Harding Lawson Associates

90 JAN 18 AM 11:

January 12, 1990

Alameda County Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

Attention: Mr. Rafat Shahid

Gentlemen:

LOP 3619

Quarterly Technical Reports
Three Shell Service Stations
Oakland and Berkeley, California

On behalf of Shell Oil Company, we enclose the quarterly technical report for the following Shell service station for which Harding Lawson Associates is providing remedial investigations:

- 5755 Broadway, Oakland
- 6039 College Avenue, Oakland
- 2996 Shattuck Avenue, Berkeley

These quarterly technical reports have been reviewed and approved by Shell Oil Company.

If you have any questions, please call.

Very truly yours,

HARDING LAWSON ASSOCIATES

Randolph Stone
Certified Engineering Geologist

Stephen J. Osborne
Geotechnical Engineer

RS/SJO/ly

cc: Ms. Diane Lundquist, Shell Oil Company

A Report Prepared for

Shell Oil Company
P.O. Box 4023
Concord, California 94524

QUARTERLY TECHNICAL REPORT
FOURTH QUARTER OF 1989
5755 BROADWAY
OAKLAND, CALIFORNIA

HLA Job No. 4022,218.03

by

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Project Geologist

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Engineering Geologist

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January 12, 1990

INTRODUCTION

This Quarterly Technical Report (QTR) by Harding Lawson Associates (HLA) describes the status of our continuing evaluation of the presence of petroleum hydrocarbons in ground water in the vicinity of the Shell service station at 5755 Broadway, Oakland, California (Plate 1). This report discusses the site history and investigation progress through the fourth quarter of 1989, and summarizes activities we plan to undertake in the first quarter of 1990.

SITE HISTORY

Through conversations with employees at the service station, HLA understands that this station was previously a Thrifty service station.

In July 1985, Gettler-Ryan Inc. (GRI) installed one soil boring (S-A) and one 4-inch monitoring well (S-1) on site to approximately 12 feet. Boring logs, well construction details, and previous analytical reports were presented in a letter from EMCON Associates dated August 1, 1985. Relatively small concentrations of up to 3 parts per million (ppm) of total petroleum hydrocarbons (TPH) as gasoline were detected in soil and groundwater samples. A soil sample obtained from S-A at the maximum depth explored, 10 to 11.5 feet below grade, did not contain detectable concentrations of TPH as gasoline. These data indi-

cated the presence of petroleum hydrocarbons in the ground water on site.

On August 10, 1989, Shell retained HLA to complete the site assessment and evaluate the need for remediation. On August 15, 1989, HLA obtained a ground-water sample from S-1. This sample contained concentrations of TPH as gasoline and benzene of 170 and 6 parts per billion (ppb), respectively.

On September 18, HLA installed two soil borings, S-2 and S-3, at locations shown on Plate 2. Drilling was performed under the direction of an HLA field engineer, who obtained soil samples and converted the borings to ground-water monitoring wells. Results of analyses on soil and ground-water samples are summarized in Tables 1 and 2.

ACCOMPLISHMENTS DURING THE FOURTH QUARTER OF 1989

Ground-water Sampling

On November 13, 1989, HLA collected ground-water samples from the existing monitoring wells.

Before sampling the ground water, at least three casing volumes were purged from the well while monitoring temperature, pH, and conductivity. After these parameters stabilized, ground-water samples were collected with a clean Teflon bailer, and decanted directly into laboratory-prepared volatile organic analysis (VOA) vials. The samples were labeled and placed into an ice-chilled cooler for transportation, under chain-of-custody,

to a state-certified chemical testing laboratory. Samples were analyzed for TPH as gasoline and benzene, toluene, ethylbenzene, and xylenes (BTEX). Between uses, all purging and sampling equipment was cleaned with an Alconox solution and rinsed with deionized water.

Chemical Test Results

The results of chemical analyses on ground-water samples indicated the presence of gasoline fuel constituents in ground water from S-1 and S-2 with respective concentrations of up to 910 and 64 ppb of TPH as gasoline and benzene (Table 2).

Ground-water Gradient

The tops of well casings were surveyed to a temporary datum with an assigned elevation of 100.00 feet. Water-level measurements were obtained using a chalked steel tape accurate to 0.01 feet. Well survey and water-level data are presented in Table 3. Our calculations indicate that the hydraulic gradient direction is toward the south. Plate 3 illustrates the surface contours of ground water at the site.

