



# California Regional Water Quality Control Board

## Los Angeles Region



Linda S. Adams  
Cal/EPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013  
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger  
Governor

January 16, 2009

Mr. Lee Hanley  
ExxonMobil Oil Corporation  
1464 Madera Road, Suite N. #265  
Simi Valley, CA 93065

### GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND AND/OR HEXAVALENT CHROMIUM IMPACTED SITES - EXXONMOBIL STATION 18LR4, 501 NORTH LAS POSAS, CAMARILLO (ORDER NO. R4-2007-0019; CI NO. 9482)

Dear Mr. Hanley:

We have completed our review of your application for coverage under the General Waste Discharge Requirements to inject Fenton's Reagent at the site referenced above in Camarillo for groundwater cleanup and remediation.

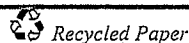
Multiple phases of assessment were conducted from 1990 to 2002, which included the installation of 12 groundwater monitoring wells (MW01 through MW12), 2 vadose zone wells (VEW1 and VEW2), and 1 air sparging well (AS1). Results of the pre-remediation assessment activities indicated that maximum TPH as gasoline, benzene, and MTBE concentrations of 2,100, 13, and 49 mg/kg, respectively. The highest MTBE concentrations were measured south of the current dispenser islands in the capillary fringe.

In October 2002, a 3-day mobile, dual-phase extraction event was performed utilizing wells MW01 and MW10. During the event, 6.68 pounds of hydrocarbons were removed and oxidized, and 5,500 gallons of groundwater were recovered. The average hydrocarbon vapor concentration measured during the event was 52 ppmv.

In April 2006, an aquifer test was performed using well MW10 to evaluate groundwater pump and treat (Plate 2). The results of the test indicated a downgradient capture zone of 25 feet, and that groundwater extraction would be effective in capturing the dissolved phase hydrocarbons. However, the natural concentrations of total dissolved solids, sulfates and zinc in groundwater are in excess of NPDES and sewer permit discharge limits, therefore required treatment would make the strategy expensive to implement.

To mitigate the dissolved phase MTBE and TBA at concentrations up to 11,800 and 24,000  $\mu\text{g/l}$ , respectively, the Discharger's consultant, Environmental Resolutions, Inc. (ERI), proposed in the August 25, 2008 Work Plan for Feasibility Testing to conduct an in-situ chemical oxidation test using RegenOx to evaluate the feasibility of the technology to remediate the residual dissolved phase hydrocarbons. Six locations will be advanced to 25 feet below ground surface in a transect from groundwater monitoring well MW01 to MW10 on 15-foot spacing (Plate 2). Additionally, to monitor subsurface conditions

*California Environmental Protection Agency*



*Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.*

subsequent to the chemical injection, one groundwater monitoring well will be installed adjacent to the injection points and the gasoline USTs. A revised Work Plan for Feasibility Testing dated October 22, 2008 proposed to use Fenton's Reagent in stead of RegenOx.

A letter dated September 9, 2008, from County of Ventura, Environmental Health Division (VECHD) approved the Work Plan for Feasibility Testing dated August 25, 2008, and a second letter dated October 30, 2008 from VECHD approved the Revised Work Plan for Feasibility Testing dated October 22, 2008.

Regional Board staff has determined that the proposed discharge meets the conditions specified in Order No. R4-2007-0019, "*Revised General Waste Discharge Requirements for Groundwater Remediation At Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites (General WDRs)*," adopted by the Los Angeles Regional Water quality Control Board on March 1, 2007.

Enclosed are your Waste Discharge Requirements, consisting of General WDRs Board Order No. 2007-0019 and Monitoring and Reporting Program No. CI-9482 and Standard Provisions. This Waste Discharge Requirements shall not be rescinded without the regulatory oversight agency's prior approval.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2007-0019. All monitoring reports shall 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-9482, which will assure that the reports are directed to the appropriate file and staff. Do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

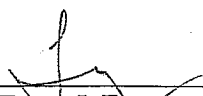
To avoid paying future annual fees, please submit written request for termination of your enrollment under the general permit in a separate letter, when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay the full annual fee if your request for termination is made after the beginning of the new fiscal year beginning July 1.

We are sending a copy of Order No. R4-2007-0019 only to the applicant. A copy of the Order will be furnished to anyone who requests it, or on line at:

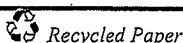
[http://www.waterboards.ca.gov/losangeles/board\\_decisions/adopted\\_orders/general\\_orders/r4-2007-0019/r4-2007-0019.pdf](http://www.waterboards.ca.gov/losangeles/board_decisions/adopted_orders/general_orders/r4-2007-0019/r4-2007-0019.pdf)

If you have any questions, please contact Dr. Rebecca Chou at (213) 620-6156 for WDRs administration matters, and Mr. Gregg Kwey at (213) 576-6702 for technical matters.

