Mr. Keith Nowell
Alameda County Environmental Health
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502-6577

Re: Former Exxon Station
5175 Broadway
Oakland, California
ACEH File No. 139
SFRWQCB Site No. 01-0958
UST Fund Claim No. 3406

Dear Mr. Nowell:

I, Mr. Ernie Nadel, have retained Pangea Environmental Services, Inc. (Pangea) as the environmental consultant for the project referenced above. Pangea is submitting the attached report on my behalf.

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

Sincerely,

Ernie Nadel
Rockridge Heights, LLC

January 18, 2012

VIA ALAMEDA COUNTY FTP SITE

Mr Keith Nowell
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Workplan for Enhanced Site Remediation**
5175 Broadway Street
Oakland, California
ACEH Fuel Leak Case No. RO#0000139

Dear Mr. Nowell:

On behalf of the Rockridge Heights LLC, Pangea Environmental Services, Inc. has prepared this *Workplan for Enhanced Site Remediation* (Workplan) for the subject site. This workplan proposes to use a bio-organic catalyst to enhance the effectiveness of ongoing dual phase extraction and air sparging at the site. This Workplan was first submitted via email on January 18, 2012, hence the above report date. This Workplan was also requested during our discussion on March 5, 2012. If you have any questions or comments, please call me at (510) 435-8664.

Sincerely,
Pangea Environmental Services, Inc.

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Workplan for Enhanced Site Remediation*

cc: SWRCB Geotracker (electronic copy)
Rockridge Heights, LLC, C/O Ernie Nadel, 6100 Pinewood Road, Oakland, California 94611

WORKPLAN FOR ENHANCED SITE REMEDIATION

5175 Broadway
Oakland, California
ACEH Case No. 0000139

January 18, 2012

Prepared for:

Rockridge Heights, LLC
C/O Ernie Nadel
6100 Pinewood Road
Oakland, California 94611

Prepared by:

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, California 94612

Written by:

REGISTERED PROFESSIONAL ENGINEER
ROBERT G. CLARK-RIDDELL
No. C 049629
Exp. SEPT 2012
CIVIL
STATE OF CALIFORNIA

Morgan Gillies
Project Manager

Bob Clark-Riddell, P.E.
Principal Engineer

INTRODUCTION

On behalf of Rockridge Heights LLC, Pangea Environmental Services, Inc. has prepared this *Workplan for Enhanced Site Remediation* (Workplan) for the subject site. This workplan proposes to use a bio-organic catalyst to enhance the effectiveness of ongoing dual phase extraction and air sparging at the site. Our proposed scope of work for site investigation is detailed herein.

SITE BACKGROUND

The subject property is located at 5175 Broadway Street, at the southwest corner of the intersection of Broadway and Coronado Avenue in Oakland, California in Alameda County (Figure 1). The site is approximately 0.6 miles south-southeast of Highway 24 and approximately 2.3 miles east of Interstate 80 and the San Francisco Bay. The property is relatively flat lying, with a slight slope to the south-southwest, and lies at an elevation of approximately 160 feet above mean sea level. Topographic relief in the area surrounding the site also slopes generally towards the south-southwest. The western site boundary is the top of an approximately 10 foot high retaining wall that separates the site from an adjacent apartment complex.

The property has been vacant since 1979 and was formerly occupied by an Exxon Service Station used for fuel sales and automobile repair. The site is approximately 13,200 square feet in area and the majority of the ground surface is paved with concrete and/or asphalt, although the former tank location is not paved. Land use to the west and northwest is residential, including apartment buildings and single family homes. Properties to the northeast, east and south of the site are commercial. The site and adjacent properties are shown on Figure 2.

Environmental compliance work commenced when the site USTs were removed in January 1990. Three 8,000-gallon steel single-walled USTs, associated piping, and a 500-gallon steel single-walled waste oil tank were removed. Tank Project Engineering, Inc. (TPE) conducted the tank removal and observed holes in all four tanks. Approximately 700 tons of contaminated soil was excavated during tank removal and was subsequently remediated and reused for onsite backfill by TPE. In April 1990, TPE installed and sampled monitoring wells MW-1, MW-2 and MW-3. In June 1991, Soil Tech Engineering (STE), subsequently renamed Environmental Soil Tech Consultants (ESTC), installed monitoring wells STMW-4 and STMW-5. Groundwater monitoring was conducted on the site intermittently until October 2002. Golden Gate Tank Removal (GGTR) performed additional assessment in January and February 2006. In June 2006, the property was purchased by Rockridge Heights, LLC. Pangea commenced quarterly groundwater monitoring at the site in July 2006. MTBE is not considered to be a contaminant of concern because use of the site for fuel sales predates widespread use of MTBE in gasoline and because analytical results have not shown significant detections of MTBE.

In January and March 2007, Pangea installed twelve wells (MW-2C, MW-3A, MW-3C, MW-4A, MW-5A, MW-5B, MW-5C, MW-6A, MW-7B, MW-7C, MW-8A and MW-8C) and three offsite soil borings to help define the vertical and lateral extent of groundwater contamination. Pangea also abandoned four monitoring wells (MW-2, MW-3, STMW-4 and STMW-5) to reduce the risk of vertical contaminant migration and improve the quality of monitoring data. New wells installed at the site were categorized according to the depths of their screen intervals. Shallow (A-zone) wells have screen intervals of approximately 10 to 15 feet bgs, which generally straddle the top of the water table and are generally screened in surficial fill and alluvium. Intermediate-depth (B-zone) wells are screened at approximately 15 to 20 feet bgs, either in surficial strata or underlying fractured bedrock, while deep (C-zone) wells are generally screened at approximately 20 to 25 feet bgs and into fractured bedrock. Well MW-1 is screened across both the A-zone and B-zone.

In April 2007, Pangea performed a dual-phase extraction (DPE) pilot test to evaluate whether DPE is an appropriate remedial technology to remove residual hydrocarbons from beneath the site. In July 2007, Pangea submitted an Interim Remedial Action Plan for site corrective action.

In August 2007, Pangea installed three offsite monitoring wells (MW-9A, MW-9C and MW-10A) and conducted subslab vapor sampling in the commercial building located immediately south of the site. The purpose of the offsite well installation was to determine the downgradient extent of contaminant migration, and to help evaluate downgradient effects of any future remediation conducted onsite. The purpose of the subslab vapor sampling was to determine whether vapor migrating from underlying groundwater had impacted soil vapor. Soil gas sampling was also conducted near the southern and western edge of the property. Soil gas sampling and offsite monitoring well installation is described in Pangea's *Soil Gas Sampling and Well Installation Report* dated October 23, 2007. Further subslab/soil gas sampling was conducted at the two adjacent properties in June 2008 and reported in Pangea's *Additional Soil Gas Sampling Report* dated July 14, 2008.

In response to a letter from ACEH dated June 10, 2008, Pangea submitted a *Revised Site Conceptual Model and Corrective Action Plan* (Revised CAP) dated July 23, 2008. ACEH commented on the Revised CAP in a letter dated July 31, 2008 and Pangea prepared a *Corrective Action Plan Addendum* dated August 11, 2008 to address ACEH comments. In a letter dated August 22, 2008, ACEH approved the CAP and Addendum as a 'Draft CAP' and initiated the public-participation process. The *Final Corrective Action Plan* dated March 25, 2009 recommended remediation via DPE and air sparging. In response to an ACEH letter dated April 16, 2009, Pangea submitted a *Final Corrective Action Plan – Addendum* dated May 18, 2009, which provided justification for the recommended remedial action. ACEH approved the *Final CAP Addendum* in a letter dated June 18, 2009. On August 19, 2009, Pangea oversaw installation of six dual-phase extraction (DPE) wells and

one air sparging (AS) well to facilitate implementation of the approved corrective action plan. Operation of the DPE system began on December 8, 2010 and operation of the AS system began on March 16, 2011.

WORKPLAN FOR ENHANCED SITE REMEDIATION

Pangea would like to use a bio-organic catalyst (BOC) accelerate cleanup and reduce cleanup costs. While the existing DPE and AS remediation system has significantly improved groundwater quality, the effectiveness of ongoing DPE/AS remediation may be partially limited by residual hydrocarbons sorbed to clayey soil (primarily within the western potion of the site) and sorbed within fractured bedrock (primarily within the center and southern portion of the site). The December 2011 monitoring was performed after only7 days of system downtime, so concentrations may have rebounded higher with longer equilibration. The DPE/AS was turned off due to relatively low influent concentrations and budget limitations on January 31, 2012. BOC use should help desorb residual hydrocarbons and accelerate natural attenuation of residual hydrocarbons, especially in the vicinity of MW-8A and the adjacent offsite residence (which is partially subgrade with respect to the subject site elevation). The proposed BOC product is safe and relatively inexpensive. Pangea understands that the San Francisco Bay Region and Los Angeles Water Boards have approved use of BOC or similar products to enhance DPE site remediation. Product information for BOC (also known as NonTox^{TM}) is included in Appendix A.

