RESNA

DECEMBER QUARTERLY REPORT GROUNDWATER SAMPLING AND ANALYSIS

FOR

SHELL SERVICE STATION 230 MACARTHUR BOULEVARD OAKLAND, CALIFORNIA

Project No. 3-31001-F
January 1992

RESNA
Working to Restore Nature

41674 Christy Street
Fremont, California 94538
Phone: (510) 659-0404
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January 27, 1992
Project No. 3-31001-F

Shell Oil Company
1390 Willow Pass Road, Suite 900
Concord, CA 94520

Attention: Mr. Paul Hayes

Subject: December Quarterly Report
Groundwater Sampling and Analysis
Shell Service Station, 230 MacArthur Boulevard, Oakland, California

Dear Mr. Hayes:

At the request of Shell Oil Company, RESNA Industries, Inc., has prepared this letter report containing the results of the September 4, 1991, groundwater sampling at the subject site in the City of Oakland, Alameda County, California (Figure 1). This report also contains a groundwater surface contour map for September 1991 (Figure 2).

Groundwater Sampling

Groundwater samples were collected from three groundwater monitoring wells on the site in accordance with RESNA's groundwater sampling protocol (Appendix A). The groundwater purged from the wells and equipment rinse water were placed in drums approved for this purpose by the Department of Transportation. The drums were left on-site pending authorization to have the water pumped for disposal. Monitoring well MW-4 was not sampled because sheen was observed in the water.

Laboratory Analysis

National Environmental Testing, Inc. (NET) of Santa Rosa, California, a state-certified laboratory, analyzed the groundwater samples for the presence of total petroleum hydrocarbons as gasoline (TPHG) and benzene, toluene, ethyl benzene, and total xylenes (BTEX).

Summary of Laboratory Results

Groundwater analyses are summarized in Table 1. Copies of the analytical reports from NET and chain-of-custody documents are attached in Appendix B. None of the samples contained detectable levels of TPHG and/or BTEX.

Discussion

The groundwater surface contour map developed from the September 4, 1991, water level measurements is presented as Figure 2. The map yields a hydraulic gradient of approximately 0.016 directed east-northeast. The flow direction at this site has been towards the west until this quarter, and the change may be due to some form of artificial recharge, such as landscaping. This phenomena should be re-evaluated next quarter. Groundwater levels dropped between 0.10 and 2.78 feet during the last quarter.

Hydrocarbons were not present above laboratory detection limits in MW-1, MW-2, or MW-3. MW-4 was not sampled this quarter because sheen was again observed on the water in this well.

Reporting Requirements

A copy of this report will be forwarded to the following agencies in a timely manner.

Alameda County Flood Control
and Water Conservation District
5997 Parkside Drive
Pleasanton, California 94566
Attention: Mr. Craig Mayfield

Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94512-3429
Attention: Ms. Lisa McCann

Alameda County Health Department
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621
Attention: Mr. Gil Wistar

Disclaimer

This report has been prepared solely for the use of Shell and any reliance on this report by third parties shall be as such party's sole risk.

Limitations

The discussion and recommendations presented in this report are based on the following:

1. Exploratory test borings drilled at the site.
2. Observations by field personnel.
3. Results of laboratory analyses performed by a state-certified laboratory.
4. Our understanding of the regulations of the State of California, Alameda County, and the City of Oakland.

It is possible that variations in the soil or groundwater conditions could exist beyond the points explored in this investigation. Also, changes in the groundwater conditions could occur at some time in the future because of variations in rainfall, temperature, regional water usage, or other factors.

RESNA

The service performed by RESNA has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the Oakland area. Please note that contamination of soil and groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

RESNA includes in this report chemical analytical data from a state-certified laboratory. The analyses are performed according to procedures suggested by the U.S. EPA and State of California. RESNA is not responsible for laboratory errors in procedure or reporting.

If you have any questions or require additional information, please call.

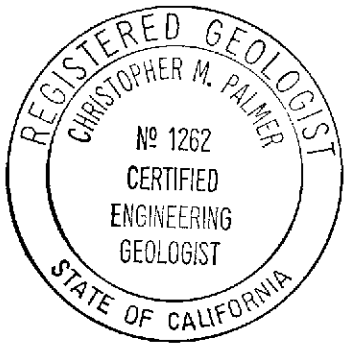
Sincerely,
RESNA Industries, Inc.