Sincerely,

  
Tracy J. Egoscue  
Executive Officer

**California Environmental Protection Agency**



*Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.*

Mr. Mr. Lee Hanley

- 3 -

January 16, 2009

- Enclosures:
1. Board Order No. R4-2007-0019
  2. Standard Provisions for Reporting and Monitoring
  3. Monitoring and Reporting Program No. CI-9482

cc: Mr. David Salter, Ventura County Division of Environmental Health  
Mr. James Anderson, Environmental Resolutions, Inc.

*California Environmental Protection Agency*



Recycled Paper

*Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.*

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

MONITORING AND REPORTING PROGRAM NO. CI-9482

FOR

EXXONMOBIL STATION 18LR4  
501 NORTH LAS POSAS, CAMARILLO

(FENTON'S REAGENT INJECTION FOR GROUNDWATER CLEANUP)  
(ORDER NO. R4-2007-0019, SERIES NO. 086)

I. REPORTING REQUIREMENTS

- A. ExxonMobil Oil Corporation (hereinafter Discharger) shall implement this monitoring program on the effective date of Regional Board Order No. R4-2007-0019. The first monitoring report under this program, for January to March 2009, shall be received at the Regional Board by April 15, 2009. 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

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.

- B. By March 1<sup>st</sup> 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).
- C. 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 copy of the

January 15, 2009

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

- D. 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.
- E. 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.
- F. 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.
- G. 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.
- H. 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.
- I. 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.
- J. 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.
- K. The Discharger should not implement any changes to the Monitoring and Reporting Program prior to receiving Executive Officer's written approval.

II. FENTON'S REAGENT INJECTION MONITORING REQUIREMENTS

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

1. Location map showing injection points used for the Fenton's Reagent injection. Groundwater monitoring wells shall not be used as injection points to avoid reduction of groundwater monitoring network, data bias, well screen clogging and alteration. Six injection points are currently proposed that can be referenced in Plate 1. Additional injection points should be reviewed and approved by the County of Ventura, Environmental Health Division (VECHD) and Regional Board prior to full scale implementation.
2. Written and tabular summary defining the quantity of Fenton's Reagent injected per month to the groundwater and a summary describing the days on which the injection system was in operation.

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall conduct groundwater monitoring at the site. Groundwater samples shall be collected from one up-gradient groundwater monitoring well MW-04; three source area groundwater monitoring well MW-10, MW-01 and the one new well to be installed prior to implementing the Fenton's Reagent injection; and one down-gradient area groundwater monitoring well MW-11 on a quarterly basis to monitor the effectiveness of the in-situ groundwater remediation. Additional monitoring wells for full scale implementation may be required if VECHD and Regional Board deemed they are necessary. The injection points shall not be used as monitoring points. Groundwater shall be monitored for the duration of the remediation in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd)	µg/L	Grab	• Quarterly <sup>1</sup>
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	• Quarterly <sup>1</sup>

Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), ether (ETBE)	µg/L	Grab	• Quarterly <sup>1</sup>
Ethanol Formaldehyde Acetone	µg/L	Grab	• Quarterly <sup>1</sup>
Total dissolved solids, Arsenic, Boron, Chloride, Bromide, Sulfate, Lead, Nickel, Cadmium, Manganese	mg/L	Grab	• Quarterly <sup>1</sup>
Oxidation-reduction potential	milivolts		• Quarterly <sup>1</sup>
Dissolved Oxygen	µg/L	Grab	• Quarterly <sup>1</sup>
Dissolved ferrous iron	µg/L	Grab	• Quarterly <sup>1</sup>
Total Chromium and chromium six <sub>2</sub>	µg/L	Grab	• Quarterly <sup>1</sup>
PH	pH units	Grab	• Quarterly <sup>1</sup>
Temperature	<sup>0</sup> F/ <sup>0</sup> C	Grab	• Quarterly <sup>1</sup>
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	• Quarterly <sup>1</sup>

<sup>1</sup> One week before injection and Quarterly thereafter.

<sup>2</sup> The Discharger is required to monitor for total chromium and chromium six in the baseline, second and fourth quarterly sampling. If detected at any of these sampling events, the total chromium and chromium six must be monitored quarterly thereafter.

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 \_\_\_\_\_.

