**Northern California Regional Office** 41674 Christy Street, Fremont, CA 94538-3114 (415) 659-0404 Fax: (415) 651-4677

EXCELTECH

August 2, 1990

Alameda County Health Department
Department of Environmental Health
80 Swan Way, Suite 200
Oakland, CA 94621

Attention: Mr. Gil Wistar

Subject: June Quarterly Report
Shell Oil Company, 230 MacArthur Boulevard, Oakland, California
Exceltech Project No. 1847-2G

Dear Mr. Wistar:

Enclosed is a copy of the June Quarterly Report issued July 3, 1990. Our records indicate that you have not acknowledged receipt of this document. We regret any inconvenience that this may have caused. If you have any questions, please feel free to call.

Sincerely,

N. Kay Pannell
Staff Geologist

NKP:jcd
Enclosure
cc: Diane M. Lundquist, Shell Oil Company
Randall L. Stone, Exceltech, Inc.

90 AUG -6 PM 1:06

EXCELTECH

# JUNE QUARTERLY REPORT GROUNDWATER SAMPLING AND ANALYSIS

FOR

SHELL SERVICE STATION
230 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

Project No. 1847-2G
July 1990

**Northern California Regional Office** 41674 Christy Street, Fremont, CA 94538-3114 (415) 659-0404 Fax: (415) 651-4677 Lic. # 596545

EXCELTECH

July 3, 1990

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

Attention: Ms. Diane Lundquist

Subject: June Quarterly Report
Groundwater Sampling and Analysis
Shell Gas Station, 230 MacArthur Boulevard, Oakland, California
Exceltech Project No. 1847-2G

Dear Ms. Lundquist:

At the request of Shell Oil Company, Exceltech, Inc., (Exceltech) has prepared this letter report containing the results of the June 7, 1990 groundwater sampling at the subject site in the City of Oakland, Alameda County, California (Figure 1). This report also contains a groundwater elevation map for June 1990 (Figure 2), and the results of a shallow groundwater study conducted on May 19, 1990.

## Shallow Groundwater Investigation

CHIPS Environmental Consultants, Inc., under contract to Exceltech, performed a shallow groundwater survey on May 19, 1990. A series of six perforated steel pipes were driven into the ground along MacArthur Boulevard (see Figure 3) using a pneumatic jackhammer mounted on a forklift. Groundwater samples were collected from the 1-inch-diameter hollow pipes and analyzed on-site with the CHIPS mobile laboratory's gas chromatograph. The groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHG); and benzene, toluene, ethyl benzene, and xylenes (BTEX). The analytical results are summarized in Table 1. The CHIPS shallow groundwater investigation report is presented in Appendix A.

## Groundwater Sampling

Groundwater samples were collected from four groundwater monitoring wells on the site in accordance with Exceltech's groundwater sampling protocol (Appendix B). The groundwater purged from the wells and equipment rinse water were placed in Department of Transportation-approved drums and left on-site pending authorization to have them pumped for disposal. A summary of groundwater sampling data are presented on Table 2.

## Laboratory Analysis

Sequoia Analytical Laboratory of Redwood City, 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). Samples were also analyzed for total dissolved solids (TDS).

## Summary of Laboratory Results

The results of the shallow groundwater survey are summarized in Table 1; groundwater analyses are summarized in Table 2. Copies of the analytical reports from Seqouia Analytical Laboratory and chain-of-custody documents are attached in Appendix C.

## Discussion

The groundwater surface contour map developed from the water level measurements is presented as Figure 2. The apparent groundwater surface inclination increased from 0.008 feet per foot to 0.011 feet per foot during this quarter. The groundwater level rose from 0.07 feet to 0.19 feet in MW-1, MW-3, and MW-4; and it dropped 0.18 feet in MW-2. Hydrocarbon concentrations in MW-4 have decreased in magnitude from March 1990 sample results. Hydrocarbon concentrations were not detected in the other wells.