Nissa L. Nack
Staff Geologist

Christopher M. Palmer, C.E.G. 1262
Senior Program Geologist

NLN/CMP/sw
Enclosure

Appendix A: Groundwater Sampling Protocol
Appendix B: Laboratory Report and Chain-of-custody



RESNA Industries Inc.
Project No. 3-31001-F

Shell Oil Company
Oakland, California

TABLE 1

GROUNDWATER ANALYSES DATA

Well	Date Sampled	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Total Xylenes (ppm)	TDS (ppm)	Well Elevation (ft.)	Depth To Water (ft.)
MW-1	7/14/88	ND	ND	ND	ND	ND	NA	73.89	13.30
	10/4/88	BRL	0.008	0.0043	B R L	0.009	NA		13.65
	11/10/88	BRL	BRL	BRL	BRL	BRL	NA		13.55
	12/9/88	ND	ND	ND	ND	ND	NA		13.22
	1/10/89	ND	ND	ND	ND	ND	NA		12.86
	1/20/89	NA	NA	NA	NA	NA	NA		12.91
	2/6/89	ND	ND	ND	ND	ND	NA		12.94
	3/10/89	ND	ND	ND	ND	ND	NA		12.59
	6/6/89	ND	ND	ND	ND	ND	NA		14.05
	9/7/89	ND	ND	ND	ND	ND	NA		14.92
	12/18/89	ND	ND	ND	ND	ND	NA		14.88
	3/8/90	ND	ND	ND	ND	ND	420		14.08
	6/7/90	ND	ND	ND	ND	ND	430		13.89
	9/5/90	ND	ND	ND	ND	ND	500		14.83
	12/3/90	ND	ND	ND	ND	ND	NA		15.05
	3/1/91	ND	ND	ND	ND	ND	NA		14.34
	6/3/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		14.16
	9/4/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		14.60
	12/5/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		17.38
MW-2	7/14/88	ND	0.0079	0.0026	0.0011	0.004	NA	75.24	15.18
	10/4/88	0.09	BRL	0.0013	0.0025	0.012	NA		15.30
	11/10/88	BRL	BRL	BRL	BRL	0.002	NA		15.17
	12/9/88	ND	ND	0.0006	ND	0.003	NA		14.82
	1/20/89	ND	ND	ND	ND	ND	456		14.54
	2/6/89	ND	ND	ND	ND	ND	400		14.59
	3/10/89	ND	ND	ND	ND	ND	407		14.88
	6/6/89	ND	ND	ND	ND	ND	NA		15.30
	9/7/89	ND	ND	ND	ND	ND	NA		16.76
	12/18/89	ND	ND	0.0005	ND	ND	NA		16.65

TABLE 1

GROUNDWATER ANALYSES DATA

Well	Date Sampled	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Total Xylenes (ppm)	TDS (ppm)	Well Elevation (ft.)	Depth To Water (ft.)
MW-2 (Con't)	3/8/90	ND	ND	ND	ND	ND	380		15.92
	6/7/90	ND	ND	ND	ND	ND	380		16.10
	9/5/90	ND	ND	ND	ND	ND	400		16.61
	12/3/90	ND	ND	ND	ND	ND	NA		17.06
	3/1/91	ND	ND	ND	ND	ND	NA		16.62
	6/3/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		16.65
	9/4/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		16.57
	12/5/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		16.67
MW-3	7/14/88	ND	ND	ND	ND	ND	NA	74.68	14.05
	10/4/88	BRL	BRL	BRL	BRL	0.005	NA		14.60
	11/10/88	BRL	BRL	BRL	BRL	BRL	NA		14.35
	12/9/88	ND	ND	ND	ND	ND	NA		14.04
	1/10/89	ND	ND	ND	ND	ND	NA		13.70
	1/20/89	NA	NA	NA	NA	NA	NA		13.72
	2/6/89	0.07	ND	ND	ND	ND	NA		13.75
	3/10/89	0.15	ND	ND	ND	ND	NA		13.42
	6/6/89	ND	ND	ND	ND	ND	NA		14.52
	9/7/89	ND	0.00065	ND	ND	ND	NA		15.52
	12/6/89	0.04	0.0013	ND	0.00044	0.00066	NA		19.59
	3/8/90	ND	ND	ND	ND	ND	440		14.72
	6/7/90	ND	ND	ND	ND	ND	490		14.65
	9/5/90	ND	ND	ND	ND	ND	500		15.51
	12/3/90	ND	ND	ND	ND	ND	NA		14.85
	3/1/91	1.9	0.059	ND	0.022	ND	NA		14.92
	6/3/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		14.75
	9/4/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		15.14
	12/5/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA		17.75