ANTICIPATED ACTIVITIES FOR THE FIRST QUARTER 1990

HLA plans to perform the following tasks for the first quarter 1990:

- Obtain ground-water samples to be analyzed for the presence of BTEX and TPH as gasoline for the purpose of monitoring ground-water contamination.

A tentative schedule of activities is presented on the attached schedule (Plate 4).

LIST OF TABLES

LIST OF ILLUSTRATIONS

TABLES

Table 1. Summary of Analyses on Soil Samples

Sample Number	Sample Date	TPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppb)	Total Lead (ppm)
S-2-1 (3.0')*	09/18/89	92	.120	.800	.580	4.20	--
S-3-1 (3.0')	09/18/89	ND	ND	.062	ND	.120	--
COMP	09/18/89	ND	ND	.067	ND	ND	0.2
Reporting Limits		10	.025	.025	.025	.075	0.2

* Sample depth in parentheses.

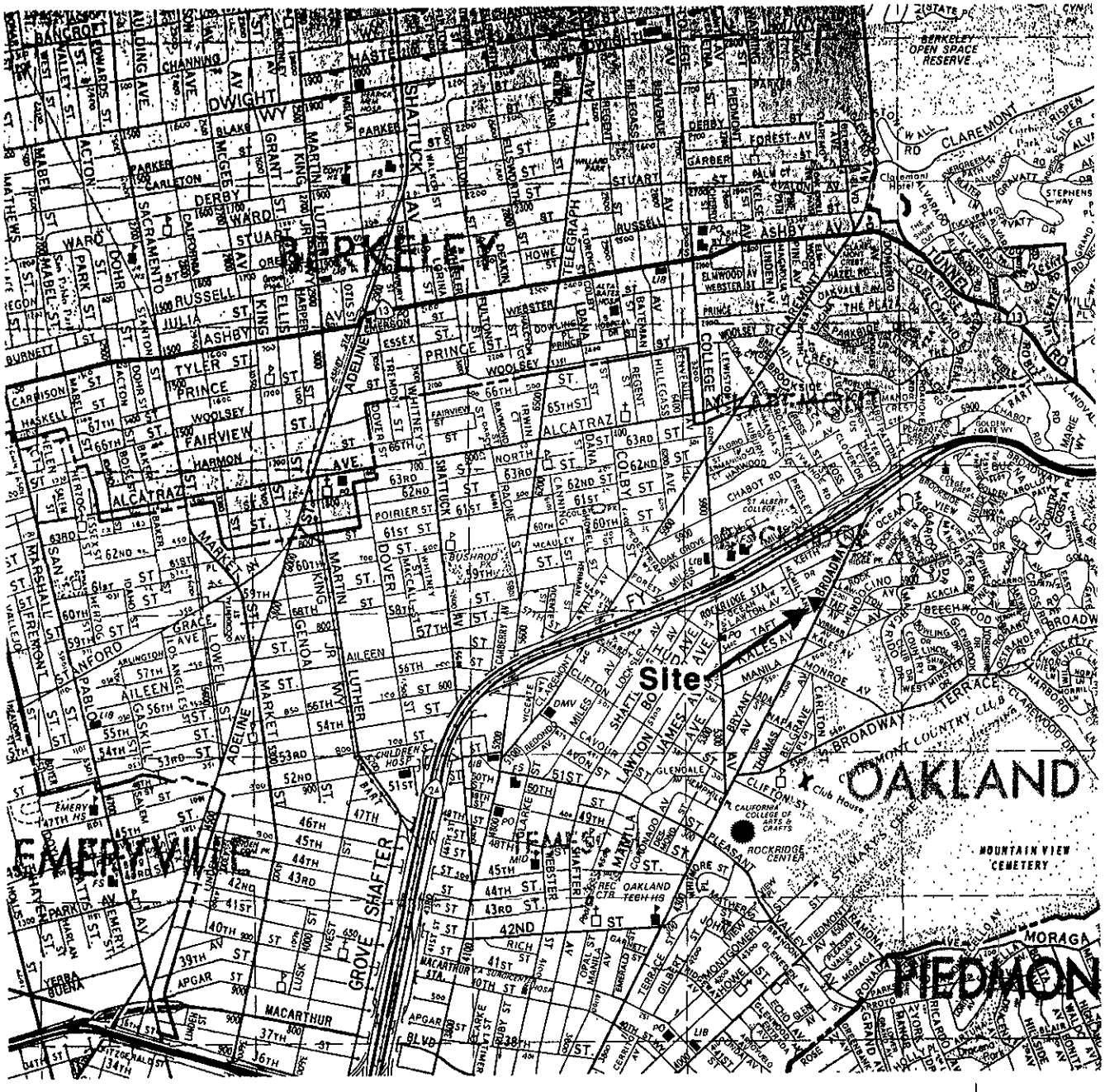
Table 2. Summary of Analyses on Ground-water Samples