## Reporting Requirements

Shell Oil company should forward a copy of this report 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
1800 Harrison Street, Suite 700
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 soley for the use of Shell and any relaince 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. The exploratory test borings drilled at the site.
2. The observations by field personnel.
3. The results of laboratory analyses performed by a state-certified laboratory.
4. Our understanding of the regulations of the State of California and Alameda County and/or 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 due to variations in rainfall, temperature, regional water usage, or other factors.

The service performed by Exceltech 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.

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

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

Sincerely,
Exceltech, Inc.

Kay Pannell
Staff Geologist

Neil H. Zickefoose, C.E.G. 398
Senior Program Geologist

KP/NHZ/sr
Enclosure

## TABLE 1
## SHALLOW GROUNDWATER SURVEY RESULTS

| Sample Number | Depth (ft) below grade | TPHG (ppm) | Benzene (ppm) | Toluene (ppm) | Ethyl Benzene (ppm) | Xylenes (ppm) |
|---|---|---|---|---|---|---|
| Probe 1 | 19' | N D | N D | N D | N D | N D |
| Probe 2 | 19' | 25 | 0.28 | 0.29 | 0.16 | 0.47 |
| Probe 3 | 18' | N D | N D | N D | N D | N D |
| Probe 4 | 18' | N D | 0.005 | N D | 0.002 | N D |
| Probe 5 | 18' | N D | 0.001 | 0.002 | 0.001 | 0.004 |
| Probe 6 | 18' | 31 | 0.43 | 0.60 | 0.24 | 1.4 |

LEGEND
TPHG Total petroleum hydrocarbons as gasoline
ND Not detected at or above laobratory analytical detection limits

# TABLE 2
# 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 | N D | N D | N D | N D | N D | N A | 73.89 | 13.30 |
| | 10/4/88 | B R L | 0.008 | 0.0043 | B R L | 0.009 | N A | | 13.65 |
| | 11/10/88 | B R L | B R L | B R L | B R L | B R L | N A | | 13.55 |
| | 12/9/88 | N D | N D | N D | N D | N D | N A | | 13.22 |
| | 1/10/89 | N D | N D | N D | N D | N D | N A | | 12.86 |
| | 1/20/89 | N A | N A | N A | N A | N A | N A | | 12.91 |
| | 2/6/89 | N D | N D | N D | N D | N D | N A | | 12.94 |
| | 3/10/89 | N D | N D | N D | N D | N D | N A | | 12.59 |
| | 6/6/89 | N D | N D | N D | N D | N D | N A | | 14.05 |
| | 9/7/89 | N D | N D | N D | N D | N D | N A | | 14.92 |
| | 12/18/89 | N D | N D | N D | N D | N D | N A | | 14.88 |
| | 3/8/90 | ND | ND | ND | ND | ND | 420 | | 14.08 |
| | 6/7/90 | ND | ND | ND | ND | ND | 430 | | 13.89 |
| MW-2 | 7/14/88 | N D | 0.0079 | 0.0026 | 0.0011 | 0.004 | N A | 75.24 | 15.18 |
| | 10/4/88 | 0.09 | B R L | 0.0013 | 0.0025 | 0.012 | N A | | 15.30 |
| | 11/10/88 | B R L | B R L | B R L | B R L | 0.002 | N A | | 15.17 |
| | 12/9/88 | N D | N D | 0.0006 | N D | 0.003 | N A | | 14.82 |
| | 1/20/89 | N D | N D | N D | N D | N D | 456 | | 14.54 |
| | 2/6/89 | N D | N D | N D | N D | N D | 400 | | 14.59 |
| | 3/10/89 | N D | N D | N D | N D | N D | 407 | | 14.88 |
| | 6/6/89 | N D | N D | N D | N D | N D | N A | | 15.30 |
| | 9/7/89 | N D | N D | N D | N D | N D | N A | | 16.76 |
| | 12/18/89 | N D | N D | 0.0005 | N D | N D | N A | | 16.65 |
| | 3/8/90 | ND | ND | ND | ND | ND | 380 | | 15.92 |
| | 6/7/90 | ND | ND | ND | ND | ND | 380 | | 16.10 |
| MW-3 | 7/14/88 | N D | N D | N D | N D | N D | N A | 74.68 | 14.05 |
| | 10/4/88 | B R L | B R L | B R L | B R L | 0.005 | N A | | 14.60 |
| | 11/10/88 | B R L | B R L | B R L | B R L | B R L | N A | | 14.35 |
| | 12/9/88 | N D | N D | N D | N D | N D | N A | | 14.04 |