TABLE 1

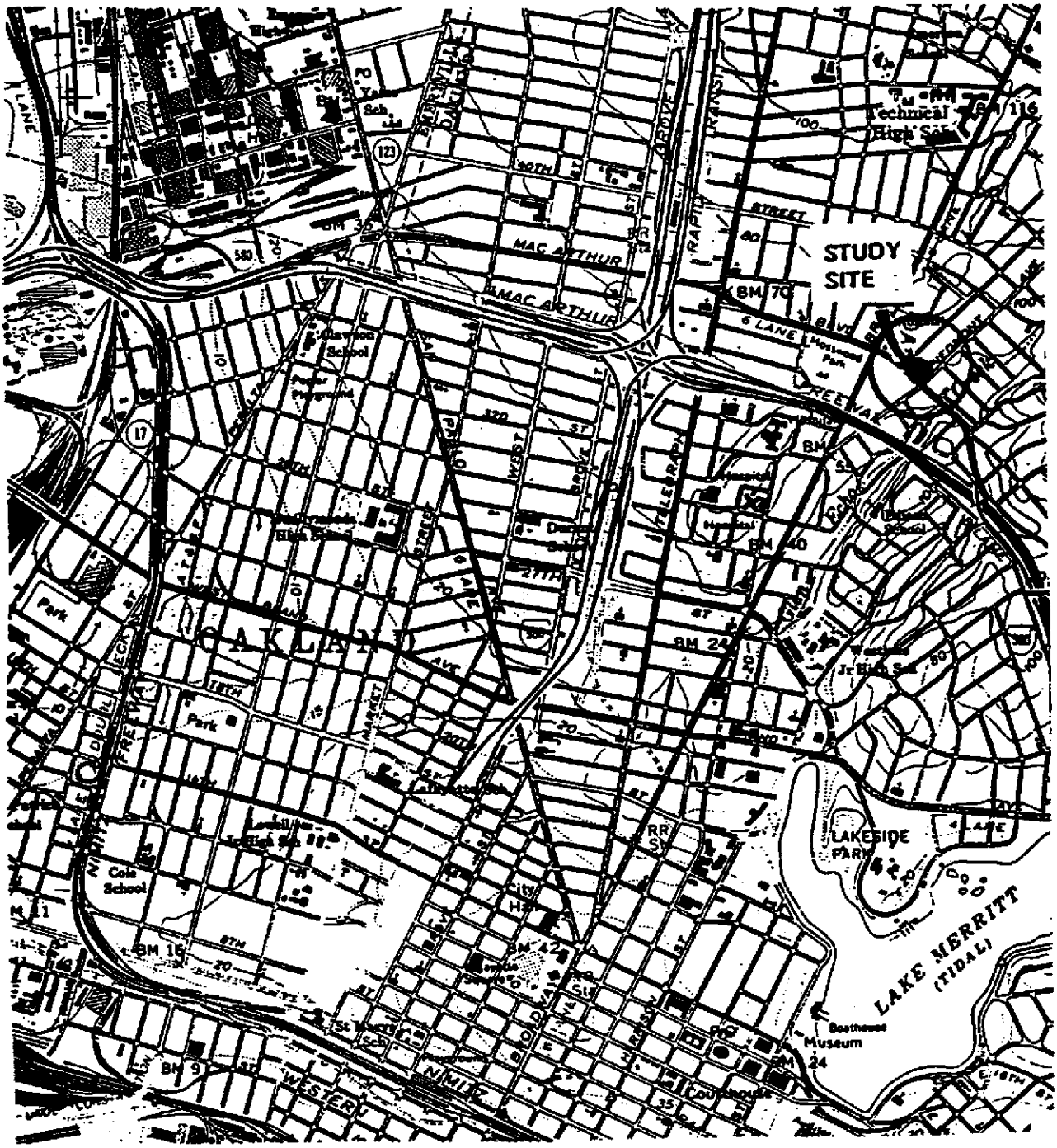
GROUNDWATER ANALYSES DATA

Well	Date Sampled	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Total Xylenes (ppm)	TDS (ppm)	Well Elevation (ft.)	Depth To Water (ft.)
MW-4	1/23/90	1.6	0.1	0.01	0.03	0.02	NA	73.83	14.68
	3/8/90	4.2	0.26	0.018	0.088	0.039	480		14.38
	6/7/90	2.0	0.15	0.0069	0.014	0.017	460		14.27
	9/5/90	1.7	0.13	0.01	0.0072	0.018	440		15.40
	12/3/90	2.6	0.1	0.041	0.017	0.059	NA		15.90
	6/3/91	2.8	0.16	0.015	0.088	0.032	NA		14.60
	9/4/91	NA	NA	NA	NA	NA	NA		15.25
	12/5/91	NA	NA	NA	NA	NA	NA		15.48

Legend

TPHG	Total petroleum hydrocarbons as gasoline
ppm	parts per million
ND	None detected at or above detection limit method
BRL	Below reporting limit
N A	Not Analyzed
TDS	Total dissolved solids
<0.0005	Less than detection limits

