away.
8. Once the garment has been removed, you can disconnect and remove the respiratory facepiece.

Doffing Chemical Resistant Gloves

Using the Personal Protective Equipment (PPE) correctly is another link in the chain of keeping a person safe. If the PPE is not worn or used correctly then it may not offer the expected protection to the user. Below are guidelines for putting on (donning) and removing gloves (doffing).

Personal Protective Equipment
Donning and Doffing Instructions

Donning Gloves

1. Wash hand before putting gloves on.
2. Remove all jewelry from hands.
3. Pick up one glove with the right hand
4. Line the thumb side of the glove up with the thumb side of the left hand
5. Slip the open end of the glove over the left hand and thumb
6. Stretch the palm side of the glove with the right hand, pulling the glove on to finger level.
7. Position the fingers of the glove in line with the fingers of the left hand.
8. Pull the remainder of the glove onto the left hand.
9. Pick up the second glove with the gloved left hand.
10. Line the thumb side of the glove up with the thumb side of the right hand.
11. Slip the open end of the glove over the right hand and thumb.
12. Stretch the palm side of the glove with the left hand; pull the glove on to finger level.
13. Position the fingers of the glove in line with fingers of the right hand.
14. Pull the remainder of the glove onto the right hand.
15. Proceed with activity requiring gloves.

Personal Protective Equipment
Donning and Doffing Instructions

Doffing Gloves

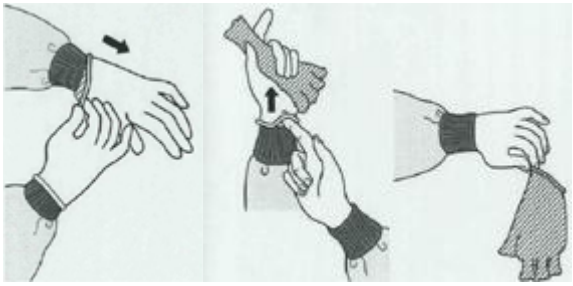
There are two standard methods to taking off gloves. Method One for glove removal is recommended, because it is harder for a person to become contaminated. However, if Method Two can be done without causing contamination, use the easiest method. Below are both methods.

Method One:

1. Grasp one of the gloves and cuff and pull it partway off. The glove will turn inside out. It is important to keep the first glove partially on your hand before removing the second glove. This protects you from touching the outside of either glove with your bare hands.
2. Leaving the first glove over your fingers, grasp the second glove near the cuff and pull it part of the way off. The glove will turn inside out. It is important to keep the second glove partially on your hand to protect you form touching the outside surface of the first glove with your bare hand.
3. Pull off the two gloves at the same time, being careful to touch only the inside surfaces of the gloves with your bare hands.
4. Dispose of the gloves properly in accordance with waste disposal regulations.
5. Wash hands thoroughly

Method Two:

1. Grasp outside edge near wrist.
2. Peel away from hand turning glove inside-out.
3. Hold in opposite gloved hand.
4. Slide ungloved finger under the wrist of the remaining glove, be careful not to touch the outside of the glove.
5. Peel off from inside, creating a bag for both gloves
6. Discard
7. Wash hands thoroughly



Personal Protective Equipment
Donning and Doffing Instructions

Do's and Don'ts of Glove Use

1. Work from clean to dirty—this will help prevent contamination
2. Don't touch your face or adjust PPE with contaminated gloves
3. Change gloves when heavily soiled or if they are torn.
4. Discard gloves after use, never wash or reuse disposable gloves.

Reference:
Donning and Doffing non-encapsulating garments instructions obtained from DoPont Personal Protective Equipment, June 2007.

