



Carbin vessel = Westales VSC - 1200.  
Structural dimensions + weight provided by Westales

From UBCs

$$V = (I)(Z)(W)$$

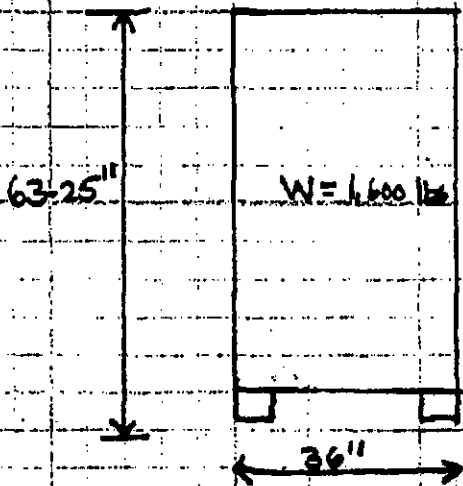
$I = 1.5$  - assume worst case = hazardous

$$Z = 0.4$$

$$V = (1.5)(1.5)(0.4)(1600 \text{ lbs})$$

$$= 480 \text{ lbs}$$

$$M_{\text{seismic}} = (480 \text{ lbs}) \left( \frac{63.25}{2} \right) = 15,180 \text{ in lbs}$$



$$\frac{63.25}{2}$$

$$\frac{1.5 \times 1.5 \times 0.4}{2328}$$

$$M = 12600$$

$$Z = 0.4$$

$$M_{OT} = (1,600 \text{ lbs}) \left( \frac{36}{2} \text{ inches} \right)$$

$$= 28,800 \text{ in lbs}$$

BASE STABIL

$$\text{Safety Factor} = \frac{M_{OT}}{M_{\text{seismic}}}$$

$$= \frac{28,800}{15,180}$$

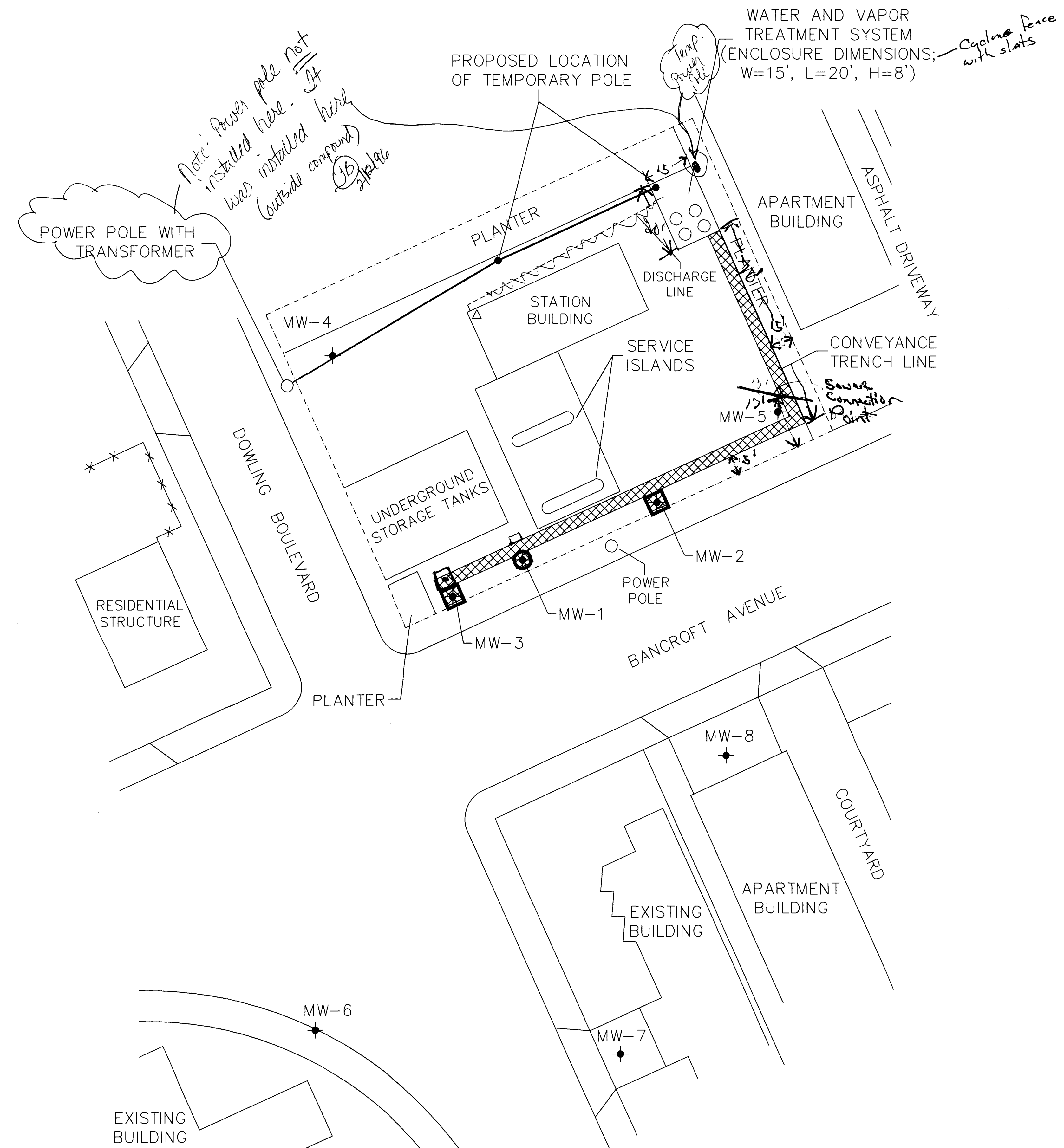
$$= 1.89$$

How is the BASE STABIL RESISTED

Safety Factor > 1.5 Vessel will not Overturn.

REVISIONS			
REV	COMMENTS	DATE	INT
A	MODIFIED LOCATION OF TEMPORARY POWER POLE	8/22/95	DJC
B	ADDED SEWER LINE	9/20/95	SN

FILE # 5367 SS ✓ BP  
RPT QM TRANSMITTAL  
1 2 3 4 5 6 ✓



**CONSTRUCTION DETAILS**

AT TIMES OF EXCAVATION OPERATIONS, THE SURFACE CAP SHALL BE CUT WITH A PAVEMENT SAW PRIOR TO BREAKING.

WHEN EXCAVATING NEAR EXISTING UNDERGROUND WIRING AND PIPING, ALL OPERATIONS SHALL BE DONE MANUALLY. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE EXISTING LINES.

TRENCHES OF APPROXIMATELY 12-INCHES IN WIDTH AND 2-FOOT 6-INCHES IN DEPTH SHALL BE EXCAVATED TO INSTALL THE CONVEYANCE PIPES FROM VAPOR EXTRACTION WELLS TO THE REMEDIATION SYSTEM.

**LEGEND**

- MW-8 MONITORING WELL LOCATION
- MW-1 12" EMCO-WHEATON WELL BOX
- MW-3 3' X 3' MANWAY
- CONVEYANCE TRENCH LINE
- SEWER LINE CONNECTION TO CITY OF SAN LEANDRO WATER POLLUTION CONTROL PLANT
- DISCHARGE LINE GOING TO SEWER LINE

Permit No. 0995235

JOB ADDRESS 500 BANCROFT AV

DO NOT ALTER, DEFACE OR SEPARATE THESE PLANS

PLANS REVIEWED BY:

BUILDING DIVISION  PLANNING DIVISION

ENGINEERING  FIRE DEPARTMENT

WASTEWATER

Other

I, the undersigned, hereby approve these plans for the project described above, and I am a duly licensed professional engineer in the State of California.

Scott Parsons



STANDARD NOTES

(1) USE STEEL OR LIME GREEN

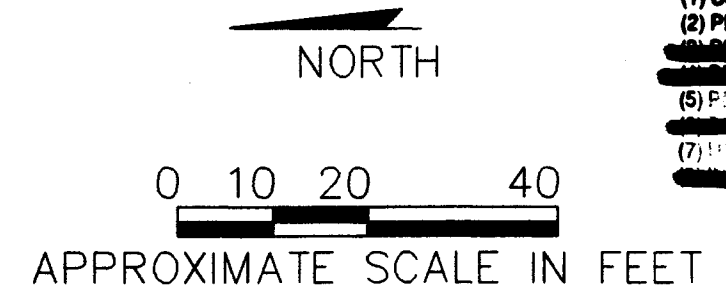
(2) PLASTIC PIPE - NOT ALLOWED

(3) PERMITS REQUIRED FOR PLUMB, MECH, & ELECT

(4) 1991 U.B.C., U.M.C., U.P.C. & 1990 N.E.C.