Proposed Remediation Enhancement Technique

Bio-organic catalyst (BOC) is a highly concentrated liquid form "NONTOX^{TM}-TPH Eliminator" designed to help desorb and breakdown petroleum hydrocarbons to enhance product recovery efforts and accelerate biodegradation of petroleum hydrocarbons. BOC has been used effectively on open water spills of petroleum crude oil and is enjoying increasing use for subsurface hydrocarbon remediation applications. BOC is often introduced into existing wells using water flushing and/or air sparging for added BOC distribution and increased dissolved oxygen supply. Petroleum hydrocarbons are decomposed, eventually degrading to carbon dioxide and water as end products. BOC is non-toxic, 100% biodegradable, and safe to human, animals and plant life. BOC is mostly water, proteins, and enzymes derived from plant and mineral sources (primarily yeast). BOC works in concert with indigenous bacteria. BOC behaves similar to a surfactant and forms small bubbles when agitated by air injection (or shaking of product within a jar or treatment cell). BOC is relatively inexpensive and is considered 'green' remedial technology. Product literature for BOC is presented in Appendix A. BOC is relatively inexpensive, costing approximately $55 to $75/gallon depending on purchase quantity.

Injection Workplan

Pangea will introduce a small volume (about 1 to 2 gallons) of BOC into select site wells and monitor hydrocarbon recovery rates in nearby extraction wells. To help distribute the BOC into the subsurface, Pangea will add a larger volume of water (about 5 to 10 gallons) into each well on an approximate 1:5 ratio of BOC to water. The DPE system will then pull the BOC across the residual impact area toward the extraction wells and remove the BOC in aqueous phase. BOC will also added to select air sparge (deeper) wells to further distribute the BOC and simultaneously provide dissolved oxygen to further stimulate biodegradation. Air sparging will also agitate the BOC to create bubbles and help 'activate' the surfactant qualities of the BOC, bringing together the BOC enzymes, oxygen and contaminants for enhanced biodegradation. Finally, a more dilute BOC and water mixture (1:10 ratio) will be added directly into DPE wells and subsequently extracted after allowing approximately 24 to 48 hours of contaminant desorption. BOC will be added on several episodes depending on remedial effectiveness and observations.

Initial BOC injection will be performed on the following wells: MW-1, MW-3A, MW-3C, MW-4A, MW-8A, DPE-4 and AS-1. After successful demonstration of BOC capture and hydrocarbon attenuation, BOC injection will be expanded to deeper or perimeter wells MW-7B, MW-8C and DPE-3 (and other wells if residual hydrocarbons are identified during the upcoming quarterly monitoring event scheduled for March 2012). With an active DPE/AS system at the site, the injected BOC enhancement product should be sufficiently captured and/or degraded onsite. Hydrocarbon concentrations in shallow and deep groundwater from the recent December 29, 2011 monitoring are summarized on Figures 2 and 3 respectively. The remediation system layout and well locations are shown on Figure 4. Historic groundwater data is presented in groundwater monitoring reports.

Monitoring Plan

Pangea will primarily monitor contaminant removal rates in vapor phase and aqueous phase by measuring flow

rates, analyzing influent vapor/water samples, and recording equipment performance parameters. Before and after BOC addition, Pangea will measure depth to water, DO, ORP and contaminant concentrations in select wells. The primary affect of BOC will likely be increased aqueous-phase removal rate (initially) and decreased contaminant concentrations in groundwater monitoring wells during subsequent sampling.

During BOC activities, field visual screening techniques will be performed to determine the presence of BOC in extracted groundwater. Decreased viscosity on a plate glass sample or soap-like bubbles on a shaken groundwater sample are indicative of BOC presence. The BOC may take a few hours or days to reach the extraction wells. Upon confirmation of BOC in extracted groundwater, Pangea will collect groundwater influent samples for contaminant concentrations analysis by a laboratory to calculate aqueous phase removal

rates. Depending on initial observations, additional BOC introduction may be performed. According to vendor information, the enhanced aqueous-phase removal provided by BOC may reach 400 to 800% initially and typically decreases with successive BOC events. After a few events or if removal rates cease to increase with BOC addition, the BOC addition will be discontinued.

The ultimate evaluation of BOC's enhancement is the effect on groundwater quality in site wells. To control cost, primary well sampling will be performed during routine quarterly monitoring. Additional monthly well sampling may be performed on one or a few select wells if quarterly monitoring is more than one month away from the BOC evaluation period. Ideally, routine well monitoring would be performed no sooner than four weeks after DPE/AS and BOC introduction to provide time for desorption and additional contaminant biodegradation. During routine monitoring Pangea will also monitor dissolved oxygen (DO) and oxidation reduction potential (ORP) in site wells. To screen groundwater for residual BOC during routine monitoring, Pangea will analyze groundwater select samples for non-ionic surfactants using Standard Method SM5540BD (dissolved non-ionic foaming agents, cobalt thiocyanate active substances (CTAS)).

CLOSING

Upon agency approval, Pangea will implement this workplan for enhancing DPE/AS remediation to accelerate site cleanup and therefore reduce overall remediation costs. Since this Workplan was first submitted on January 18, 2012, Pangea respectfully requests agency review within the statutorily-provided 60 days from the submittal date (by March 19, 2012). To help facilitate agency review Pangea is willing to meet you at your ACEH office to discuss this Workplan and final steps to regulatory case closure. Our proposed additional tasks and schedule to facilitate case closure (e.g., groundwater monitoring and soil gas sampling) are presented in Pangea's *Fourth Quarter 2012 Groundwater Monitoring and Remediation Report* dated March 6, 2012.

ATTACHMENTS

Figure 1 – Vicinity Map
Figure 2 – Groundwater Elevation and Hydrocarbon Concentration Map (Shallow), Dec. 29, 2011
Figure 3 – Groundwater Elevation and Hydrocarbon Concentration Map (Deep), Dec.29, 2011
Figure 4 – Remediation System Layout

