

**MALCOLM
PIRNIE**

2000 Powell St, Suite 1180
Emeryville, CA 94608

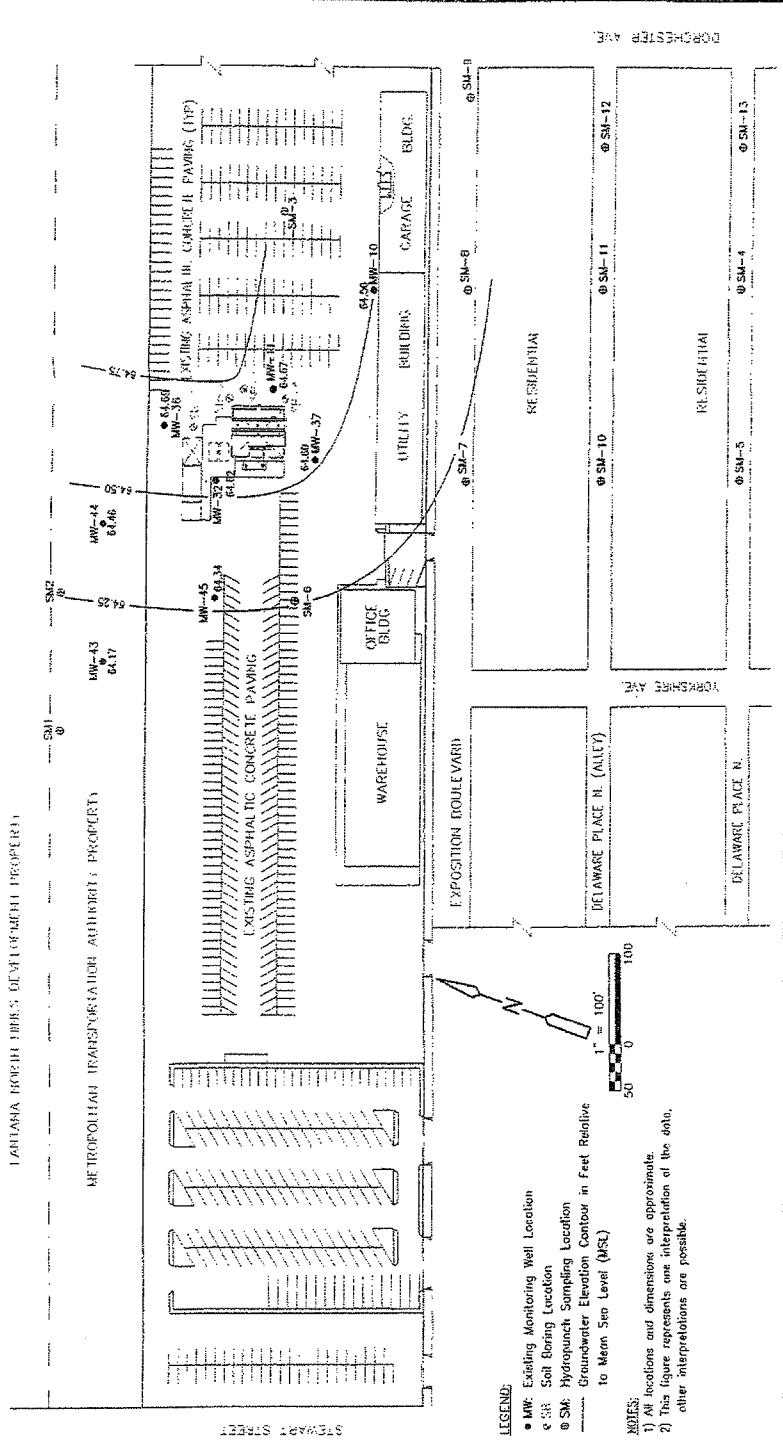
Generalized Cross-Section of On-Site Geology

July 2008

Figure 4

LAHANA HOPE III BBS DEVELOPMENT PROPERTY

METROPOLITAN REGENERATION AUTHORITY PROPERTY



LEGEND:

- MW: Existing Monitoring Well Location
- ⊙ SB: Soil Boring Location
- ⊙ SM: Hydropunch Sampling Location
- Groundwater Elevation Contour in Feet Relative to Mean Sea Level (MSL)

NOTES:

- 1) All locations and dimensions are approximate.
- 2) This figure represents one interpretation of the data, other interpretations are possible.

Figure 3-1
 GROUNDWATER ELEVATION CONTOURS - FEBRUARY 2004
 VERIZON SERVICES GROUP - SANTA MONICA FACILITY
 2802 EXPOSITION BOULEVARD

CDM

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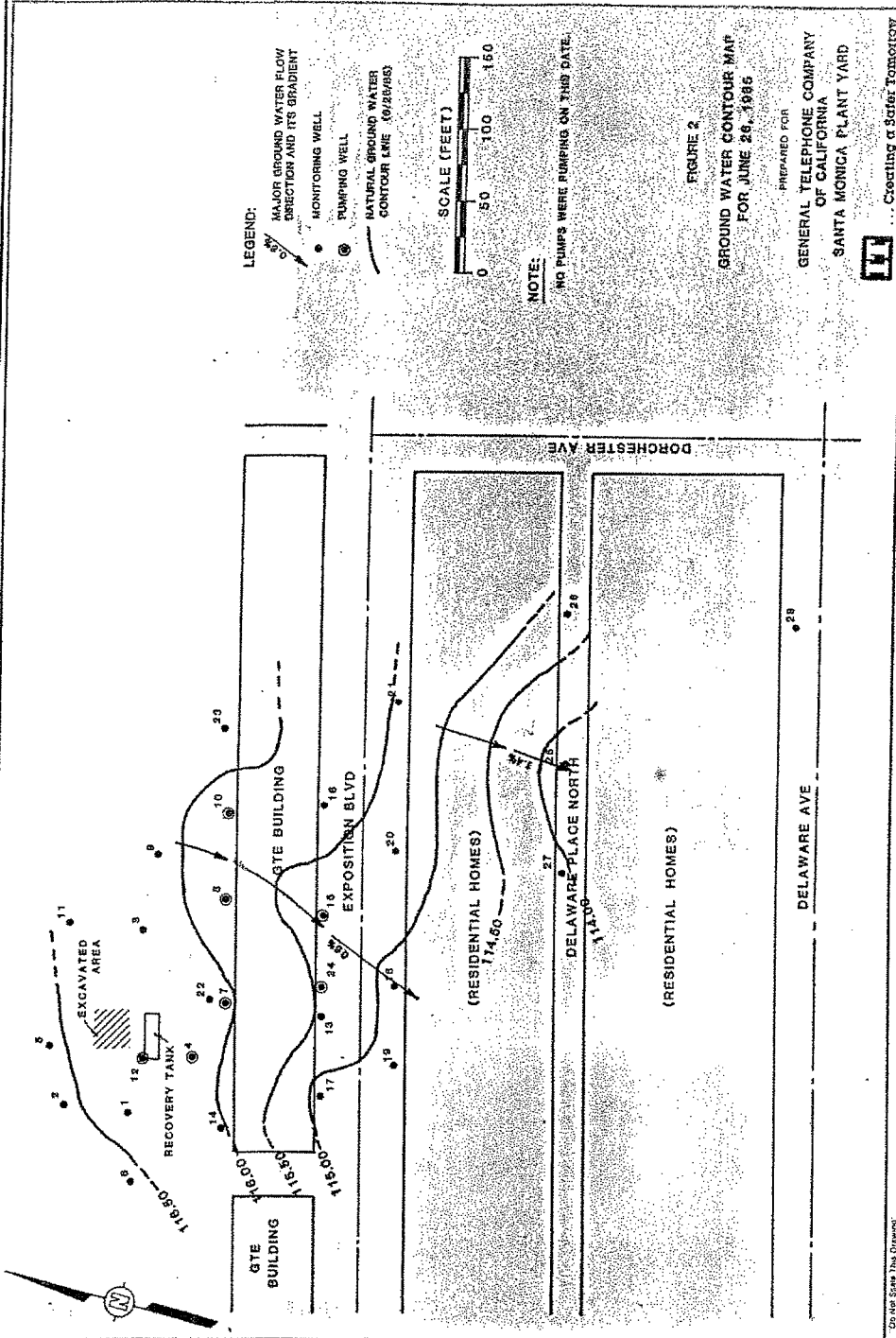
February 2004 Groundwater
 Surface Elevation Contours

July 2008

Figure 5

Source: CDM, 2006a

DRAWN BY: M.V.H. CHECKED BY: J.S.M. APPROVED BY: J.S.M. DRAWING NUMBER: 850021-85

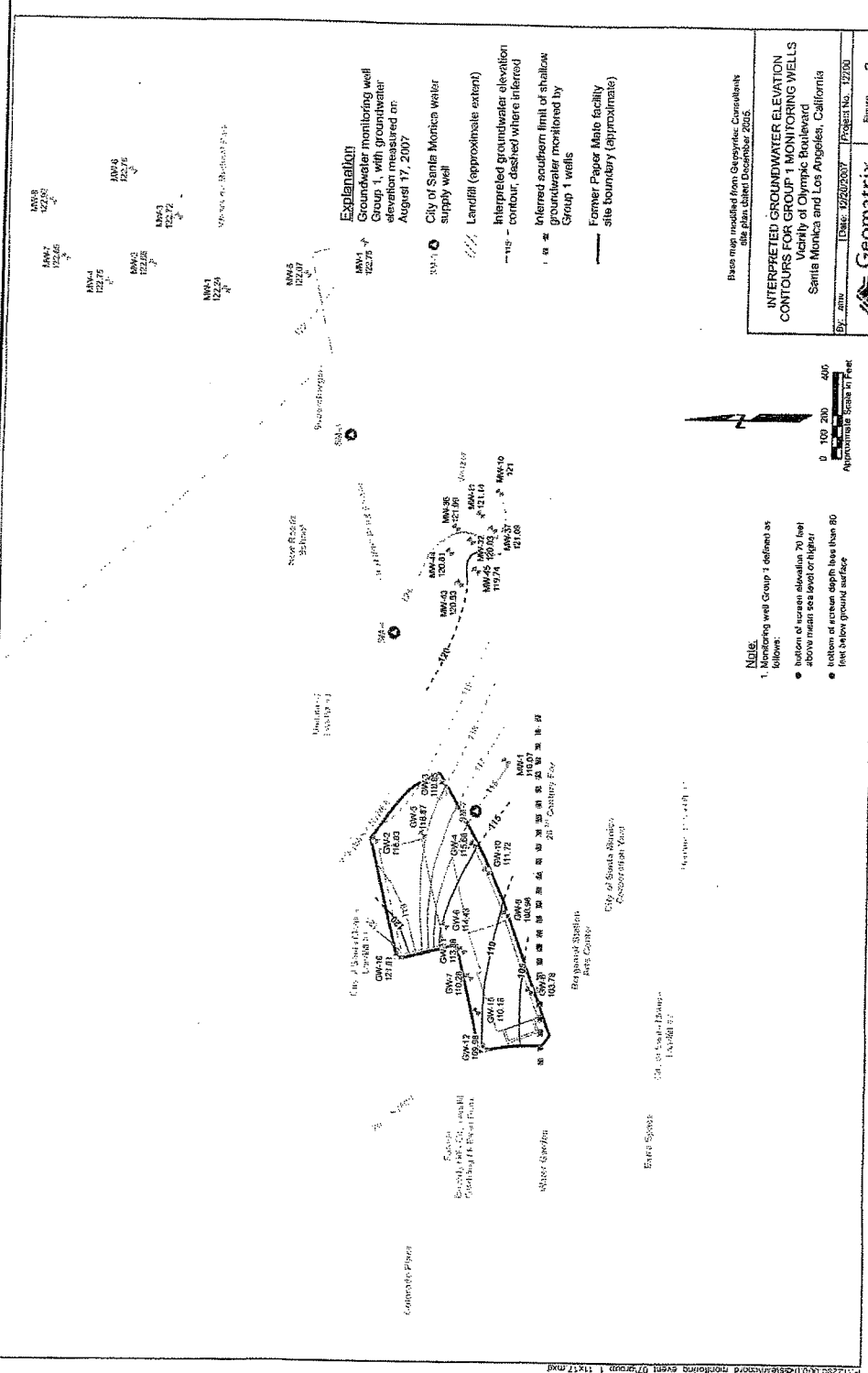


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June 1985 Groundwater
 Surface Elevation Contours