CITY OF SAN LEANDRO

NOV 03 1995



NO FIRE COMMENTS AS PER MIKE B. 11-22-95 RB

REFERENCE: MAP PROVIDED BY APPLIED GEOSYSTEMS, 3/94

REV	INT	DATE
DRAWN	S. NASH	7/3/95
DESIGN	M. BELTRAN	7/3/95
REVIEWED	G. RAGLE	7/3/95
APPROVED	L. HALL	7/3/95
DRAWN	A. D.CHERNOW	8/22/95
DRAWN	B. S. NASH	9/20/95

**GeoResearch** REVIEWED BY

3960 GILMAN STREET LONG BEACH, CA 90815 (310) 597-6600

SITE LAYOUT AND TRENCHING LOCATION

UNOCAL SERVICE STATION 5367

500 BANCROFT AVENUE

SAN LEANDRO, CALIFORNIA

PROJECT NUMBER: 95806

FILE NO: D1

SCALE: NTS

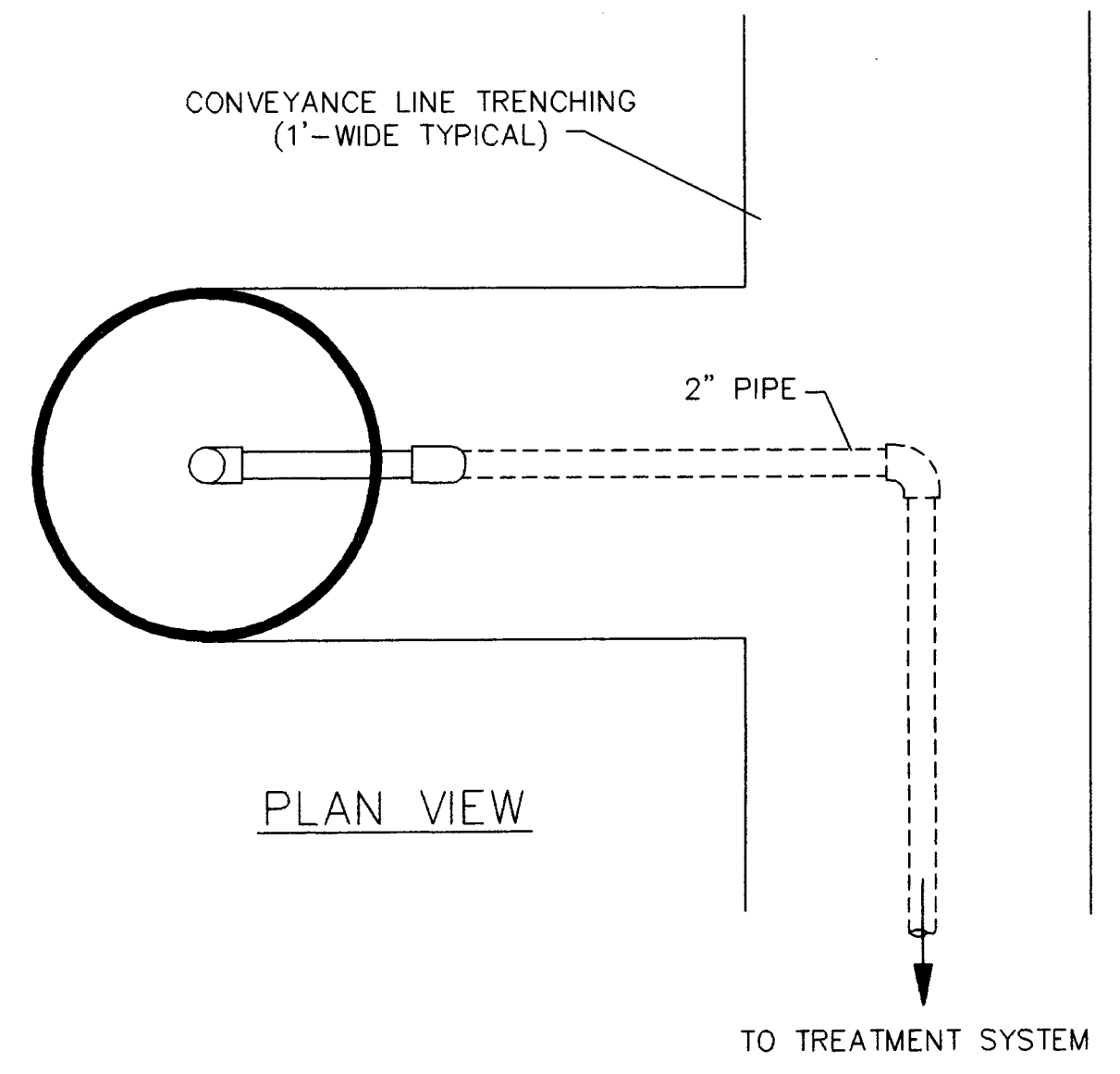
FIGURE NO: 1

APPROVED PLANS

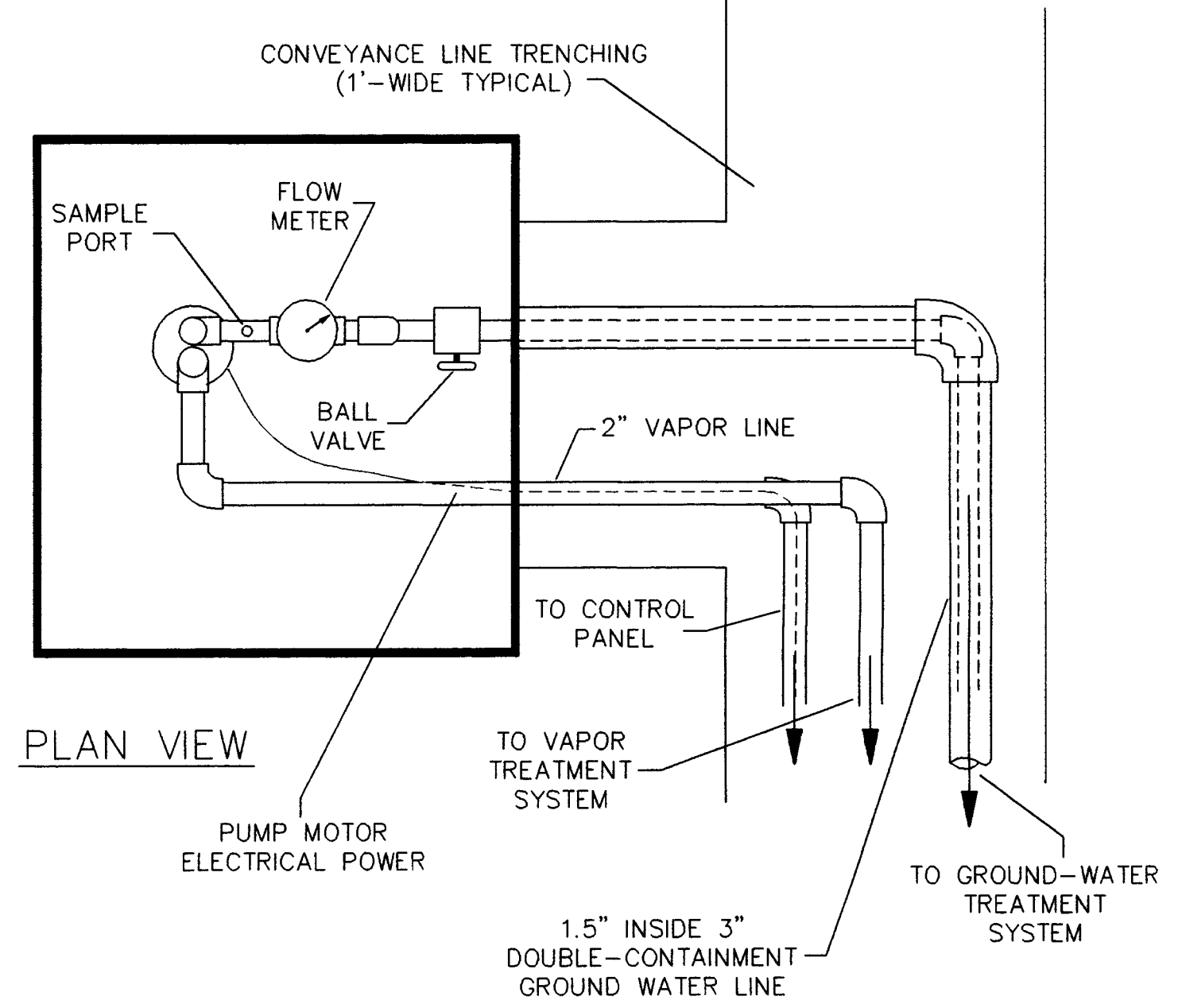
JOBSITE COPY

REVISIONS			
REV	COMMENTS	DATE	INT
A	ADDED EQUIPMENT LAYOUT	8/15/95	DC

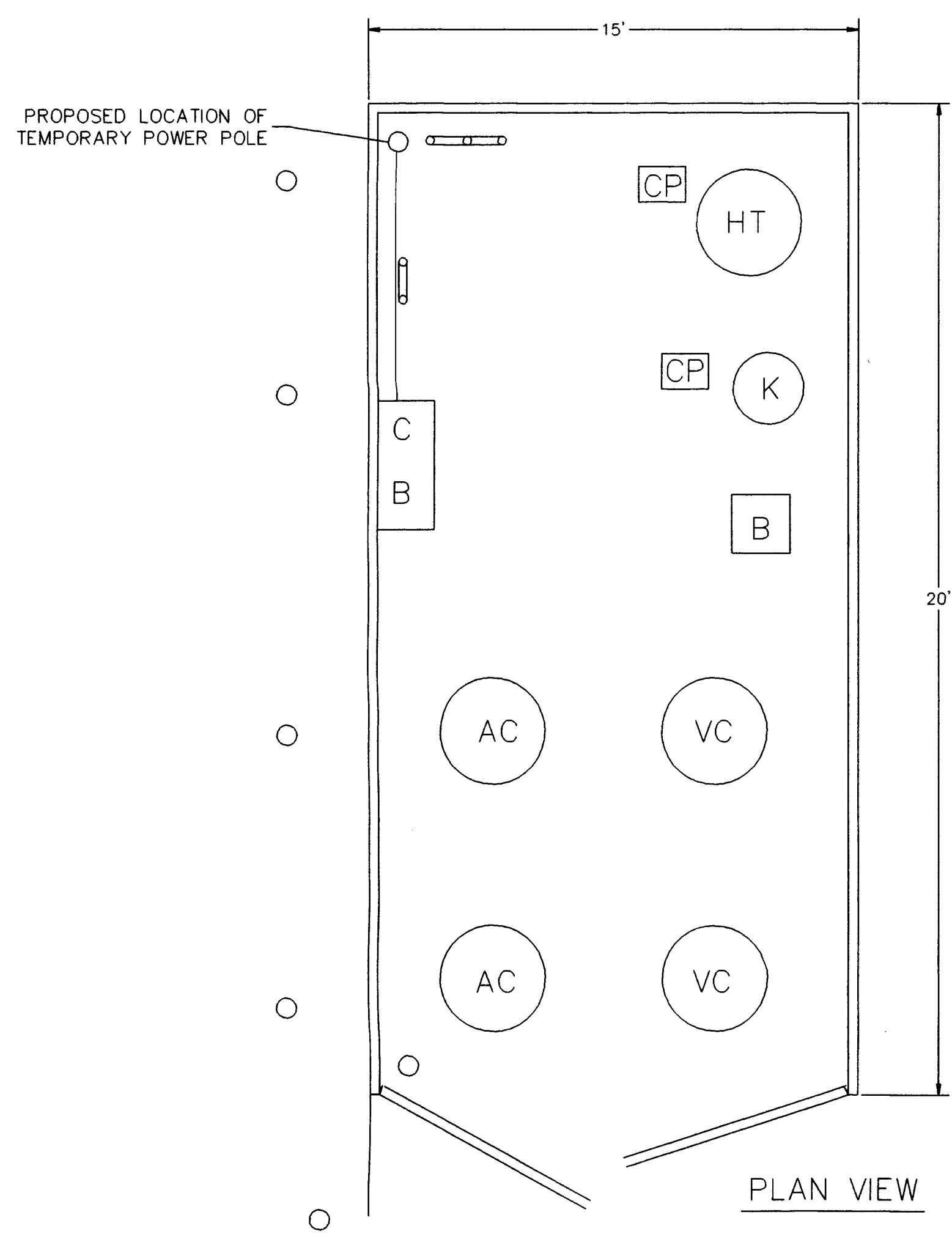
