



California Regional Water Quality Control Board

Los Angeles Region



Alan C. Lloyd, Ph.D.
Agency Secretary

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

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Arnold Schwarzenegger
Governor

September 26, 2005

Mr. Brian Johnson
City of Santa Monica
Environmental Programs Division
200 Santa Monica Pier, Suite C
Santa Monica, CA 90401-3126

**GENERAL WASTE DISCHARGE REQUIREMENTS COVERAGE FOR PROPOSED OZONE SPARGING TO GROUNDWATER (ORDER NO. R4-2005-0030) (SERIES NO. 027)
SANTA MONICA MUNICIPAL BUS MAINTENANCE FACILITY, 1620 SIXTH STREET, SANTA MONICA, CA (ID# 904010043) (CI NO. 8960)**

Dear Mr. Johnson:

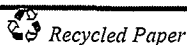
We have received documents entitled "Remedial Action Plan Addendum", and "Application for General Waste Discharge Requirements Permit", dated July 21, 2005, submitted by ICF Consulting, on behalf of City of Santa Monica (CSM), to clean up the hydrocarbons and methyl tertiary butyl ether (MTBE) contamination at the subject site.

The site is currently used as a Santa Monica Municipal Bus Line (SMMBL) maintenance yard for the City of Santa Monica (CSM). Four 20,000-gallon diesel and one 10,000-gallon gasoline tanks were located onsite at the northwest of the property. As a result of leaks from former underground storage tanks (USTs), the groundwater is impacted with petroleum hydrocarbons, primarily diesel fuel, and MTBE. Free product is also present in two groundwater monitoring wells (MW-2 and MW-28). The MTBE plume is located in the area south of the former UST area.

A total of 27 groundwater monitoring wells have been installed. Laboratory analytical results of groundwater samples collected from the onsite wells in the Second Quarter 2005 indicated that maximum concentrations of benzene, MTBE, tertiary butyl alcohol (TBA) were 1,800 µg/L, 39 µg/L and 1.4 µg/L, respectively.

Since 1999, CSM's consultant, ICF consulting (ICF), has installed and operated a groundwater extraction system and treated approximately 23,210,623 gallons of groundwater from four extraction wells (MW04, MW05, MW17B and MW18B). Since 2000, ICF has operated a bioventing system, injecting up to five cubic feet per minute of air into the wells and injection galleries at the site. The bioventing process provides oxygen to stimulate the aerobic degradation of petroleum hydrocarbons in subsurface. On May 11, 2004, CSM applied and received a permit for General Waste Discharge Requirements (Order No. R4-2002-0030, Series No. 49) to inject Oxygen Release Compound (ORC) into the groundwater for in-situ bioremediation to contain the offsite migration of MTBE plume from the subject site to the south.

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Mr. Brian Johnson
City of Santa Monica

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In July, 2005, ICF submitted a Remedial Action Plan Addendum (RAPA) and a Waste Discharge Requirement Permit Application to the Regional Board. ICF proposed to install an ozone sparging system. The proposed ozone sparging system will include approximately 20 1-inch diameter injection wells (AS1 through AS20) installed approximately 75 feet below ground surface (bgs). Regional Board staff have reviewed and approved the RAPA and the installation of the ozone-sparging system with the condition that ozone sparging shall not be conducted at wells AS4, AS5, AS8, AS9 until the free product from well MW2 is completely removed.

Regional Board staff have determined that the proposed discharge meets the conditions specified in Regional Board Order No. R4-2005-0030, "*General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites*," adopted by this Regional Board on May 5, 2005.

Enclosed are Waste Discharge Requirements, Order No. R4-2005-0030, and Monitoring and Reporting Program No. CI-8960.

The "Monitoring and Reporting Program" requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2005-0030. Your first monitoring report is due to this Board two months after the injection. All monitoring reports should be sent to the Regional Board, ATTN: Information Technology Unit.