July 2008 Figure 6

Source: IT Corp, 1985



Basin map modified from Geopacific Consultants
 10/02/2007
 10/02/2007

INTERPRETED GROUNDWATER ELEVATION CONTOURS FOR GROUP 1 MONITORING WELLS
 Vicinity of Olympia, Berkeley, Santa Monica and Los Angeles, California

By: **Geomatrix** Figure 2

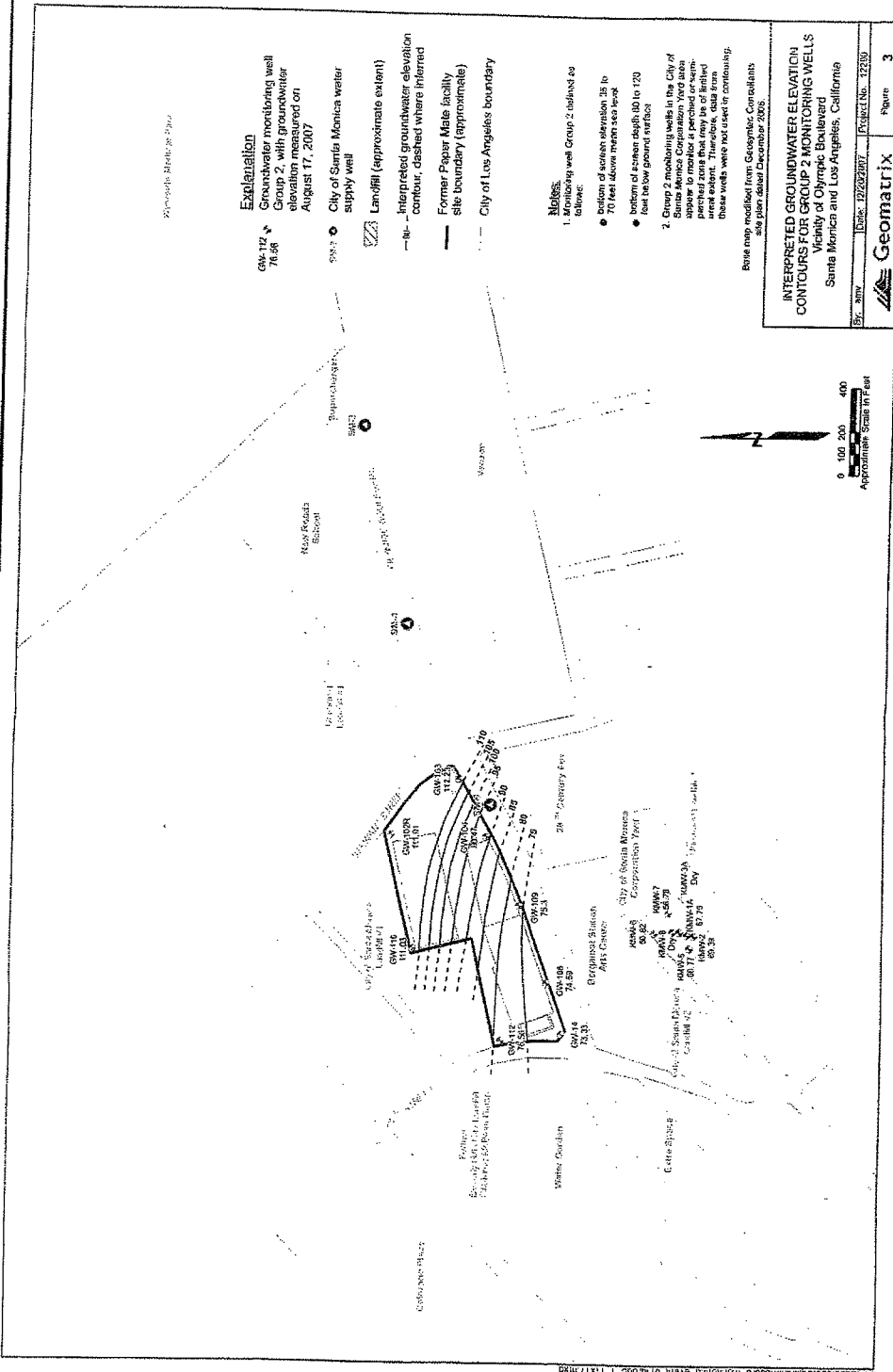
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August 2007 Groundwater Surface Elevations in Group 1 Wells

July 2008

Figure 7

Source: Geomatrix, 2007

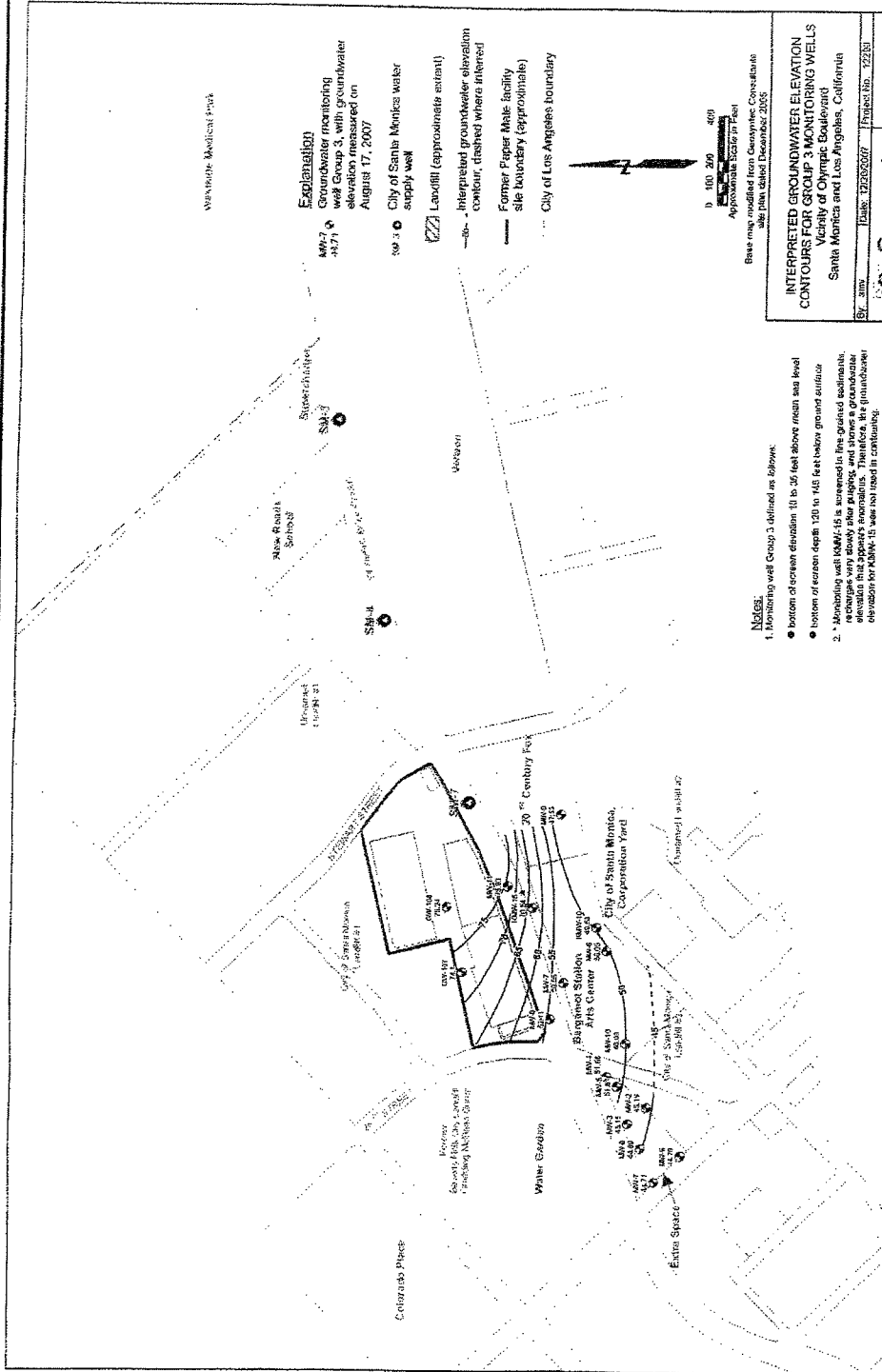


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**August 2007 Groundwater
Surface Elevations in
Group 2 Wells**

July 2008 Figure 8

Source: Geomatrix, 2007



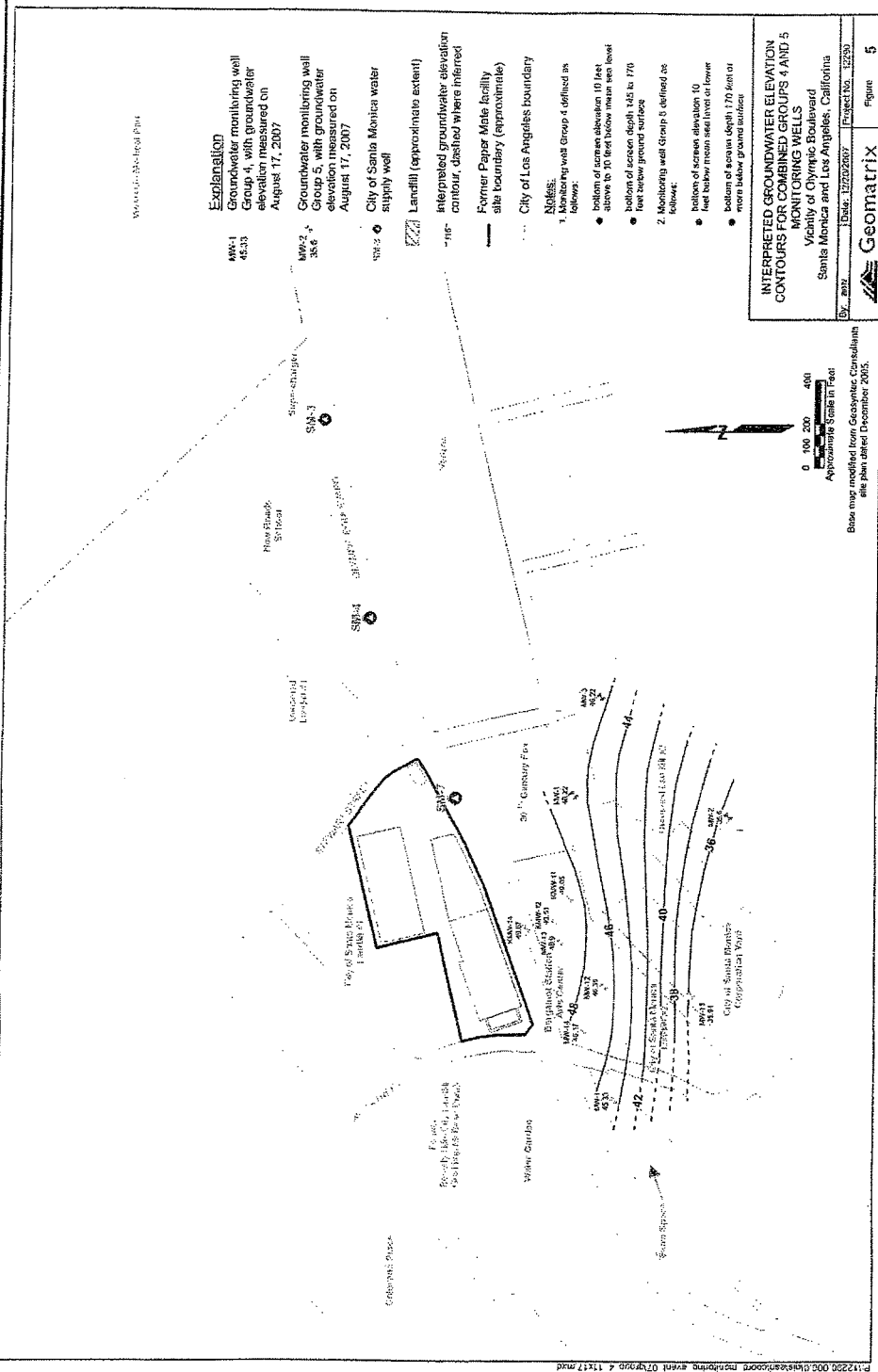
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**August 2007 Groundwater
Surface Elevations in
Group 3 Wells**