**SINGLE-COMPLETION WELL**



**DUAL-COMPLETION WELL**



PROPOSED LOCATION OF TEMPORARY POWER POLE



**ENCLOSURE**

- HT = HOLDING TANK
- K = KNOCKOUT POT
- CP = CENTRIFUGAL PUMP
- B = BLOWER
- VC = VAPOR CARBON
- AC = AQUA CARBON
- CB = CONTROL BOX

**CONSTRUCTION DETAILS**

AN ENCLOSURE SHALL BE CONSTRUCTED AROUND THE REMEDIATION SYSTEM.

DIMENSIONS OF ENCLOSURE ARE 20 FEET LENGTH, 15 FEET WIDTH, AND 8 FEET HEIGHT WITH BARBED WIRE RUNNING ALONG THE TOP OF ENCLOSURE.

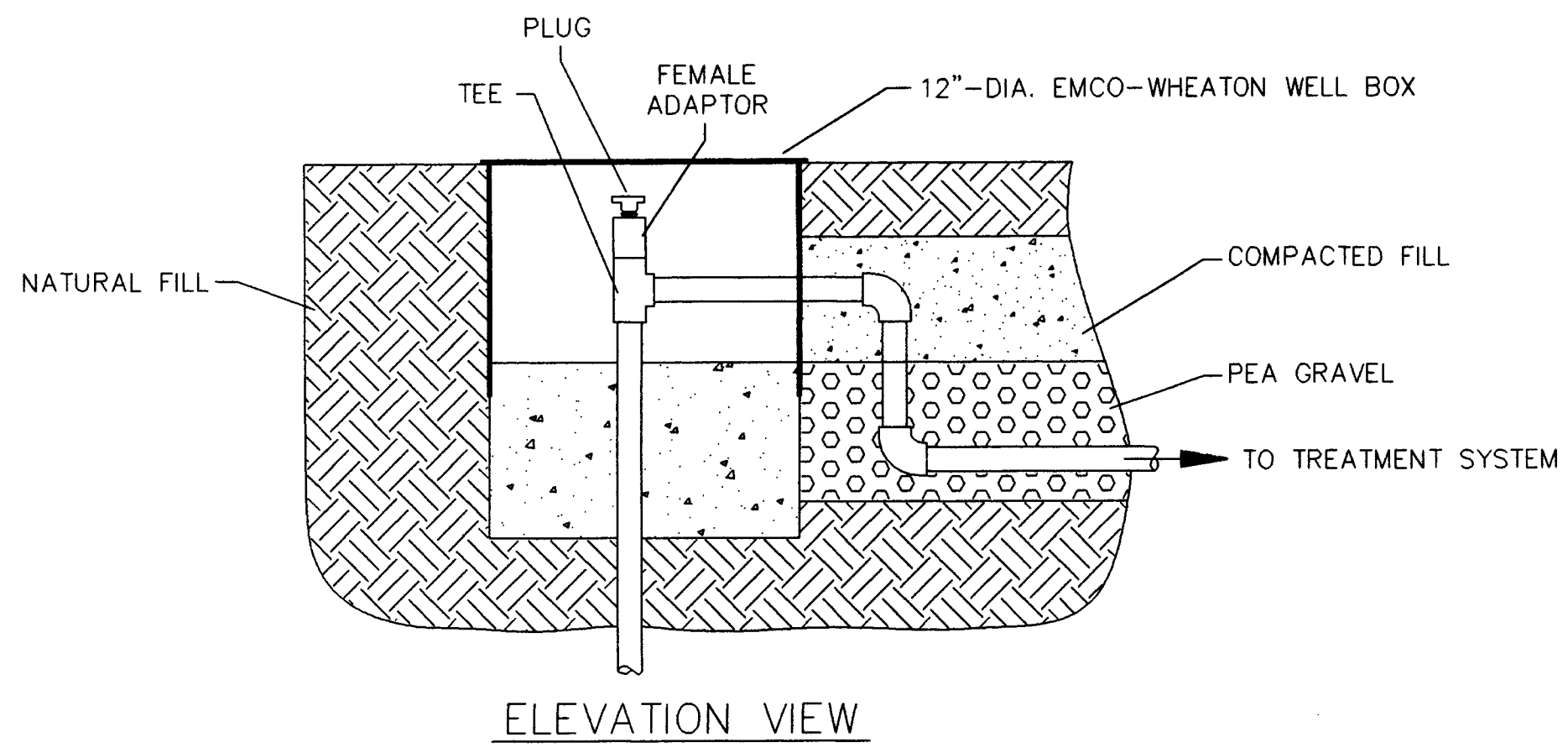
STRUCTURE OF ENCLOSURE SHALL BE MADE OF CHAIN-LINK FENCE WITH PRIVACY SLATS.

A GATE IN THE FRONT SHALL PROVIDE ACCESS TO THE ENCLOSURE SPACE, AS SHOWN IN THE FIGURE.

SAFETY POLES SHALL BE INSTALLED ON THE PERIMETER OF THE ENCLOSURE. REMOVABLE SAFETY POLES SHALL BE INSTALLED IN FRONT OF THE DOUBLE GATE TO ALLOW ACCESS.