# TABLE 2
# 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-3 con't | 1/10/89 | N D | N D | N D | N D | N D | N A | | 13.70 |
| | 1/20/89 | N A | N A | N A | N A | N A | N A | | 13.72 |
| | 2/6/89 | 0.07 | N D | N D | N D | N D | N A | | 13.75 |
| | 3/10/89 | 0.15 | N D | N D | N D | N D | N A | | 13.42 |
| | 6/6/89 | N D | N D | N D | N D | N D | N A | | 14.52 |
| | 9/7/89 | N D | 0.00065 | N D | N D | N D | N A | | 15.52 |
| | 12/6/89 | 0.04 | 0.0013 | N D | 0.00044 | 0.00066 | N A | | 19.59 |
| | 3/8/90 | ND | ND | ND | ND | ND | 440 | | 14.72 |
| | 6/7/90 | ND | ND | ND | ND | ND | 490 | | 14.65 |
| 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 |

LEGEND

| | |
|---|---|
| TPHG | Total petroleum hydrocarbons as gasoline |
| ppm | parts per million |
| N D | None detected at or above detection limit method |
| B R L | Below reporting limit |
| N A | Not Analyzed |
| T D S | Total dissolved solids |

Note: See lab reports for detection limits and reporting limits


**LEGEND:**

**SITE LOCATION**

**BASE: USGS 7.5 MINUTE TOPOGRAPHIC SHEET**

**SCALE IN MILES**

ensco environmental services, inc.