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to "Compliance File No. CI-8960," which will assure that the reports are directed to the appropriate file and staff. Also, please do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

We are sending a copy of Order No. R4-2005-0030 only to the applicant. A copy of the Order will be furnished to anyone who requests it.

If you have any questions, please contact Mr. Rodney Nelson at (213) 620-6119.

Sincerely,



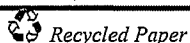
Jonathan A. Bishop
Executive Officer

Enclosures

Board Order No. R4-2005-0030
Monitoring and Reporting Program No. CI-8960

Cc: Yvonne Shanks, State Water Resources Control Board, Underground
Storage Tank Cleanup Fund(w/o Board Order No. R4-2005-0030)
Scott Broten, ICF Consulting

California Environmental Protection Agency

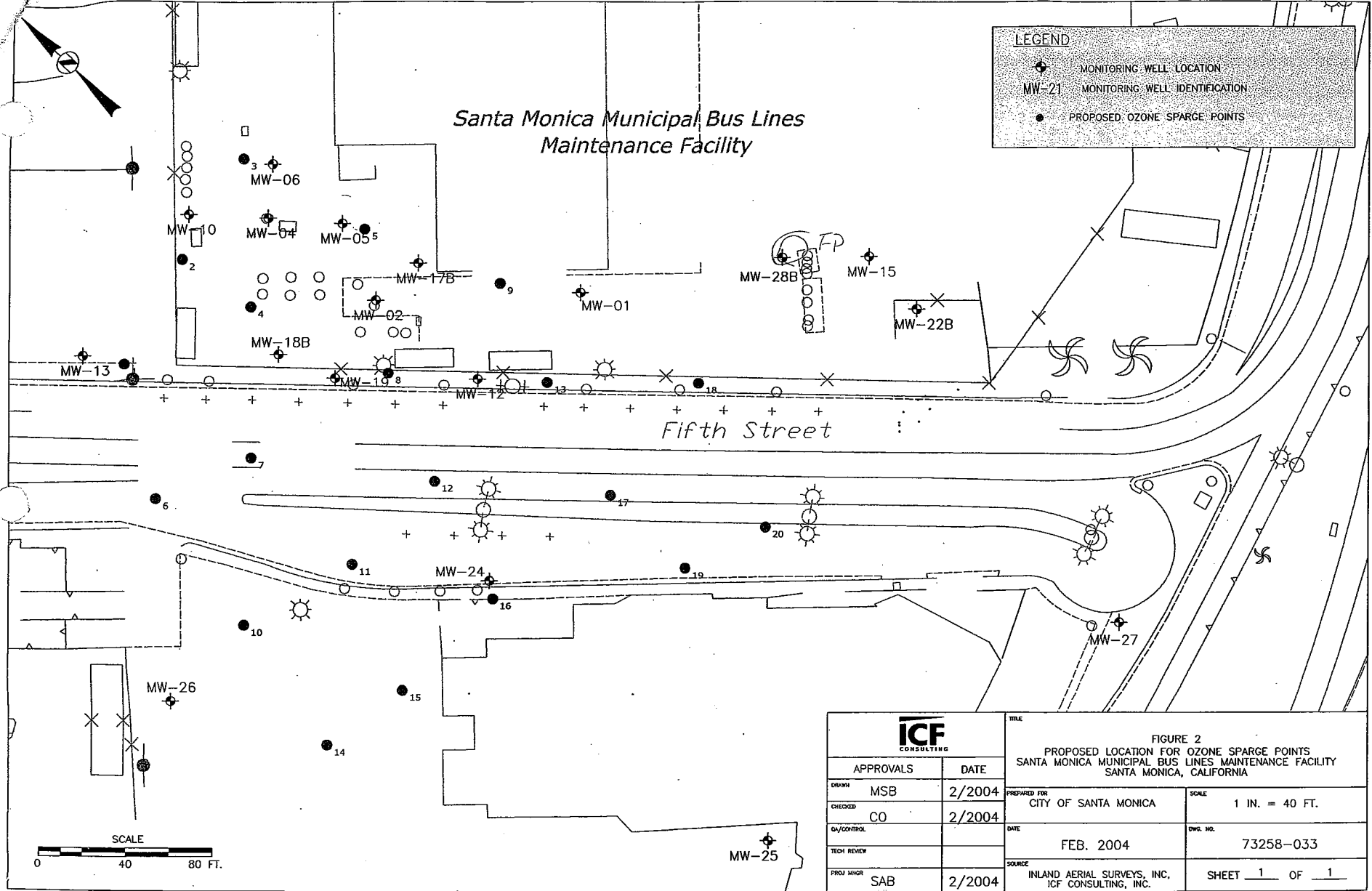


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Santa Monica Municipal Bus Lines
Maintenance Facility

LEGEND

- ◆ MONITORING WELL LOCATION
- MW-21 MONITORING WELL IDENTIFICATION
- PROPOSED OZONE SPARGE POINTS



		TITLE FIGURE 2 PROPOSED LOCATION FOR OZONE SPARGE POINTS SANTA MONICA MUNICIPAL BUS LINES MAINTENANCE FACILITY SANTA MONICA, CALIFORNIA	
		APPROVALS MSB CO GJ/CONTROL TECH REVIEW PROJ MGR SAB	DATE 2/2004 2/2004 2/2004
		DATE FEB. 2004	DWG. NO. 73258-033
		SOURCE INLAND AERIAL SURVEYS, INC. ICF CONSULTING, INC.	SHEET 1 OF 1

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**MONITORING AND REPORTING PROGRAM NO. CI-8960
FOR
CITY OF SANTA MONICA
MUNICIPAL BUS MAINTENANCE FACILITY
(OZONE INJECTION FOR GROUNDWATER CLEANUP)
(ORDER NO. R4-2005-0030) (SERIES NO. 027)
(FILE NO. 904010043)**

I. REPORTING REQUIREMENTS

- A. City of Santa Monica (hereinafter Discharger) shall implement this monitoring program on the effective date (October 1, 2005) of Regional Board Order No. R4-2005-0030. The first monitoring report under this program, for October-December 2005, shall be received at the Regional Board by January 15, 2006. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

- B. If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.
- C. By March 1st of each year, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDRs).
- D. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A