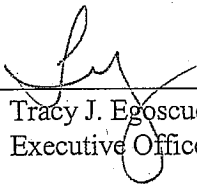
\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)"

VI. PUBLIC DOCUMENTS

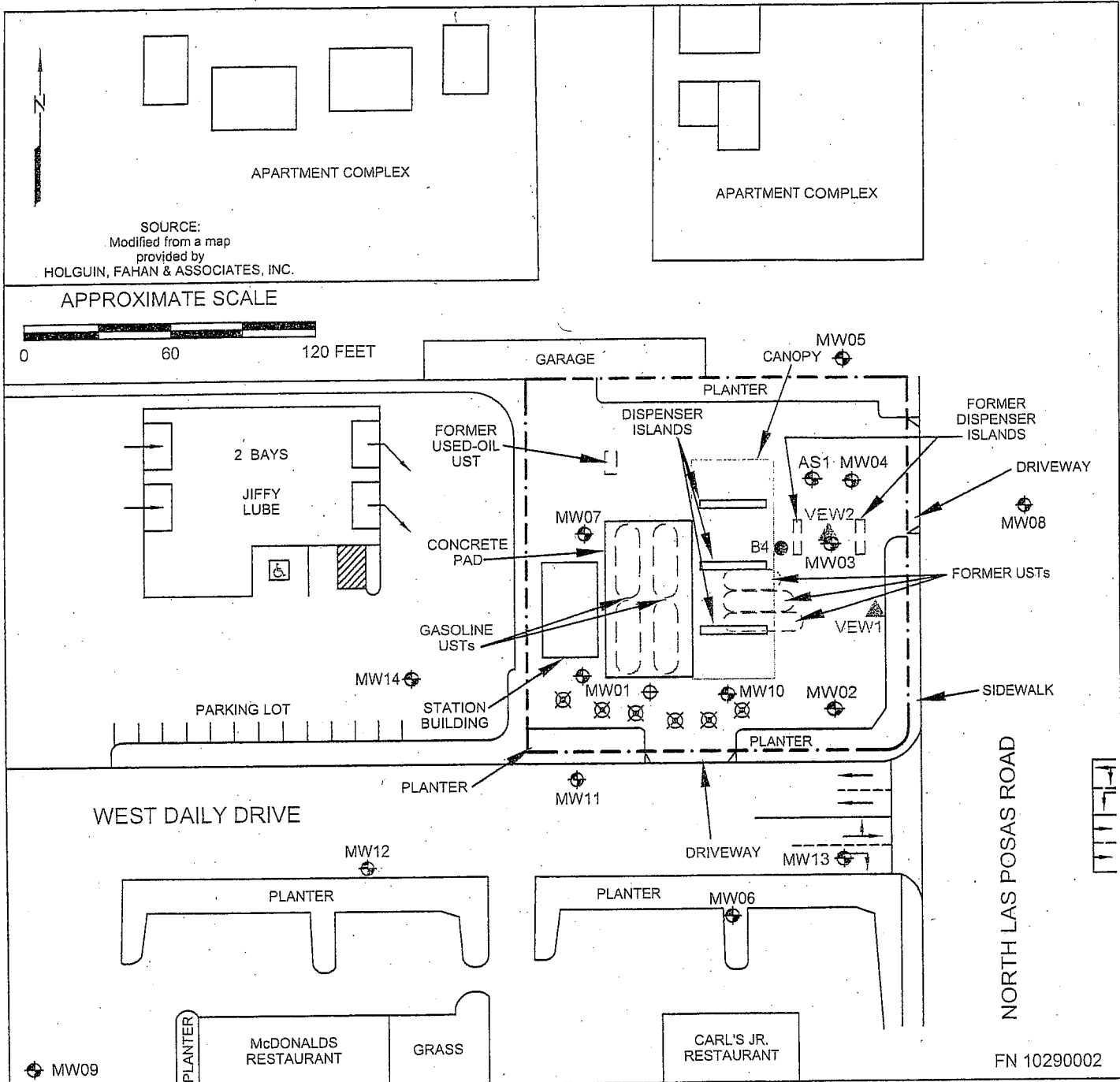
These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:

  
\_\_\_\_\_  
Tracy J. Egoscue  
Executive Officer

Date: January 15, 2009





FN 10290002

**EXPLANATION**

- ⊕ MW14 Groundwater monitoring well
- ⊕ MW04 Air injection well
- ▲ VEW2 Soil vapor extraction well
- B4 Soil boring location
- ⊕ Proposed groundwater monitoring well
- ⊗ Proposed direct push injection point