July 2008

Figure 9

Source: Geomatrix, 2007



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August 2007
 Groundwater Elevations in
 Group 4 and 5 Wells

July 2008 Figure 10

Source: Geomatrix, 2007

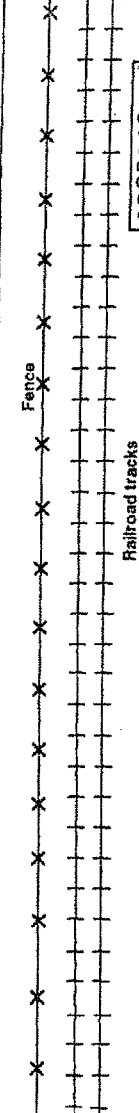


FIGURE
2-3

Historic Site Map
Douglas Aircraft Company, Inc.
Shipping & Receiving Plant No. A7
Santa Monica, California

URS Consultants
100 California Street
San Francisco, CA 94111
May 17, 1996

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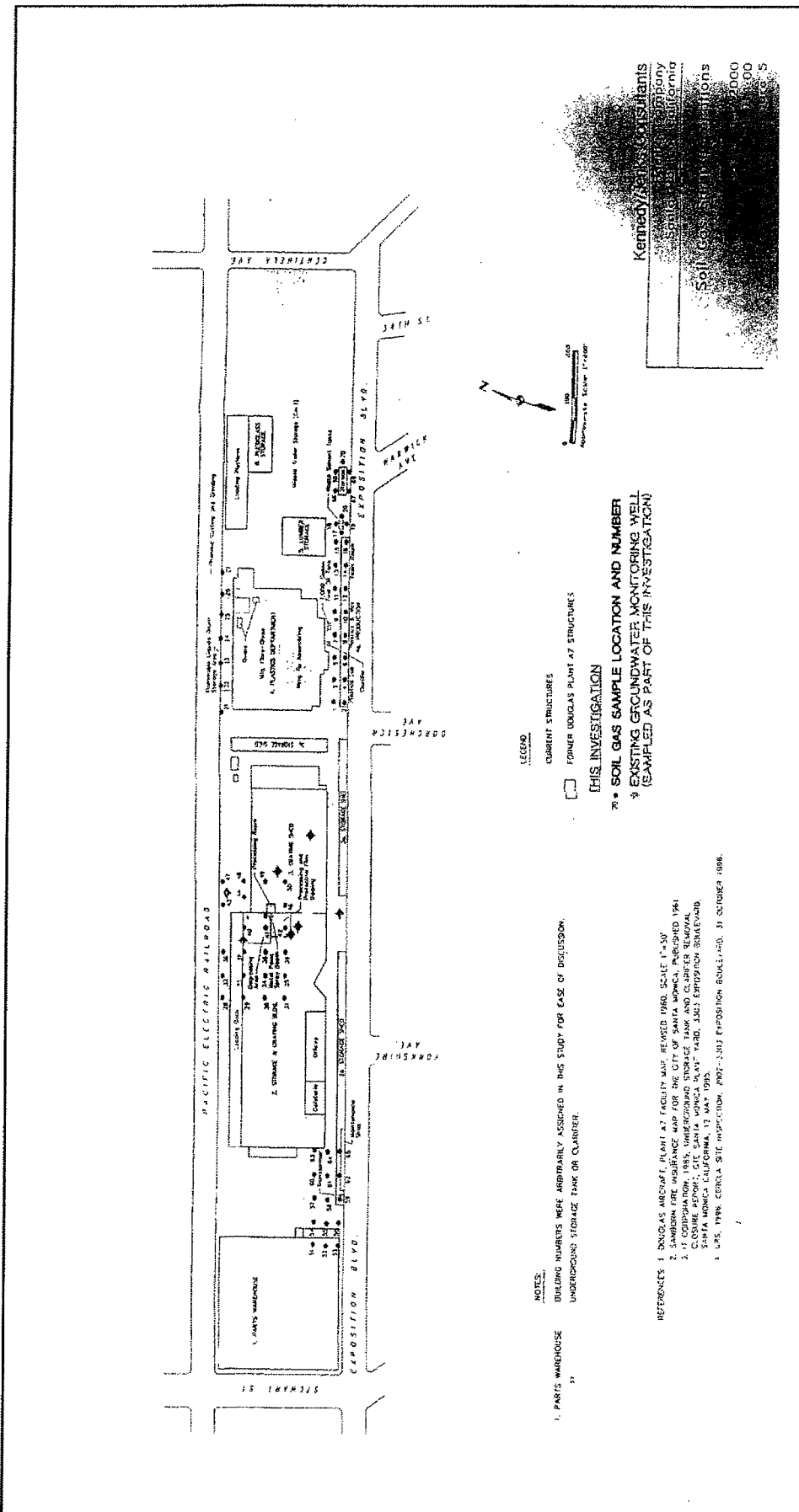
2000 Powell St, Suite 1180
Emeryville, CA 94608

Areas of Concern As Identified
In the 1996 CERCLA Site
Inspection

July 2008

Figure 11

Source: URS, 1996



NOTES:
 BUILDING NUMBERS WERE ARBITRARILY ASSIGNED IN THIS STUDY FOR EASE OF DISCUSSION.
 UNDERGROUND STORAGE TANK OR QUARTER.

LEGEND
 CURRENT STRUCTURES
 FORMER DODGAS PLANT A7 STRUCTURES

THIS INVESTIGATION
 SOIL GAS SAMPLE LOCATION AND NUMBER
 EXISTING GROUNDWATER MONITORING WELL
 (SAMPLED AS PART OF THIS INVESTIGATION)

- REFERENCES:
1. DODGAS AIRCRAFT PLANT A7 FACILITY MAP, REVISED 1968, SCALE 1"=30'
 2. THE INSURANCE MAP FOR THE CITY OF SANTA MONICA, PUBLISHED 1961
 3. CITY OF SANTA MONICA, AIRCRAFT PLANT A7, 1961
 4. CALIFORNIA REPORT, GTE SANTA MONICA PLANT A7, 1963, EXPOSITION BUILDINGS
 5. SANTA MONICA, CALIFORNIA, 17 MAY 1985
 6. U.S. 1988, CERCLA SITE INSPECTION, 2007-2007 EXPOSITION BUILDINGS, 31 OCTOBER 1988.

Kennedy/Enns Consultants
 555 South Main Street
 Suite 200
 Emeryville, CA 94608
 415.764.1100
 www.kennedyenns.com

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Soil-Gas Sample
 Locations

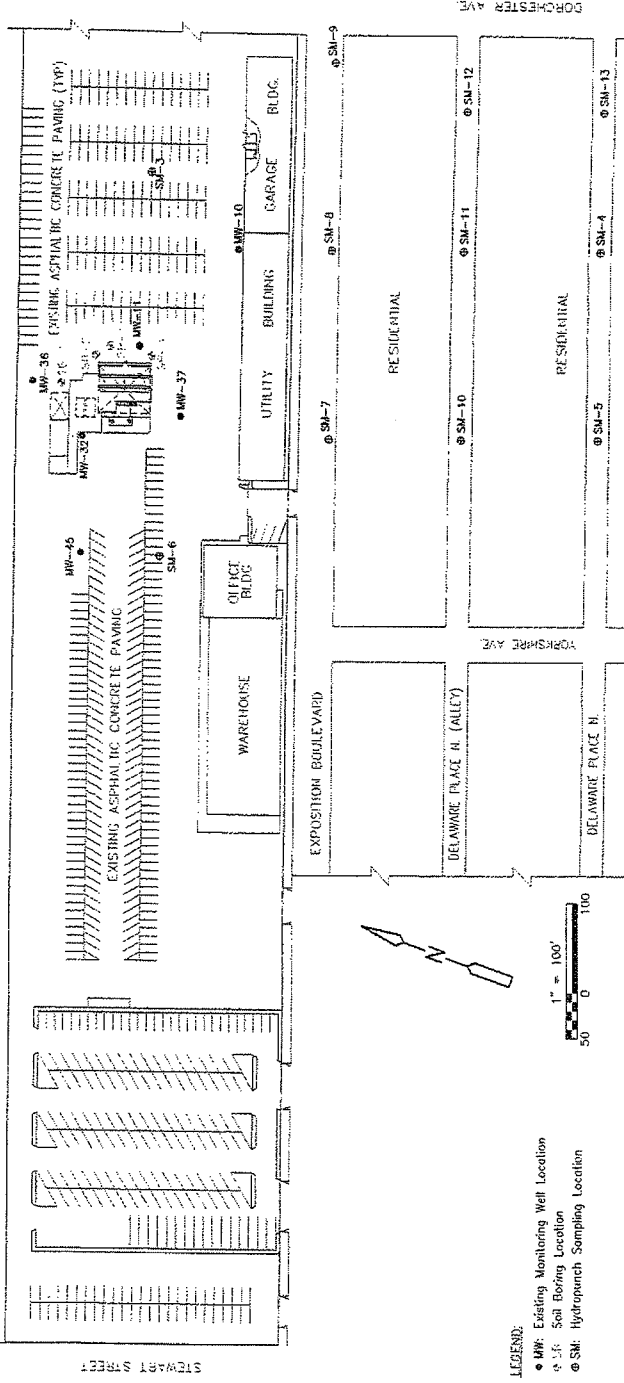
July 2008

Figure 12

Source: Kennedy/Jenks, 2000

LAHANA BORTH III'S DEVELOPMENT PROPERTY

METROPOLITAN TRANSPIRATION AUTHORITY PROPERTY



- LEGEND:
- MW: Existing Monitoring Well Location
 - SM: Seal Boring Location
 - ⊙ SM: Hydropanch Sampling Location

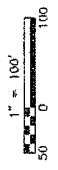


Figure 2-1
 SAMPLE LOCATION MAP
 - SANTA MONICA FACILITY
 2902 EXPOSITION BOULEVARD

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CDM 2003 and 2004
 Investigation Locations