Sample Number	Sample Date	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
S-1	08/15/89	170	0.6	ND	ND	ND
	11/13/89	90	1.2	ND	ND	ND
S-2	09/22/89	260	15	2	1	13
	11/13/89	910	64	5.8	13	84
S-3	09/22/89	ND	ND	ND	ND	ND
	11/13/89	ND	ND	ND	ND	ND
Reporting Limits		0.05	0.5	0.5	1.5	1.5

Table 3. Well-survey and Water-level Data

Well Number	Date	Top of Casing (feet)	Depth to Ground Water (feet)	Relative Ground-water Elevation (feet)
S-1	10/05/89	100.00	3.80	96.20
	11/13/89		3.72	96.12
S-2	10/05/89	98.92	4.44	94.48
	11/13/89		4.44	94.48
S-3	10/05/89	101.67	3.97	97.70
	11/13/89		3.76	97.91

ILLUSTRATIONS

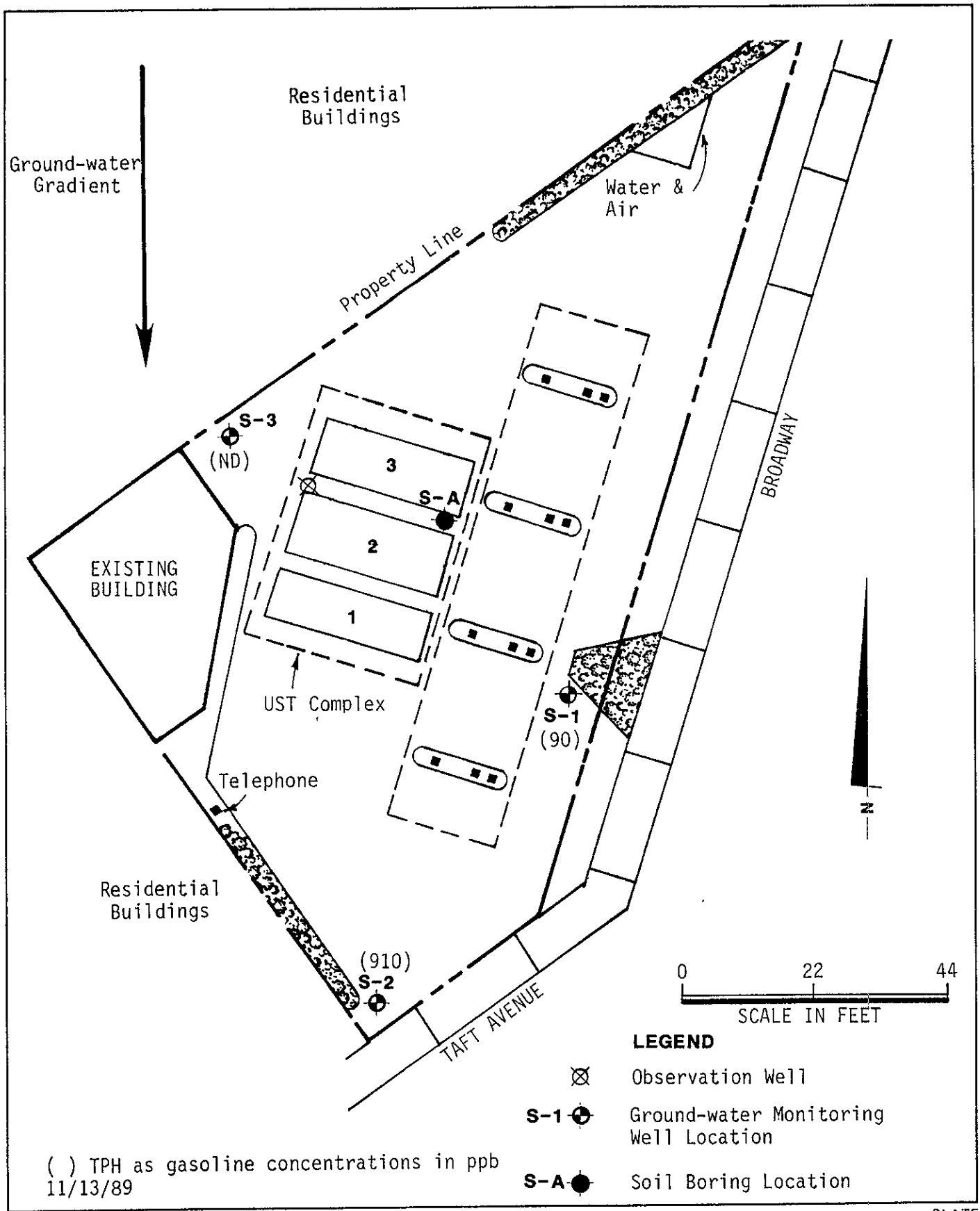


Harding Lawson Associates
Engineering and
Environmental Services

Vicinity Map
Shell Service Station
5755 Broadway
Oakland, California

PLATE
1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
KH	4022,218.03		8/89	



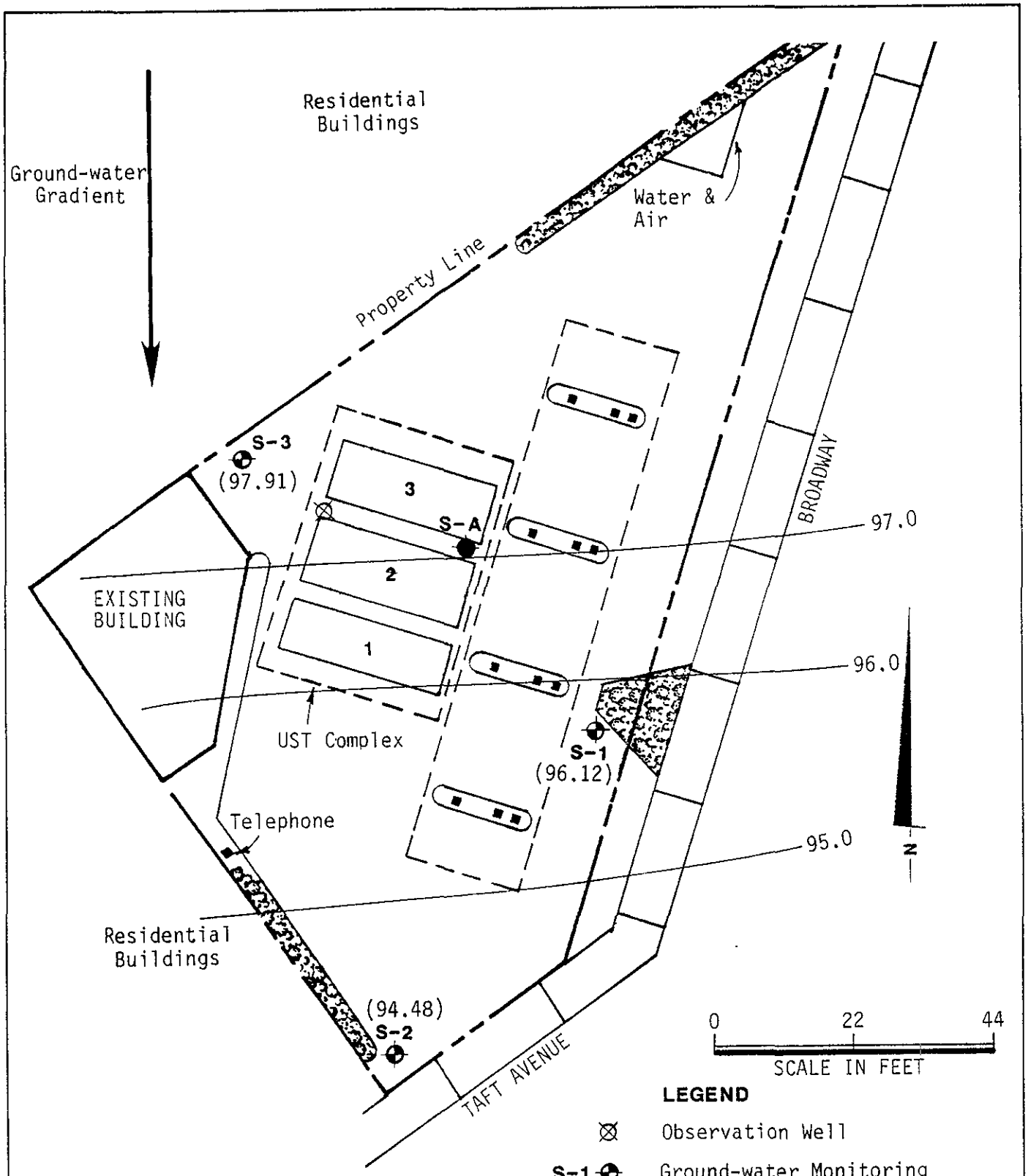
( ) TPH as gasoline concentrations in ppb
11/13/89