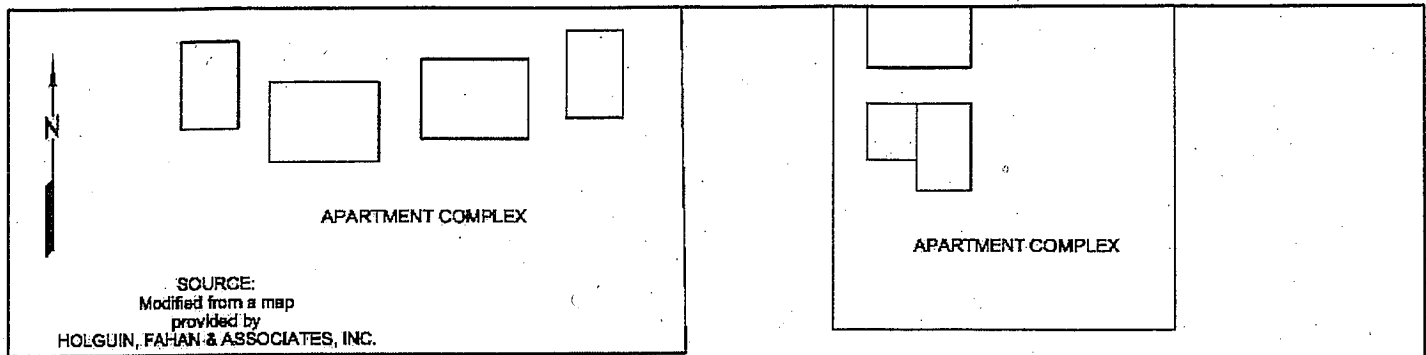
Note: Groundwater monitoring well MW09 is located approximately 320 feet southwest from the point depicted on the plate.



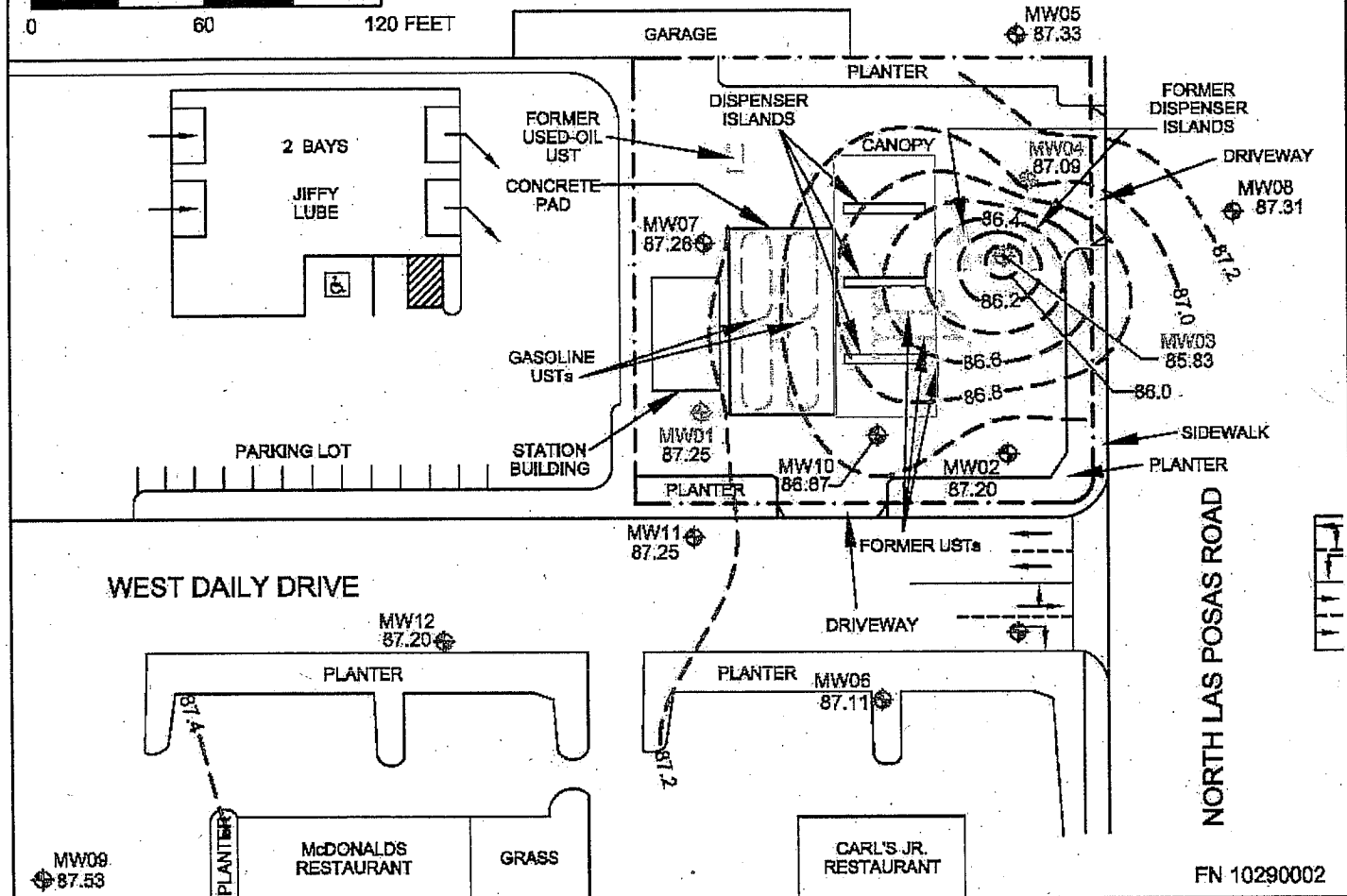
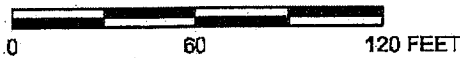
**GENERALIZED SITE PLAN**