July 2008

Figure 13

Source: CDM, 2006a

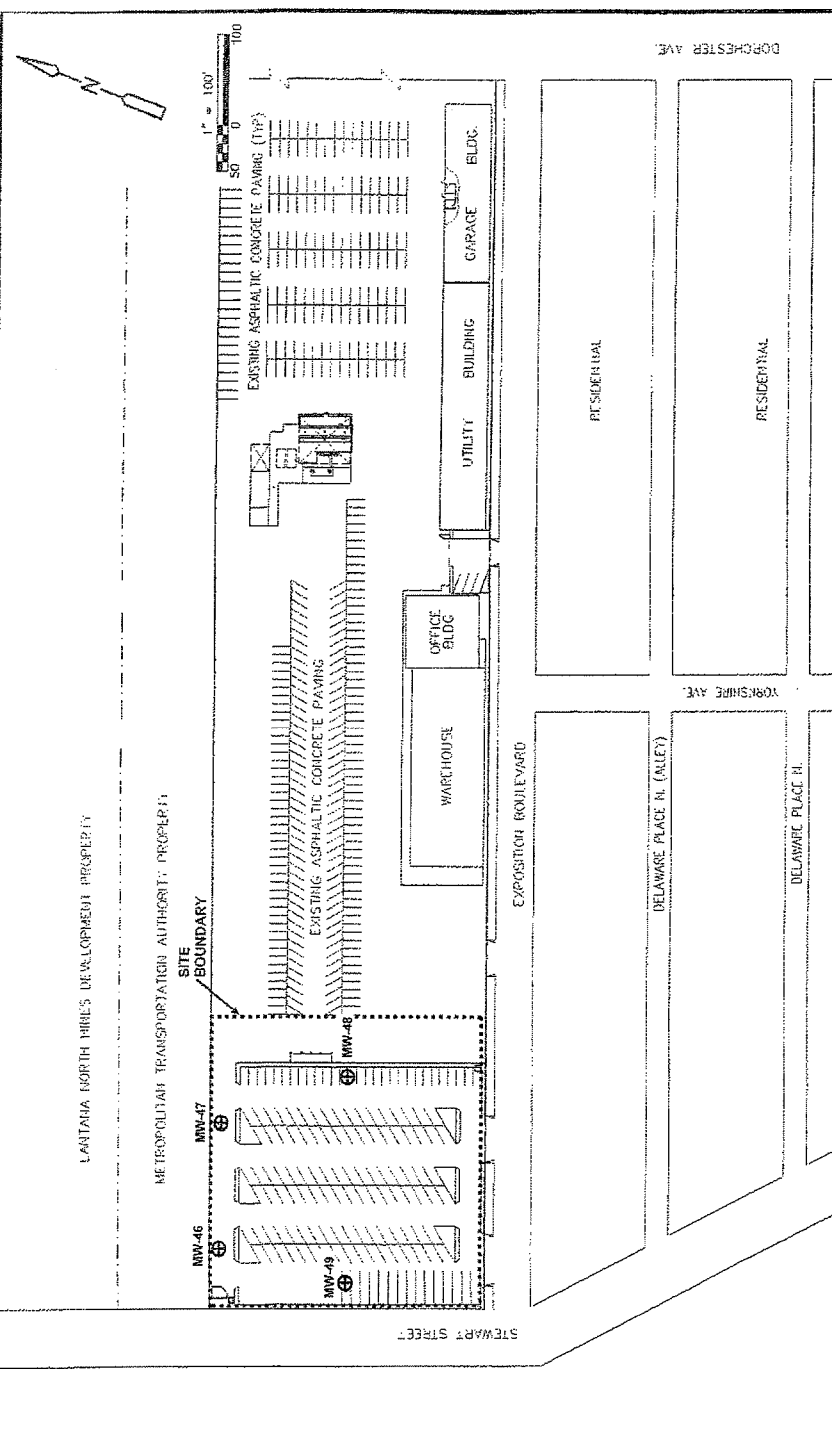


Figure 2-1
Well Location Map
West Parcel of the Verizon Facility
2909 Exposition Boulevard

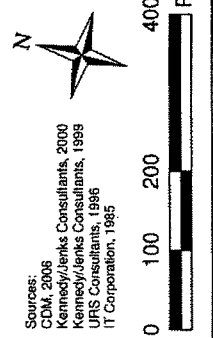
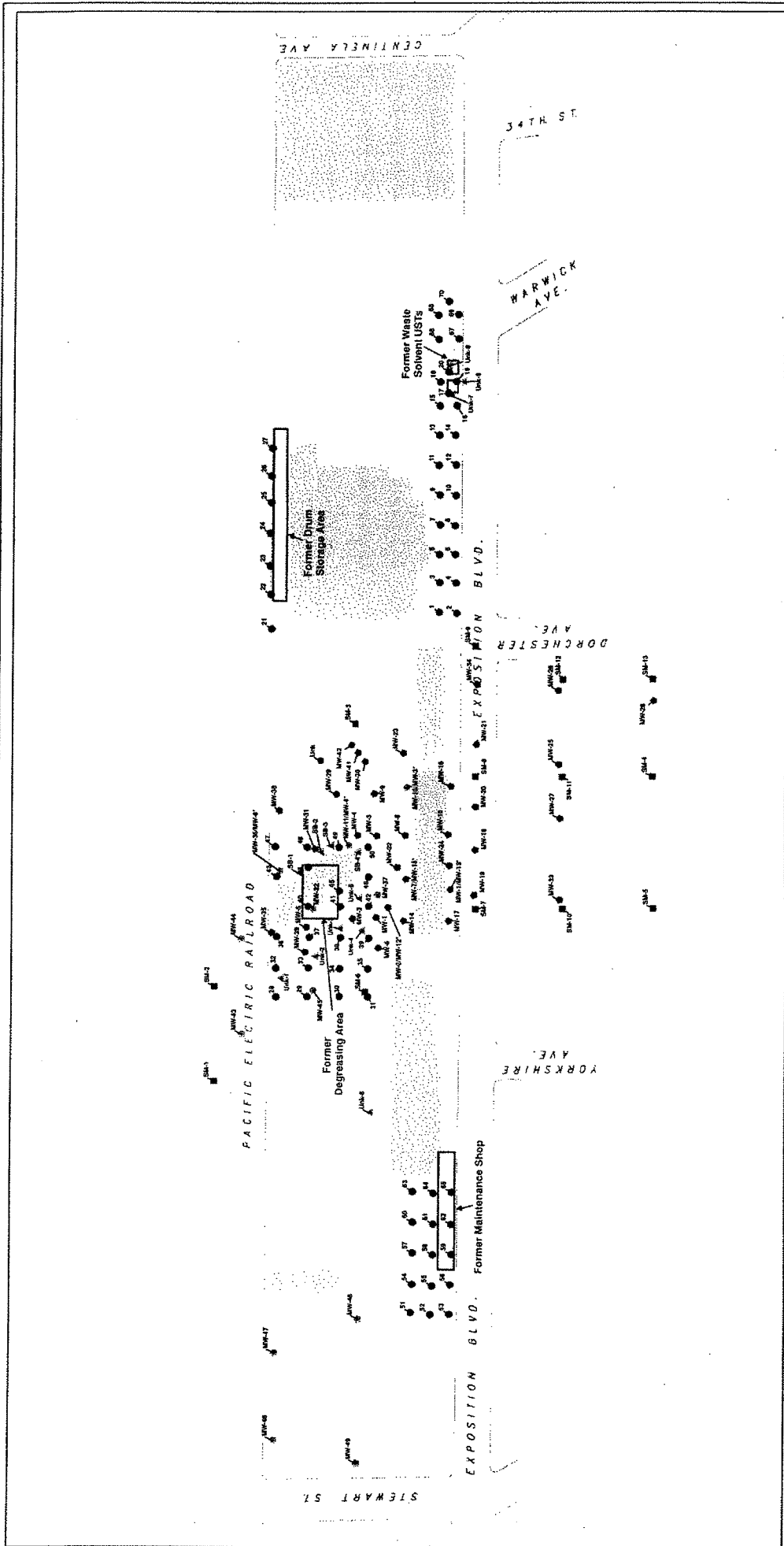
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**CDM Monitoring Wells
Installed in 2006**

July 2008

Figure 14

Source: CDM, 2006c



Sources:
CDM, 2008
Kennedy/Jenks Consultants, 2000
Kennedy/Jenks Consultants, 1999
JRS Consultants, 1996
IT Corporation, 1985

Legend

- Abandoned Monitoring Well
- Existing Monitoring Well
- ▲ Soil Boring
- Hydropunch
- Soil Gas Boring
- Existing Building

* Monitoring well was found to have conflicting feature IDs as presented in separate documents. The well is labelled here with the most recently used ID first followed by the older ID.

EXHIBIT B

Purpose: CERCLA Site Inspection

**Site: McDonnell Douglas Aircraft Facility
2902-3303 Exposition Boulevard
Santa Monica, California
Los Angeles County**

Site EPA ID Number: CAD000485326

**URS Investigators: Chris A. Nelson
Ingrid Y. Chen
Hollis E. Phillips**

**Date of Inspections: August 3, 1995
July 23 - 27, 1996**

Report Prepared By: Chris A. Nelson

Report Reviewed By: Des A. Garner

Review Concurrence: D. L. Garner

Report Date: October 31, 1996

Document Control No.: 62312.42.33.1873 05.a.1

**Submitted To: Gordon Woodrow
EPA Region IX
Site Assessment Manager**

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- B Site Reconnaissance Interview and Observations Report
- C Photographs
- D Analytical Data Results and Data Validation Package

1.0 Introduction

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the U.S. Environmental Protection Agency (EPA) has tasked URS Consultants, Inc. (URS) to conduct a Site Inspection (SI) of the McDonnell Douglas Aircraft Facility (aka Douglas Aircraft Company Shipping and Receiving Plant No. A7) in Santa Monica, Los Angeles County, California.

The McDonnell Douglas Aircraft Facility ("Douglas site" or "site") was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) in July 1994 (1). The site was discovered through an EPA Site Discovery project in the City of Santa Monica. A Preliminary Assessment (PA) was performed for the EPA in March 1996. The purpose of the PA was to review existing information on the site and its environs to assess the threats, if any, posed to public health, welfare, or the environment, and to determine if further investigation under CERCLA/SARA is warranted. After reviewing the PA, the EPA decided that further investigation of the Douglas site would be necessary to more completely evaluate the site using the EPA's Hazard Ranking System (HRS) criteria. The HRS assesses the relative threat associated with the actual or potential releases of hazardous substances from the site. The HRS is the primary method of determining a site's eligibility for placement on the EPA's National Priorities List (NPL). The NPL identifies sites at which the EPA may conduct remedial response actions. This SI report is the result of URS' recent investigation.

1.1 Apparent Problem

- The McDonnell Douglas Aircraft Facility operated at the Exposition Boulevard site from approximately 1942 to 1971. During this time, trichloroethylene (TCE) was utilized at the facility in degreasing operations and plastics manufacturing. Two waste solvent underground storage tanks (USTs) formerly on-site have been identified in historical Douglas Aircraft figures of the site (2).

- TCE has been detected in City of Santa Monica municipal drinking water wells No. 2, 3, 4, and 7 at concentrations exceeding EPA maximum contaminant levels (MCLs)

since 1980. Shallow, perched groundwater at depths ranging from 35 to 80 feet below ground surface (bgs) is also contaminated with TCE and other halogenated volatile organic compounds (VOCs) at concentrations significantly greater than MCLs (in some cases, orders of magnitude greater) (2, 3, 4).

- The McDonnell Douglas Aircraft Facility PA report, conducted by URS, hypothesized that the TCE contamination in the municipal wells in Santa Monica was coming from sources of TCE in soil at the former McDonnell Douglas Aircraft Facility site.