# SITE LOCATION MAP

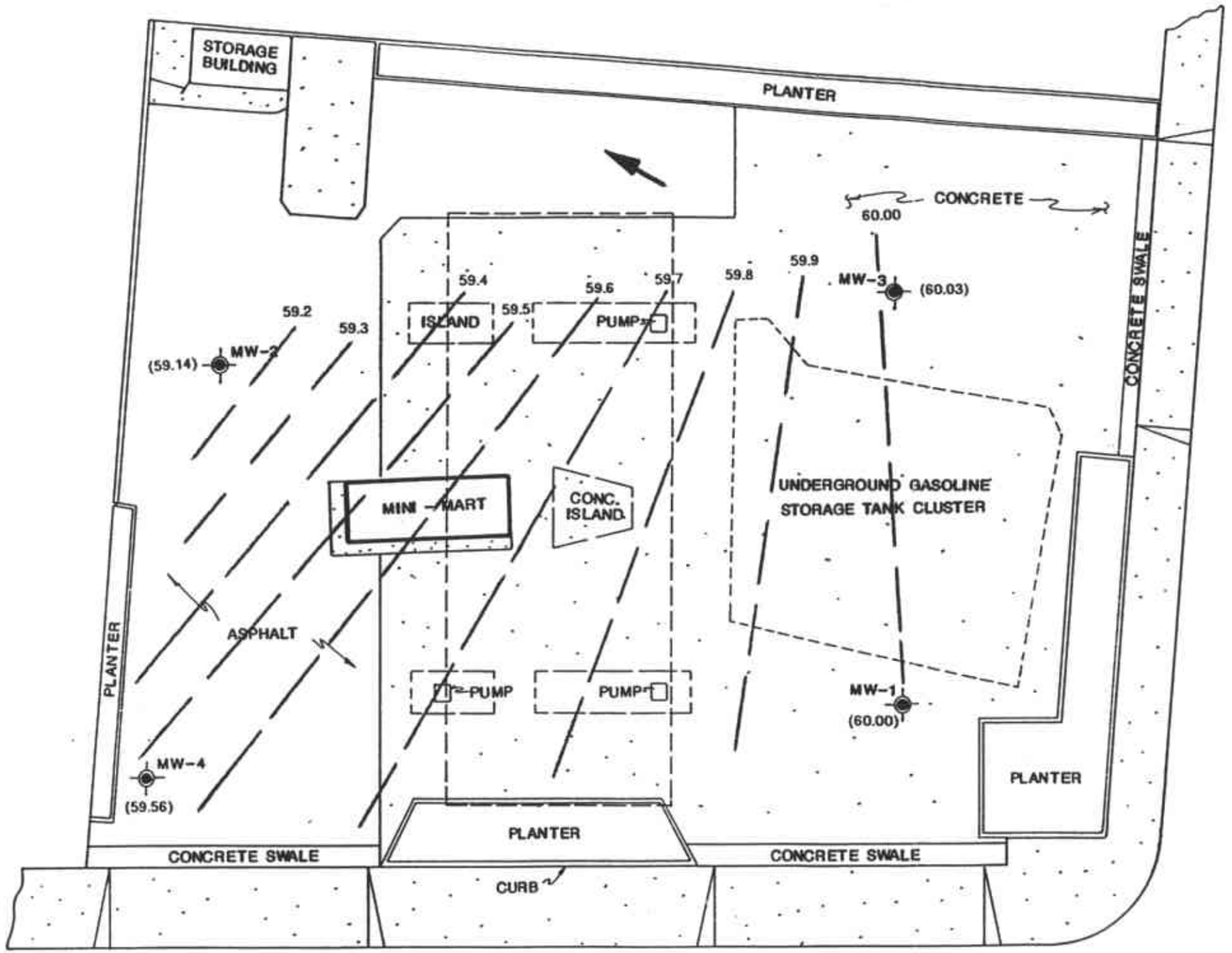
SHELL SERVICE STATION

230 MacARTHUR BOULEVARD

OAKLAND, CALIFORNIA

| REVIEWED BY: | APPROVED BY: |
|---|---|
| K. P. | MHG |
| JOB #: 1847G | DRAWN BY: SLS |
| DATE: 9-16-88 | DRAWING #: FIG: 1 |

A-1847G-1




LEGEND

- MW-1 GROUNDWATER MONITORING WELL
- (60.03) GROUNDWATER ELEVATION IN FEET (DATUM: M.S.L.)
- 59.6 GROUNDWATER ELEVATION CONTOUR LINE IN FEET (DATUM: M.S.L.)
- APPARENT GROUNDWATER FLOW DIRECTION