*Equipment will come from manway level on skids.*

**12"-DIA. TRAFFIC RATED CHRISTY BOX TYPICAL FOR SINGLE-COMPLETION (MW1)**

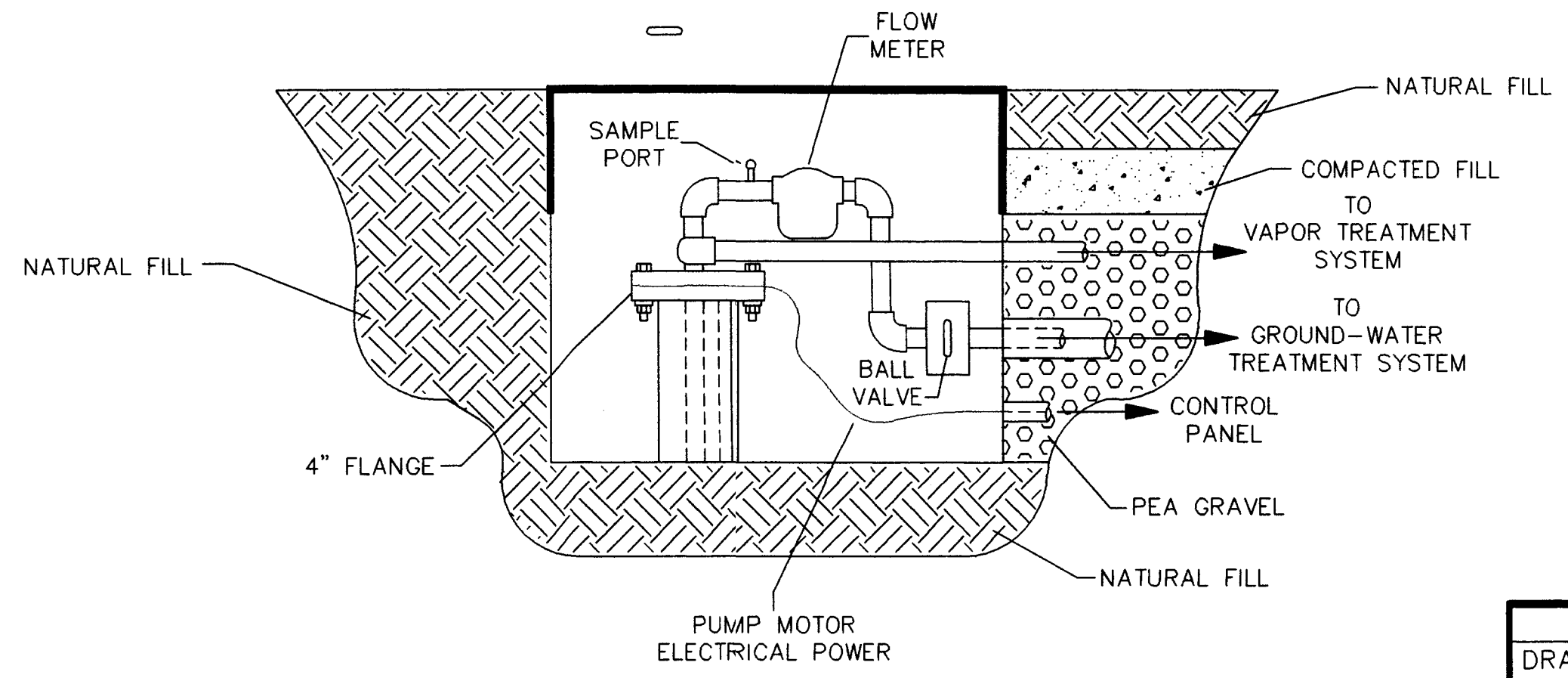


**CONSTRUCTION DETAILS**

12"-DIA. TRAFFIC RATED CHRISTY BOX SHALL BE INSTALLED AT LOCATIONS SHOWN IN FIGURE.

MANWAY SHALL BE LOCKABLE AND COMPLETED TO 1-INCH ABOVE GRADE.

**3' X 3" MANWAY TYPICAL FOR DUAL-COMPLETION WELL (MW2 AND MW3)**



**CONSTRUCTION DETAILS**

3' X 3" MANWAY SHALL BE INSTALLED AT LOCATIONS SHOWN ON FIGURE 1.

MANWAY SHALL BE LOCKABLE AND COMPLETED TO 1-INCH ABOVE GRADE.



*Scott Parsons*

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NOV 03 1995  
DUG. DIV.

REV	INT	DATE
DRAWN	S. NASH	6/30/95
DESIGN	M. BELTRAN	6/30/95
REVIEWED	G. RAGLE	6/30/95
APPROVED	L. HALL	6/30/95
DRAWN	A. D. CHERNOW	8/15/95

**GeoResearch**  
3960 GILMAN STREET LONG BEACH, CA 90815 (310) 597-3977

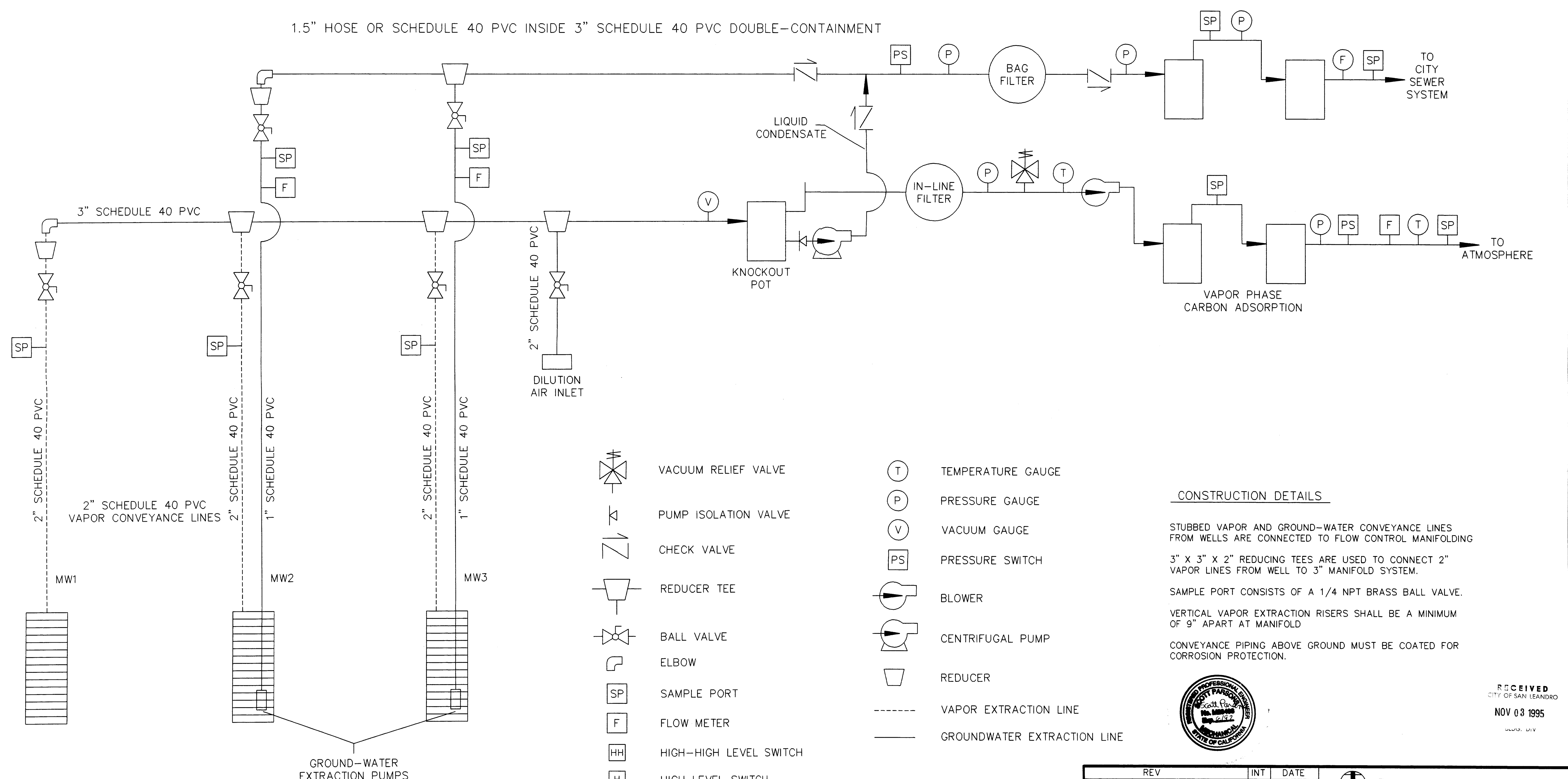
ENCLOSURE AND TRENCHING DETAILS  
UNOCAL SERVICE STATION  
500 BANCROFT AVENUE, C.C.  
SAN LEANDRO, CALIFORNIA  
PROJECT NUMBER: 958080101

SIZE D FILE NO: E1  
SCALE: NTS

APPROVED PLANS  
JOBSITE COPY

FIGURE NO.: 2

REVISIONS			
REV	COMMENTS	DATE	INT
A	ADDED SEVERAL VALVES	8/15/95	DC
B	CHANGED LOCATION OF BLOWERS AND ADDED FILTERS	9/20/95	SN



**CONSTRUCTION DETAILS**

STUBBED VAPOR AND GROUND-WATER CONVEYANCE LINES FROM WELLS ARE CONNECTED TO FLOW CONTROL MANIFOLDING

3" X 3" X 2" REDUCING TEES ARE USED TO CONNECT 2" VAPOR LINES FROM WELL TO 3" MANIFOLD SYSTEM.

SAMPLE PORT CONSISTS OF A 1/4 NPT BRASS BALL VALVE.

VERTICAL VAPOR EXTRACTION RISERS SHALL BE A MINIMUM OF 9" APART AT MANIFOLD

CONVEYANCE PIPING ABOVE GROUND MUST BE COATED FOR CORROSION PROTECTION.