APPENDIX G

EXXONMOBIL WORK PERMIT

EMGR WORK PERMIT
AND LOCKOUT / TAGOUT

PERMIT TYPE: ❑ Cold ❑ Hot Work ❑ Confined Space Entry ❑ Excavation

WORK LOCATION/SITE NUMBERI	AREA OF WORKI
DESCRIPTION OF WORK COVERED BY THIS PERMIT:	
DESCRIBE EQUIPMENT/MACHINERY/TOOLS TO BE USED:	
NAME AND COMPANY OF CONTRACTOR RESPONSIBLE FOR AUTHORIZING WORK:	PHONE NUMBER:
PRIMARY FIELD CONTACT:	PHONE NUMBER:

NAME S OF PERSONNEL COVERED BY THIS PERMIT	DATE PERMIT ISSUED:	FOR TIME FRAMEI ☐ AM ☐ PM

WORK PERMIT DURATION IS ONE WORK DAY (DATE PERMIT ISSUED)

EMERGENCY PHONE NUMBERS: FIRE _____ POLICE _____ SHERIFF: _____

HOSPITAL/MEDICAL: _____ OTHER: _____ EM PM Notified? ☐ YES ☐ N/A

A. PREWORK CHECKLIST-JOBSITE INSPECTION REQUIRED	YES	NO	NA
1. JSA And/Or Detailed Work Procedures Reviewed/Available? List Procedure / Date _____			
2. GR Project Site Workers Understand GR and Site-Specific Safety Roles & Practices Including Review/Sgning of HASP?			
3. Safety Procedures, Alarms, Equipment Safety Devices and Evacuation Routes Identified and Communicated To All Workers?			
4. Work Permit Requirements Including Work Limitations Have Been Communicated To and Are Understood By All Workers?			
5. Affected Personnel (e.g. Site Owner) Have Been Notified? If Yes, Name/Date _____			
6. Required Agency Notifieations Completed? If Yes, Name/Date _____			
7. Work Involves Interconnecting Areas? If Yes, Verbal Endorsement of Affected Received _____			
8. Job Site Inspected by Permit Issuer and Recipient?			
9. Sewers In Immediate Area Protected from Spills/Sparks?			
10. Precautions Taken To Prevent Leaks / Spills and Other Impacts to Workers/Environment?			
11. The Affect Of This Job On Neighboring Equipment, Third Party And/Or Public Considered and Addressed?			
12. Hazardous Materials MSDSs Reviewed and Understood for: ☐ Asbestos ☐ Acid/Caustic ☐ Lead / Paint ☐ H2S ☐ Hot Material ☐ Flammables ☐ Product _____ ☐ Other _____			
13. Subsurface Disturbance Required? If Yes, Check Box and List Potential Undergroud Items at site. ☐ Product lines ☐ Cathodic protection ☐ Sewer lines ☐ Electric lines ☐ Communication lines ☐ Water lines ☐ Gas ☐ Other _____			
SCP Checklist Completed and Public Utilities Notifications Made? If Yes, Notification Confirmation # _____			

	YES	NO	NA
14. Lockout/Tagout Procedures Reviewed With Authorized Personnel?			
15. Equipment Has Been ☐ Blinded ☐ Isolated ☐ Gas Freed ☐ Drained/Cleaned/Flushed ☐ Depressurized			
16. Work Site Warning Devices In Place (barricades, cones, warning signs, guarded walkways and work areas)?			
17. Eyewash, Showers, Safety Blankets Identified and Operable?			
18. Area Tested and Cleared Of Flammable/Combustible Materials for Hot Work, Hazardous Environment for Confined Space Entry?			
19. Motorized Equipment / Vehicles Permitted in Work Area?			
20. Personnel Involved With The Work Are Trained And Under-Stand The Hot Work And/Or Confined Space Entry Procedures?			
21. Fire Equipment Required On Site? ☐ Fire Hose and Nozzle ☐ Fire Watch ☐ Fire Extinguisher Size: _____ ☐ Fire Water Pressure ☐ Other _____			
22. Personal Protective Equipment Required (Check Box Or List) ☐ Hard Hat ☐ Safety Shoes ☐ Gloves (Type)_____ ☐ Safety Glasses ☐ Hearing Protection ☐ High Visibility Vest/Clothing ☐ Goggles ☐ Safety Harness ☐ Air Purifying Respirator ☐ Face Shield ☐ Flotation Device ☐ Air Supplying Respirator ☐ Special Lead/Asbestos/Welding PPE, Describe:_____ ☐ Other _____			

23. Gas Testing Equipment Used To Issue Permit

Type of Equipment	Serial Number	Date Bump Tested	Equipment Owner

☐ Gas Testing Equipment has been calibrated and functioning properly
Calibration Documentation Form Is To Be Maintained In A Log With The Equipment