Appendix A – Bio-Organic Catalyst Product Information

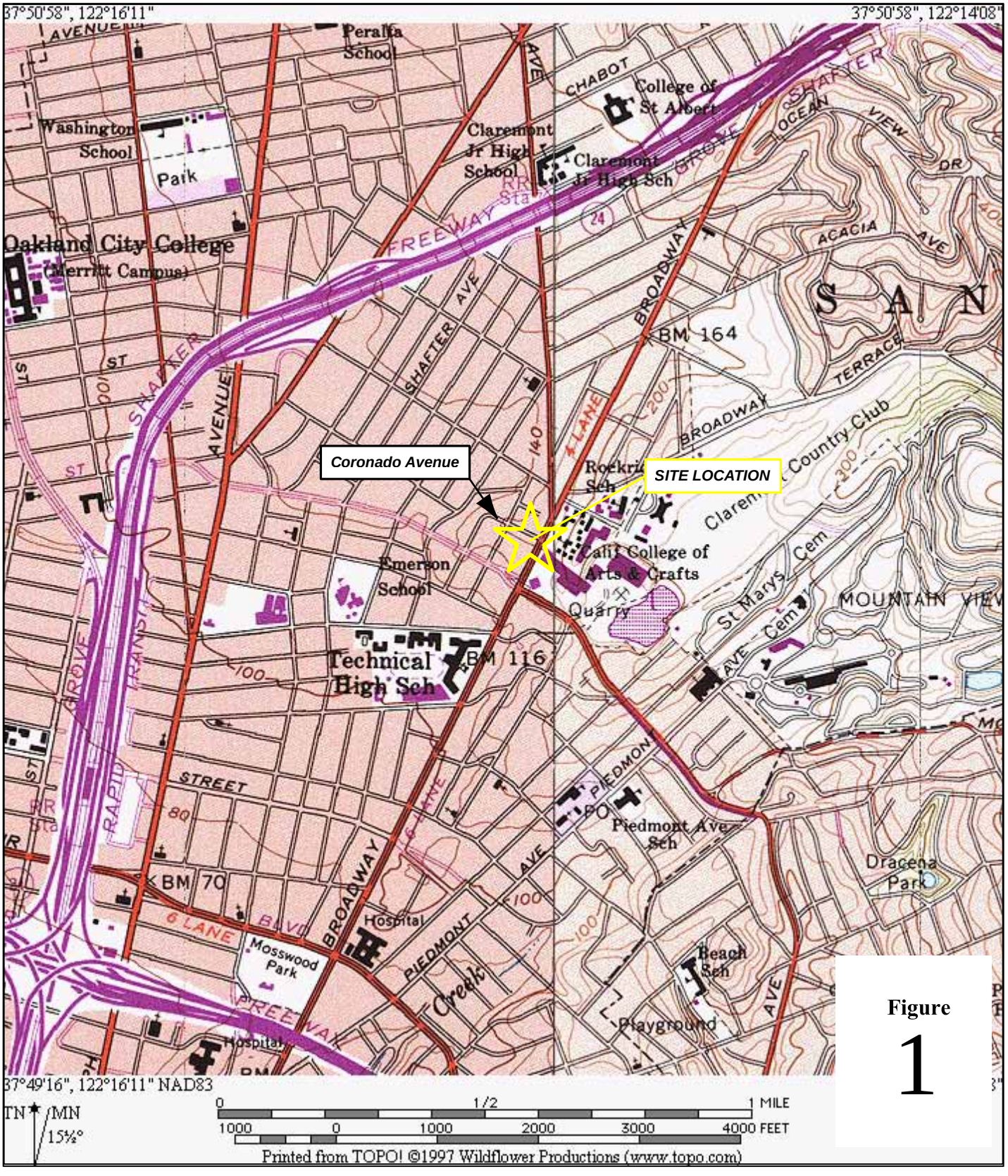


Figure 1

Former Exxon Station
5175 Broadway
Oakland, California

PANGEA

Site Location Map

FeinerBroadway site loc.ai 8/30/06

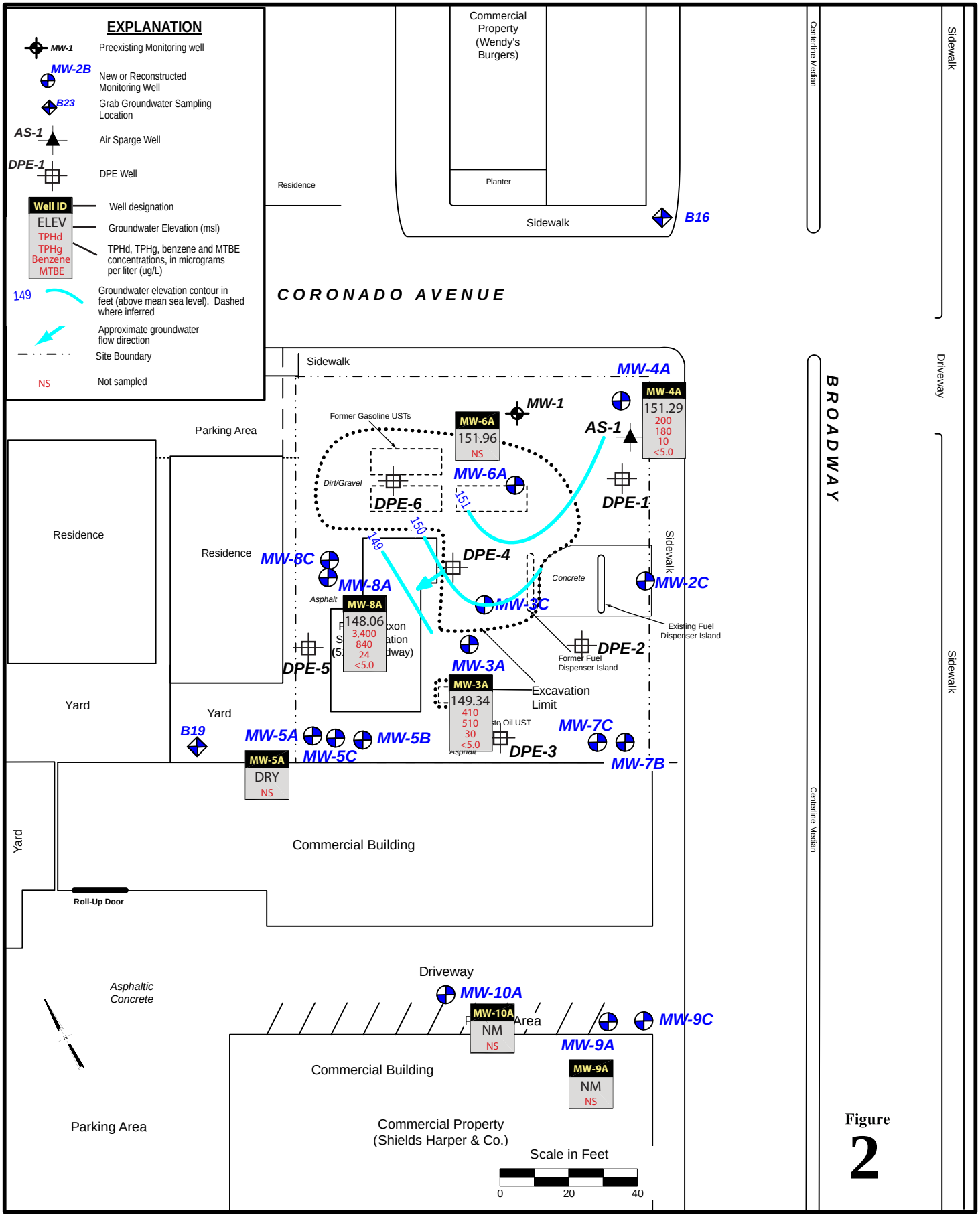


Figure
2

Former Exxon Station
5175 Broadway
Oakland, California

Groundwater Elevation Contour and Hydrocarbon Concentration Map (Shallow)
December 29-30, 2011