Note: See laboratory reports for detection and reporting limits



BASE: USGS 7.5 MINUTE TOPOGRAPHIC SHEET

N

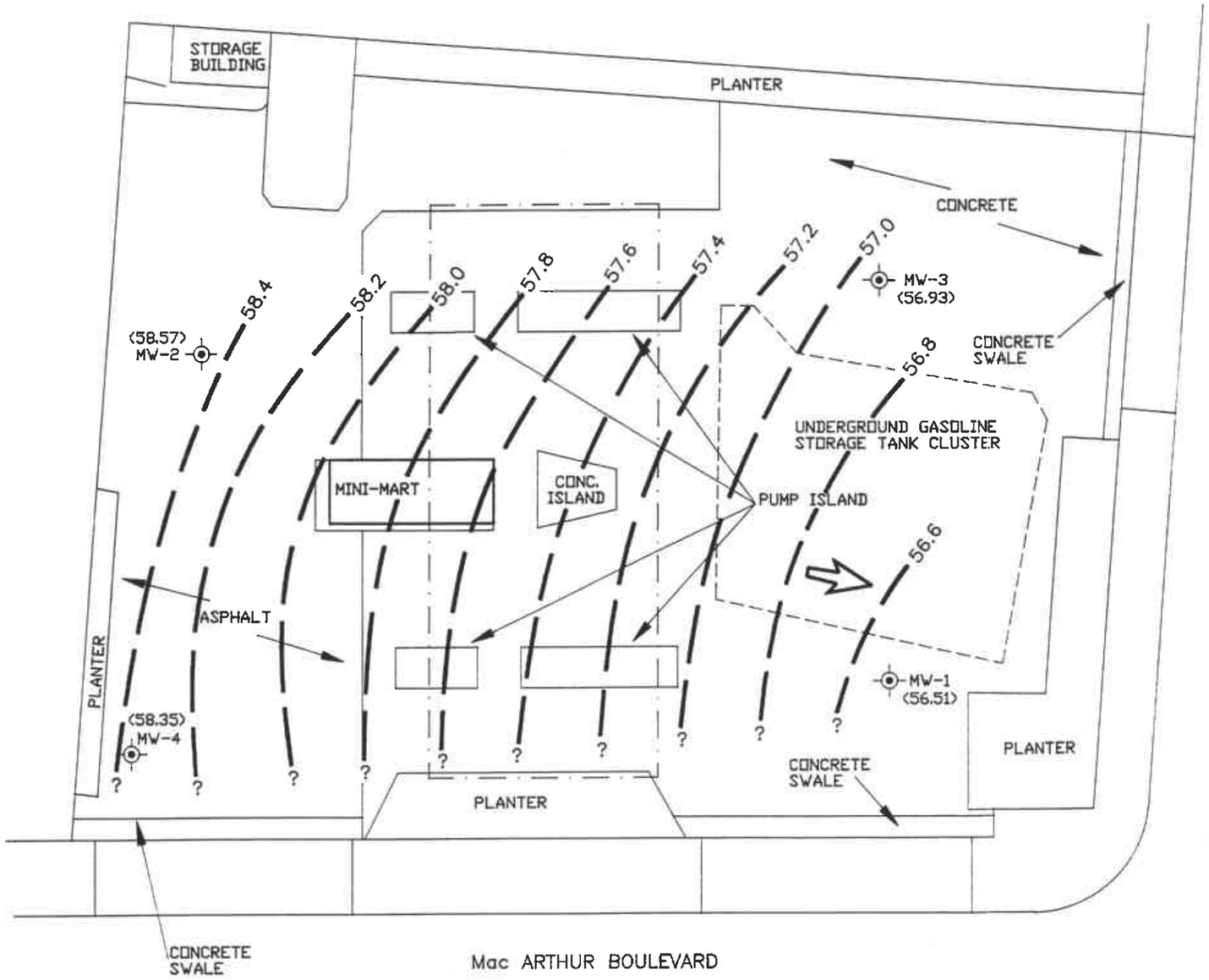
LEGEND:

SITE LOCATION

0 1

SCALE IN MILES

REVIEWED BY: NLW	**SITE LOCATION MAP**	RESNA
	SHELL SERVICE STATION	
APPROVED BY: CWP	230 MacARTHUR BOULEVARD	JOB #: 3-31001-F / DRAWN BY: E.C.
	OAKLAND, CALIFORNIA	DATE: 12/27/91 / DRAWING #: FIG: 1



PIEDMONT AVENUE

LEGEND

- MW-4 — GROUNDWATER MONITORING WELL
- (58.57) — GROUNDWATER SURFACE ELEVATION IN FEET (DATUM: M.S.L.)
- 58.4 — GROUNDWATER SURFACE ELEVATION CONTOUR LINE IN FEET (DATUM: M.S.L.)
- CANOPY
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- CONTOUR INTERVAL: 0.2 FEET