B. GAS TESTING REQUIRED ☐ YES ☐ NO **(RECORD GAS TESTING INFORMATION ON PAGE 2)** **TESTER'S INITIALS:** _____

GAS TESTER'S NAME/COMPANY/SIGNATURE: _____

C. LO/TO PROCEDURES TO BE FOLLOWED DOCUMENTED: ☐ YES ☐ NA

ENERGY SOURCES PRESENT — DEVICES TO BE LOCKED AND/OR TAGGED AND THEIR LOCATION

TYPE OF ENERGY	MAGNITUDE	DEVICE	LOCATION	LOCK #	TAG #	VERIFIED

TYPE: pressure, stored energy, cathodic protection, electricity, etc. | MAGNITUDE: Examples: electricity - 220 volts AC; pressure - pounds per square inch (PSI); force - pounds (LBS)

LOCKOUT / TAGOUT AUTHORIZED PERSONNEL: _____ _____ _____ _____

D. CONFINED SPACE ENTRY REQUIRED: ☐ YES ☐ NO **IF YES - COMPLETE SECTION(S) ON BACK OF "CONFINED SPACE ENTRY" PAGE**
(CONTINUOUS AIR MONITORING REQUIRED FOR CONFINED SPACE ENTRY)

LIST OF AUTHORIZED ENTRANTS: (see Page 2 of Confined Space Entry Permit)

ACTIVE ENTRY SUPERVISOR:	RELIEVED BY:	TIME ☐ AM ☐ PM	ACTIVE ENTRY STANDBY:	RELIEVED BY:	TIME ☐ AM ☐ PM

RESCUE/EMERGENCY SERVICES REQUIRED: ☐ YES ☐ NO IF YES, TYPE OF RESCUE ☐ OFF-SITE SERVICE ☐ ON-SITE NON-ENTRY ☐ ON-SITE ENTRY ☐ EMERGENCY SERVICES

EMERGENCY RESCUE PROVIDED BY: _____ (NAME OF SERVICE) _____ (NAME OF CONTACT) _____ (TELEPHONE NUMBER) | INITIATE EMERGENCY RESCUE BY:

ON-SITE RESCUE EQUIPMENT REQUIRED: ☐ SCBA ☐ CPR/FIRST AID KITS ☐ RESCUE BASKET ☐ MECHANICAL RETRIEVAL DEVICE ☐ WRITTEN RESCUE PLAN ☐ LIFELINE ☐ FULL BODY HARNESS ☐ ENTRANT/STANDBY COMMUNICATION _____

E. OTHER COMMENTS, SPECIAL PRECAUTIONS, ETC.

F. SIGNATURES

ISSUER NAME AND COMPANY:		RECIPIENT NAME AND COMPANY:	
ISSUER SIGNATURE:	TIME ☐ AM ☐ PM	RECIPIENT SIGNATURE:	TIME ☐ AM ☐ PM
RECIPIENT RELIEF NAME, COMPANY AND SIGNATURE			TIME ☐ AM ☐ PM

G. POSTWORK / JOB STATUS ☐ **JOINT INSPECTION** **PERMIT REQUIRED NEXT DAY** ☐ **YES** ☐ **NO**

AREA/EQUIPMENT SECURED AND CLEANED? ☐ YES ☐ NO COMMENTS:		WORK COMPLETED ☐ YES ☐ NO COMMENTS:	
INSPECTED BY (NAME AND SIGNATURE)	TIME ☐ AM ☐ PM	RECIPIENT NAME AND SIGNATURE	TIME ☐ AM ☐ PM

PERMIT REVIEWER'S NAME	PERMIT REVIEWER'S SIGNATURE	DATE	TIME ☐ AM ☐ PM

PROMINENTLY DISPLAY PERMIT AT JOBSITE

DEFINITION: Cold work is any work that does not provide a source of ignition.

If a Hot Work Permit or Confined Space Entry Permit are not required for work activities, a Cold Work Permit may be required as a risk control method based on field work risk assessment results, particularly if work involves a larger, more complex project that requires a significant level of engineering or field operations review to address increased safety precautions.