PANGEA

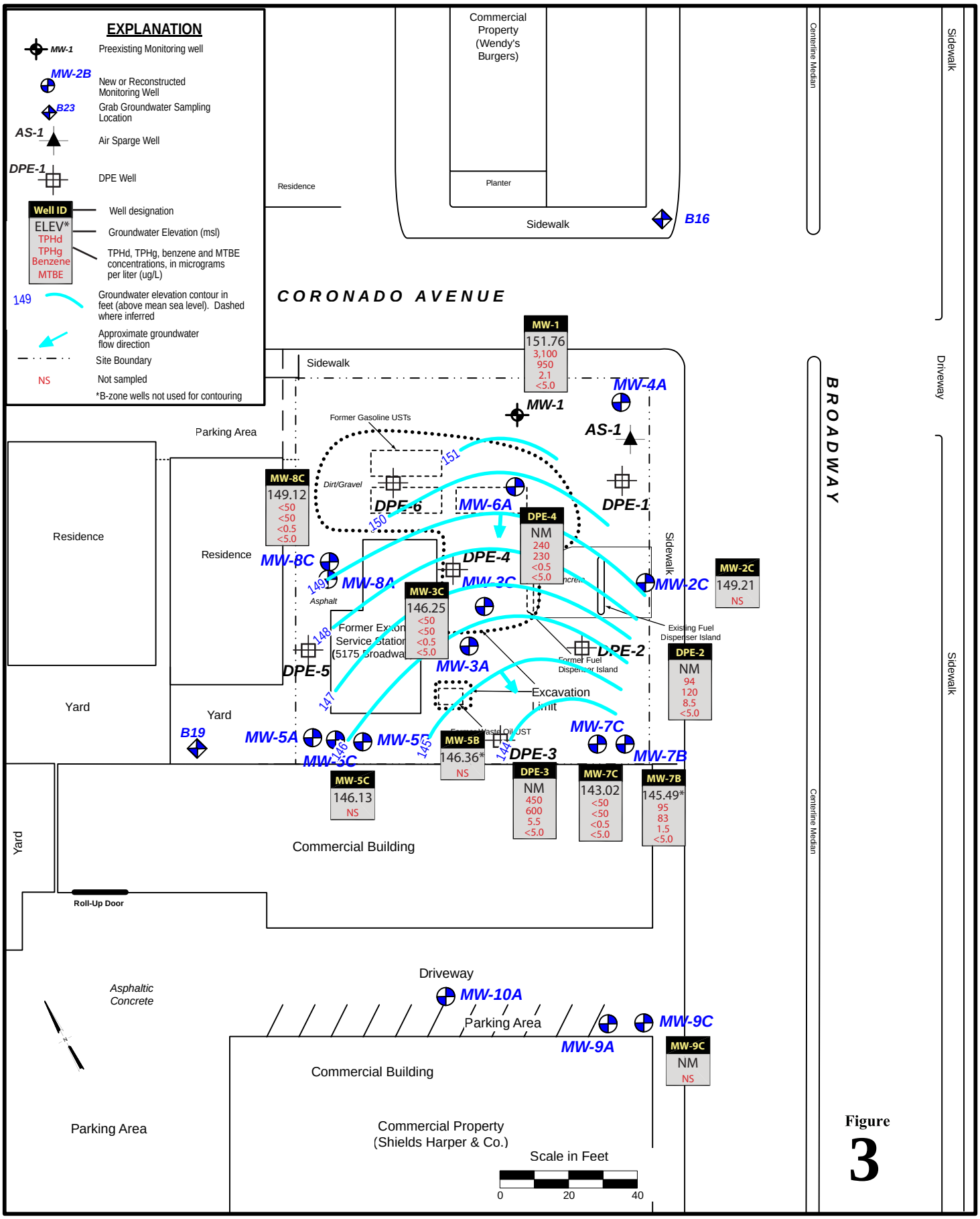


Figure
3

Former Exxon Station
5175 Broadway
Oakland, California

Groundwater Elevation Contour and Hydrocarbon Concentration Map (Deep)
December 29-30, 2011

PANGEA

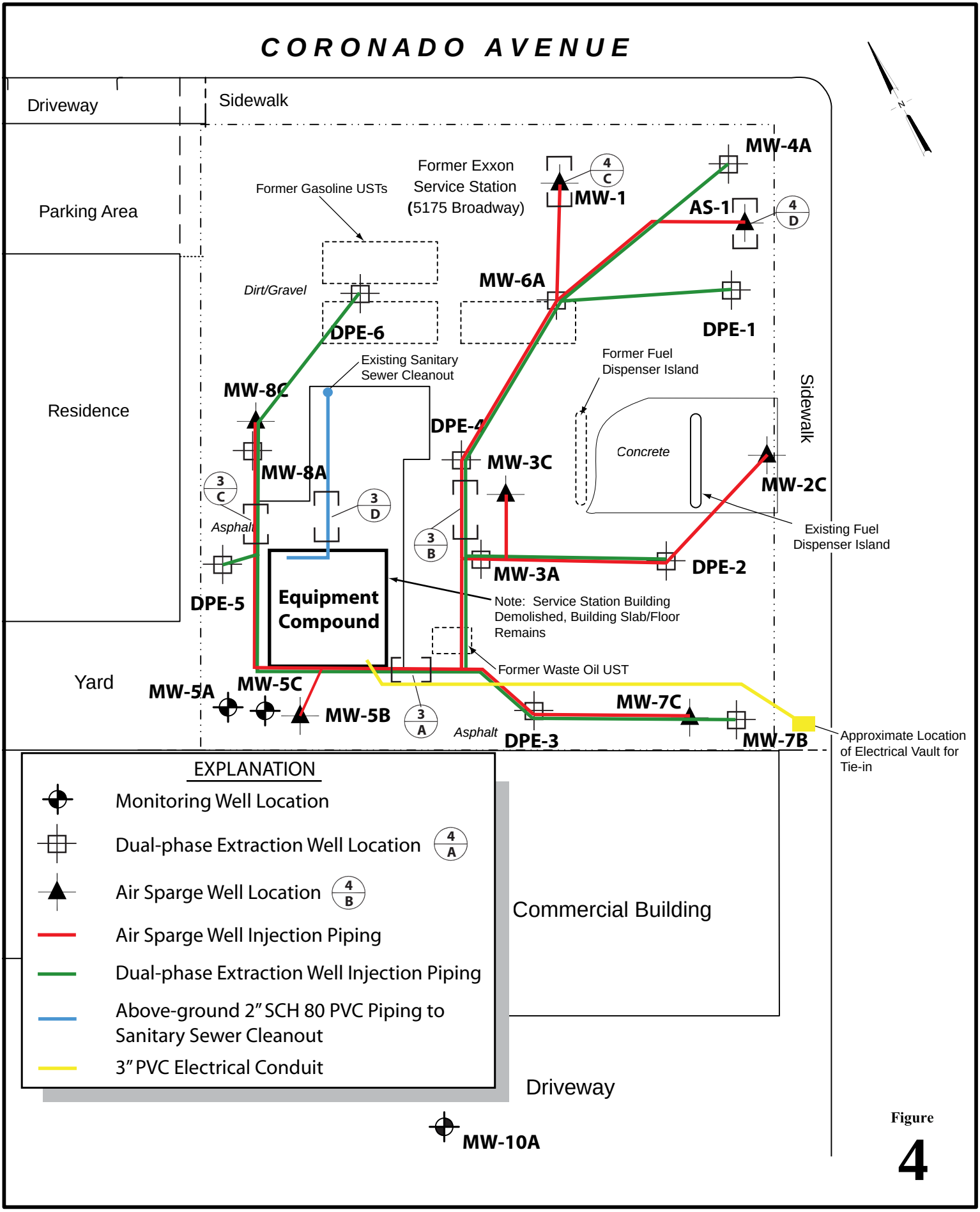


Figure
4

Former Exxon Station
5175 Broadway
Oakland, California

PANGEA

Remediation System Layout

APPENDIX A

Bio-Organic Catalyst Product Information

NONTOX™

Petroleum Hydrocarbon Remediator:

The cleaning and remediation of petroleum hydrocarbon contaminated water and soils is a fundamental environmental challenge that impacts most industries and transportation systems, including shipping. NONTOX™ is a specially formulated bio-organic catalytic composition which greatly accelerates remediation rates, at very low relative cost compared to traditional remediation technologies.

NONTOX™ provides a superior cleaning capability when used to wash petroleum hydrocarbon based contaminates, and then allows for their subsequent accelerated remediation, so that the cleaning/remediation process is combined together into a synergistic and complementary procedure.

NONTOX™ is a highly concentrated bio-organic catalyst composition formulated to provide an instant protection from auto ignition risks from petroleum hydrocarbon spills and wastes, and greatly accelerates biodegradation of these hazardous compounds in both water and soil applications.

Benefits:

- Immediate protection from auto ignition of petroleum hydrocarbons
- Able to provide superior cleaning of oil coatings and wastes
- Accelerates biodegradation rates of petroleum hydrocarbons
- Reduces costs associated with soil and water remediation procedures
- Provides treatment to most petroleum hydrocarbon contamination
- Helps in the precipitation of metals in wastewater discharges
- Acts quickly to effectively remove highly soluble elements
- Limits the formation of anoxic "dead zones"

USDA
Approved
Safe
Non-Toxic
Biodegradable

Biodegradation certified by the TUV Rhineland Institute for Environmental Protection and Energy Technology for Republic of Germany.

General Description

NONTOX: PETROLEUM HYDROCARBON REMEDIATION/CLEANING

- Is a biocatalytic system in a liquid concentrate form that stimulates and accelerates natural biological reactions. When combined with fresh or salt water and o xygen, the product will cause crude oil, jet fuel, diesel oil and other organic substances to rapidly decompose, eventually biodegrading them to carbon dioxide and water as end products.

- It is non-toxic and safe to humans, animals, marine life and plant life. It is 100% biodegradable.

- Works in concert with indigenous bacteria. No cultured or foreign bacteria are introduced into the ecosystem.

- Is nonflammable. It will reduce fire hazards by increasing flash points and autoignition threshold points in substances such as gasoline or fuel oil.

- Eliminates obnoxious odors associated with crude oil, petroleum derivatives and other organic molecules that are proceeding through the natural decomposing process.

- Is fully compatible with most types of application equipment now in use. The product may be easily applied by hand or power sprayers, helicopter, airplane or floating equipment. Its application requires no special safety equipment.