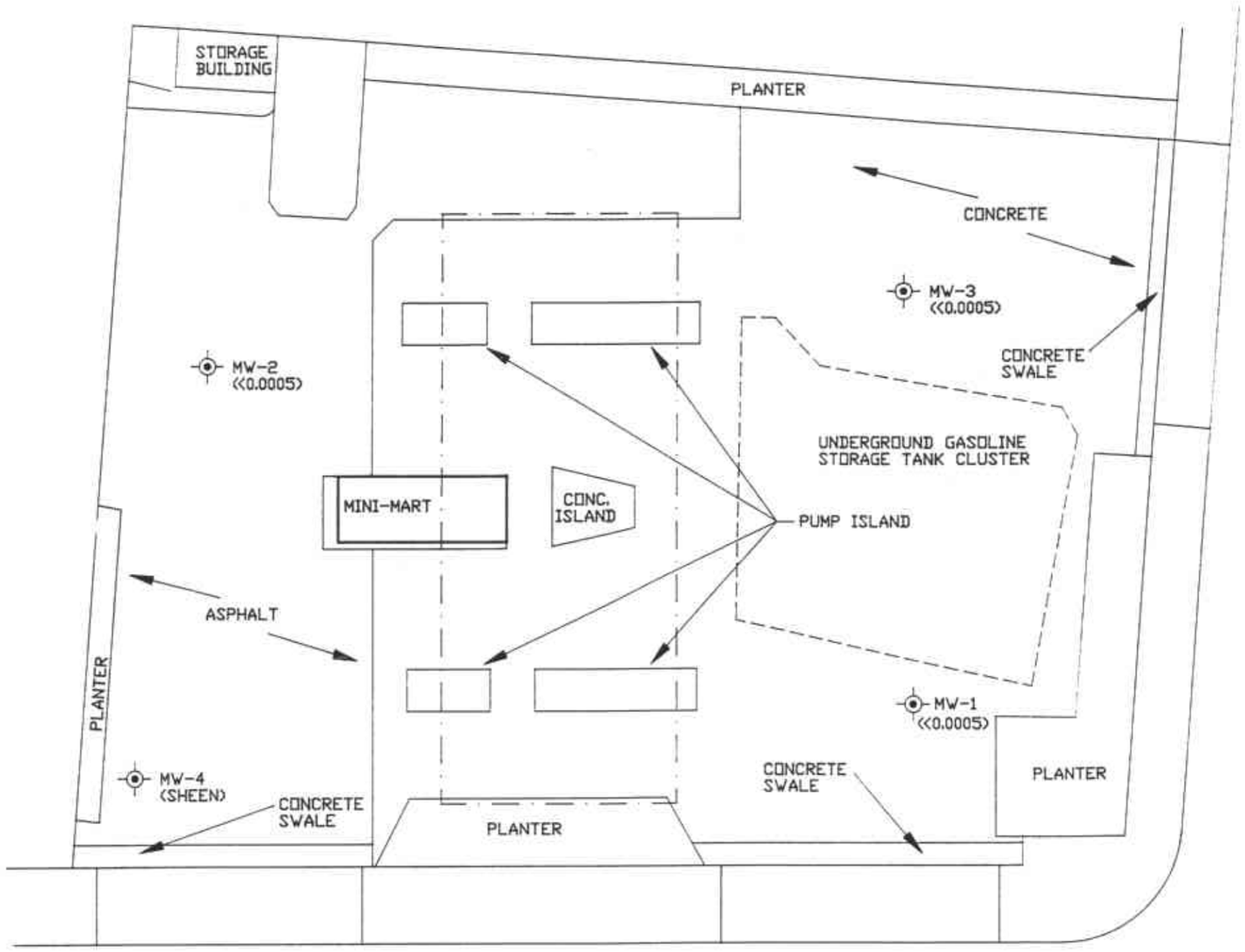
N

0 10 20
SCALE IN FEET

NOTE: CONTOURS ARE BASED ON INTERPRETATION OF AVAILABLE DATA. CONTOURS ARE NOT TO IMPLY CERTAINTY.

REVIEWED BY:	**GROUNDWATER ELEVATION CONTOUR MAP (12/5/91)**	RESNA	
	SHELL SERVICE STATION		
APPROVED BY:	230 Mac ARTHUR BOULEVARD	JOB #: 3-31001-F	DRAWN BY: E.C.
	OAKLAND, CALIFORNIA	DATE: 12/27/91	DRAWING #: FIG. 2

31001126



Mac ARTHUR BOULEVARD

PIEDMONT AVENUE

LEGEND

MW-4	GROUNDWATER MONITORING WELL
(<0.0005)	BENZENE CONCENTRATION IN PARTS PER MILLION
(SHEEN)	SHEEN IN WELL
	CANOPY

0 10 20
SCALE IN FEET

N

REVIEWED BY: KcN	BENZENE CONCENTRATION MAP (12/5/91)	RESNA
	SHELL SERVICE STATION	
APPROVED BY: CWP	230 Mac ARTHUR BOULEVARD	JOB #: 3-31001-E / DRAWN BY: E.C.
31001128	OAKLAND, CALIFORNIA	DATE: 12/27/91 / DRAWING #: FIG. 3

APPENDIX A

GROUNDWATER SAMPLING PROTOCOL

RESNA

Groundwater Sampling Protocol

GROUNDWATER SAMPLING PROTOCOL

Sampling of groundwater is performed by RESNA Industries, Inc. sampling technicians. Summarized field sampling procedures are as follows:

1. Proceed to first well with clean and decontaminated equipment.

2. Measurements of liquid surface(s) in the well, and total depth of monitoring well. Note presence of silt accumulation.