N

0 20

APPROX. SCALE IN FEET

EXCELTECH

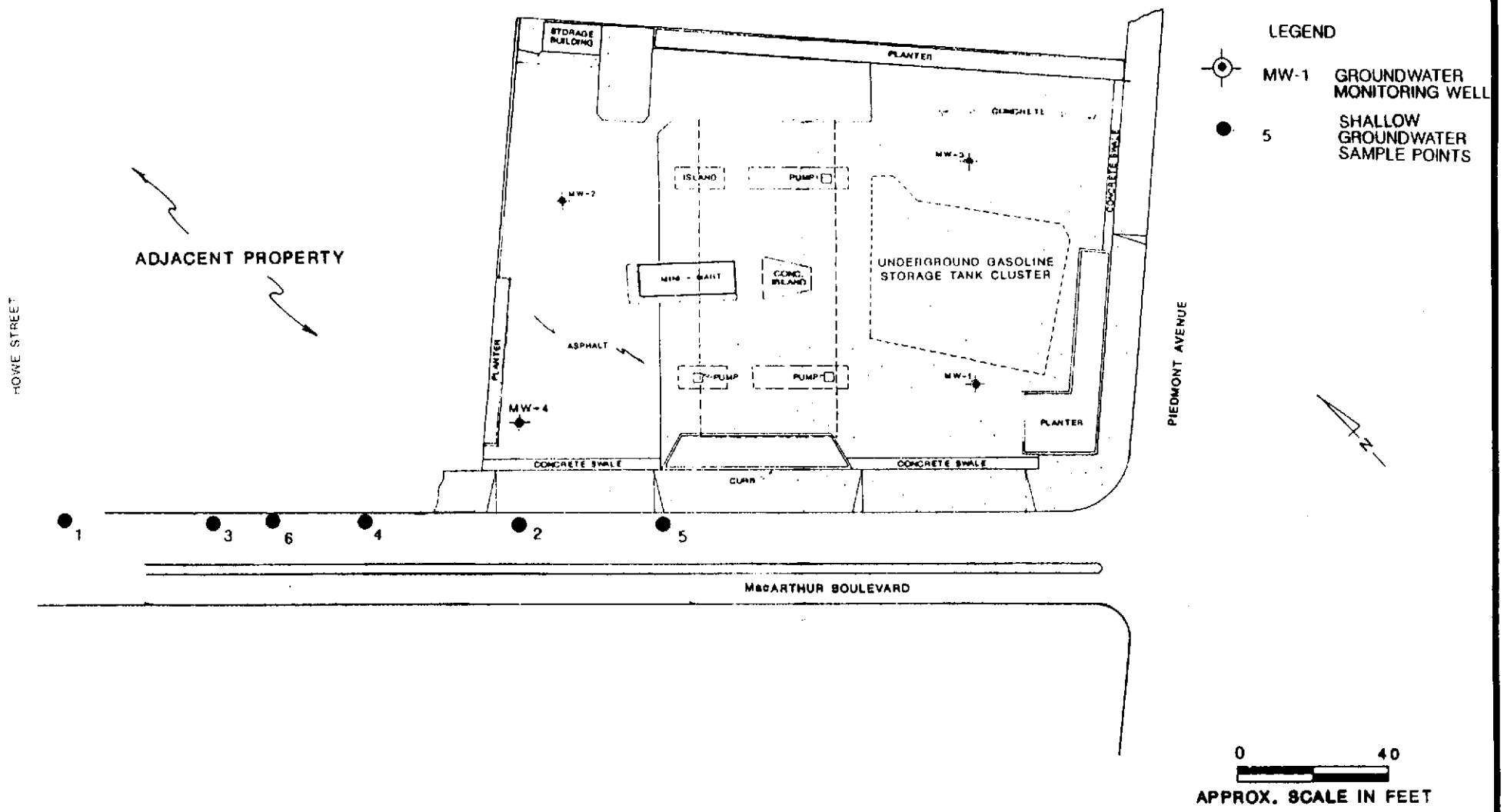
# GROUNDWATER ELEVATION MAP (6/8/90)

SHELL SERVICE STATION

230 Mac ARTHUR BOULEVARD

OAKLAND, CALIFORNIA

| REVIEWED BY: | APPROVED BY: |
|---|---|
| K.P. | TMB |
| JOB #: 1847-2G | DRAWN BY: A.T.G. |
| DATE: 6-13-90 | DRAWING #: FIG. 2 |




EXCELTECH

# GROUNDWATER SAMPLE POINT LOCATIONS

SHELL SERVICE STATION

230 MacARTHUR BOULEVARD

OAKLAND, CALIFORNIA

| REVIEWED BY: | APPROVED BY: |
|---|---|
| K.P. | |
| JOB #: 1847-2G | DRAWN BY: J.C. |
| DATE: 2/16/90 | DRAWING #: FIG. 3 |

# APPENDIX A

# SHALLOW GROUNDWATER INVESTIGATION REPORT

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909EX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

Dear Ms. Pannell:

Attached is the analytical report for the six water samples that were recovered from the subject facility on 5-19-90.

The water samples were taken from the locations shown on the attached map at 18 to 19 feet below grade.