TARGETED HYDROCARBON CONTAMINANTS

In this case, the hydrocarbon compounds found in water, soil and air are the selected targets of NONTOX. This would include such petroleum derived products as crude oil, drilling muds, creosote, kerosene, coal tars, gasoline, diesel, bunker fuels, lubricating and hydraulic fluids. Other contaminant groups would include aliphatic and aromatic hydrocarbons, poly nuclear aromatic hydrocarbons, chlorinated aliphatic compounds, chlorinated aromatic compounds and chlorinated and non-chlorinated phenols.
It has been shown that the product has unique features in odor elimination of such gases as hydrogen sulfide, ammonia, mercaptan and other noxious odors emanating from anaerobic decomposition. The odor degradation activity happens in a very short period and effectively eliminates volatilization of light chain organic molecules, such as the BTEX group of petrochemicals, into the atmosphere.

TREATMENT METHODOLOGY

The product is fully compatible with most types of application equipment now in use. NONTOX may be easily applied with hand or power sprayers, standard educator tubes, helicopters, airplane or floating equipment. No special nozzles or hoses are required. Each

treatment site may differ in its requirements and modality of treatment. Factors that can influence the tactical use of NONTOX are:
Redo Potential Temperature Availability of Nutrients Nature and Concentration of Contaminants pH Heavy Metals Should these variables complicate the application and treatment procedures, the NONTOX works well with other commonly accepted treatment modalities such as venting, injection aeration, aeration lagoons and enoculants for removal of heavy metals.

Water or Beach Spills

Reducing the danger of oil reaching beaches and shore structures is best achieved by spraying the oil slick perimeter with a diluted solution of 10 gallons of NONTOX mixed with 150 gallons of sea water or fresh water for each 40,000 square feet of surface area to be treated. If the slick has a heavy consistency, it is recommended that a 1:15 diluted NONTOX solution is applied over a three-day period, using one-third of the mixed solution each day. For best results, the product should be applied at a high pressure – generally above 500 psi.

TECHNICAL DATA

Bacterial Proliferation

The successful biodegradation of petroleum is dependent on two factors: 1) having the bio-organic catalyst reduce the petroleum to a form, which can be readily assimilated, by bacteria and 2) stimulating the proliferation of naturally occurring nonpathogenic heterotrophic bacteria. NONTOX to significantly increase beneficial bacterial activity in bay water by 12,857% and ocean water by 14,333%.

Accelerated Bioremediation

Independent laboratory studies from specialists in petroleum technology have quantified the ability of NONTOX to dramatically reduce petroleum contaminants.
showing a 90% reduction in Jet-A, Diesel-2 and Heavy Duty Lube Oil within 96 hours. While treatment time required may vary dependent on conditions previously noted, the mode of action is the same. NONTOX is a unique biocatalytic system that accelerates natural biological reactions with hydrocarbon products in water.

METAL CONTAMINANT PRECIPITATION

Another benefit of NONTOX use is its ability to break the matrix that suspends metals.

FLAMMABILITY REDUCTION

Open cup flash points and auto ignition temperature tests quantify the ability of NONTOX to render petroleum products nonflammable and dramatically increase their auto ignition temperatures. NONTOX alters the molecular structure that dramatically reduces

flammability and the elimination of volatile organic compounds (VOCs) and their odors. The importance of this feature cannot be overstated in terms of shipboard safety and survivability. In addition, the use of other ecologically incompatible materials, such as AFFF Foam, may be significantly reduced.

SAFETY PROFILE

Extensive independent laboratory testing utilizing accepted standards for dermal and ocular effects on animal and human subjects have been performed. Phytotoxicity, bacteria community and internal aquatic organism safety studies are well documented.

OTHER POSSIBLE APPLICATIONS

- Initial Actions for Fire Fighting, i.e. cover the fire hazard with a layer of AFFF and flash point reducing product.

- Fuel or Oil Tank Cleaning

- Engine / Generator Wipe down

- Galley Drain Line Unclogging

- CHT Tank Cleaning / Degreasing

- Flight Deck Cleaning (should be able to hose it over the side).

- Trough Cleaning

Bio-Organic Catalyst
'The Power in Nature'

NONTOX

Total Petroleum Hydrocarbon (TPH) Bio-Remediation/Bio-Organic Catalyst

The NONTOX product line is an advanced bio-catalytic formula designed to work in concert with indigenous ecologies to accelerate the bio-remediation of petroleum hydrocarbon pollutants (TPH) in water and soils. It is safe and non-toxic to humans, marine life, and plant life. It is 100% biodegradable, and introduces no foreign, or cultured, bacteria into the environment. NONTOX raises dissolved oxygen levels in water bodies, which is critically important to aquatic life.

NONTOX is fully compatible with most types of application equipment, including hand or power sprayers, helicopter, airplane, or floating equipment. Its application requires no special equipment. NONTOX is non-flammable, and will also reduce fire hazards by increasing flash points and auto-ignition thresholds of substances such as gasoline and fuel oil.

The Safety Profile of NONTOX has been established through extensive laboratory testing utilizing accepted standards for dermal and ocular effects on animal and human subjects. Non-toxicity to bacteria colonies and aquatic organisms has been documented.

NONTOX works through the twin factors that are essential to petroleum hydrocarbon bio-remediation: 1) reduction of the hydrocarbons into a form that can be readily assimilated by indigenous ecological microorganisms, 2) stimulation of the proliferation of naturally occurring beneficial microorganisms within sea water, soils, and water bodies.

Independent studies have shown 90% reductions in TPH levels in 96 hours.

NONTOX is a highly concentrated liquid composition that is applied through water delivery spray systems. The dilution levels can be very high, as low as parts per million ranges, depending upon the concentrations of petroleum hydrocarbon pollutants within the water or soil.

The application of NONTOX requires no special installation set ups. It is advisable to be added within water tanks prior to application for proper dilution.

NONTOX is completely safe for use by personnel, and requires no special protective clothing or handling procedures.

NONTOX is a patented and proprietary complex composition of individual ingredients derived from readily available sources, thereby allowing rapid scale up of production to any desired levels.

NONTOX PROTOCOL FOR TOTAL PETROLEUM HYDROCARBON (TPH) BIO-REMEDIATION
ADVANCED BIO-ORGANIC CATALYST COMPOSITION
FOR GENERAL GUIDELINES: ONE (1) PART OF NONTOX FOR ONE (1) PART OF TPH CONTAMINATION

APPLICATION RATES:

SOILS: To treat (1) cubic yard, or 4200 lbs.
up to 500 TPH = 20.5 oz. in (4) Gals. Of Water
up to 2500 TPH = 25.6 oz. in (4) Gals. Of Water
over 2500 TPH = 30.7 oz. in (4) Gals. Of Water

Maintain soil moisture @ 15 - 18%, Apply in (3) Equal Applications 5 - 7 Days Apart

(1) Cubic Yard = 4200 Lbs. (1) Ton = 2000 Lbs.

PAVEMENTS: For treating Pavement Surfaces, such as below, use 2.5% Dilution of NONTOX in PowerWasher:
(For best results: High Pressure, Above 500 psi)

1. Concrete
2. Asphalt
3. Copplestone
4. Compacted Earth
5. Steel or Metal Plate
6. Laminates

WATERS: For treating TPH Contaminated Waters, Use (1) Part of NONTOX for (1) Part of TPH Contamination
(Good agitation with contaminated waters recommended.)

1. Salt Water
2. Fresh Water
3. Tanker Ships
4. Tanker Trucks

* For additional nutrient requirements for active biological cultures in waters or soils, a liquid NPK fertilizer is advised.

FIRE PREVENTION CAPABILITIES:

1. Open Cup Flash Point Tests: Non-Flammable
2. Auto Ignition Tests: Non-Flammable

NONTOX will significantly reduce ability of fuel spills to ignite.

SAFETY PROFILE:

NONTOX is completely non-toxic and safe to marine, animal and human life. 100% Bio-Degradable. Extensive independent laboratory testing utilizing accepted standards for dermal and occular effects on animal and human subjects have been performed. Phytoxicity, bacteria community and internal aquatic safety studies are well documented.

VOLATILE ORGANIC (VOC) ODORS:

NONTOX will eliminate the noxious odors associated with crude oil, petroleum derivatives, chlorinated aromatic compounds, and other petroleum based products.

MECHANISM OF ACTION:

NONTOX works through an acclerated natural breakdown of petroleum hydrocarbon substances (bio-catalysis). Works in concert with indigenous microbiology, introduces no cultured or foreign bacteria into the ecosystem. Natural biological populations in Sea Water ecologies have increased by over 12,000% with NONTOX.