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NOV 03 1995  
WWS DIV

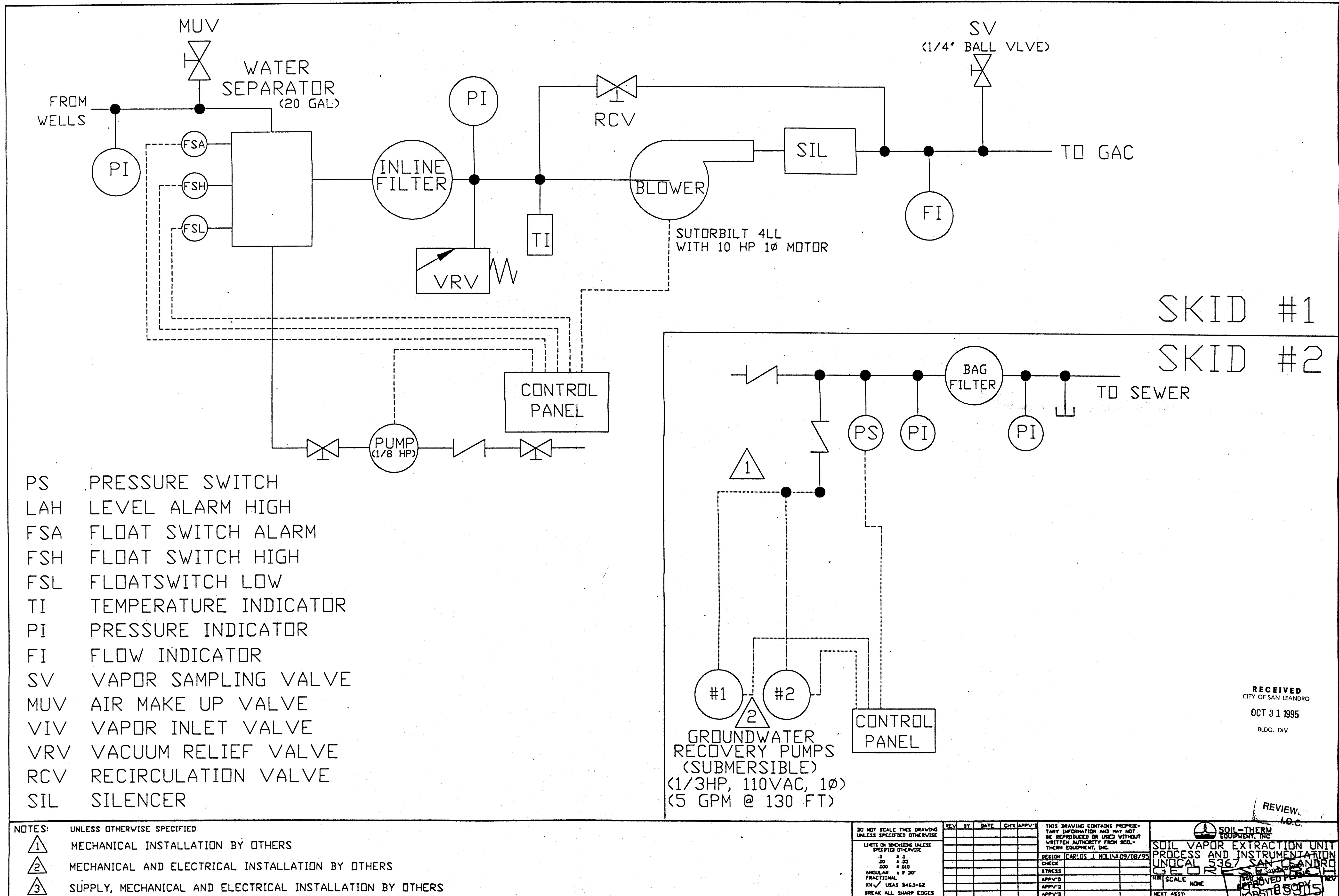
REV	INT	DATE
DRAWN	S. NASH	6/30/95
DESIGN	M. BELTRAN	6/30/95
REVIEWED	G. RAGLE	6/30/95
APPROVED	L. HALL	6/30/95
DRAWN	A. D. CHERNOW	8/15/95
DRAWN	B. S. NASH	9/20/95

**GeoResearch**  
3960 GILMAN STREET LONG BEACH, CA 90815 (310) 597-3977

PROCESS AND INSTRUMENT DETAILS  
UNOCAL SERVICE STATION 51650  
500 BANCROFT AVENUE  
SAN LEANDRO, CALIFORNIA  
PROJECT NUMBER: 9580600100

REVIEWED BY: [Signature]  
APPROVED PLANS  
JOB SITE COPY

SIZE: D FILE NO.: C2  
SCALE: NTS FIGURE NO.: 3



- PS PRESSURE SWITCH
- LAH LEVEL ALARM HIGH
- FSA FLOAT SWITCH ALARM
- FSH FLOAT SWITCH HIGH
- FSL FLOATSWITCH LOW
- TI TEMPERATURE INDICATOR
- PI PRESSURE INDICATOR
- FI FLOW INDICATOR
- SV VAPOR SAMPLING VALVE
- MUV AIR MAKE UP VALVE
- VIV VAPOR INLET VALVE
- VRV VACUUM RELIEF VALVE
- RCV RECIRCULATION VALVE
- SIL SILENCER

NOTES: UNLESS OTHERWISE SPECIFIED

- ① MECHANICAL INSTALLATION BY OTHERS
- ② MECHANICAL AND ELECTRICAL INSTALLATION BY OTHERS
- ③ SUPPLY, MECHANICAL AND ELECTRICAL INSTALLATION BY OTHERS

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LIMITS ON DIMENSIONS UNLESS SPECIFIED OTHERWISE		DESIGN CARLOS J. NOLAN/08/29/95
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.000 ± .010		STRESS
ANGULAR ± 0° 30'		APPV'D
FRACTIONAL		APPV'D
XX ✓ USAS 846.1-62		APPV'D
BREAK ALL SHARP EDGES		APPV'D

REVIEW I.O.C.

SOIL-THERM EQUIPMENT, INC.

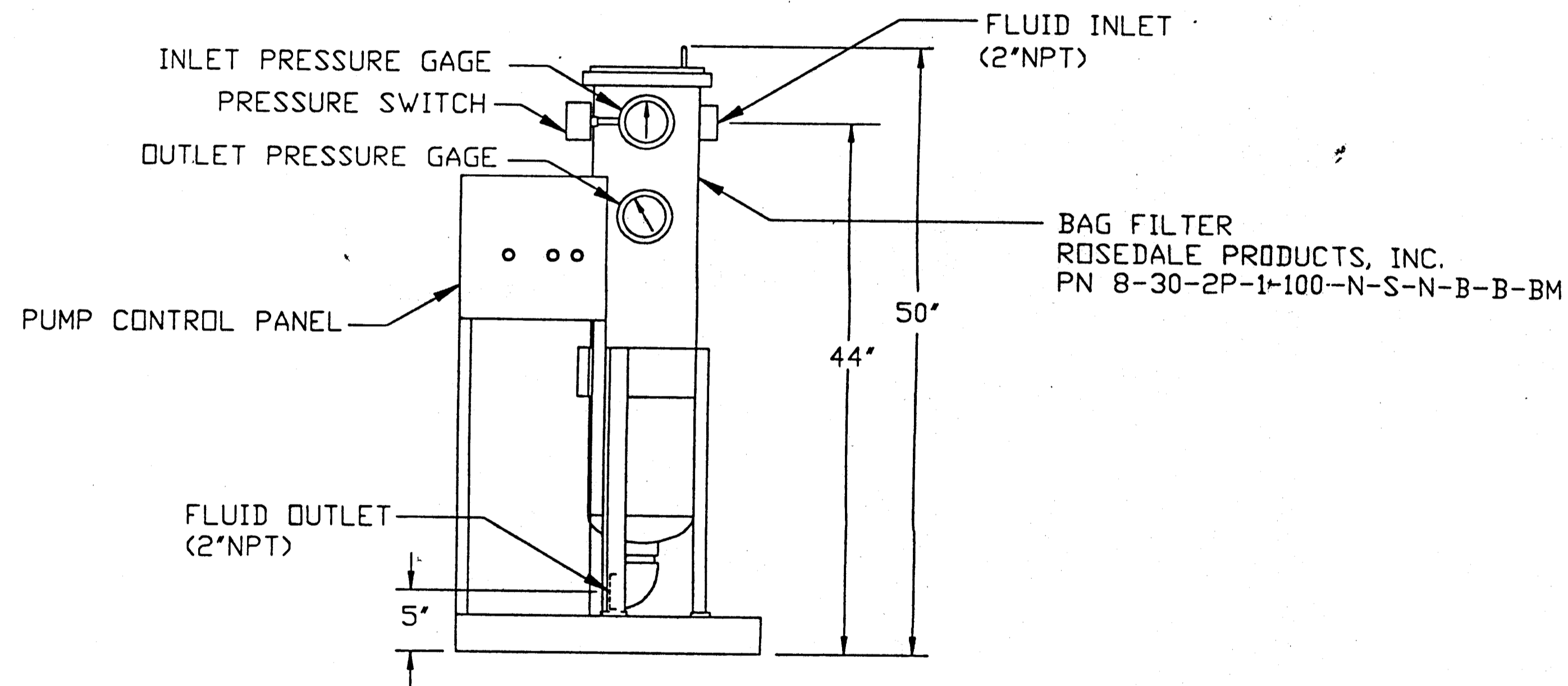
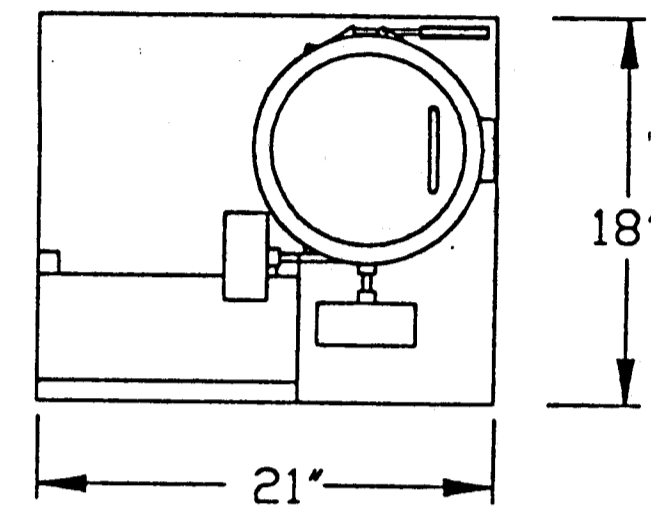
SOIL VAPOR EXTRACTION UNIT PROCESS AND INSTRUMENTATION UNICAL 2367 SAN LEANDRO CA 94067