EXXONMOBIL STATION 18LR4  
501 North Las Posas Road  
Camarillo, California

<b>PROJECT NO.</b>	1029
<b>PLATE</b>	1
<b>DATE:</b>	09/26/08



**APPROXIMATE SCALE**



**EXPLANATION**

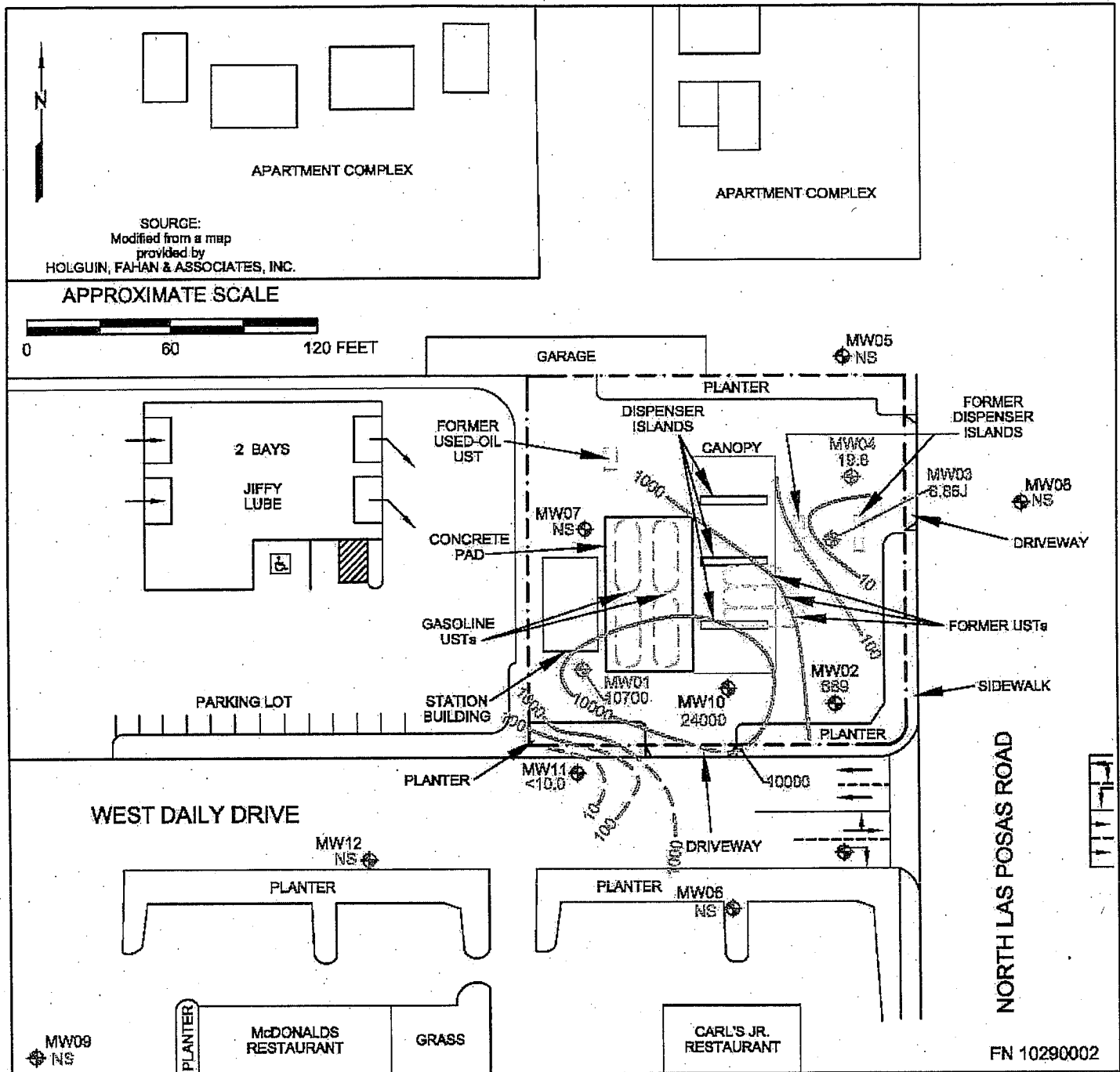
- ⊕ MW12 Groundwater monitoring well
- ⊕ MW04 Air injection well
- 87.53 Groundwater elevation (feet, relative to mean sea level)
- Line of equal groundwater elevation