Larger, more complex projects include, but are not limited to:

- At an operating site or in a populated area where controlling access by third parties may be especially difficult (not intended to include typical retail remediation sites in urban area with controlled access)
- Unusually large scope (making it difficult to maintain coordination and to avoid unsafe interference between workers or tasks such as large workforce, fleet of mobile equipment or number of activities or tasks occurring simultaneously
- Involving unique remediation issues, plans or site characteristics (e.g. capping unconsolidated/unstable materials; methane or other potential safety or health hazards, severe weather limitations).

With exception of documenting completion of Lock Out/Tag Out (LOTO) procedures, Cold Work Permits may not be required when working at typical Retail sites and Major Projects non-operating facility sites provided hot work or confined space entry is not involved and other OIMS/LPS requirements (e.g. Job Safety Analyses (JSAs), Health and Safety Plans (HASPs), tailgate safety meetings, etc.) are implemented.

If work involves actual or potentially hazardous vapors in the area, a gas test must be conducted before a Cold Work Permit is issued.

The following Gas Detection Guidelines shall apply when issuing permits with project-specific PELs and testing methods based on local country requirements and potential chemical/gas exposure.

- Oxygen

23.5% **maximum** for entry and hot work.
19.5% **minimum** for entry without supplied breathing air. (Some facilities may not allow entry regardless of supplied breathing air until oxygen is 19.5% minimum to 23.5% maximum.)

- Lower Explosive Limit (LEL)

5% **maximum** LEL for entry without breathing air.
10% **maximum** LEL for routine entry procedures. 10% to 20% requires rescue special procedures to be implemented. **No entry above 20%.**
1% **maximum** LEL for hot work. Some sites may establish a limit of 0% until the source is determined.

- Permissible Exposure Limits (PEL's) for use without respirators (see MSDS, all values are **maximums**)
- Exceeding **ANY** maximum value requires use of respirators

NOTE: A nitrogen-enriched environment, which depletes oxygen, can be detected only with special instruments. High concentrations of N2 become particularly dangerous because workers may not be able to recognize physical or mental symptoms of overexposure, leading to asphyxiation.

The following gas detection guidelines shall apply when issuing permits for project activities with potential for exposure to hazardous environment. Project-specific exposure limits (e.g. PELs, STELs, TWAs) and testing methods must also be based on MSDS and local region requirements.

(NOTE: region-specific concentration limits may be lower)

To ensure proper documentation and retention of the required gas testing, readings must be recorded on this document in the space provided below.

GAS TEST REQUIRED	o Yes o No	RECORD CONTINUOUS MONITORING EVERY TWO HOURS	TESTORS INITIALS:												
CHEMICAL	NO RESPIRATOR REQUIRED	NO ROUTINE WORK PERMITTED	CONTINUOUS MONITORING REQUIRED	RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME	
Oxygen	>19.5% to 23.5%	<19.5% OR >23.5%	o Yes o No												
%LEL (entry)	See Total Hydrocarbons	> 5 % LEL	o Yes o No												
%LEL (hot work)	See Total Hydrocarbons	> 1% LEL	o Yes o No												
Benzene	<0.5 ppm	≥500 ppm	o Yes o No												
Hydrogen Sulfide	≤10 ppm	≥100 ppm	o Yes o No												
Total Hydrocarbons	<100ppm	≥1,000 ppm	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												

Nobody Gets Hurt

SAFE PERFORMANCE SELF ASSESSMENT

BEFORE BEGINNING ANY ACTIVITY/TASK/JOB:

ASSESS the risk!
What could go wrong?
What is the worst thing that could happen if something does go wrong?

ANALYZE how to reduce the risk!
Do I have all the necessary *Training* and *Knowledge* to do this job safely?
Do I have all the proper *Tools* and *Personal* protective equipment?

ACT to ensure safe operations!
Take necessary *Action* to ensure the job is done safely!
Follow written procedures! Ask for assistance, if needed!

DO NOT PROCEED UNLESS EVERYTHING IS SAFE!