The water samples were taken by driving a partially perforated steel pipe to the surface of the aquifer. Water samples were taken by minature Teflon bailer. The pipe was removed and the remaining holes were grouted with a concrete slurry. All samples were analyzed in the field using the purge and trap method. In this process, the sample is first purged and then passed through a Perkin-Elmer model 3920B gas chromatgraph equipped with a Flame Ionization Detector (FID).

If you have any questions regarding this report, please feel free to contact us at your convenience.

Sincerely,

Kip Porter

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909EX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

REPORT OF ANALYTICAL RESULTS

Sample Description: Water sample, 19' below grade

Sample ID: Probe 1 CECI ID: 003942
Date Sampled: 5-19-90 CECI Project #: 909
Date Analyzed: 5-19-90 (ONSITE)

| Method | Concentration mg/Kg (PPM) | |
|---|---|---|
| | mg/kg | Det. Limit |
| EPA 8015/8020 PURGE & TRAP | | |
| Gasoline | ND | 0.05 |
| Benzene | ND | 0.0005 |
| Toluene | ND | 0.0005 |
| Ethyl Benzene | ND | 0.0005 |
| Xylenes | ND | 0.0005 |

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909RX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

REPORT OF ANALYTICAL RESULTS

Sample Description: Water sample 19' Below Grade

Sample ID: Probe 2 CECI ID: 003943
Date Sampled: 5-19-90 CECI Project #: 909
Date Analyzed: 5-19-90 (ONSITE)

| Method | Concentration mg/Kg (PPM) | |
|---|---|---|
| | mg/kg | Det. Limit |
| EPA 8015/8020 PURGE & TRAP | | |
| Gasoline | 25 | 0.05 |
| Benzene | 0.28 | 0.0005 |
| Toluene | 0.29 | 0.0005 |
| Ethyl Benzene | 0.16 | 0.0005 |
| Xylenes | 0.47 | 0.0005 |

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909EX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

REPORT OF ANALYTICAL RESULTS

Sample Description: Water sample 18' Below Grade

Sample ID: Probe 3 CECI ID: 003944
Date Sampled: 5-19-90 CECI Project #: 909
Date Analyzed: 5-19-90 (ONSITE)

| Method | Concentration mg/Kg (PPM) | |
|---|---|---|
| | mg/kg | Det. Limit |
| EPA 8015/8020 PURGE & TRAP | | |
| Gasoline | ND | 0.05 |
| Benzene | ND | 0.0005 |
| Toluene | ND | 0.0005 |
| Ethyl Benzene | ND | 0.0005 |
| Xylenes | ND | 0.0005 |

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909EX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

REPORT OF ANALYTICAL RESULTS
Cal DHS Certification # 252

Sample Description: Water sample 18' Below Grade

Sample ID: Probe 4 CECI ID: 003945
Date Sampled: 5-19-90 CECI Project #: 909
Date Analyzed: 5-19-90 (ONSITE)

| Method | Concentration mg/Kg (PPM) | |
|---|---|---|
| | mg/kg | Det. Limit |
| EPA 8015/8020 PURGE & TRAP | | |
| Gasoline | ND | 0.05 |
| Benzene | 0.005 | 0.0005 |
| Toluene | ND | 0.0005 |
| Ethyl Benzene | 0.002 | 0.0005 |
| Xylenes | ND | 0.0005 |

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909EX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

REPORT OF ANALYTICAL RESULTS

Sample Description: Water sample 18' Below Grade

Sample ID: Probe 5 CECI ID: 003946
Date Sampled: 5-19-90 CECI Project #: 909
Date Analyzed: 5-19-90 (ONSITE)

| Method | Concentration mg/Kg (PPM) | |
|---|---|---|
| | mg/kg | Det. Limit |
| EPA 8015/8020 PURGE & TRAP | | |
| Gasoline | ND | 0.05 |
| Benzene | 0.001 | 0.0005 |
| Toluene | 0.002 | 0.0005 |
| Ethyl Benzene | 0.001 | 0.0005 |
| Xylenes | 0.004 | 0.0005 |

CHIPS
Environmental
Consultants, Inc.