**Note:** Groundwater monitoring well MW09 is located approximately 320 feet southwest from the point depicted on the plate.



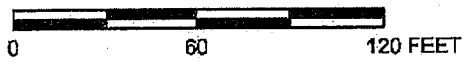
**GROUNDWATER ELEVATION  
CONTOUR MAP - 01/29/08**  
EXXONMOBIL STATION 18LR4  
501 North Las Posas Road  
Camarillo, California

**PROJECT NO.**  
1029  
**PLATE**  
3  
DATE: 05/21/08  
TIME: 11:30 AM



SOURCE:  
Modified from a map  
provided by  
HOLGUIN, FAHAN & ASSOCIATES, INC.

**APPROXIMATE SCALE**

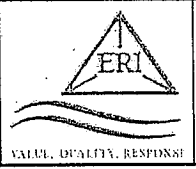


**EXPLANATION**

- ⊕ MW12 Groundwater monitoring well
- ⊕ MW04 Air injection well
- 24000 TBA concentration in micrograms per liter
- <10.0 Less than the stated laboratory reporting limit
- NS Not sampled
- J Estimated value between method detection limit and practical quantitation limit

--- Line of equal TBA concentration (dashed where inferred)

**Note:** Groundwater monitoring well MW09 is located approximately 320 feet southwest from the point depicted on the plate.