3. Field check for presence of floating product; measure apparent thickness.

4. Purge well prior to collecting samples; purge volume (casing volumes) calculated prior to removal.

5. Monitor groundwater for temperature, pH, and specific conductance during purging. Allow well to recover.

6. Collect samples using Environmental Protection Agency (EPA) approved sample collection devices, i.e., teflon or stainless steel bailers or pumps.

7. Transfer samples into laboratory-supplied EPA-approved containers.

8. Label samples and log onto chain-of-custody form.

9. Store samples in a chilled ice chest for shipment to a state-certified analytical laboratory.

10. Decontaminate equipment prior to sampling next well.

Equipment Cleaning and Decontamination

All water samples are placed in precleaned laboratory-supplied bottles. Sample bottles and caps remain sealed until actual usage at the site. All equipment which comes in contact with the well or groundwater is thoroughly cleaned with a trisodium phosphate (TSP) solution and rinsed with deionized or distilled water before use at the site. This cleaning procedure is followed between each well sampled. Wells are sampled in approximate order of increasing contamination. If a teflon cord is used, the cord is cleaned. If a nylon or cotton cord is used, a new cord is used in each well. All equipment blanks are collected prior to sampling. The blanks are analyzed periodically to ensure proper cleaning procedures are used.

Water Level Measurements

Depth to groundwater is measured in each well using a sealed sampling tape or scaled electric sounder prior to purging or sampling. If the well is known or suspected of containing free-phase petroleum hydrocarbons, an optical interface probe is used to measure the hydrocarbon thickness and groundwater level. Measurements are collected and recorded to the nearest 0.01 foot. Each monitoring well's total depth will be measured; this will allow a relative judgement of well siltation to be made and need for redevelopment.

Bailer Sheen Check

If no measurable free-phase petroleum hydrocarbons are detected, a clear acrylic bailer is used to determine the presence of a sheen. Any observed film as well as odor and color of the water is recorded.

Groundwater Sampling

Prior to groundwater sampling, each well is purged of "standing" groundwater. Either a bailer, hand pump, or submersible pump is used to purge the well. The amount of purging is dependent on the well yield. In a high yield formation, samples will be collected when normal field measurement, including temperature, pH, and specific conductance stabilize, provided a minimum of three well-casing volumes of water have been removed. Field measurements will be taken after purging each well volume. Physical parameter measurements (temperature, pH, and specific conductance) are closely monitored throughout the well purging process and are used as indicators for

assessing sufficient purging. Purging is continued until all three physical parameters have stabilized. Specific conductance (conductivity) meters are read to the nearest ±10 umhos/cm and are calibrated daily. pH meters are read to the nearest ±0.1 pH units and are calibrated daily. Temperature is read to the nearest 0.1 °F. Calibration of physical parameter meters will follow manufacturer's specifications. Collected field data during purging activities will be entered on the Well Sampling Field Data Sheet.

In low yield formations, the well is purged such that the "standing" water is removed and the well is allowed to recharge. (Normal field measurements will be periodically recorded during the purging process.) In situations where recovery to 80% of static water level is estimated, or observed to exceed a two hour duration, a sample will be collected when sufficient volume is available for a sample for each parameter. Attempts will be made so the well is not purged dry such that the recharge rate causes the formation water to cascade into the well.

In wells where free-phase hydrocarbons are detected, the free-phase portion will be bailed from the well and the estimated volume removed recorded. A groundwater sample will be collected if bailing reduces the amount of free-phase hydrocarbons to the point where they are not present in the well. Well sampling will be conducted using one of the aforementioned methods depending on the formation yield. However, if free-phase hydrocarbons persist throughout bailing, then a groundwater sample will not be collected.

Volatile organic groundwater samples are collected so that air passage through the sample does not occur or is minimal (to prevent volatiles from being stripped from the samples): sample bottles are filled by slowly running the sample down the side of the bottle until there is a positive convex meniscus over the neck of the bottle; the teflon side of the septum (in cap) is positioned against the meniscus, and the cap screwed on tightly; the sample is inverted and the bottle lightly tapped. The absence of an air bubble indicates a successful seal; if a bubble is evident, the cap is removed, more sample is added, and the bottle is resealed.