718 E. Evelyn Avenue
Sunnyvale, CA 94086

(408)736-1380
FAX (408)736-0887

June 8, 1990

D13 909EX.DOC

Exceltech
ATTN: Kay Pannell
41674 Christy Street
Fremont, California 94538

Subject: Water sampling and analysis at City of Oakland property, 230 Macarthur Boulevard, Oakland, California

## REPORT OF ANALYTICAL RESULTS

Sample Description: Water sample 18' below grade

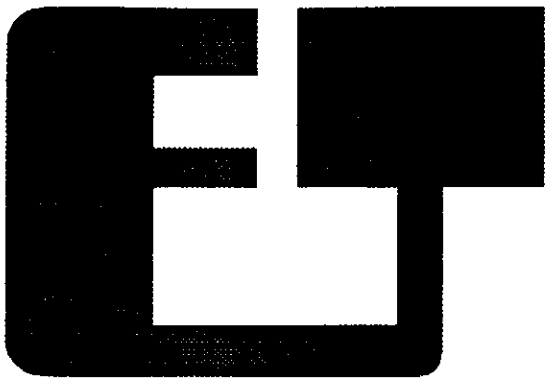
Sample ID: Probe 6
Date Sampled: 5-19-90
Date Analyzed: 5-19-90 (ONSITE)

CECI ID: 003947
CECI Project #: 909

| Method | Concentration mg/Kg (PPM) | |
|---|---|---|
| | mg/kg | Det. Limit |
| EPA 8015/8020 PURGE & TRAP | | |
| Gasoline | 31 | 0.05 |
| Benzene | 0.43 | 0.0005 |
| Toluene | 0.60 | 0.0005 |
| Ethyl Benzene | 0.24 | 0.0005 |
| Xylenes | 1.4 | 0.0005 |

# APPENDIX B

# GROUNDWATER SAMPLING PROTOCOL



EXCELTECH

# Groundwater Sampling Protocol

# GROUNDWATER SAMPLING PROTOCOL

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

1. Measurements of liquid surface in the well and depth of monitoring well.

2. Field check for presence of floating product.

3. Purge well prior to collecting samples.

4. Monitor groundwater for temperature, pH, and specific conductance during purging.

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

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

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

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

# GROUNDWATER SAMPLING PROCEDURES

Equipment Cleaning

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.

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.

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. 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. At no time will the well be purged dry so 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 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 samples will not be collected.

Groundwater sample containers are labeled with a unique sample number, location, product name and number, 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.

# APPENDIX C

# LABORATORY ANALYTICAL REPORT

# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233


Exceltech
41674 Christy Street
Fremont, CA 94538
Attention: Kay Panell

Project: 1847.2G SHELL

Enclosed are the results from 4 water samples received at Sequoia Analytical on June 8,1990. The requested analyses are listed below:

| SAMPLE # | SAMPLE DESCRIPTION | DATE OF COLLECTION | TEST METHOD |
|---|---|---|---|
| 006-1098 A | Water, MW-1 | 6/7/90 | EPA 5030/8015/8020 |
| 006-1098 C | Water, MW-1 | 6/7/90 | Total Dissolved Solids |
| 006-1099 A | Water, MW-2 | 6/7/90 | EPA 5030/8015/8020 |
| 006-1099 C | Water, MW-2 | 6/7/90 | Total Dissolved Solids |
| 006-1100 A | Water, MW-3 | 6/7/90 | EPA 5030/8015/8020 |
| 006-1100 C | Water, MW-3 | 6/7/90 | Total Dissolved Solids |
| 006-1101 A | Water, MW-4 | 6/7/90 | EPA 5030/8015/8020 |
| 006-1101 C | Water, MW-4 | 6/7/90 | Total Dissolved Solids |