2.0 Site Description

2.1 Location

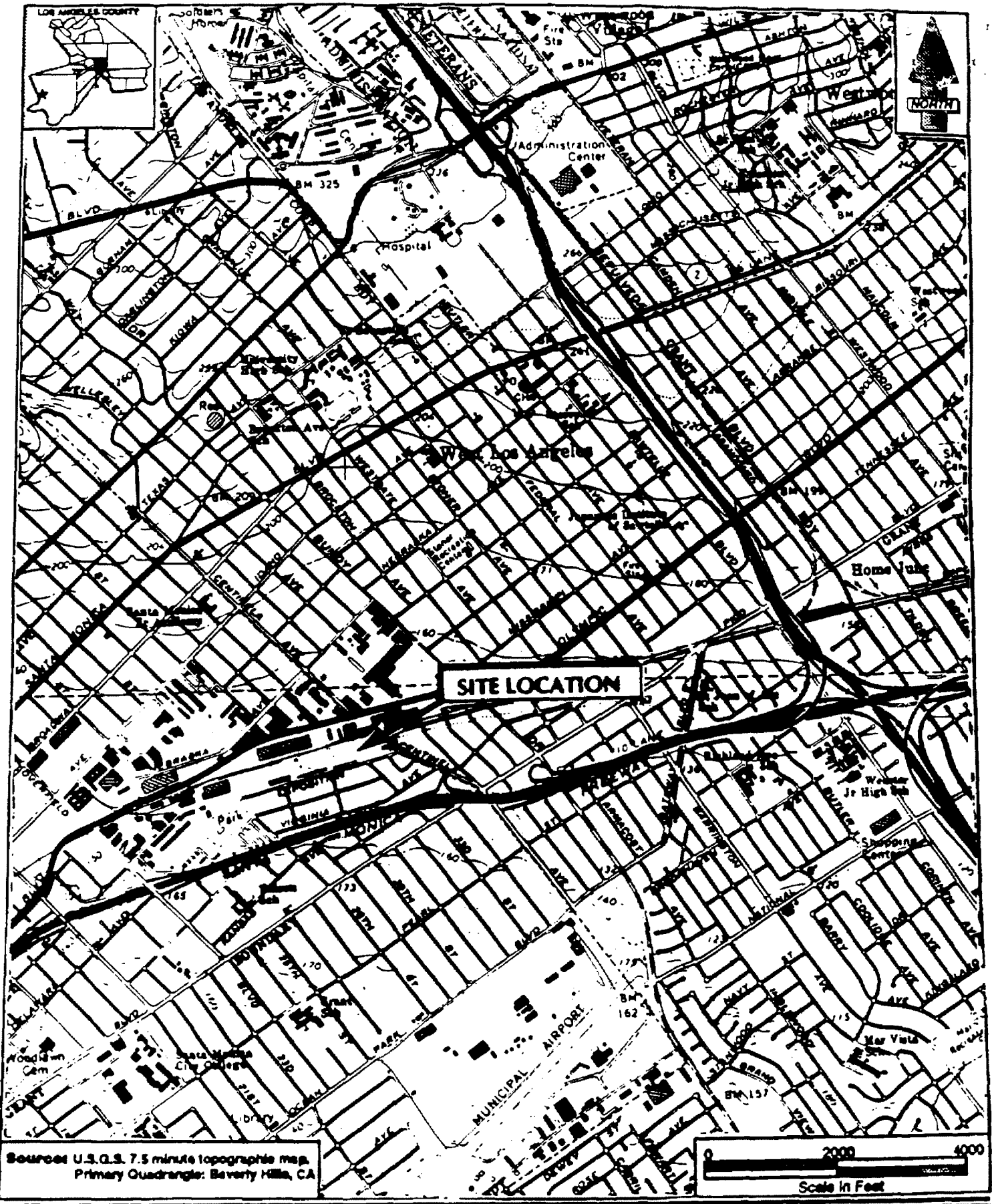
The site is located at Exposition Boulevard (2902 through 3303 Exposition) between Centinela Avenue and Stewart Street in Santa Monica, California. The geographic coordinates of the site are 34° 01' 54" N latitude and 118° 27' 31" W longitude (Township 2 south, Range 15 west, San Bernardino Baseline and Meridian, Beverly Hills, California, 7.5-minute quadrangle) (5). The location of the site is shown on Figure 2-1.

2.2 Site Description

The site occupied approximately 21 acres in a mixed commercial, residential and industrial area of Santa Monica. The current occupants own approximately 16 acres of the former site (5, 6). The additional 5 acres are now owned by the City of Santa Monica, and are known as the Bergamot Property (7). The site is bordered on the north by an abandoned railroad spur and an office building, on the west by Stewart Street and the Bergamot Property (consisting of several buildings used for both industrial and office uses), on the south by residences, and on the east by Centinela Avenue (see Figure 2-2) (5, 6).

The site historically consisted of several buildings utilized for various activities such as parts storage, lumber storage, crate storage, shipping and receiving, offices, cafeteria, cleaning, dipping, and degreasing operations, paint storage, sheet metal storage, maintenance, laboratories for plastics and metals, and crating. In addition, there was a 200,000-gallon above-ground water reservoir located on-site, one below-ground fuel oil storage tank, and two waste solvent USTs (see Figure 2-3, Historical Site Map) (2).

A facility map from 1960 shows an area used for degreasing near the approximate center of the site, northwest of the terminus of Dorchester Avenue. A flammable liquid drum storage area was located along the northern fenceline boundary of the site. Two waste solvent USTs were apparently located along the southern border of the site near the intersection of Warwick Avenue and Exposition Boulevard (subsequent subsurface investigations and geophysical surveys have called into question whether these tanks were actually present in this location) (see Figure 2-3, Historical Site Map) (2).



Source: U.S.G.S. 7.5 minute topographic map.
 Primary Quadrangle: Beverly Hills, CA



URS Consultants
 100 California Street Suite 500
 San Francisco, CA 94111
 July 6, 1995

Site Location Map
McDonnell Douglas Aircraft Facility
 Olympic Blvd. and Ce. tinela Ave., Santa Monica, CA

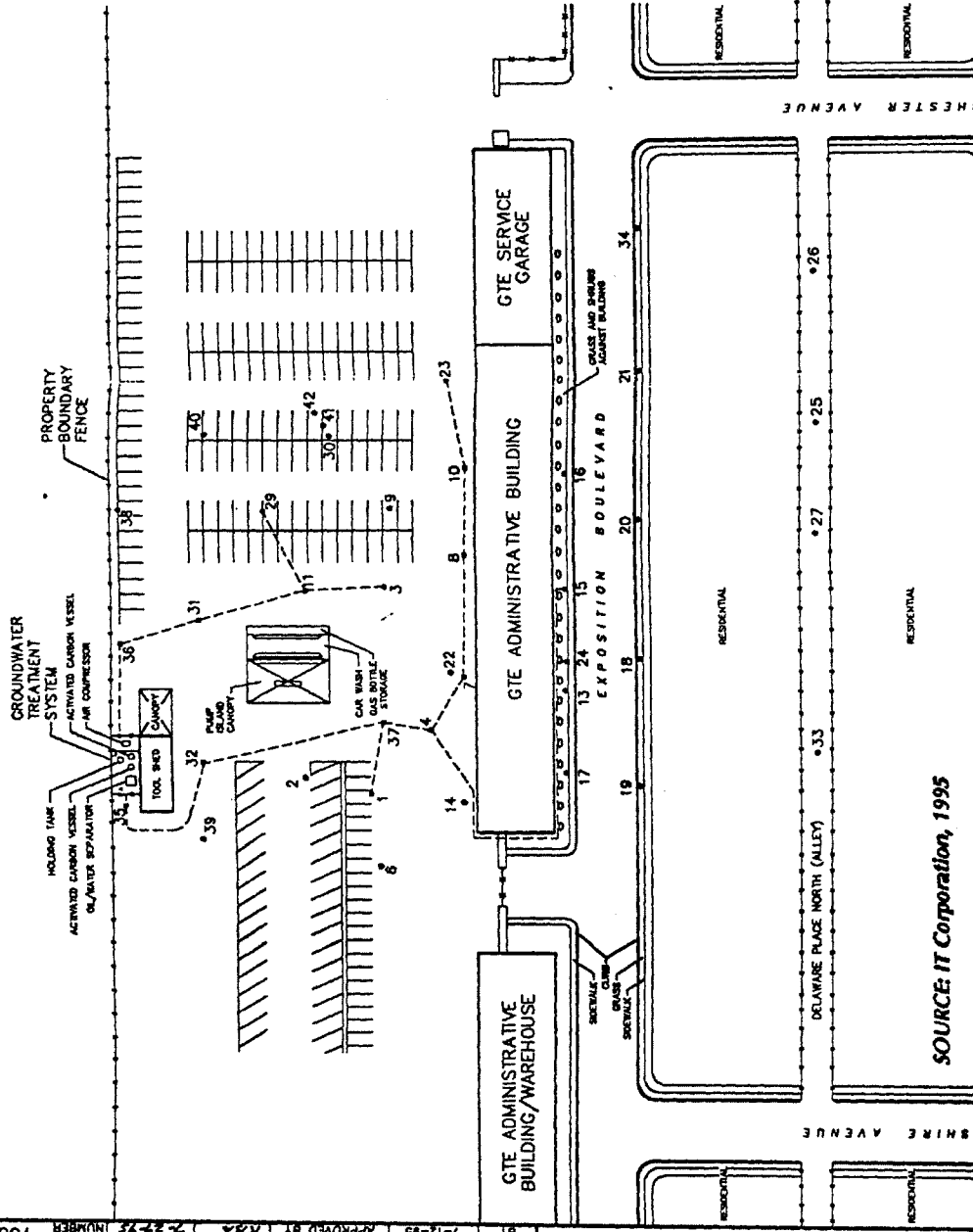
FIGURE
2-1

DRAWN BY: J.S. / 7-12-95 / 760001-814
 CHECKED BY: J.S. / 7-12-95 / 760001-814
 HRS: 12:22 / 760001-814



LEGEND:

- 19 ● GROUNDWATER MONITORING WELL
- 32 ■ GROUNDWATER EXTRACTION WELL
- UNDERGROUND PIPING FOR GROUNDWATER TREATMENT SYSTEM

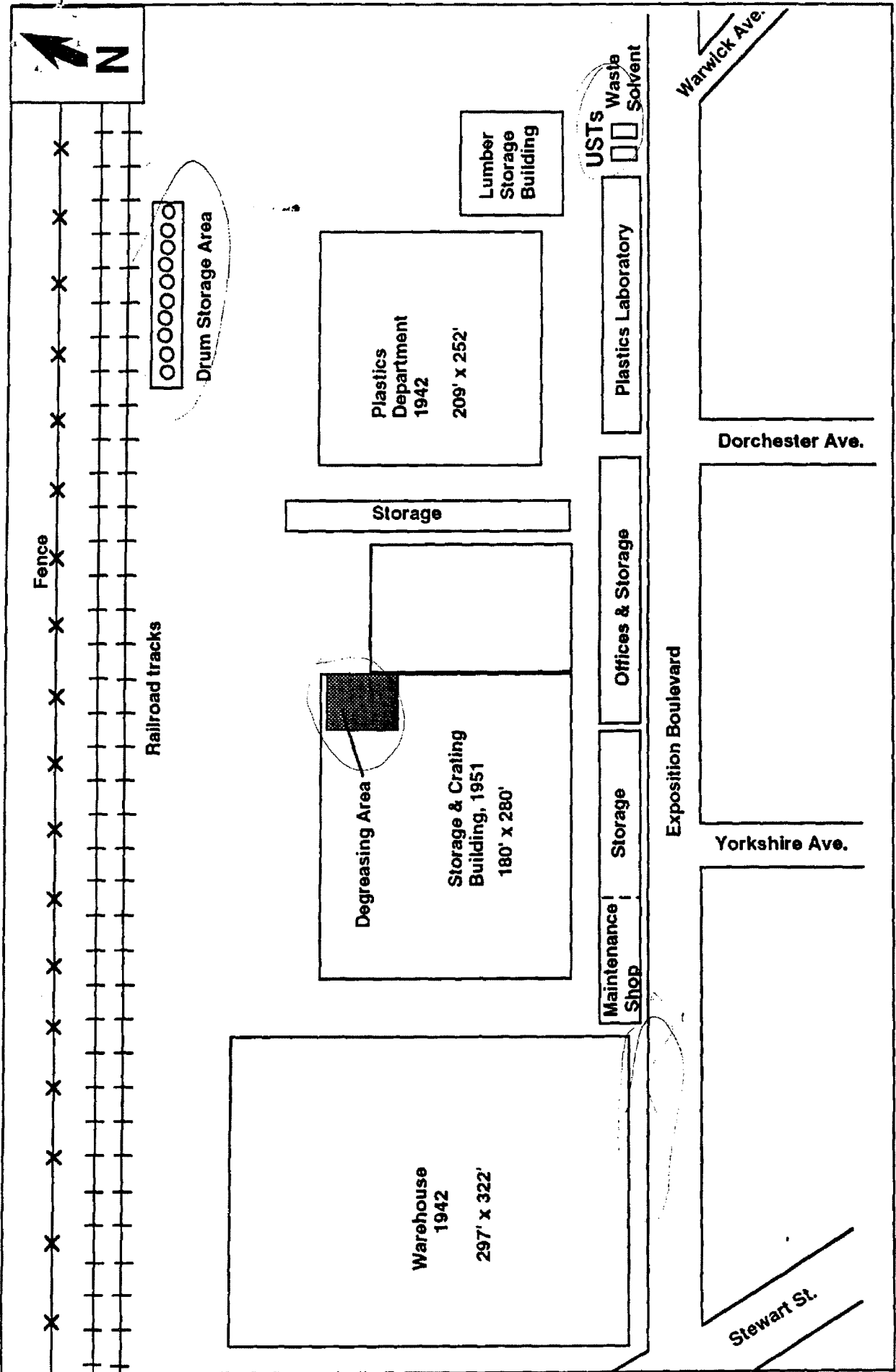


SOURCE: IT Corporation, 1995

URS Consultants, Inc.
 100 California Street
 San Francisco, CA 94111
 May 15, 1996

FACILITY MAP
 McDonnell Douglas Aircraft
 Facility (GTE)
 2902 Exposition Blvd., Santa Monica, CA

FIGURE 2-2



Historic Site Map

Douglas Aircraft Company, Inc.
Shipping & Receiving Plant No. A7
Santa Monica, California

FIGURE

2-3

URS Consultants
100 California Street
San Francisco, CA 94111
May 17, 1996

The site is currently occupied by GTE for use as its Santa Monica Plant Yard. The GTE site consists of several buildings utilized for vehicle-related activities such as maintenance, washing, and fueling. The GTE property covers the majority of the former Douglas property, except for the easternmost building located to the east of Dorchester Avenue along Exposition Boulevard. This property is owned by GTE and leased by another party. The property is currently vacant and unused; however, access to the property is possible from the adjacent GTE plant yard. This vacant property is the apparent location of the two former USTs reportedly used historically for the storage of waste solvents by Douglas Aircraft Company. URS's sampling efforts in July 1996, Eckland Consultants, Inc.'s sampling efforts in June 1996, and IT Corporation's sampling efforts in 1994 did not reveal the presence of these tanks or any VOC-contaminated soil associated with the former tanks (6, 8, 9).