APPLICATION EQUIPMENT:

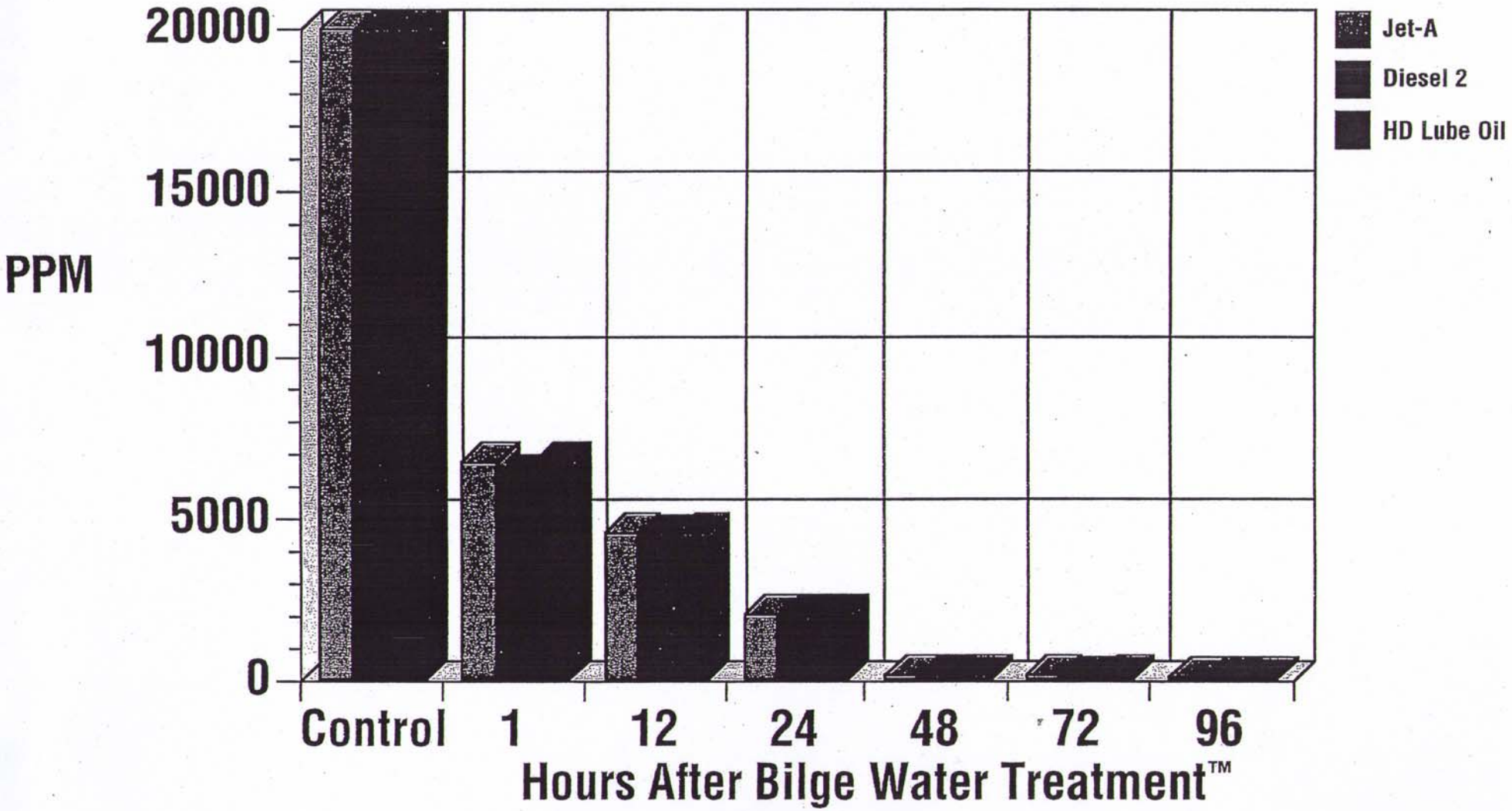
NONTOX is fully compatible with most types of application equipment used, including; hand or power sprayers, standard educator tubes, tankers, helicopters, airplanes, or floating equipment.

TPH BIO-REMEDIATION:

NONTOX has demonstrated in independent studies reductions in TPH levels of up to 90% in jet fuel, diesel fuel, and heavy duty lube oil, within days. Light volatile hydrocarbon reductions are very rapid.

BILGE WATER TREATMENT™

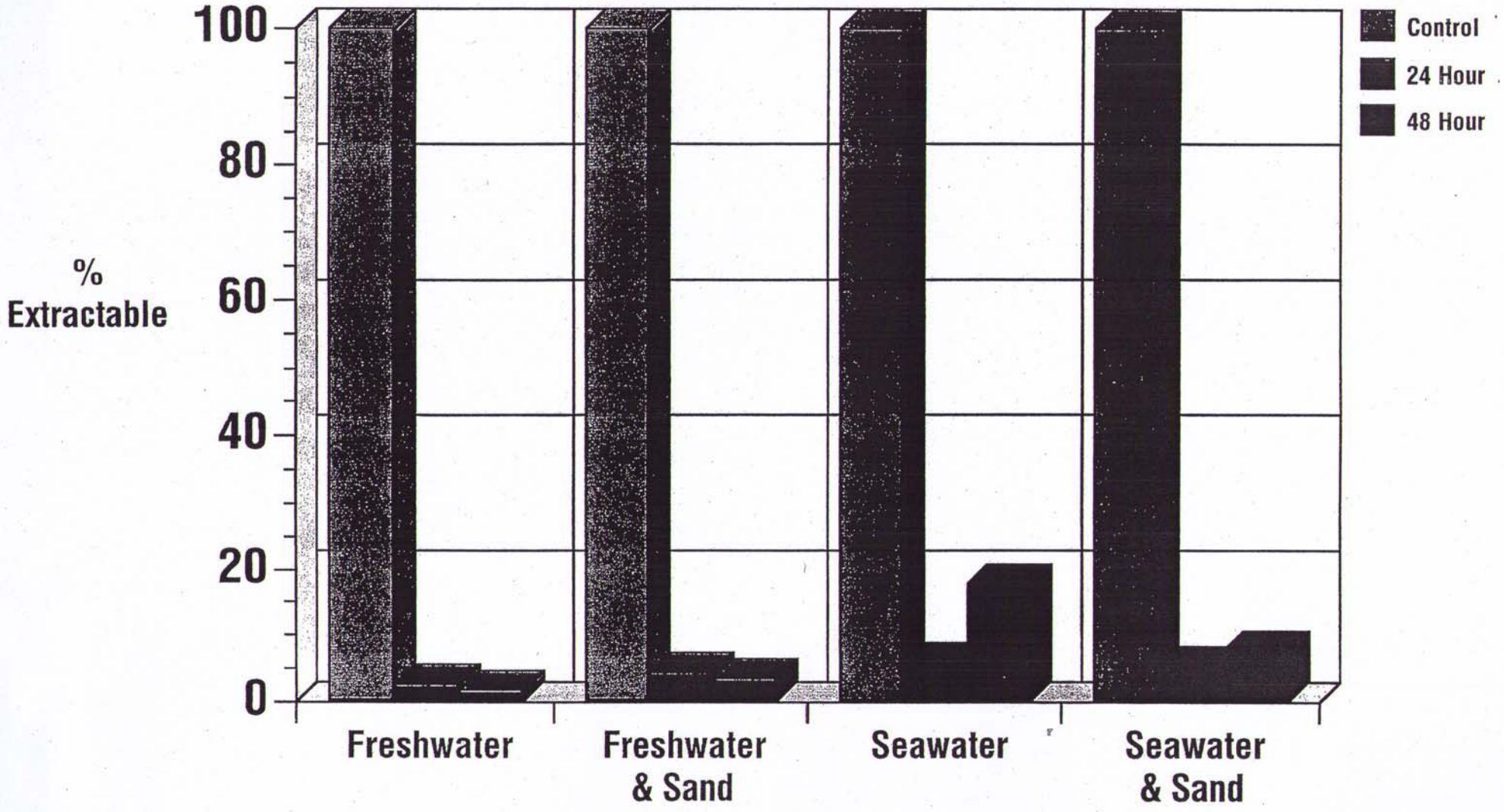
PETROLEUM REDUCTION



Reference: ACIS Labs - Specialists in Petroleum Technology, Detroit, Michigan. Report Number: 9308-2541-1, Report Date: 09/07/93 Test Method: Freon Extract (FOG) - EPA 413.1