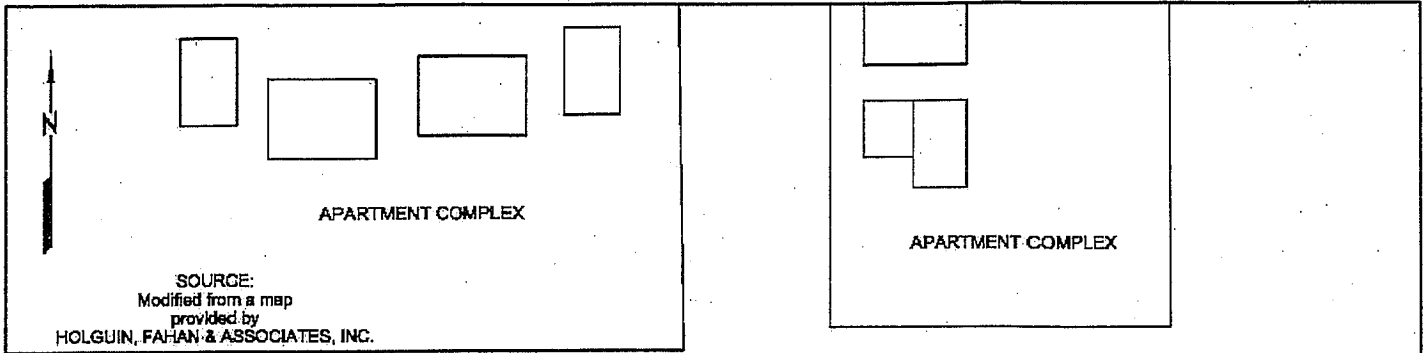


**TBA GROUNDWATER ISOPLETH CONCENTRATION MAP - 01/29/08**

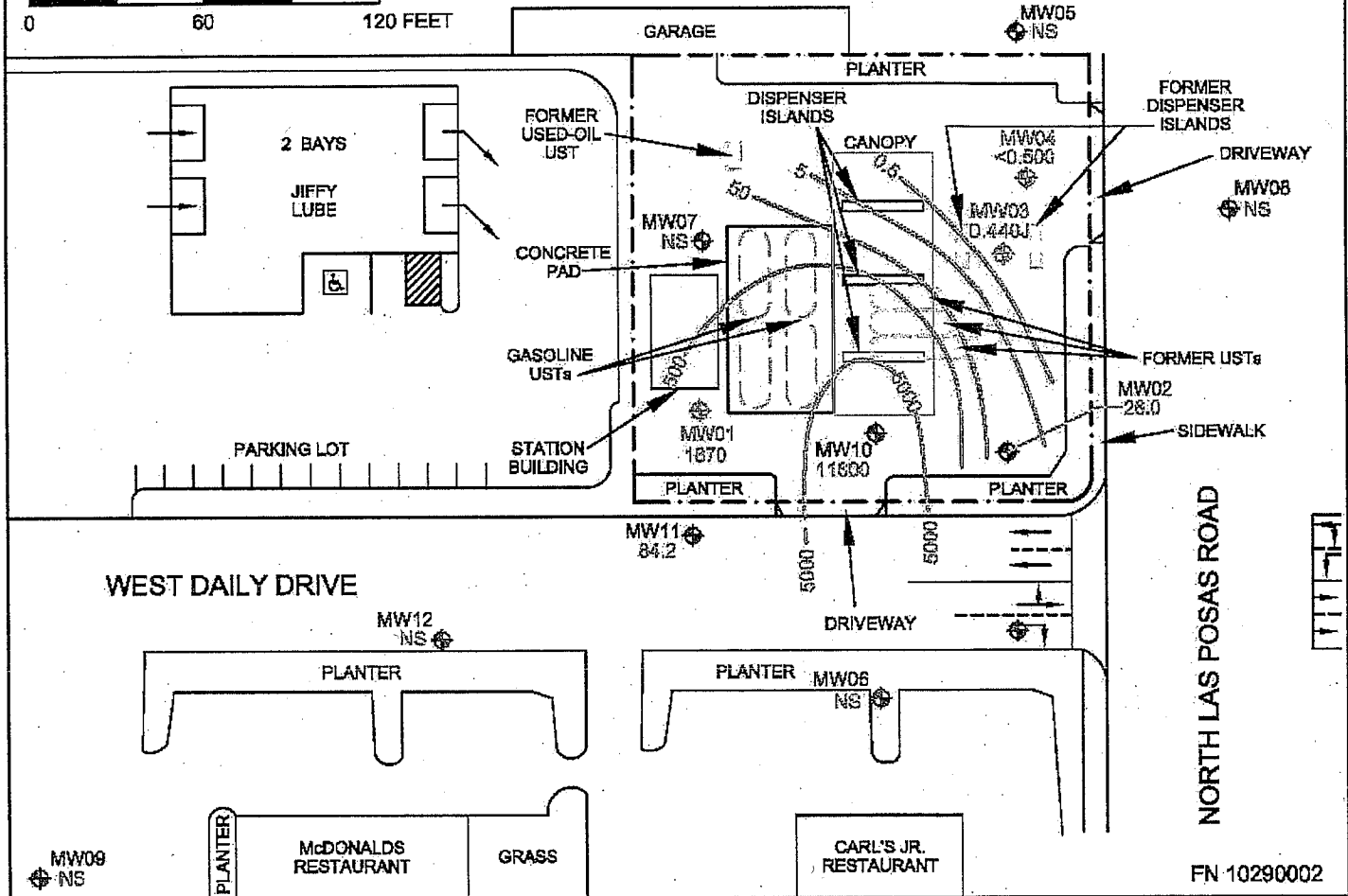
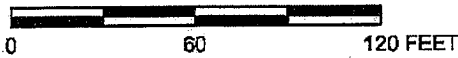
EXXONMOBIL STATION 18LR4  
501 North Las Posas Road  
Camarillo, California

**PROJECT NO.**  
1029

**PLATE**  
7  
DATE: 05/21/08  
TIME: 11:20 AM



**APPROXIMATE SCALE**

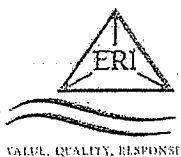


**EXPLANATION**

- ⊕ MW12 Groundwater monitoring well
- ⊕ MW04 Air injection well
- 11800 MTBE concentration in micrograms per liter
- <0.500 Less than the stated laboratory reporting limit
- NS Not sampled
- J Estimated value between method detection limit and practical quantitation limit

--- Line of equal MTBE concentration (dashed where inferred)

**Note:** Groundwater monitoring well MW09 is located approximately 320 feet southwest from the point depicted on the plate.