APPROVED PLANS

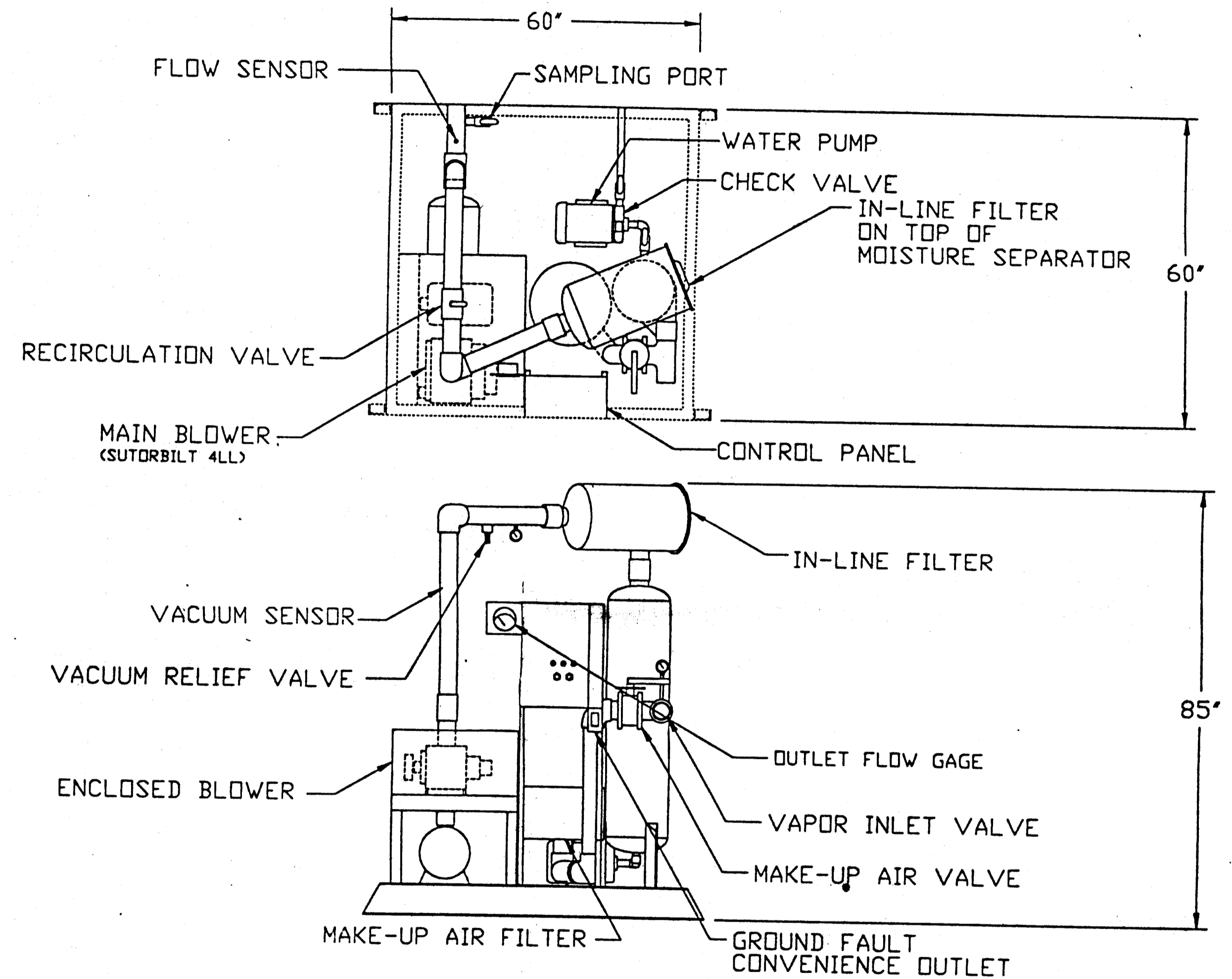
95-05305

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OCT 31 1995  
BLDG. DIV.

95-05305



BAG FILTER UNIT



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A - GENERAL REVISIONS

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 LIMITS ON DIMENSIONS UNLESS SPECIFIED OTHERWISE  
 .125 ± .005  
 .250 ± .010  
 .500 ± .020  
 1.000 ± .040  
 2.000 ± .080  
 5.000 ± .160  
 10.000 ± .320  
 25.000 ± .800  
 50.000 ± 1.600  
 100.000 ± 3.200  
 250.000 ± 8.000  
 500.000 ± 16.000  
 1000.000 ± 32.000  
 BREAK ALL SHARP EDGES

REV	BY	DATE	CHK'S	APPV'S
A	CJM	09/15/95	JDD	MLS

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 DESIGN CARLOS J. MOLINA 09/08/95  
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 APPV'D

SOIL-THERM EQUIPMENT, INC.  
 SOIL VAPOR EXTRACTION UNIT  
 UNICAL 536  
 SCALE FULL  
 SITE COPY  
 95-05301A

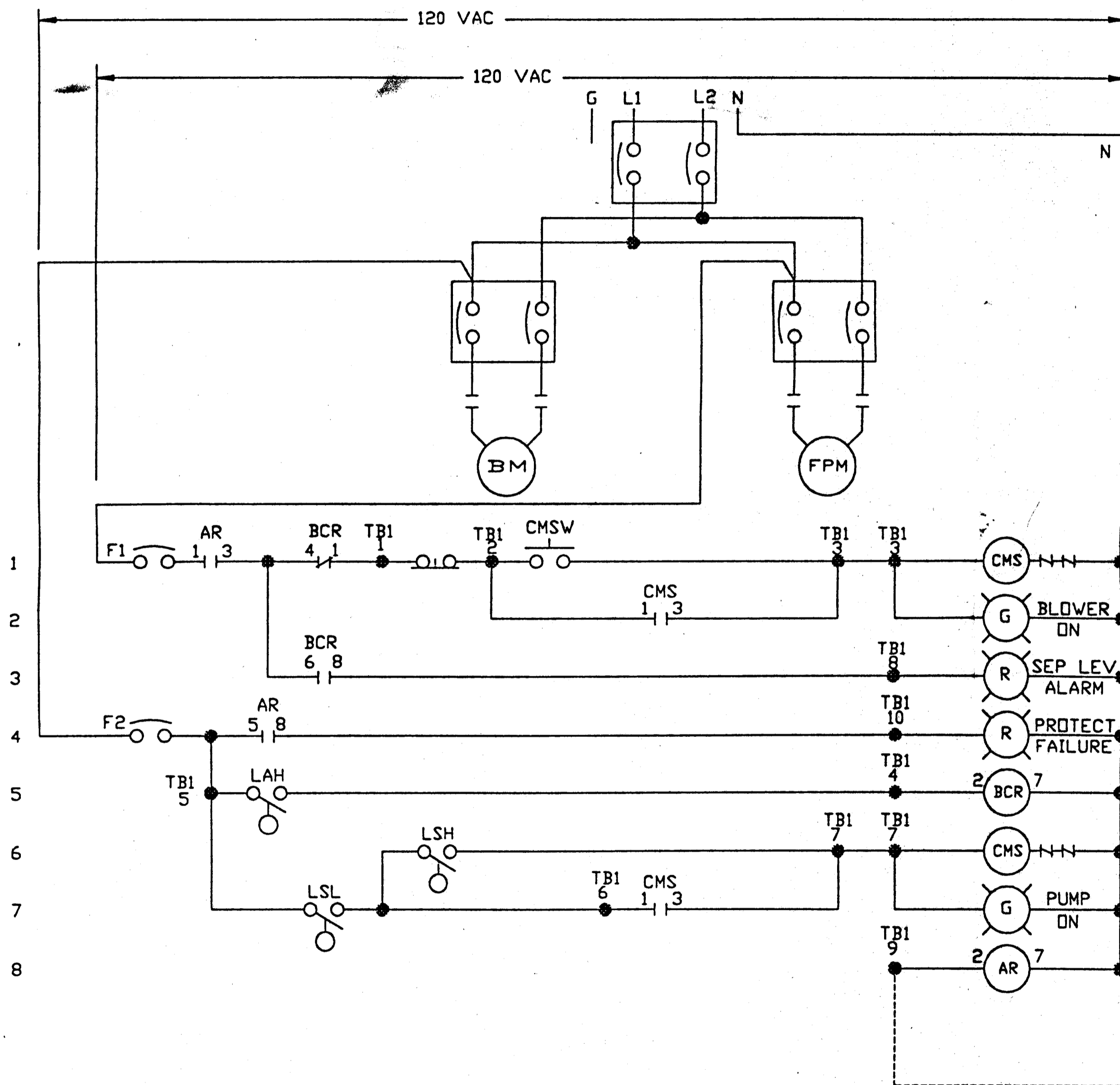
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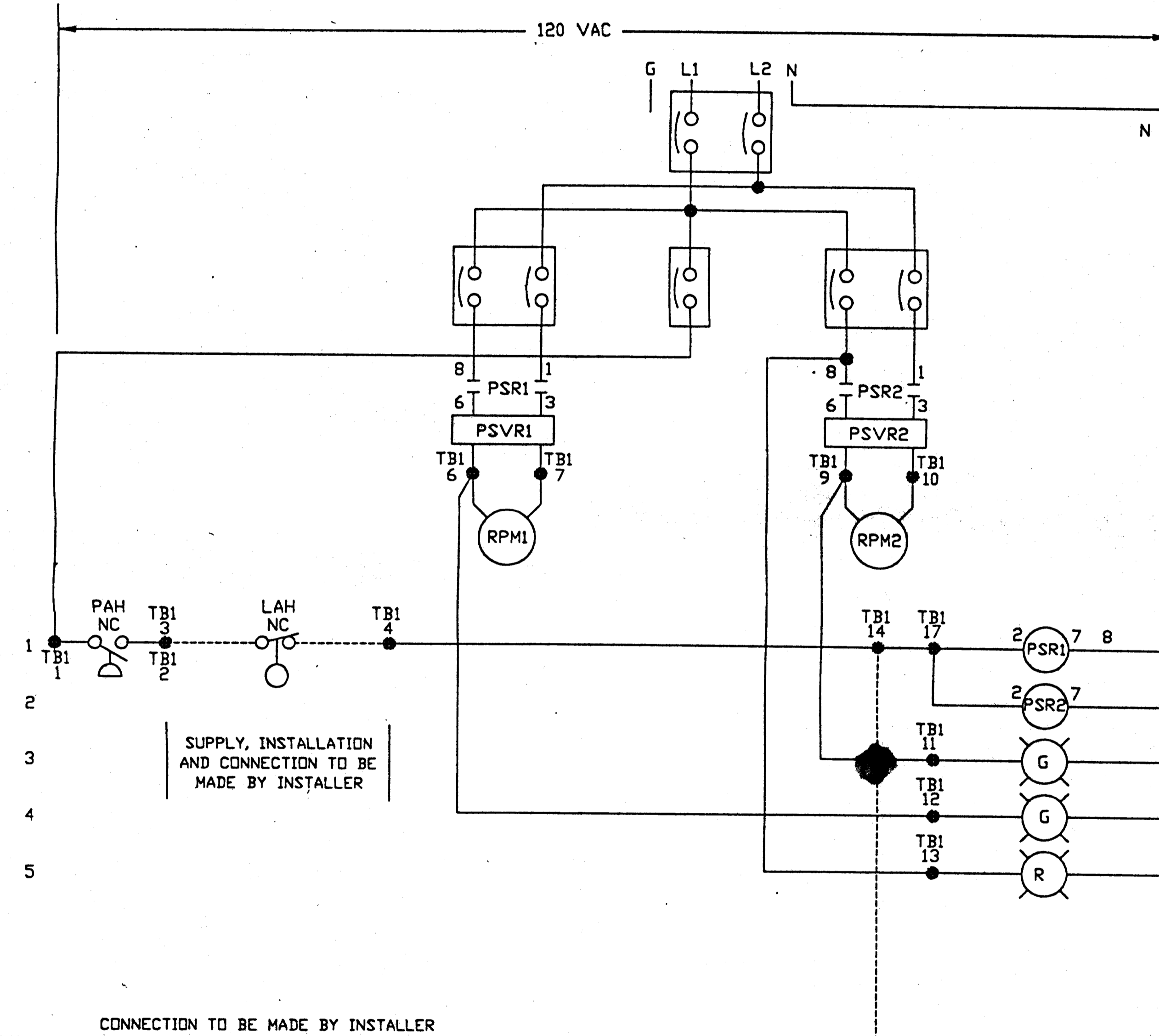
95-05301 A