For Everyone • Every Day • All the Time

DEFINITION: Hot work is work capable of providing an ignition source where flammable materials, combustible gas-air mixtures, or combustible vapors are present or may be released to create a potential fire or explosion hazard.

An ignition source is defined as any fire or spark producing activity, component or piece of equipment. Ignition sources include, but are not limited to, work requiring the use of: power tools, welding equipment, portable grinders, operating internal combustion engines (e.g. vehicles), concrete cutters, heavy equipment operations (e.g. backhoes, drill rigs), vacuum truck operations, or any other flame or spark-producing equipment, tools or procedures.

Examples of hot work activities that require permitting:

- 10 feet (3 meters) distance from furthest edge of any known or suspected tank, pump(s) and pump galleries, manifolds, production wells, loading racks and any other process equipment types containing flammable/combustible materials, gas-air mixtures or vapors.
- 10 feet (3 meters) distance surrounding dispenser islands at retail sites.
- The entire area between the tank field and dispenser islands at retail sites.
- 10 feet (3 meters) distance from other known or suspected subsurface structures containing flammable materials, combustible gas-air mixtures or combustible vapors.

KEY RESPONSIBILITIES OF PERMIT ISSUER:

Authorization -- Before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing the cutting and welding operations. He/she shall designate precautions to be followed in granting authorization to proceed utilizing the written permit.

The Permit Issuer must work with the Permit Recipient to ensure that the area is properly prepared for hot work. Specifically, the Issuer must ensure that the following work is completed:

Equipment is cleared and blinded
Ignitable trash is removed from the area (35')
Adequate fire-fighting equipment is provided
Precautions taken for overhead hot work
Provide a safe location for welding equipment
Flammable material is not spilled or released from equipment
Sewers are covered and sealed
Hot work area is safe from flammable discharges from adjacent areas
Gas detection for initial and continuous monitoring
Check other work being performed in the area

KEY RESPONSIBILITIES OF PERMIT RECIPIENT:

- Ensuring that only the type of work covered by the permit is performed.
- Ensuring that conditions at the job site are safe for the scheduled work and that hot work is confined to the area covered by the permit.
- Assuring that the proper gas tests have been satisfactorily completed.

Any welding, burning or use of equipment causing sparks or heating shall be stopped at least 30 minutes before permit closeout to allow for inspection of the work area.

KEY RESPONSIBILITIES OF THE FIRE WATCH:

- A fire watch shall be required whenever welding or cutting is performed in locations where a fire might develop, or any of the following conditions exist:
  - Combustible material, in building construction or contents, closer than 35 feet to the point of operation.
  - Combustibles are more than 35 feet away but are easily ignited by sparks.
  - Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
  - Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
  - A person performing fire watch shall have fire extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

Required Fire Fighting Equipment -

- When welding or cutting activities require a Fire Watch, at least two fully-charged 20 lb. Dry Chemical fire extinguishers, an approved and functional Combustible Gas Indicator, welding shields (if exposure exists to adjacent personnel or the public), should be at the work site.
- All other Hot Work activities require a minimum of at least one fully-charged, sealed and currently inspected 20-lb Dry Chemical fire extinguisher.
- Firefighting equipment must be adequate for the type of combustible materials in the area and provide adequate coverage.

The following Gas Detection Guidelines shall apply when issuing permits with project-specific PELs and testing methods based on local country requirements and potential chemical/gas exposure.

- Oxygen

23.5% **maximum** for entry and hot work.
19.5% **minimum** for entry without supplied breathing air. (Some facilities may not allow entry regardless of supplied breathing air until oxygen is 19.5% minimum to 23.5% maximum.)

- Lower Explosive Limit (LEL)

5% **maximum** LEL for entry without breathing air.
10% **maximum** LEL for routine entry procedures. 10% to 20% requires rescue special procedures to be implemented. **No entry above 20%.**
1% **maximum** LEL for hot work. Some sites may establish a limit of 0% until the source is determined.

- Permissible Exposure Limits (PEL's) for use without respirators (see MSDS, all values are **maximums**)
- Exceeding **ANY** maximum value requires use of respirators

NOTE: A nitrogen-enriched environment, which depletes oxygen, can be detected only with special instruments. High concentrations of N2 become particularly dangerous because workers may not be able to recognize physical or mental symptoms of overexposure, leading to asphyxiation.