The majority of the site is covered with asphalt and is used for vehicle parking. Two long, narrow buildings used by GTE as administrative, storage, and vehicle maintenance buildings are located on the southern border of the site at Exposition Boulevard between Dorchester and Yorkshire Avenues. The GTE site also includes a tool shed, a car wash rack, a fuel pumping station, and a groundwater treatment system for treatment of gasoline-component-contaminated groundwater from GTE's former UST leaks. The groundwater treatment system consists of 16 extraction wells plumbed to a carbon filtration system, holding tanks, an air compressor, and an oil/water separator. In addition to the extraction wells, 13 monitoring wells are present on-site and 10 monitoring wells are located off-site on Exposition Boulevard and Delaware Place North, to the south of the site (6, 10).

2.3 Operational History

2.3.1 Douglas Aircraft Company, Inc. Operational History

The site was unoccupied by industry prior to the early 1940s. By 1947, the first evidence of activities by McDonnell Douglas on Exposition Boulevard were recorded on aerial photographs and in historic telephone directories. Also of note: another Douglas Facility known as the Supercharger Facility was located at 1909 Centinela Avenue, approximately 700 feet north of the Plant A7 site (2, 11, 13). This location is upgradient of the Exposition

Boulevard site, and also was one of several Douglas locations in Santa Monica where TCE was used in degreasing operations (13).

In the 1940s, the area surrounding the site consisted of clay-mining operations and agriculture. By the middle of the 1950s, the area was becoming increasingly residential, with a few remaining clay mines, many of which had been converted into solid waste dumps. A 1958 aerial photograph revealed a few remaining dumps to the northwest and southwest of the site, but the area to the immediate north of the site remained unoccupied and undeveloped. By 1972, buildings resembling the current GTE site layout were present in an aerial photograph (11). According to information provided by GTE's consultant, IT Corporation (IT), GTE bought the property from Douglas Aircraft Company sometime in the late 1960s to early 1970s (12).

No information is available regarding the quantities of hazardous substances used or the quantities of hazardous wastes generated by McDonnell Douglas Corporation at the site. It is known from a review of historical McDonnell Douglas Corporation records that TCE was utilized at the site. TCE was likely used in a degreasing operation located within the storage and crating building in the center of the site (see Figure 2-3). It is not known how TCE was handled or disposed of; however, there is evidence from historic Douglas Aircraft Plant A7 layout maps that two waste solvent USTs were present on the site as previously mentioned (2). It is not known whether these tanks were removed or are still present on-site (subsequent subsurface investigations and geophysical surveys have called into question whether these tanks were actually present in this location). These tanks may have contained waste TCE. According to additional records, waste solvents were handled by one of two companies during the operational period of the site. No records were kept regarding quantities or in which units TCE was used; however, according to an internal McDonnell Douglas memorandum from 1980,

“...chemical reclamation companies hauled away chemical wastes from [the plant] for proper handling and processing (13).”

The two chemical reclamation companies listed were Inland Chemical Corporation of Orange, California, and PPG Industries of Los Angeles. It is not known whether TCE was hauled away from all the Douglas facilities by these companies, or just from the Plant A

site on Ocean Park Boulevard (covered under a separate CERCLA PA) to the south of the Plant A7 site on Exposition Boulevard (13).

2.3.2 Aerial Photograph Review

URS received aerial photographs of the subject area entitled "Santa Monica Groundwater Site" from EPA's Environmental Monitoring Systems Laboratory (EMSL) in January 1996. The coverage of the aerial photographs was from 1938 to 1994. The photographs reveal a facility to the northeast of the Exposition site that contained two surface impoundments or sumps present from the years 1947 to 1958. The aerial photographs also revealed that by 1975, a number of facility buildings utilized by McDonnell Douglas had been torn down and the site was being used by a new tenant (GTE) (14).

2.3.3 GTE Operational History

The GTE Santa Monica Plant Yard site is used primarily as a vehicle fueling, washing, and maintenance yard. Hazardous wastes generated at the site consist of waste oil (6).

In 1985, approximately 8,000 gallons of gasoline were released to the subsurface environment at the GTE site from a UST. The gasoline migrated vertically to a perched layer of groundwater at a depth of 33 feet bgs. The flow direction of this perched groundwater beneath the site is from north to south, and the gradient is relatively small. GTE's consultant, IT Corporation, has indicated that horizontal migration of the dissolved groundwater contaminant plume is minimal due to this gradient and due to the relatively impermeable nature of the subsurface geology. Sixteen extraction wells currently operate to pump the contaminated groundwater into a carbon filtration system on-site prior to discharge to the storm sewer under a National Pollutant Discharge Elimination System (NPDES) permit. Benzene, toluene, ethyl benzene, and xylenes (BTEX) and total petroleum hydrocarbons as gasoline (TPH-g) concentrations have decreased significantly since the treatment system was installed in 1987 (15).

Petroleum products are excluded from evaluation under CERCLA; therefore, this SI will not focus on the BTEX and TPH-g components of the shallow groundwater contamination at the GTE site. The discovery of significant concentrations of TCE and other VOCs in shallow groundwater beneath the GTE site in 1995 are, however, considered in URS' evaluation of the site outlined in Sections 3.0 and 4.0.

Greater detail regarding this chlorinated VOC groundwater contamination, as well as additional investigations conducted by IT at the GTE site, are discussed in Section 3.0 of this SI report.

2.4 Regulatory Involvement

2.4.1 McDonnell Douglas Aircraft Facility

No facility decommissioning or historical records (other than aerial photographs) of the Olympic/Centinela site were discovered during the course of the Preliminary Assessment and Site Inspection investigations. McDonnell Douglas Corporation representatives were not aware of the facility located on Exposition Boulevard. The majority of the information gathered on the Exposition Boulevard site was found in documents maintained by the City of Santa Monica related to GTE UST investigations and groundwater treatment facilities at this site. The lead agency for these investigations is the City of Santa Monica Environmental Programs Division (12).

There are no regulatory agencies involved with the Douglas site. The site is not listed with any of the regulatory agencies in the respective databases or files used to track hazardous substance sites. The following agencies were contacted and the responses indicated that there was no known information on the former Douglas site (16, 17, 18, 19, 20, 21):

- California Environmental Protection Agency Department of Toxic Substances Control (Cal-EPA DTSC) (16).
- California Environmental Protection Agency Regional Water Quality Control Board, Los Angeles Region (LARWQCB) (17).
- Los Angeles County Department of Environmental Health (18).
- City of Santa Monica Environmental Programs Division (19).
- City of Santa Monica Fire Department (20).
- South Coast Air Quality Management District (21).

In addition, the EPA has had no prior involvement with the former Douglas site.

2.4.2 GTE Santa Monica Plant Yard (GTE Facility)

The GTE Facility site is currently receiving regulatory oversight from the agencies discussed below.

RWQCB – Los Angeles Region

The IT Corporation task manager for the groundwater sampling and treatment activities at the GTE site indicated that the treatment system would be shut down as of July 1996. IT and GTE were apparently negotiating with the RWQCB to shut off the treatment system and allow for remediation of the groundwater through natural attenuation. At the time of the sampling by URS, the treatment system had been shut down temporarily; however, the system was turned on during the sampling event to allow URS to collect groundwater samples from the formation water. It is not known at this time if the treatment system will continue to remain idle, or whether the RWQCB will require GTE to continue its operation.

The RWQCB continues to monitor only the groundwater contamination at GTE related to the former gasoline UST. According to RWQCB personnel, since GTE had historically proven that there had been no TCE usage at the Santa Monica site associated with their operations, GTE was not named as a responsible party for the cleanup of groundwater contaminated with TCE and other chlorinated VOCs. This problem is considered a regional contamination issue, with no clearly identified potentially responsible parties (18).

City of Santa Monica Environmental Programs Division

The City of Santa Monica Environmental Programs Division (EPD) oversees UST removals and installations, soil and groundwater sampling, and remediation activities associated with USTs. EPD receives data on the groundwater sampling and the treatment system at the GTE site (19). In addition, EPD has overseen the investigative efforts related to USTs at the GTE site, including the removal of a concrete diesel oil tank and two-stage clarifier/sump in 1994 (9).

3.0 Investigative Efforts

3.1 Previous Sampling

In 1985, approximately 8,000 gallons of gasoline were spilled at the GTE site from a UST. Subsequent UST removals and soil and groundwater investigations followed to remediate the problem associated with this tank. Since 1987, a groundwater pump-and-treat and product recovery system has been in place at the GTE site. This pump-and-treat system has been installed to remediate petroleum hydrocarbon contamination of the groundwater. Previous sampling at the site has been conducted by IT Corporation through investigations related to the former USTs at the GTE Santa Monica Plant yard site (15). Since the groundwater contamination attributed to the GTE site is primarily petroleum hydrocarbon, analysis has been limited to BTEX and TPH. Until recently, no chlorinated VOCs had been analyzed for in groundwater wells installed to monitor the BTEX plume at the GTE site. In 1995, a total of 33 monitoring and extraction wells were sampled by IT and analyzed for VOCs by EPA Method 8240, which includes chlorinated hydrocarbons (TCE, 1,1,1-TCA, etc.) (10). Figure 3-1 and Table 3-1, below, summarize the TCE data from the 1995 shallow aquifer groundwater sampling at the GTE site.

3.1.1 Environmental Due Diligence Investigations

Two additional investigations at the GTE site were conducted in 1994 and 1996 by IT and Eckland Consultants, Inc., respectively. These investigations were not related to the GTE site per se, but rather they were conducted due to the plans to sell a portion of the GTE property formerly used by McDonnell Douglas Corporation and GTE (8, 9).