Harding Lawson Associates
Engineering and Environmental Services

Site Plan
Shell Service Station
5755 Broadway
Oakland, California

PLATE **2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
KH	4022,218.03		8/89	

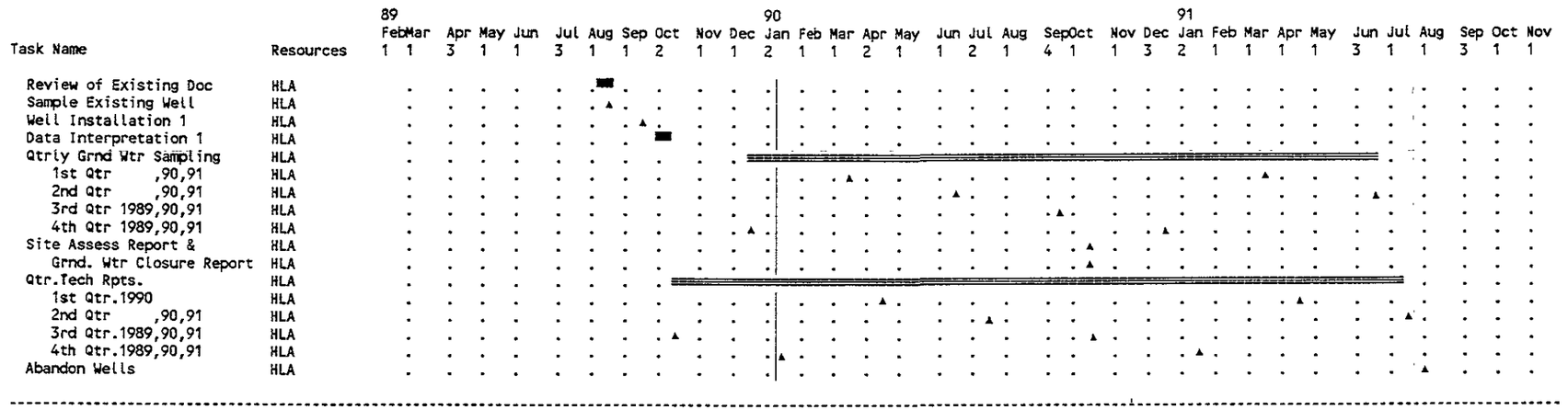


Harding Lawson Associates
Engineering and Environmental Services

Ground-Water Surface Contour Map
Shell Service Station
5755 Broadway
Oakland, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
KH	4022,218.03		8/89	



TIME LINE Gantt Chart Report, Strip 1

** Assumes that no ground-water remediation is necessary.
This is only a rough estimate at this time.

Harding Lawson Associates
Engineers, Geologists
& Geophysicists

Anticipated Closure Schedule
Shell Service Station
5755 Broadway
Oakland, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
KH	4022,218.03		1/90		

DISTRIBUTION

3 copies: Shell Oil Company
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Concord, California 94524
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Attention: Ms. Lisa Foster

GSY/RS/ly 031462L/R34

QUALITY CONTROL REVIEWER

Stephen J. Osborne
Civil Engineer