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copy of the laboratory certification shall be provided each time a new and/or renewal certification is obtained from ELAP.

- E. The method limits (MLs) employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Regional Board Executive Officer (Executive Officer). The Discharger shall submit a list of the analytical methods employed for each test and the associated laboratory quality assurance/quality control (QA/QC) procedures upon request by the Regional Board.
- F. Groundwater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136. All QA/QC samples must be run on the same dates when samples were actually analyzed. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff.
- G. Each monitoring report must affirm in writing that "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services, and in accordance with current United States Environmental Protection Agency (USEPA) guideline procedures or as specified in this Monitoring Program." Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report.
- H. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with WDRs, as well as all excursions of effluent limitations.
- I. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- J. If the Discharger performs analyses on any groundwater samples more frequently than required by this Order using approved analytical methods, the results of those analyses shall be included in the report.

- K. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements and, where applicable, shall include results of receiving water observations.

II. OZONE INJECTION MONITORING REQUIREMENTS

The quarterly reports shall contain the following information regarding injection activities:

1. Location map showing injection points used for the ozone.
2. Written and tabular summary defining the quantity of ozone injected per month to the groundwater and a summary describing the days on which the injection system has been operating:
3. Boring logs showing depth to groundwater.

CONSTITUENT	UNITS*	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total ozone delivered per injection point	Grams/day	--	<ul style="list-style-type: none"> • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter

III. GROUNDWATER MONITORING PROGRAM

Ozone sparging shall not be conducted at wells AS4, AS5, AS8, and AS9 until the free product from well MW2 is completely removed.