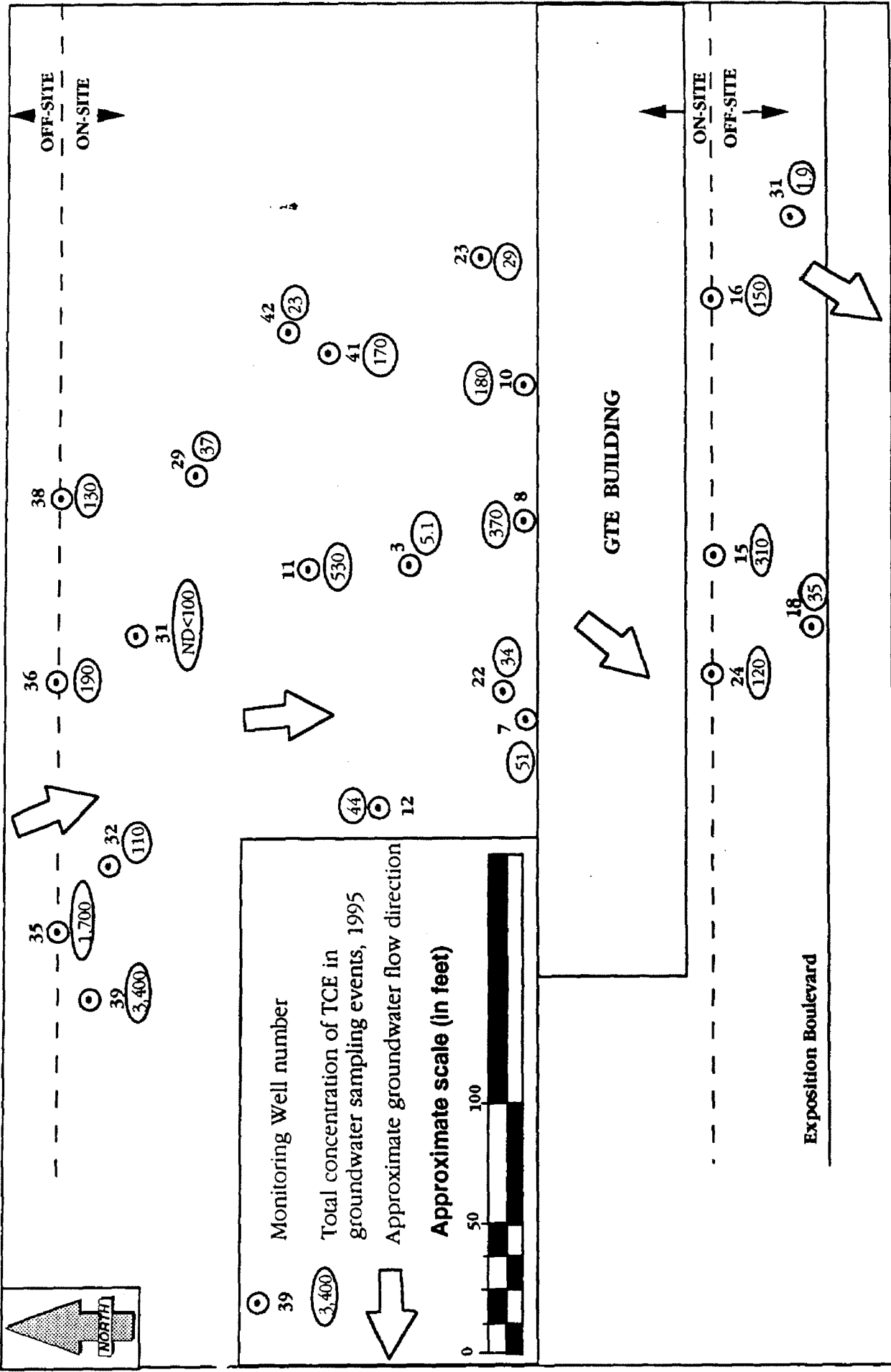
In 1994, IT Corporation conducted an environmental audit of 3303 Exposition Boulevard, a portion of GTE's property not used by the Santa Monica Plant Yard, but formerly utilized by the McDonnell Douglas Corporation for operation of the Shipping and Receiving Warehouse Plant A7. The property had also been used by GTE in the past to operate a payment processing center for the public. As a result of the audit, several USTs and sumps were identified on historical Douglas Aircraft Facility maps (2, 9). One 7,000-gallon concrete tank and one sump/clarifier were removed from the south side of the building at 3303 Exposition Boulevard in the fall of 1994. The tank and sump were over-excavated, and IT Corporation field personnel collected samples of the bottoms and

Table 3-1
 Summary of 1995 Groundwater Analyses
 Halogenated Volatile Organic Compounds
 GTE Santa Monica Plant Yard

Compound	Units	Method Detection Limit	WELL NUMBER																			
			1	3	4	6	7	8	10	11	12	14	15	16	17	18	19	21	22	23		
Vinyl Chloride	µg/L	1.0	ND	9	370	ND	170	78	86	ND	ND	ND	58	ND	ND	<10	ND	ND	40	2.4		
1,1-DCE	µg/L	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND		
trans-1,2-DCE	µg/L	1.0	ND	ND	8.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.3	ND		
TCE	µg/L	1.0	ND	5.1	ND	ND	51	370	180	530	44	ND	310	150	ND	35	ND	1.9	34	29		
PCE	µg/L	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cis-1,2-DCE	µg/L	1.0	ND	13	100	ND	470	340	160	ND	340	190	5.1	ND	170	ND	ND	210	2.8	2.8		

Compound	Units	Method Detection Limit	WELL NUMBER																			
			24	26	27	29	31	32	33	34	35	36	37	38	39	41	42					
Vinyl Chloride	µg/L	1.0	62	ND	ND	47	ND	170	ND	ND	ND	66	ND	ND	ND	ND	ND	ND	ND	ND		
1,1-DCE	µg/L	1.0	ND	<2.0	<5.0	ND	<100	ND	ND	ND	ND	ND	<100	ND	ND	ND	ND	ND	ND	ND		
trans-1,2-DCE	µg/L	1.0	ND	<2.0	<5.0	ND	<100	<10	<10	ND	<5.0	<10	<100	<10	<100	<10	<100	<10	<10	<10		
TCE	µg/L	1.0	<20	<2.0	<5.0	ND	<100	14	ND	ND	<5.0	<100	ND	ND	ND	ND	ND	ND	ND	ND		
PCE	µg/L	1.0	120	48	200	37	ND	110	1.9	97	1,700	190	ND	ND	ND	ND	ND	ND	ND	ND		
cis-1,2-DCE	µg/L	1.0	290	ND	100	14	370	240	ND	ND	540	190	ND	ND	ND	ND	ND	ND	ND	ND		

Notes: This table represents a summary of detected compounds which were analyzed under EPA SW-846 Method 8240; additional compounds were not reported in this table for simplification.
 µg/L: Micrograms per liter
 Shaded values for TCE represent concentrations exceeding EPA Maximum Contaminant Level (MCL)



URSA Consultants
 100 California Street
 San Francisco, CA 94111
 January 22, 1996

Concentrations of TCE in Shallow Groundwater (1995 Sampling Event)
 Former Douglas Aircraft Facility (GTE Plant Yard)
 Exposition Blvd. Site

FIGURE 2-4

IX and the principal author of this report for information concerning historical uses of the site. As such, the Eckland report did not reveal any new data except for information provided from the Phase II limited subsurface investigation. Eckland Consultants utilized a GeoProbe® direct-push soil sampling device to collect soil samples from four soil borings up to a depth of 45 feet bgs in June 1996. Groundwater was encountered at approximately 31 feet bgs in the borings (8).

Two borings (P1 to 34 feet bgs, and P2 to 41 feet bgs) were advanced in the area of the assumed former USTs, directly over the former IT borings. Soil sample results from the borings did not reveal any contamination with VOCs (by EPA Method 8240) or TPH (by EPA Method 418.1) from 5 feet bgs to the bottom of the borings. Soil samples were collected at 5-foot intervals for a total of 23 soil samples from the four borings. It should be noted that only seven soil samples were submitted for chemical analysis from the 23 samples collected, based on visual inspection and screening with an organic vapor monitor (8).

Water samples collected from the borings P1 through P4 were analyzed by EPA Method 8240, the water sample from boring P4 was also analyzed by EPA Method 8015 Modified (TPH). The water samples revealed the following contaminants present in the respective borings (8):

Table 3-2
Eckland Consultants, Inc.
Limited Phase II Subsurface Investigation
Former McDonnell Douglas Site
Groundwater Sample Results
June 1996
(Micrograms per Liter [µg/L])

Boring Number:	P1	P2	P3	P4
Analyte	Result	Result	Result	Result
Acetone	18	ND	13	ND
TCE	3.4	4.3	17	18
Chloroform	22	34	ND	6.5
TPH	NA	NA	NA	ND

Note: NA = not analyzed ND = Not detected
 Bold results for TCE indicate that the Maximum Contaminant Level (MCL) of 5 µg/L has been exceeded.

floors of the excavations with oversight by the City of Santa Monica Environmental Programs Division (9).

Soil and concrete stockpiles (from the former tank) were sampled and determined to be non-hazardous petroleum-contaminated soils. Approximately 198 cubic yards of soil and concrete were recycled at an off-site location (9).

Following excavation of the tank and sump to a depth of 27 feet, excavation sidewall and bottom samples were collected and analyzed for total petroleum hydrocarbons (gasoline and diesel standards) by modified EPA Method 8015; BTEX by EPA Method 8020; total petroleum hydrocarbons by EPA Method 418.1; and VOCs by EPA Method 8240. The sample analyses revealed non-detectable levels of the contaminants analyzed for, with the exception of one soil sample indicating 23 micrograms per kilogram ($\mu\text{g}/\text{Kg}$) of TPH. The excavation was backfilled with gravel and paved with asphalt, and the City of Santa Monica approved closure of the site (9).

An additional set of underground waste solvent storage tanks, which were suspected to be present along the southeastern border of the site, were investigated by IT Corporation through geophysical surveying and soil sampling in 1994. The geophysical survey utilized ground-penetrating radar (GPR) and electromagnetic surveying equipment. The results of the geophysical survey were inconclusive as to the presence of the tanks; however, a 2-foot-thick reinforced concrete slab was found to be present over the top of the presumed location of the right tank. The presence of this slab could have caused magnetic interferences with determining the presence of these tanks. IT Corporation speculated that the concrete slab could have suggested the presence of former above-ground storage tanks (9).

Three soil borings, advanced with a hand auger to 8 and 9 feet, next to the presumed location of the right tank, did not reveal the presence of fuel hydrocarbons or halogenated VOCs in soil samples collected from the borings (9).

An additional Phase I Environmental Site Assessment (ESA), File Review and limited Phase II ESA was conducted by Eckland Consultants, Inc. in June 1996. This Phase I/II was conducted for a confidential client, interested in purchasing the property located at 3303 Exposition Boulevard (8). The Phase I/II ESA was conducted by Enrique Cannata, P.E., of the Irvine office of Eckland Consultants, and included an interview with both EPA Region

3.2.2 Deviations from Sampling Plan

The only deviations from the Field Sampling Plan (FSP) that occurred during the sampling event were related to soil sample collection. The following deviations to the sample plan occurred:

- SB-01 soil sample was collected utilizing a solid-stem auger to a depth of 10 feet bgs;
- SB-02 soil samples were collected from 15 feet, 20 feet, and 25 feet bgs with a modified direct-push sampling tube advanced with a CPT rig (see details below); and
- SB-12 soil samples were collected from 15 feet and 19 feet bgs, since refusal was met by the GeoProbe® at 19 feet bgs. The boring completion depth was 19 feet bgs.

Refusal of the GeoProbe® soil sampling device was encountered in two locations: SB-01, and SB-12. When refusal was met with the GeoProbe® at location SB-01, URS subcontracted this portion of the work (collecting two background soil samples and one background groundwater sample) to a drilling company with a larger rig (Gregg Drilling of Signal Hill, California). The soil boring location at SB-02 was not attempted with the GeoProbe® unit, since URS personnel anticipated meeting refusal at a similar depth at that location.

The background locations for soil samples were collected on Franklin and Arizona Streets in the City of Santa Monica, near Wilshire Boulevard, on Saturday, July 27, 1996. One background sample was subsequently collected using a solid-stem auger to a depth of 10 feet bgs due to the presence of extensive utility lines on Franklin Street (SB-01). The 15-foot and 25-foot sample volumes were not collected from this location due to extensive utility lines present beneath 10 feet bgs. The sample was collected from the auger flights and into a brass sleeve with plastic end caps. Sample SB-02 was collected utilizing a cone penetrometer test (CPT) rig at 15 feet, 20 feet and 25 feet bgs, since the GeoProbe® could not push through the lithology in the two background locations.