BILGE WATER TREATMENT™

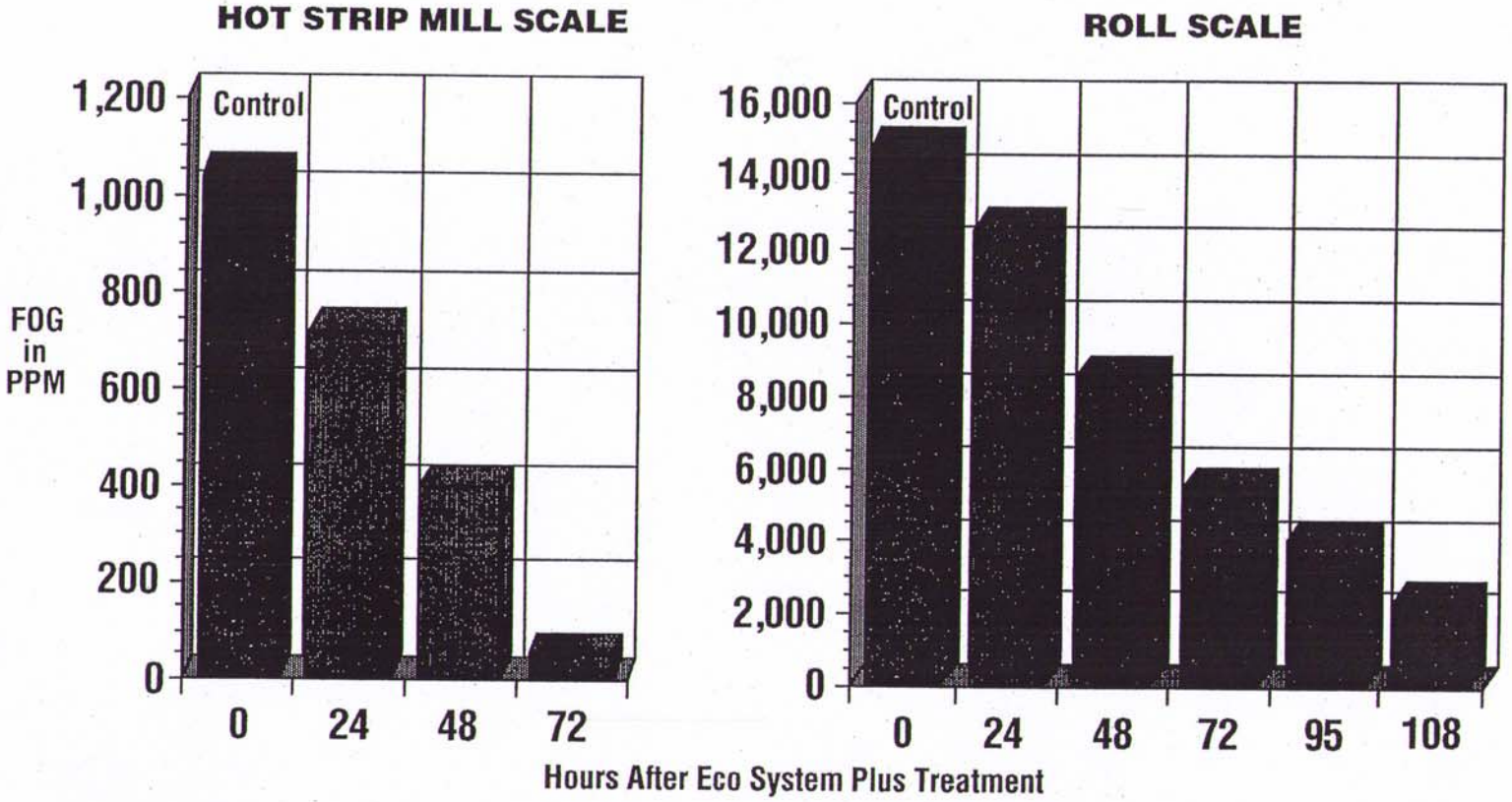
CRUDE OIL REDUCTION



Reference: IT Analytical Services, Cerritos, California. Report Number: A-3817-12, Report Date: 11/26/93, Test Method: Freon Extract (FOG) - EPA 413.1.

STEEL MILL SCALE

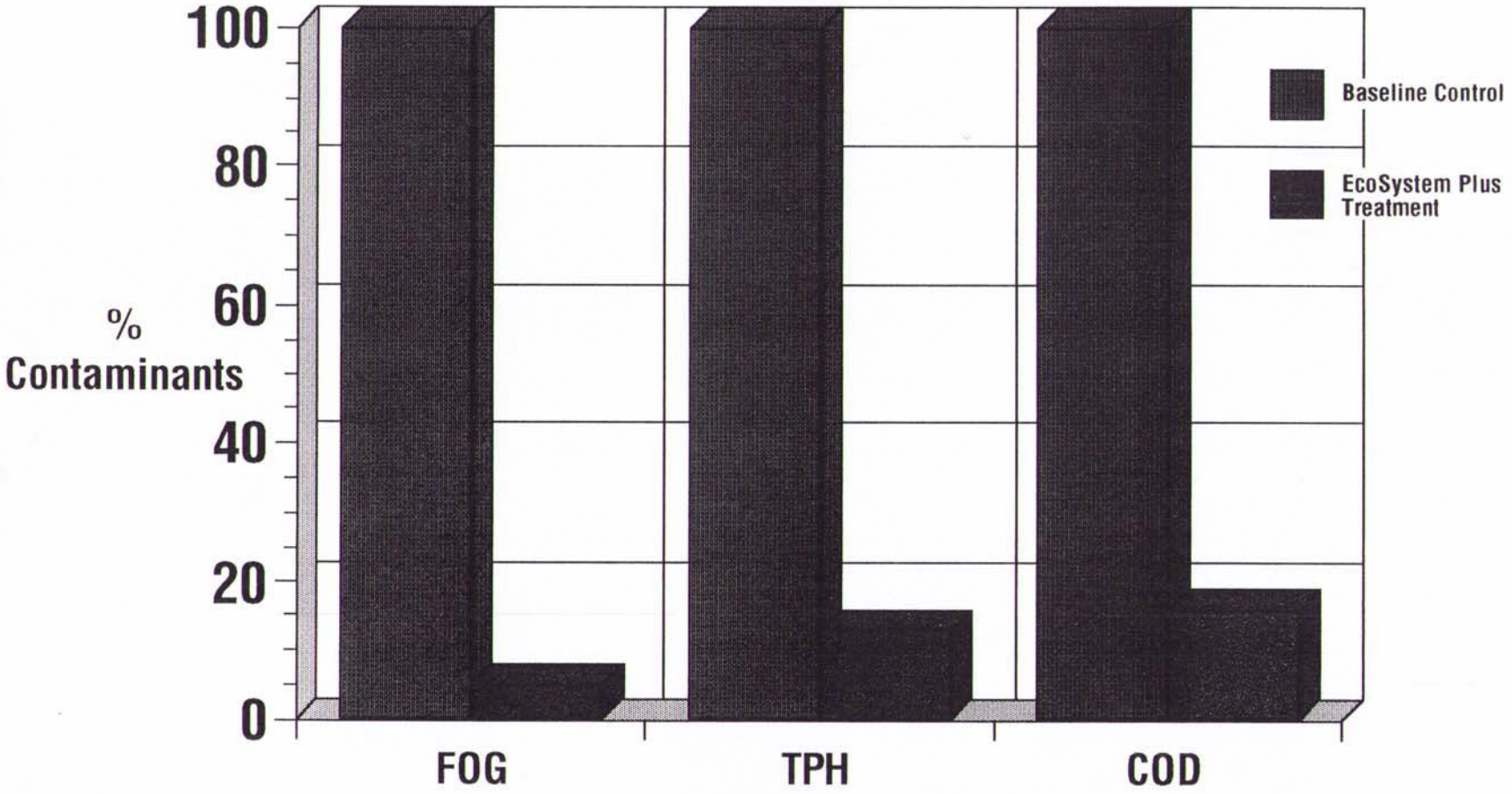
Hydrocarbon Contaminants



Reference: Hot Strip Mill Scale - ACIS Laboratories, Detroit, Michigan. Report Number: 9405-2935-1A Report Date: 08/12/94 Test Methods: EPA 413.1
Roll Scale - ACIS Laboratories, Detroit, Michigan. Report Number: 94075-2935-2 Report Date: 05/31/94 Test Methods: EPA 413.1