Chain-of-Custody

Groundwater sample containers are labeled with a unique sample number, location, and date of collection. All samples are logged into a chain-of-custody form and placed in a chilled ice chest for shipment to a laboratory certified by the State of California Department of Health Services.

Sample Storage

Groundwater samples collected in the field are stored in an ice chest cooled to 4 °C while in transit to the office or analytical laboratory. Samples are stored in a refrigerator overnight and during weekends and holidays. The refrigerator is set to 4 °C and is locked with access controlled by a designated sample custodian.

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by RESNA for groundwater sampling and monitoring follow quality assurance/quality control (QA/QC) guidelines. Quality assurance objectives have been established to develop and implement procedures for obtaining and evaluating water quality and field data in an accurate, precise, and complete manner. In this way, sampling procedures and field measurements provide information that is comparable and representative of actual field conditions. Quality control (QC) is maintained by site-specific field protocols and requiring the analytical laboratory to perform internal and external QC checks. The goal is to provide data that are accurate, precise, complete, comparable, and representative. The definitions as developed by overseeing federal, state, and local agency guidance documents for accuracy, precision, completeness, comparability, and representativeness are:

- **Accuracy** — the degree of agreement of a measurement with an accepted reference or true value.
- **Precision** — a measure of agreement among individual measurements under similar conditions. Usually expressed in terms of the standard deviation.
- **Completeness** — the amount of valid data obtained from a measurement system compared to the amount that was expected to meet the project data goals.
- **Comparability** — express the confidence with which one data set can be compared to another.
- **Representativeness** — a sample or group of samples that reflect the characteristics of the media at the sampling point. It also includes how well the sampling point represents the actual parameter variations which are under study.

Laboratory and field handling procedures of samples are monitored by including QC samples for analysis with every submitted sample lot from a project site. QC samples may include any combination of the following:

- **Trip Blanks:** Used for purgeable organic compounds only; QC samples are collected in 40 milliliter (ml) sample vials filled in the analytical laboratory with organic-free water. Trip blanks are sent to the project site, and travel with project site samples. Trip blanks are **not** opened, and are returned from a project site with the project site samples for analysis.
- **Field Blank:** Prepared in the field using organic-free water. These QC samples accompany project site samples to the laboratory and are analyzed for specific chemical parameters unique to the project site where they were prepared.

- **Duplicates:** Duplicated samples are collected "second samples" from a selected well and project site. They are collected as either split samples or second-run samples collected from the same well.

- **Equipment Blank:** Periodic QC samples collected from field equipment rinseate to verify decontamination procedures.

The number and types of QC samples are determined and analyzed on a project-specific basis.

Shallow Groundwater Survey

A shallow groundwater survey employs reconnaissance field sampling and chemical analysis for rapid plume mapping. Occasionally, a state-certified laboratory subcontractor may be used. The subcontractor would sample for analysis at locations marked by the RESNA field geologist. The thin-diameter probes from which groundwater is collected are advanced to the water bearing stratum, sample is withdrawn to the surface, and analyzed immediately thereafter. Probe holes are backfilled with a grout slurry or as the local permitting agency requires. The shallow survey contractor will supply sampling, purging, and field chemical analysis to RESNA in their report. RESNA considers this type of shallow probe mapping (together with shallow groundwater sampling) to be a reconnaissance technique only.

APPENDIX B

LABORATORY RESULTS AND CHAIN-OF-CUSTODY DOCUMENTS

NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Nissa Nack
Exceltech
41674 Christy St.
Fremont, CA 94538

Date: 12/22/1991
NET Client Acct No: 1806
NET Pacific Log No: 91.1107
Received: 12/07/1991

Client Reference Information

SHELL, 230 MacArthur Blvd. Oakland, Job: 3-31001

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

JS:rct
Enclosure(s)

NET Pacific, Inc

Client No: 1806
Client Name: Exceltech
NET Log No: 91.1107

Date: 12/22/1991
Page: 2

Ref: SHELL, 230 MacArthur Blvd. Oakland, Job: 3-31001

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results BB-1 12/05/1991 107226	MW-1 12/05/1991 107227	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			12-12-91	12-12-91	
DILUTION FACTOR*			1	1	
as Gasoline		0.05	ND	ND	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			12-12-91	12-12-91	
DILUTION FACTOR*			1	1	
Benzene		0.0005	ND	ND	mg/L
Ethylbenzene		0.0005	ND	ND	mg/L
Toluene		0.0005	ND	ND	mg/L
Xylenes (Total)		0.0005	ND	ND	mg/L