# ABBREVIATIONS

AR ALARM RELAY	LAH SEP. LEVEL HIGH ALARM SW	PSR2 PUMP STARTER RELAY 2
BCR BLOWER CUT-OFF RELAY	LSH SEP HIGH LEVEL SWITCH	PSVR1 PUMP SAVER 1
BMS BLOWER MOTOR STARTER	LSS SEP LOW LEVEL SWITCH	PSVR2 PUMP SAVER 2
BMS COOL. BLOWER PRESS. SWITCH	PAH HIGH PRESS ALARM SWITCH	RPM2 RECOVERY PUMP MOTOR 2
BM BLOWER MOTOR	PSR1 PUMP STARTER RELAY 1	RPM1 RECOVERY PUMP MOTOR 1
FPM FORWARDING PUMP MOTOR		



VAPOR EXTRACTION MODULE - DRAWING 95-05301



LIQUID HANDLING MODULE - DRAWING 95-05304

NOTES: UNLESS OTHERWISE SPECIFIED

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 LIMITS OF DIMENSIONS UNLESS SPECIFIED OTHERWISE  
 A 1/8"  
 B 1/16"  
 C 1/32"  
 D 1/64"  
 ANGULAR 1/8" 30'  
 FRACTIONAL  
 XX U.S.A.S. 3461-62  
 BREAK ALL SHARP EDGES

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 STRESS  
 APPV'D  
 APPV'D

**SOIL-THERM EQUIPMENT, INC.**

**SOIL VAPOR EXTRACTION UNIT ELECTRICAL SCHEMATIC**

UNICAL 5367 SAN LEANDRO  
 GEOTECHNICAL ARCH

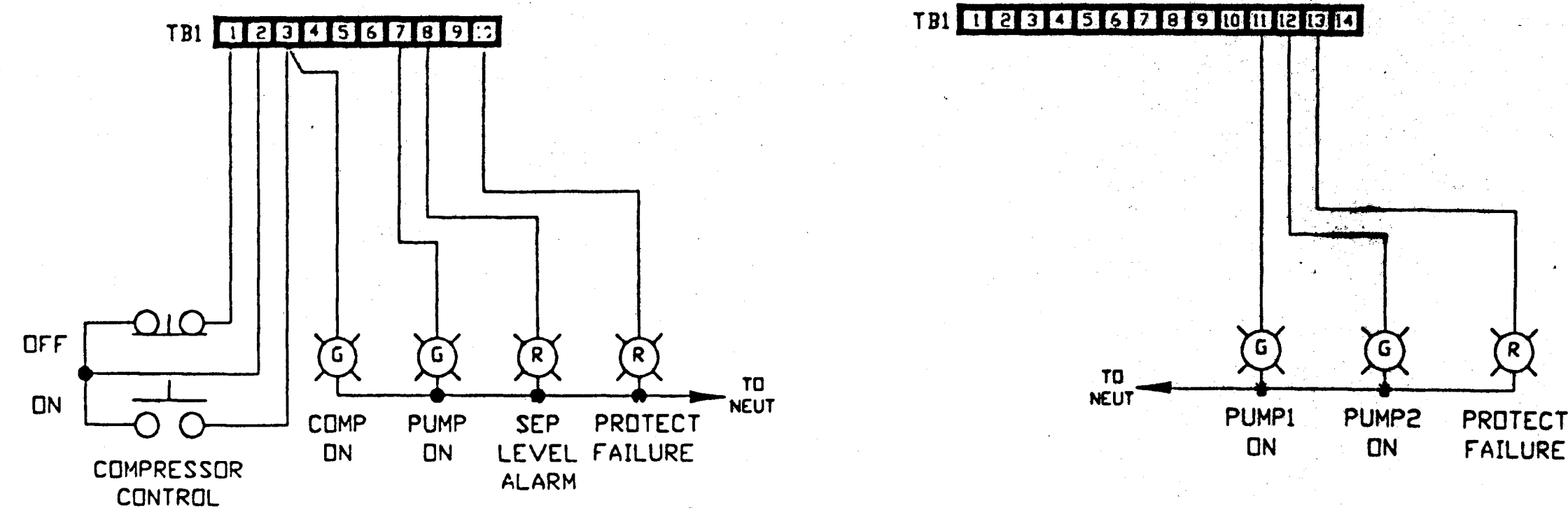
SCALE: 1" = 1'-0"  
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 APPROVED: [Signature]  
 JOBSITE COPY

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 I.C.C.