DIGESTER GREASE CAP

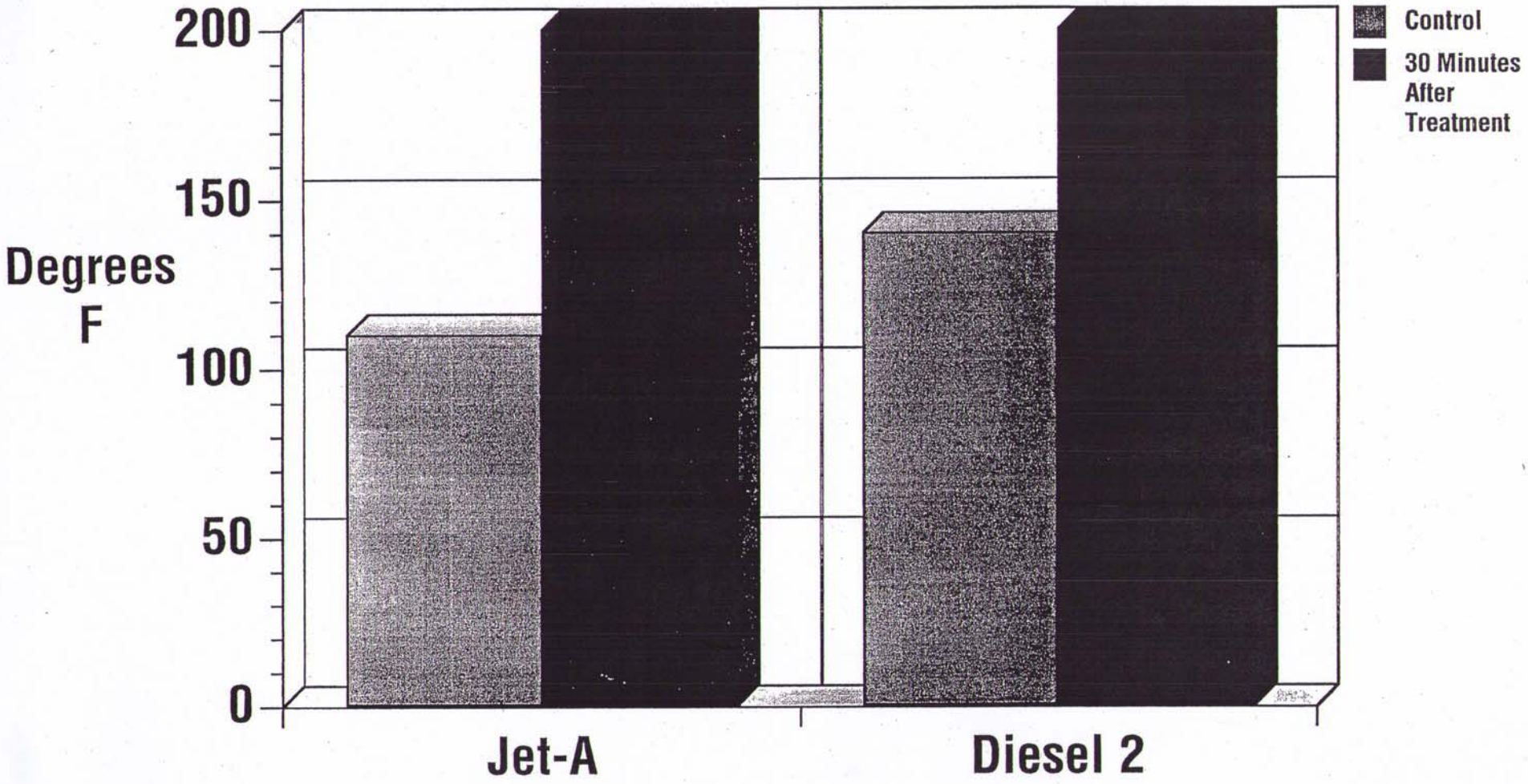
Liquification and Treatment After 72 Hours



Reference: ACIS Labs - Specialists in Petroleum Technology, Detroit, Michigan. Report Number: 9403-2850
Report Date: 04/18/94 Test Method: FOG - EPA 413.1; TPH - EPA 418.1; COD - EPA 416.1

BILGE WATER TREATMENT™

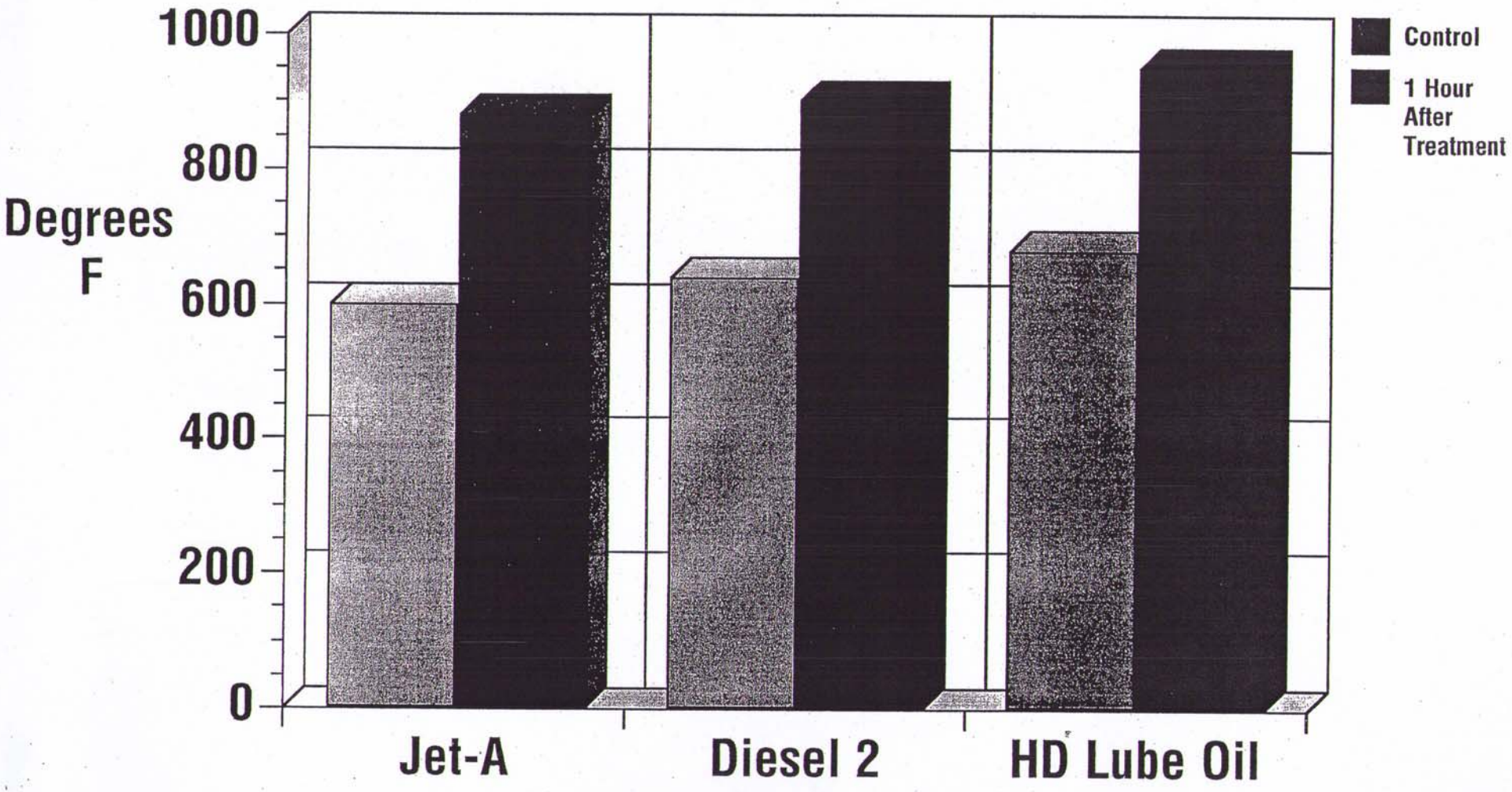
OPEN CUP FLASH POINT TEST



Reference: ACIS Labs - Specialists in Petroleum Technology, Detroit, Michigan. Report Number: 9308-2541-1, Report Date: 09/07/93, Report Protocol: ASTM D-93/EPA 1010.

BILGE WATER TREATMENT™

AUTO IGNITION TEST



Reference: ACIS Labs - Specialists in Petroleum Technology, Detroit, Michigan. Report Number: 9310-2594-1, Report Date: 09/07/93, Test Method: Auto Ignition Temperature - ASTM D2155-66.