(NOTE: region-specific concentration limits may be lower)

To ensure proper documentation and retention of the required gas testing, readings must be recorded on this document in the space provided below.

GAS TEST REQUIRED o Yes o No **RECORD CONTINUOUS MONITORING EVERY TWO HOURS** **TESTORS INITIALS:**

CHEMICAL	NO RESPIRATOR REQUIRED	NO ROUTINE WORK PERMITTED	CONTINUOUS MONITORING REQUIRED	RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME	
Oxygen	>19.5% to 23.5%	<19.5% OR >23.5%	o Yes o No												
%LEL (entry)	See Total Hydrocarbons	> 5 % LEL	o Yes o No												
%LEL (hot work)	See Total Hydrocarbons	> 1% LEL	o Yes o No												
Benzene	<0.5 ppm	≥500 ppm	o Yes o No												
Hydrogen Sulfide	≤10 ppm	≥100 ppm	o Yes o No												
Total Hydrocarbons	<100ppm	≥1,000 ppm	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												

Nobody Gets Hurt

DEFINITION: Confined space is an enclosed or partially enclosed space/structure that: (1) Is large enough and configured in a way that allows a person to bodily enter and perform work; and (2) Has limited or restricted means for entry or exit (e.g. tanks, vessels, silos, storage bins, hoppers, vaults, sewers, pits building crawl spaces and excavations that are greater than four feet in depth); and (3) Is not designed for continuous employee occupancy.

Confined space entry that requires a work permit is entry into a confined space with one or more of the following characteristics: 1) contains or has a potential to contain a hazardous atmosphere that cannot be eliminated (e.g. through continuous forced air ventilation) for safe entry throughout the duration of confined space entry with sufficient monitoring and documentation to confirm continuous non-hazardous atmosphere; 2) contains a material with the potential to engulf someone who enters the space; 3) has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or 4) contains any other recognized serious safety or health hazards.

Any person required or permitted to pre-check or enter a confined space shall have received approval of the Permit Issuer and/or Recipient and successfully completed all training required by regulatory authorities (e.g. OSHA CFR 1910.146). A written copy of operating and rescue procedures as required by these procedures shall be at the work site for the duration of the job. **All personnel entering a confined space must sign in and out utilizing the EMGR Work Permit Signature Page.**

Confined space work sites must be labeled: **"DANGER - PERMIT REQUIRED CONFINED SPACE. DO NOT ENTER"**

The Confined Space Pre-Entry CheckList (below) must be completed by the Permit Issuer and the Entry Supervisor must sign w before entry into a confined space. If circumstances dictate an interruption in the work, the permit space must be re-evaluated and a new checklist must be completed. *The practice of maintaining "no standby individual or on site rescue" shall only be exercised at an excavation site which poses no atmospheric hazards or potential hazards, and where no other defined hazard has the potential to exist. Confined space entry into storage tanks and other locations meeting the definition of a confined space will continue to require an Entry Supervisor and a Standby person even if no atmospheric or other hazards are present.*

The following Gas Detection Guidelines shall apply when issuing permits with project-specific PELs and testing methods based on local country requirements and potential chemical/gas exposure.

- Oxygen

23.5% **maximum** for entry and hot work.
19.5% **minimum** for entry without supplied breathing air. (Some facilities may not allow entry regardless of supplied breathing air until oxygen is 19.5% minimum to 23.5% maximum.)

- Lower Explosive Limit (LEL)

5% **maximum** LEL for entry without breathing air.
10% **maximum** LEL for routine entry procedures. 10% to 20% requires rescue special procedures to be implemented. **No entry above 20%.**
1% **maximum** LEL for hot work. Some sites may establish a limit of 0% until the source is determined.

- Permissible Exposure Limits (PEL's) for use without respirators (see MSDS, all values are **maximums**)
- Exceeding **ANY** maximum value requires use of respirators

NOTE: A nitrogen-enriched environment, which depletes oxygen, can be detected only with special instruments. High concentrations of N2 become particularly dangerous because workers may not be able to recognize physical or mental symptoms of overexposure, leading to asphyxiation.