The Discharger shall sample monitoring wells MW-03, MW-04, MW-05, MW-06, MW-10, MW-12, MW-13, MW-16, MW-17B, MW-19, MW-20, MW-22B, MW-24, MW-25, MW-26, MW-27, MW-29 and MW-30 to provide groundwater quality information prior to and after the ozone injection. Groundwater from the wells noted above shall be monitored for the duration of the remediation in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS ¹	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total petroleum hydrocarbons as gasoline (TPHg) Total petroleum hydrocarbons as diesel (TPHd)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), Ethyl tertiary butyl ether (ETBE)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Ethanol Formaldehyde Acetone	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Total dissolved solids Chloride Sulfate	Mg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Oxidation-reduction potential	Millivolts		<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter

Dissolved Oxygen	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Dissolved ferrous iron	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Total Chromium and chromium six ²	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
PH	pH units	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Temperature	⁰ F/ ⁰ C	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter

¹ µg/l - micrograms per liter

² The Discharger is required to monitor for total chromium and chromium six if total chromium is detected in the baseline samples. The monitoring is required only for the well(s) that the total chromium was detected.

All groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Monitoring frequencies may be adjusted to a less frequent basis or parameters dropped by the Executive Officer if the Discharger makes a request and the Executive Officer determines that the request is adequately supported by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the _____ day of _____ at _____.

(Signature)

(Title)


City of Santa Monica
Municipal Bus Maintenance Facility
Monitoring & Reporting Program No. CI-8960

Order No. R4-2005-0030

VI. PUBLIC DOCUMENTS

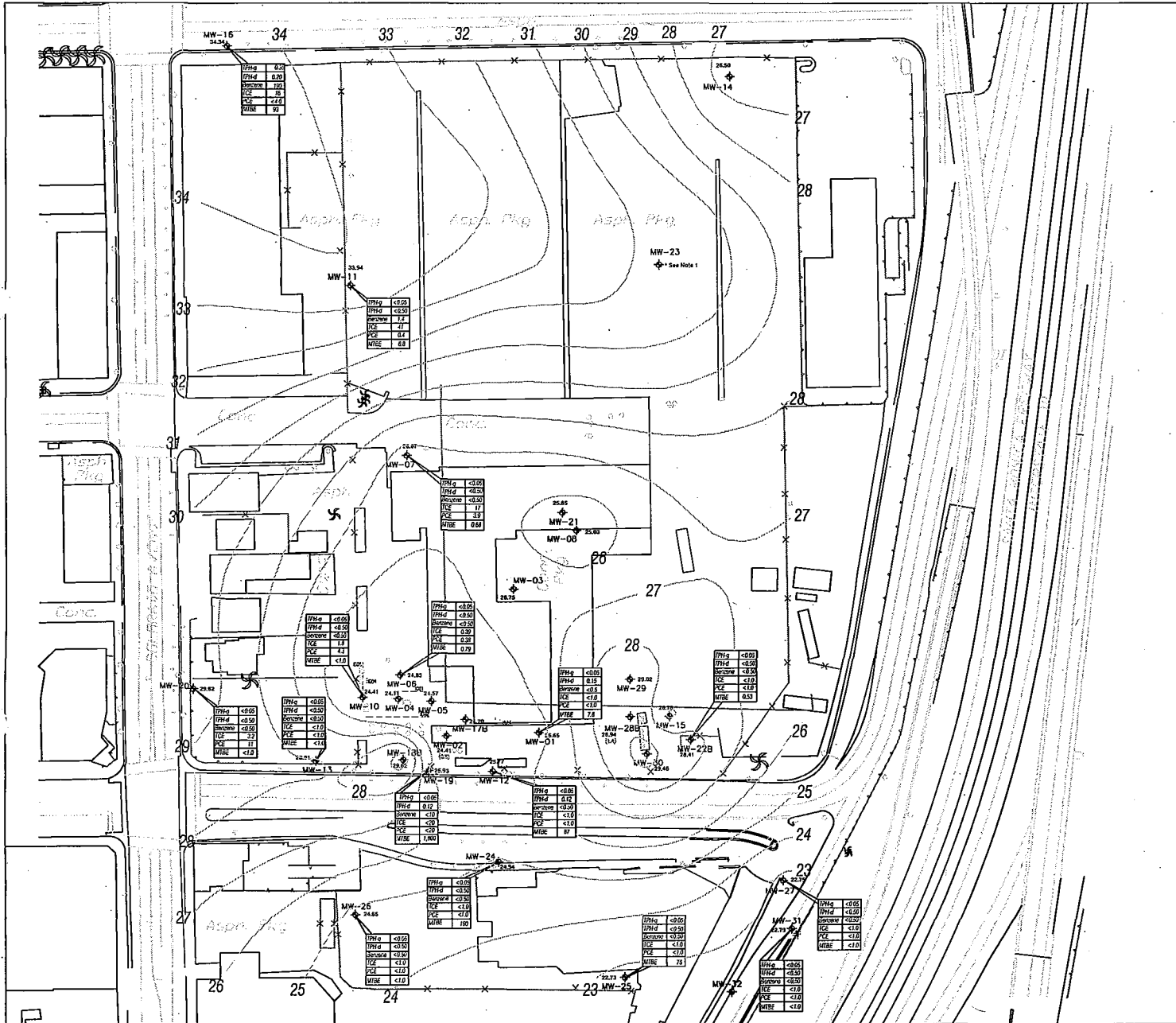
These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:



Jonathan S. Bishop
Executive Officer

Date: September 26, 2005



LEGEND

- ◆ MONITORING WELL LOCATION
- MW-21 MONITORING WELL IDENTIFICATION
- INJECTION GALLERY
- GROUND WATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)
- 26.80 GROUND WATER MEASUREMENT ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- 23.50 SEPARATE-PHASE PETROLEUM HYDROCARBON THICKNESS (FEET)

DEPTH-TO-GROUND WATER MEASUREMENTS AND THE THICKNESS OF SPHN WERE GAUGED ON MAY 19, 2005, EXCEPT AT MW31 MEASURED ON MAY 23, 2005.

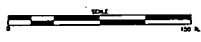
TPHg	<1
TPHg	0.02
TPHd	<1
Benzene	<1
TCE	<1
PCE	<1
MTBE	<1

< NOT DETECTED ABOVE THE INDICATED REPORTING LIMIT

- MTBE METHYL TERTIARY-BUTYL ETHER
- PCE POLYCHLOROETHYLENE
- TPHd DICHLOROBENZENE
- TPHg TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- TPHg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

GROUND WATER SAMPLES WERE COLLECTED ON MAY 23, 24, AND 25, 2005

NOTES:
1. HIGH MOISTURE CONTENT IN WELL CASING OF MW23 CREATED AN ANOMALOUS DEPTH-TO-GROUNDWATER READING.



		<p>FIGURE 1 SITE MAP SANTA MONICA MUNICIPAL BUS LINES MAINTENANCE FACILITY</p>			
		<p>APPROVALS</p>	<p>DATE</p>	<p>SCALE</p>	<p>1 IN. = 50 FT.</p>
<p>DESIGNED</p>	<p>MSB</p>	<p>07/05</p>	<p>CITY OF SANTA MONICA</p>	<p>PROJECT NO.</p>	<p>024261-034</p>
<p>DATE PLOTTED</p>	<p>CO</p>	<p>07/05</p>	<p>JULY 2005</p>	<p>SHEET</p>	<p>1 OF 1</p>
<p>DATE REVISED</p>	<p>SAB</p>	<p>07/05</p>	<p>ALAMO APPLIED SURVEYS, INC. BY CONSULTING</p>		