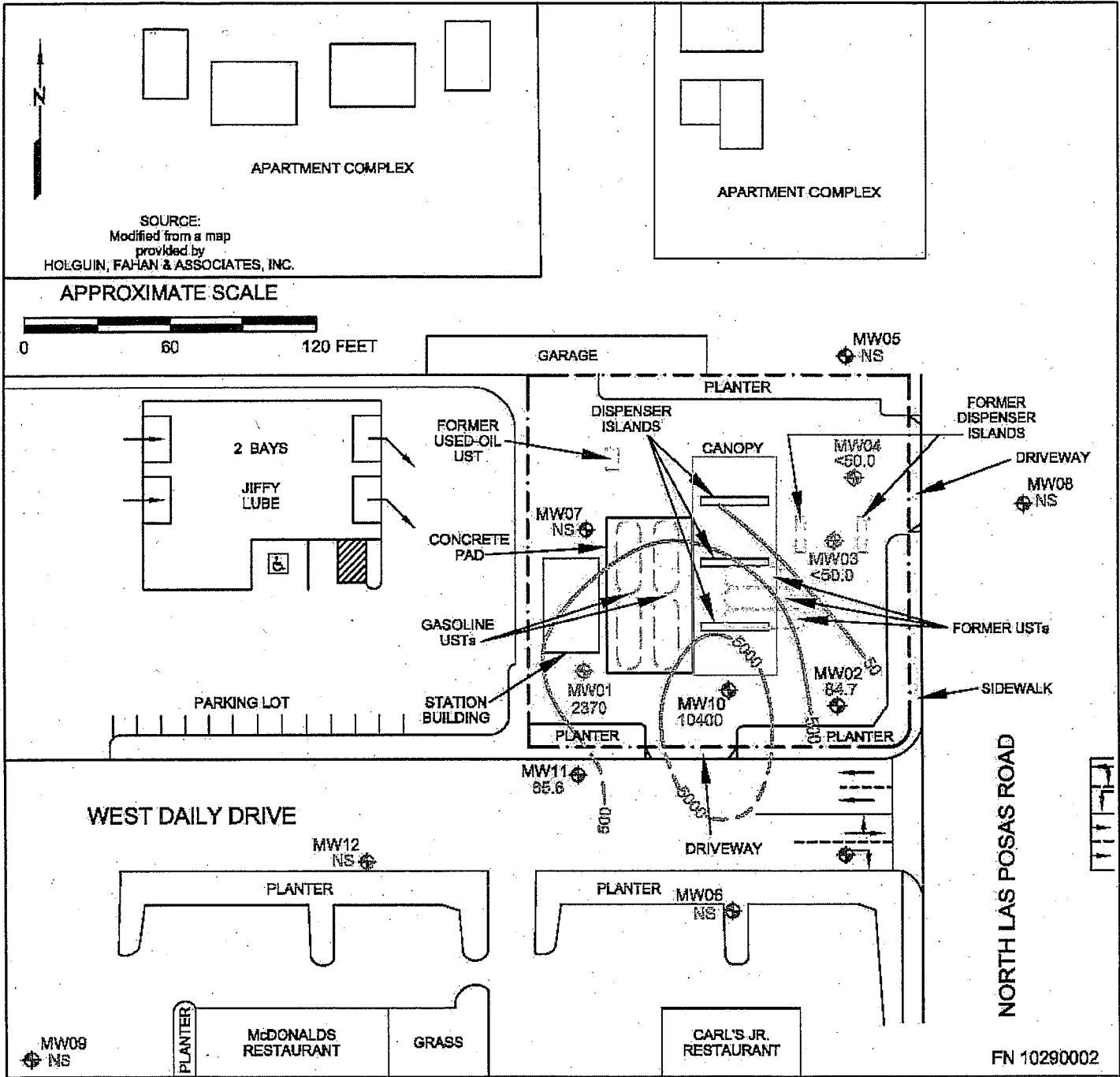


**MTBE GROUNDWATER ISOPLETH CONCENTRATION MAP - 01/29/08**

EXXONMOBIL STATION 18LR4  
501 North Las Posas Road  
Camarillo, California

**PROJECT NO.**  
1029

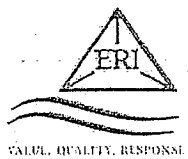
**PLATE**  
6  
DATE: 05/21/08  
TIME: 11:20 AM



**EXPLANATION**

- ⊕ MW12 Groundwater monitoring well
- ⊕ MW04 Air injection well
- 10400 TPHg concentration in micrograms per liter
- <50.0 Less than the stated laboratory reporting limit
- NS Not sampled
- Line of equal TPHg concentration (dashed where inferred)

**Note:** Groundwater monitoring well MW09 is located approximately 320 feet southwest from the point depicted on the plate.



**TPHg GROUNDWATER ISOPLETH CONCENTRATION MAP - 01/29/08**

EXXONMOBIL STATION 18LR4  
501 North Las Posas Road  
Camarillo, California

**PROJECT NO.**  
1029  
**PLATE**  
4  
DATE: 05/21/08  
TIME: 11:30 AM