(NOTE: region-specific concentration limits may be lower)

To ensure proper documentation and retention of the required gas testing, readings must be recorded on this document in the space provided below.

GAS TEST REQUIRED o Yes o No RECORD CONTINUOUS MONITORING EVERY TWO HOURS TESTORS INITIALS:

CHEMICAL	NO RESPIRATOR REQUIRED	NO ROUTINE WORK PERMITTED	CONTINUOUS MONITORING REQUIRED	RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME	
Oxygen	>19.5% to 23.5%	<19.5% OR >23.5%	o Yes o No												
%LEL (entry)	See Total Hydrocarbons	> 5 % LEL	o Yes o No												
%LEL (hot work)	See Total Hydrocarbons	> 1% LEL	o Yes o No												
Benzene	<0.5 ppm	≥500 ppm	o Yes o No												
Hydrogen Sulfide	≤10 ppm	≥100 ppm	o Yes o No												
Total Hydrocarbons	<100ppm	≥1,000 ppm	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												

Name(s) of Entry Supervisor/Lead Worker:			
Name(s) of Stand-By Personnel:			
Name(s) of Authorized Entrants:			

CONFINED SPACE PRE-ENTRY CHECKLIST:

1. Atmospheric Check (after isolation and Ventilation) completed & recorded, and indicates no atmospheric hazard exist.	o Yes o No o NA
2. Equipment Isolation Confirmed (pumps and/or lines blinded, disconnected, or blocked)?	o Yes o No o NA
3. Ventilation: o Mechanical o Natural Ventilation only	o Yes o No o NA
4. Has the surrounding area been surveyed to avoid hazards from drifting vapors, engulfment ?	o Yes o No o NA
5. Arrangements for continuous monitoring of the atmosphere have been made and will be recorded above.	o Yes o No o NA
6. Communication procedures indicated on front and tested?	o Yes o No o NA
7. Rescue procedures indicated on front:	
8. Entry, standby, back up and gas testing persons successfully completed required training? Is it current?	o Yes o No o NA
9. Indicate On Site Equipment permit required and verified: o Safety harnesses and lifelines for entry and standby persons o Hoisting equipment o SCBA's for entry and standby persons o First Aid & CPR kit o All electric equipment listed Class I, Division I, Group D and Non-sparking tools o Direct reading gas monitor tested & indicated on front o Protective Clothing indicated on front o Powered communications	o Yes o No o NA

I have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been communicated and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Approved by Entry Supervisor: _____ Date:____/____/____ Time: _____

Nobody Gets Hurt

Public Utility Companies (or Locator Service) Contacted on Date(s): _____

Confirmation Number(s): _____

☐ Place a check in this box ONLY if this is an emergency excavation and this permit is not subject to pre-notification requirements for underground utility locates. NOTE: Public Utility Companies and/or Locator Services must be notified within region-specific timeframe for conducting mark-outs.

DEFINITION: Excavation is any man-made cut, cavity, trench, or depression in the earth surface formed by soil removal.

If personnel will be entering excavation meeting the definition of Confined Space, a Confined Space Entry Permit must also be issued.

The possibility of encountering subsurface structures (including tanks and pipe, water, gas, electrical service lines, etc.) and their approximate location shall be determined by completing all GR Subsurface Clearance Protocol (SCP) requirements prior to start of site excavation work. If any warning signs or suspicious conditions that may indicate the presence of a subsurface structure, as noted in the SCP, are encountered during excavation activities, work in area should immediately stop and the EM PM must be contacted to discuss prior to proceeding.

Excavations greater than 6 meters (20 feet) in depth require design by a registered Professional Engineer, or country equivalent, for any sloping, shielding or shoring.

KEY RESPONSIBILITIES OF PERMIT ISSUER:

- Confirm the location of subsurface structures.
- Ensure the installation and use of required benching, sloping, shoring or shielding methods.
- Identify required excavation inspection schedule and personnel.

KEY RESPONSIBILITIES OF PERMIT RECIPIENT:

- Conduct site walk with excavation personnel to show locations of previously identified subsurface structures.

The following Gas Detection Guidelines shall apply when issuing permits with project-specific PELs and testing methods based on local country requirements and potential chemical/gas exposure.