NET Pacific, Inc

Client No: 1806
Client Name: Exceltech
NET Log No: 91.1107

Date: 12/22/1991
Page: 3

Ref: SHELL, 230 MacArthur Blvd. Oakland, Job: 3-31001

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-2 12/05/1991 107228	MW-3 12/05/1991 107229	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			12-12-91	12-12-91	
DILUTION FACTOR*			1	1	
as Gasoline		0.05	ND	ND	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			12-12-91	12-12-91	
DILUTION FACTOR*			1	1	
Benzene		0.0005	ND	ND	mg/L
Ethylbenzene		0.0005	ND	ND	mg/L
Toluene		0.0005	ND	ND	mg/L
Xylenes (Total)		0.0005	ND	ND	mg/L

NET Pacific, Inc

Client No: 1806
Client Name: Exceltech
NET Log No: 91.1107

Date: 12/22/1991
Page: 4

Ref: SHELL, 230 MacArthur Blvd. Oakland, Job: 3-31001

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	0.05	mg/L	112	ND	108	108	<1
Benzene	0.0005	mg/L	112	ND	91	97	7.0
Toluene	0.0005	mg/L	111	ND	91	94	3.3

COMMENT: Blank Results were ND on other analytes tested.

NET Pacific, Inc

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
ICVS	:	Initial Calibration Verification Standard (External Standard).
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 16th Edition, APHA, 1985.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No.: 2566

Date: [redacted]
Page 1 of 1

Site Address: 230 MacArthur Blvd Oakland CA

WIC#: 204-5508-0705

Shell Engineer: Jack Brastad | Phone No. | Fax #:

Consultant Name & Address: Resnor 41674 Christy St Fremont CA

Consultant Contact: Nissa Nack | Phone No. (510)659-0404 | Fax #: 651-4677

Comments: Job No. 3-31001-F

Sampled By: Robin Sutherland

Printed Name: Robin Sutherland

LAB: NET

CHECK ONE (1) BOX ONLY	CT/DT
Quarterly Monitoring	☒ 5461
Site Investigation	☐ 5441
Soil for disposal	☐ 5442
Water for disposal	☐ 5443
Air Sample- Sys O&M	☐ 5452
Water Sample - Sys O&M	☐ 5453
Other	☐

TURN AROUND TIME: 24 hours ☐ | 48 hours ☐ | 15 days ☒ (Normal) | Other ☐ ____

NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.

Analysis Required: TPH (EPA 8015 Mod. Gas) | TPH (EPA 8015 Mod. Diesel) | BTEX (EPA 8020/602) | Volatile Organics (EPA 8240) | Test for Disposal

Sample ID	Date	Soil	Water	Air	No. of conts.	Container Size	Preservation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
BB-1	12-5-91		X		3	40ML VOA	HCL	N	3 PRESERVED	
MW-1	↓		X		3	↓	↓	↓	↓	
MW-2			X		3					
MW-3			X		3					
									CUSTODY SEALED 12/6/91	
									INTACT 19:00 J.W.	

	Printed name:	Date:	Received (signature):	Printed name:	Date:
Relinquished By (signature): Robin Sutherland	Robin Sutherland	12-5-91 Time: 16:10	Cyndi Viramontes	Cyndi Viramontes	12/6/91 Time: 16:10
Relinquished By (signature): Nissa Nack	Nissa L. Nack	12/6/91 Time: 14:25	J. Winckler	J. Winckler	12/6/91 Time: 14:25
Relinquished By (signature): J. Winckler	J. Winckler	12/6/91 Time: 19:00	Tommy Lopez	Anny Lopez	12/7/91 Time: 11:00

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

Last Revision Date: 10/15/91

SHELL ENVIRONMENTAL - INVOICE "COVER" SHEET

ATTN: (SHELL PROJ. ENGR.) Seth Bradstock

VENDOR NAME: NET Pacific		
INV. DATE:	INV. NO:	BKT PO NO: MOH-
SHELL LOC. ADDRESS: 230 MacArthur Blvd CITY: Oakland STATE: CA ZIP: WIC: 204-5508-0705 SPECIAL PAY TERMS:		

GENERAL DESCRIPTION OF WORK	CIRCLE CLASS TYPE		$ AMOUNT
ENVIRONMENTAL COMPLIANCE	5460		$
SITE INVESTIGATION/ASSESSMENT	5441		$
CONTAMINATED SOIL DISPOSAL	5442		$
CONTAMINATED WATER DISPOSAL	5443		$
CONTAMINATED SOIL REMEDIATION	5452		$
CONTAMINATED WATER REMEDIATION	5453		$
SITE MONITORING ONLY	~~5461~~		$
CAR WASH SLUDGE DISPOSAL	5411		$
TANK WATER BOTTOMS	5406		$
OTHER:			$
OTHER, (SAD):			
CAPITAL ADC:205620 AFE NO:	QTY:		$
TOTAL PAY THIS AMOUNT:			$

VENDOR APPROVAL
PRINT NAME:
SIGNATURE:
DATE:

SHELL APPROVAL
SIGNATURE:
DATE:

NOTE: Vendor to staple this cover sheet on top of his invoice. (Rev 1)