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

VM Tague

Vickie Tague
Project Manager

# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233


| | | | | |
|---|---|---|---|---|
| Exceltech | Client Project ID: | 1847.2G SHELL | Sampled: | Jun 7, 1990 |
| 41674 Christy Street | Matrix Descript: | Water | Received: | Jun 8, 1990 |
| Fremont, CA 94538 | Analysis Method: | EPA 5030/8015/8020 | Analyzed: | Jun 11, 1990 |
| Attention: Kay Panell | First Sample #: | 006-1098 A | Reported: | Jun 18, 1990 |

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

| Sample Number | Sample Description | Low/Medium B.P. Hydrocarbons µg/L (ppb) | Benzene µg/L (ppb) | Toluene µg/L (ppb) | Ethyl Benzene µg/L (ppb) | Xylenes µg/L (ppb) |
|---|---|---|---|---|---|---|
| 006-1098 A | MW-1 | N.D. | N.D. | N.D. | N.D. | N.D. |
| 006-1099 A | MW-2 | N.D. | N.D. | N.D. | N.D. | N.D. |
| 006-1100 A | MW-3 | N.D. | N.D. | N.D. | N.D. | N.D. |
| 006-1101 A | MW-4 | 2,000 | 150 | 6.9 | 14 | 17 |
| **Detection Limits:** | | **30** | **0.30** | **0.30** | **0.30** | **0.30** |

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Vickie Tague
Project Manager

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|---|---|---|---|---|
| Exceltech | Client Project ID: | 1847.2G SHELL | Sampled: | Jun 7, 1990 |
| 41674 Christy Street | Sample Descript: | Water | Received: | Jun 8, 1990 |
| Fremont, CA 94538 | Analysis for: | Total Dissolved Solids | Extracted: | Jun 14, 1990 |
| Attention: Kay Panell | First Sample #: | 006-1098 C | Analyzed: | Jun 14, 1990 |
| | | | Reported: | Jun 18, 1990 |

## LABORATORY ANALYSIS FOR: Total Dissolved Solids

| Sample Number | Sample Description | Detection Limit mg/L | Sample Result mg/L |
|---|---|---|---|
| 006-1098 C | MW-1 | 1.0 | 430 |
| 006-1099 C | MW-2 | 1.0 | 380 |
| 006-1100 C | MW-3 | 1.0 | 490 |
| 006-1101 C | MW-4 | 1.0 | 460 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL**

Vickie Tague
Project Manager

EXCELTECH, INC. 41674 CHRISTY ST.
FREMONT, CA. 94538

# CHAIN OF CUSTODY RECORD

PHONE: (415) 659-0404
FAX: (415) 651-4677

| PROJECT # | PROJECT NAME | |
|---|---|---|
| 1847-26 | Shell MacArthur | 230 MacArthur Blvd. Oakland, Ca. |

SAMPLER'S SIGNATURE: Michael W. Hunter

AFE # 49646
WIC.# 204-5508-0705
LAB Sequoia
TAT 5 day
REMARKS

| NO. | DATE | TIME | DESCRIPTION OF SAMPLE | TEST REQUESTED: TPHG/BTEX | TEST REQUESTED: Total Recoverable Solids | REMARKS |
|---|---|---|---|---|---|---|
| BB-1 | 6-7-90 | 12:05 | 2 preserved VOAs | ✓ | | 0061097 A/B |
| MW-1 | " | 12:10 | " 1 Amber liters | ✓ | ✓ | 0061098 A-C |
| MW-2 | " | 12:40 | " " | ✓ | ✓ | 0061099 A-C |
| MW-3 | " | 1215 | " " | ✓ | ✓ | 0061100 A-C |
| MW-4 | " | 1239 | " " | ✓ | ✓ | 0061101 A-C |

Report to: Kay Powell

| RELINQUISHED BY: | DATE: | TIME: | RECIEVED BY: | RELINQUISHED BY: | DATE: | TIME: | RECIEVED BY: |
|---|---|---|---|---|---|---|---|
| Michael W. Hunter | 6/8/90 | 10:00 | | | | | |
| RELINQUISHED BY: | DATE: | TIME: | RECIEVED BY: | RELINQUISHED BY: | DATE: | TIME: | RECIEVED BY: |
| | | | | | | | |