- Oxygen

23.5% **maximum** for entry and hot work.
19.5% **minimum** for entry without supplied breathing air. (Some facilities may not allow entry regardless of supplied breathing air until oxygen is 19.5% minimum to 23.5% maximum.)

- Lower Explosive Limit (LEL)

5% **maximum** LEL for entry without breathing air.
10% **maximum** LEL for routine entry procedures. 10% to 20% requires rescue special procedures to be implemented. **No entry above 20%.**
1% **maximum** LEL for hot work. Some sites may establish a limit of 0% until the source is determined.

- Permissible Exposure Limits (PEL's) for use without respirators (see MSDS, all values are **maximums**)
- Exceeding **ANY** maximum value requires use of respirators

NOTE: A nitrogen-enriched environment, which depletes oxygen, can be detected only with special instruments. High concentrations of N2 become particularly dangerous because workers may not be able to recognize physical or mental symptoms of overexposure, leading to asphyxiation.

The following gas detection guidelines shall apply when issuing permits for project activities with potential for exposure to hazardous environment. Project-specific exposure limits (e.g. PELs, STELs, TWAs) and testing methods must also be based on MSDS and local region requirements.

(NOTE: region-specific concentration limits may be lower)

To ensure proper documentation and retention of the required gas testing, readings must be recorded on this document in the space provided below.

GAS TEST REQUIRED o Yes o No **RECORD CONTINUOUS MONITORING EVERY TWO HOURS** **TESTORS INITIALS:**

CHEMICAL	NO RESPIRATOR REQUIRED	NO ROUTINE WORK PERMITTED	CONTINUOUS MONITORING REQUIRED	RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME		RESULT / TIME	
Oxygen	>19.5% to 23.5%	<19.5% OR >23.5%	o Yes o No												
%LEL (entry)	See Total Hydrocarbons	> 5 % LEL	o Yes o No												
%LEL (hot work)	See Total Hydrocarbons	> 1% LEL	o Yes o No												
Benzene	<0.5 ppm	≥500 ppm	o Yes o No												
Hydrogen Sulfide	≤10 ppm	≥100 ppm	o Yes o No												
Total Hydrocarbons	<100ppm	≥1,000 ppm	o Yes o No												
Other:	See MSDS	IDLH see MSDS	o Yes o No												

EXCAVATION CHECKLIST:

1.	Subsurface Structures Identified and Mark-Out Locations Shown to GR Project Site Workers?	o Yes o No
2.	Overhead Utility Lines and Minimum Clearance Requirements Reviewed with GR Project Site Workers?	o Yes o No
3.	Hand/Mechanical Communication Methods Established with Equipment Operators and Other GR Project Site Workers?	o Yes o No
4.	Excavation Inspection Schedule Established	o Yes o No o NA
5.	Exposed Subsurface Structures Protected or Supported?	o Yes o No o NA
6.	Appropriate Warnings Signs and Barricades Have Been Installed to Protect GR Project Site Workers and Establish Work Zone (to a distance equivalent to the angle of repose of the soil or minimum of 3 meters)?	o Yes o No
7.	Support Systems (e.g. shoring, bracing or other means of stabilizing the excavation) Have Been Installed to Protect Adjacent Roadways, Buildings, Walls, Sidewalks, Pavements and Other Aboveground Structures?	o Yes o No o NA
8.	Prior to Leaving Excavation Unattended, Appropriate Warning Signs and Barricades Have Been Installed to Protect Pedestrians and Vehicular Traffic (e.g. vehicular traffic areas require steel road plates; pedestrian traffic areas require high security fencing, cyclone wire mesh or equivalent; low lighting areas require barricades with flashing warning lights)	o Yes o No o NA

I have reviewed the work authorized by this permit and confirmed subsurface structure mark-outs have been completed and discussed with GR Project Site Workers.

Permit Recipient: _____ Date:_____ Time: _____

Nobody Gets Hurt

Record personnel involved in the permit activities.

I have read and understand all conditions specified on the authorized permit referenced above.

Name	Company	Time In	Initials	Time Out	Initials

Nobody Gets Hurt