The GeoProbe® also met refusal at SB-12, near the location of the old maintenance shop of the site. Refusal of the GeoProbe® was met at 19 feet bgs; therefore, two soil samples

It should be noted that the upgradient groundwater sample, P4, had the highest concentration of TCE of the four samples collected, including the two adjacent to a suspected source (P1 and P2). This indicates that the contamination of the shallow groundwater may be originating from an off-site source (8).

3.2 EPA Sampling

3.2.1 Purpose and Description of Sampling Event

The sampling event at the former McDonnell Douglas Aircraft Facility was designed to determine two objectives:

- 1) The presence or absence of VOCs, specifically TCE, in on-site subsurface soils. On-site subsurface soil samples were collected to determine the presence of soil contaminated with TCE, suggesting attribution of the soil contamination to sources formerly associated with the McDonnell Douglas Aircraft Facility.
- 2) The presence or absence of VOCs in shallow groundwater both on-site and hydraulically downgradient of the site. Shallow groundwater samples were collected to establish an observed release to groundwater from potential sources at the site.

Based on historical McDonnell Douglas facility maps, and the known use of TCE at this site, the four potential TCE sources historically on-site were: 1) the two suspected waste solvent USTs on the southeastern portion of the site; 2) a former degreasing operation located in the northern/central portion of the site; 3) potentially contaminated soils associated with a former maintenance shop located at the southern border of the site between Stewart Street and Yorkshire Avenue; and 4) a drum storage area along the northern rail spur, historically used to store flammable liquids and solvents (2).

In addition, representative subsurface soil undisturbed by site activities, and hydraulically upgradient groundwater, were sampled to establish background concentrations. These data are summarized below in Section 3.2.3.

were submitted from this location, collected at 15 feet bgs and 19 feet bgs, the total depth of the borehole. The 25-foot bgs soil sample (SB-12-03) was not collected. No additional deviations to the sampling plan occurred during the sampling event.

3.2.3 Discussion of Sample Results

3.2.3.1 Soil Sample Results

A total of 37 soil samples from 12 soil borings was submitted for chemical analysis from the site. As mentioned in the previous section, three soil samples from three sampling intervals could not be collected (SB-12-03 at 25 feet bgs, SB-01-02 at 20 feet bgs, and SB-01-03 at 25 feet bgs) since the GeoProbe® met refusal, or extensive utilities were present at these locations.

No TCE or other chlorinated VOCs were detected in any of the environmental samples collected from the site or the background locations. Methylene chloride and acetone were detected in all of the soil samples submitted, at concentrations ranging from 11 µg/Kg (both acetone and methylene chloride) to 130 µg/Kg acetone, and 56 µg/Kg methylene chloride. These results were noted by the laboratory as questionable, estimated, and flagged as non-detects due to contamination of the laboratory blanks, method blanks, storage blanks, and equipment and field blanks. The contamination of the environmental samples with methylene chloride and acetone is attributed to laboratory instrument artifacts and laboratory-produced contamination. Complete analytical results with validation of the data are included in Appendix D at the end of this report.

The sample results from the soil borings at the former Douglas site collected by URS indicate that a source of TCE soil contamination does not appear to be present in areas suspected previously (areas proposed in the FSP). In addition, soil samples collected by Eckland Consultants, Inc. and IT Corporation, although more limited in extent, seem to indicate that a source of TCE soil contamination is not present at the former Douglas aircraft site. The Contract Required Quantitation Limits (CRQLs) for the VOCs of concern (TCE, DCE) was 10 µg/Kg. The actual reporting limits utilized by the laboratory ranged from 10 µg/Kg to 13 µg/Kg.

3.2.3.1 Groundwater Sample Results

A total of five groundwater samples were collected from the Douglas site, plus one duplicate sample at location GW-39. In addition, one field blank, three equipment rinse blanks, and one background groundwater sample were collected and analyzed for VOCs. The sample results for the contaminants of concern are listed in Table 3-3.

Table 3-3
URS Consultants, Inc.
Groundwater Sample Results
McDonnell Douglas Aircraft Facility
July 1996
(µg/L)

Sample ID	GW-01 (Background)	MW-15	MW-18	MW-35	MW-37	MW-39	GW-40*
Date Collected	7/27/96	7/25/96	7/24/96	7/25/96	7/25/96	7/24/96	7/24/96
VOC	Result	Result	Result	Result	Result	Result	Result
TCE	U (<10)	340	77	620	140	1,100	1,100
Total DCE	U (<10)	290	180	310	480	25 (J)	28 (J)
Benzene	U (<10)	11 (J)	62	U (<59)	45	U (<69)	U (<93)
Toluene	U (<10)	U (<26)	9 (J)	U (<59)	U (<20)	U (<69)	U (<93)
2-Butanone	16 (J)	U (<26)	U (<10)	U (<59)	U (<20)	U (<69)	U (<93)
Total Xylenes	U	U	U	U	39	U (<69)	U (<93)
Ethylbenzene	U	U	U	U	38	U (<69)	U (<93)

Note: The data validation report indicated that 2-butanone (aka methyl ethyl ketone) is likely a laboratory artifact, even though it did not appear in any of the other environmental samples.

U: Not detected above the detection limit for the specific analytical run

J: Qualifier assigned by the ESAT contractor indicating that the number assigned was an estimated concentration of the positively identified compound.

*: GW-40 is a duplicate of the sample from MW-39

Methylene chloride and acetone were also found in the majority of the water samples submitted for analysis. In some cases, methylene chloride and acetone were detected in the equipment blanks, method blanks, and storage blanks. This is indicative of laboratory instrument and equipment artifacts, since methylene chloride is one of the most common laboratory contaminants detected in samples. Acetone and methylene

chloride detections in environmental samples do not appear to be indicative of contamination in water beneath the former Douglas site. All groundwater analytical results, as well as data validation packages, are included in Appendix D at the end of this report.

3.2.3.2 Comparison of 1996 Groundwater Results to 1995 Data

The 1995 groundwater monitoring well data (collected by IT Corporation) consisted of water samples from 33 monitoring and extraction wells analyzed by EPA Method 8240, with a reporting limit of 1.0 micrograms per liter ($\mu\text{g/L}$). These samples were collected from the monitoring and extraction wells when the pump-and-treat system was in operation. URS personnel collected groundwater samples from three extraction wells on the GTE site, two off-site monitoring wells, and one background groundwater sample collected from a temporary well point installed with the CPT rig. Groundwater samples were analyzed by Compuchem Environmental Corporation in North Carolina for EPA Contract Laboratory Program (CLP) VOCs.

It should be noted that the treatment system had been shut off for an unknown period of time prior to URS' sampling event. URS requested that GTE turn on the treatment system and leave it running for a few days in order to ensure that the water samples being collected were from the formation, and not from water sitting in the wells or treatment system pipes. The treatment system was also left running so that URS would not have to generate any purged groundwater from the extraction wells during the sampling event, as requested by GTE. Purged groundwater from the monitoring wells was discharged into the collection sump for the treatment system at the GTE site.

Overall, the number of analytes detected in 1996 was lower than the previous year. In 1995, vinyl chloride, tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, chloroform, and dichlorobenzene were detected in selected wells. In 1996, TCE and total DCE were the primary contaminants detected in the URS-collected samples. BTEX and 2-butanone (MEK) were detected less frequently in a few wells. No vinyl chloride was detected above the CRQL in any of the samples collected by URS personnel.

In general, TCE concentrations were lower this year than in the previous year for the northernmost extraction wells; however, some wells which had shown little or no

contamination with TCE in 1995 revealed an increased level of TCE in 1996 (see Table 3-4 below). Due to the limited size of the data set, URS cannot draw any conclusions from these increased concentrations.

Table 3-4
Comparison of TCE in
Selected GTE Monitoring and Extraction Wells
(IT Corporation 1995 and URS Consultants, Inc. 1996)
(in µg/L)

Year	MW 15	MW-18	EW-35	EW-37	EW-39
TCE 1995	310	35	1,700	ND	3,400
TCE 1996	340	77	620	140	1,100

4.0 Hazard Ranking System Factors

The Hazard Ranking System (HRS) is a scoring system used to assess the relative threat associated with actual or potential releases of hazardous substances from sites. It is the principal mechanism the EPA uses to place sites on the National Priorities List (NPL). URS has evaluated the following HRS factors relative to this site.

4.1 Sources of Contamination

Currently, there are no sources of uncontrolled hazardous substances associated with the former McDonnell Douglas Aircraft Facility site. Suspected sources, previously identified by URS were not supported as sources through soil and groundwater sampling efforts in July 1996 by URS, or by soil and groundwater sampling by Eckland Consultants in June 1996, or IT Corporation soil samples in 1994 (8, 9). The shallow groundwater contamination remaining in the site area appears to be a regional problem with no clearly identifiable source. As evidenced by the trend of high concentrations of TCE at the northern edge of the site, decreasing to lower concentrations across the site to the south, it appears that the source of TCE contamination in the City of Santa Monica municipal wells and GTE monitoring wells is attributed to an off-site source. Additional site investigation work in this area of Santa Monica is warranted to determine the source of the contamination and to identify potentially responsible parties (PRPs).

4.2 Groundwater Pathway

4.2.1 Hydrogeologic Setting

The Douglas Aircraft Company site lies above the Santa Monica groundwater basin in the coastal plain of Los Angeles County. The basin is surrounded by the Santa Monica mountains to the north, and the Ballona Escarpment to the south, and extends eastward from the Pacific Ocean to the Inglewood Fault (23).

The principal aquifers comprising the water-bearing formations of the Santa Monica Basin are contained within the Recent Alluvium and the San Pedro Formation. The Recent Alluvium extends from ground surface to a maximum depth of 90 feet bgs. Within the Recent Alluvium, the Ballona Aquifer consists of 30 to 50 feet of gravel and coarse sand, and extends to a maximum depth of 70 feet bgs (23). Groundwater within the Ballona

Aquifer occurs at approximately 50 feet bgs. The San Pedro Formation is found directly beneath the Recent Alluvium in the site vicinity. The principal drinking water aquifer within the San Pedro Formation in the site vicinity is the Silverado Aquifer. The Silverado Aquifer consists mainly of sand and gravel, with varying amounts of clay. It ranges in thickness from 100 to 280 feet, and extends to a depth of 450 bgs (23).

A regional trichloroethylene (TCE) groundwater contamination problem exists in the vicinity of the former Douglas/GTE site. Since 1980, four City of Santa Monica municipal wells have revealed TCE contamination at levels exceeding the MCL of 5 µg/L. These wells are in the immediate vicinity of the Douglas/GTE site, directly to the north and west. In the past, City of Santa Monica officials had suspected that prior operations at the Douglas site were partially responsible for the TCE contamination of their wells (4).

Attempts by the City of Santa Monica to obtain financial assistance from McDonnell Douglas Corporation to pay for the treatment and investigation of the contaminated groundwater were unsuccessful (4). URS's sampling efforts, along with additional studies in the Olympic/Centinela area of Santa Monica have revealed no conclusive information regarding the source of the TCE contamination. The shallow and deeper aquifers in the vicinity of the site are both contaminated with TCE at concentrations exceeding the MCL; however, there has been no identified source attributing the Douglas or GTE facilities to the TCE contamination.

4.2.2 Groundwater Targets

Municipal drinking water wells screened in the Silverado Aquifer are perforated at depths from 200 to 450 feet bgs (23). Twelve City of Santa Monica Municipal wells within 4 miles of the site serve approximately 89,000 people in the City of Santa Monica (24, 25).

4.2.3 Groundwater Pathway Conclusions

A regional trichloroethylene (TCE) groundwater contamination problem exists in the vicinity of the former Douglas/GTE site. Since 1980, four City of Santa Monica municipal wells have revealed TCE contamination at levels exceeding the MCL of 5 µg/L. These wells are in the immediate vicinity of the Douglas/GTE site, directly to the north and west. In the past, City of Santa Monica officials had suspected that prior operations at the Douglas site were partially responsible for the TCE contamination of their wells.