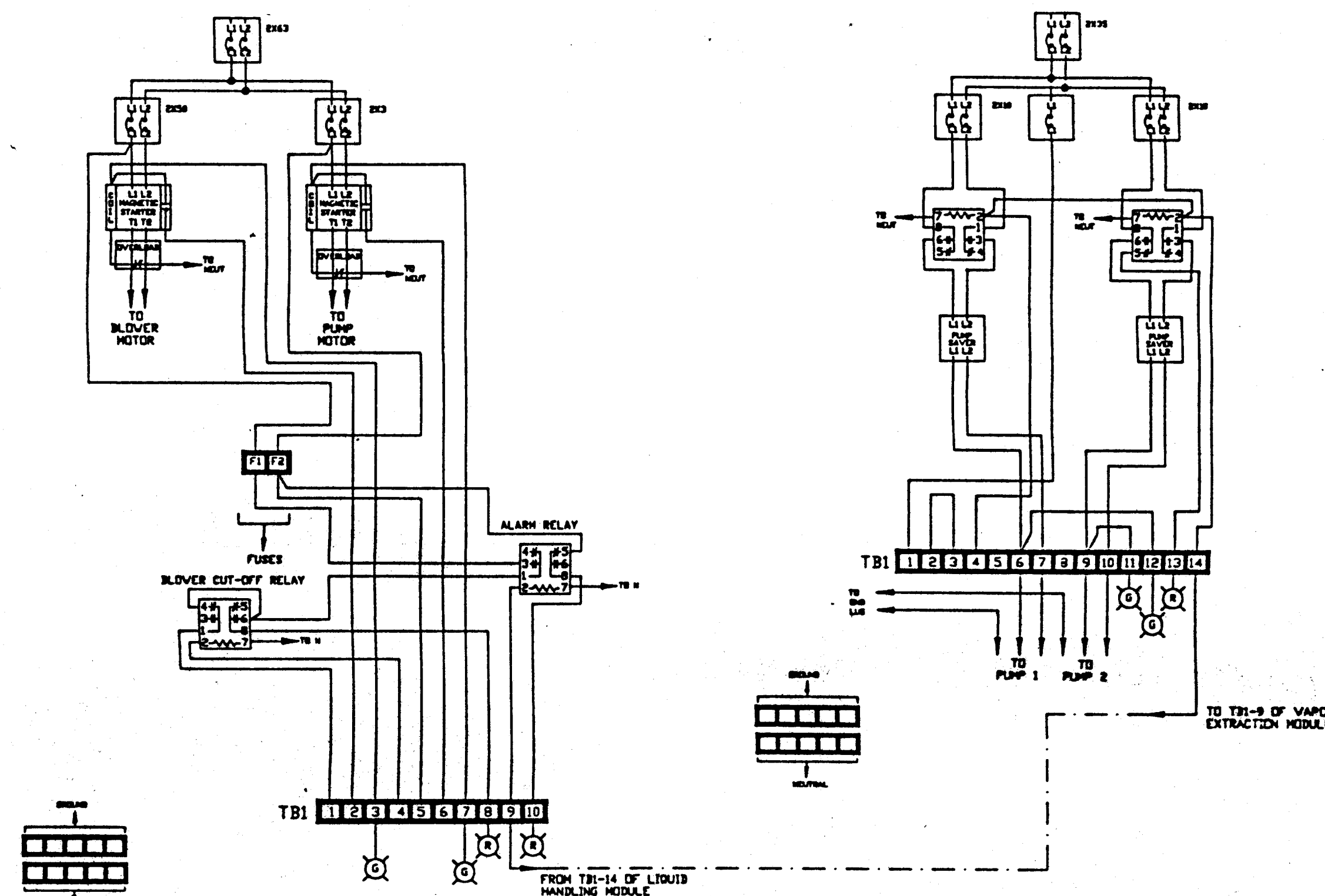
95-05315

PANEL WIRING



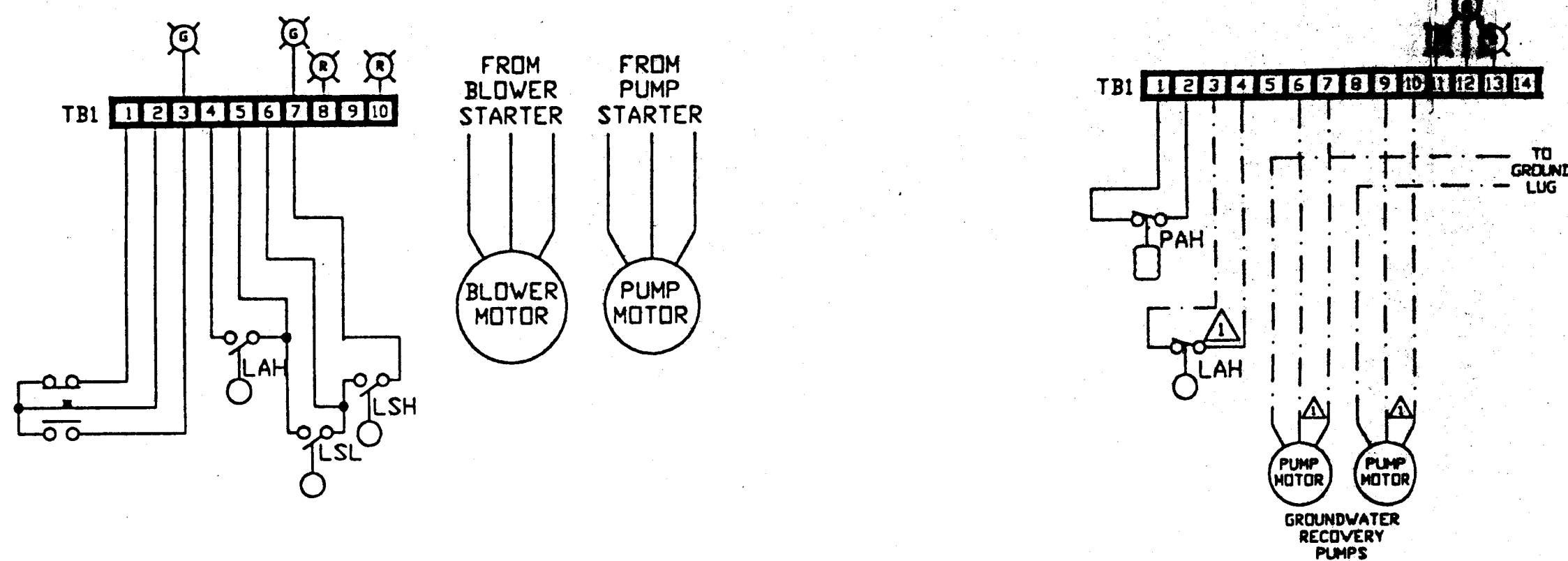
VAPOR EXTRACTION MODULE - DRAWING 95-05301 LIQUID HANDLING MODULE - DRAWING 95-05304

CONTROL BOX WIRING



VAPOR EXTRACTION MODULE - DRAWING 95-05301 LIQUID HANDLING MODULE - DRAWING 95-05304

EXTERNAL WIRING



1. LSH WILL START FORWARDING PUMP WHEN ACTIVATED BY RISING FLUID LEVEL.
2. LSL WILL STOP FORWARDING PUMP WHEN DEACTIVATED BY RECEDING FLUID LEVEL.
3. LAH WILL ACTIVATE BLOWER CUT-OFF RELAY TO STOP BLOWER AND TURN ON ONE INDICATOR LAMP.

1. PAH AND LAH, NORMALLY CLOSED, IN SERIES, ACTIVATE THE TWO PUMP STARTER RELAYS OF THIS MODULE, AND THE CUT-OFF RELAY OF THE VAPOR EXTRACTION MOULE, ALLOWING THE THREE PUMPS TO OPERATE.
2. RISING PRESSURE AT THE INLET OF THE BAG FILTER OR RISING LEVEL AT THE CARBON FILTER WILL OPEN PAH OR LAH, BREAKING THE SERIES RELEASING THE STARTER RELAYS AND THE CUT-OFF RELAY, STOPPING THE PUMPS.

VAPOR EXTRACTION MODULE - DRAWING 95-05301 LIQUID HANDLING MODULE - DRAWING 95-05304

NOTES: UNLESS OTHERWISE SPECIFIED

A - GENERAL REVISIONS

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1	A.C.	10/13/95	JDD	M.S.

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LIMITS ON DIMENSIONS UNLESS SPECIFIED OTHERWISE

.0000 ± .001

.0000 ± .002

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.0000 ± 300.000

.0000 ± 400.000

.0000 ± 500.000

.0000 ± 600.000

.0000 ± 800.000

.0000 ± 1000.000

BREAK ALL SHARP EDGES

DESIGN	CARLOS J. MOLINARO/24/95
CHECK	
STRESS	
APP'VD	
APP'VD	
APP'VD	

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SOIL-THERM EQUIPMENT, INC.  
SOIL VAPOR EXTRACTION UNIT WIRING DIAGRAM  
UNOCAL 5760 SAN LORENZO  
PACIFIC ENVIRONMENTAL GROUP

SCALE: \_\_\_\_\_  
NEXT ASSY: \_\_\_\_\_

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95-05306A

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## TECHNICAL SPECIFICATIONS

Unocal Service Station 5367  
500 Bancroft Avenue, San Leandro, California

### Description of Vapor Treatment System

Two 1,000 pound vessels of vapor phase granular activated carbon (GAC) will be installed in series for adsorption of the petroleum-hydrocarbon laden vapor extracted from the subsurface soil. The system design specifications are:

- Granular Activated Carbon - 2 vessels
  - 1,000 pounds vapor phase GAC connected in series
  - 99.9% removal efficiency
- Pipes
  - 2-inch Schedule 40 poly vinyl chloride (PVC) vapor conveyance pipes
  - 3-inch Schedule 40 PVC vapor manifold pipes
- Vacuum pump, 1 unit.
  - Maximum process vapor flow rate of 250-300 standard cubic feet per minute (scfm)
  - Maximum vacuum of 7.5 inches of mercury (in. Hg)
  - 10 horsepower motor
    - 230-460 volts, single-phase, 60 hertz
    - equipped with a discharge silencer
    - UL approved
- 55-gallon Knockout pot, 1 unit.
  - equipped with level meter
- Low vacuum centrifugal pump, 1 unit.
  - 1 horsepower motor
  - 110-220 volts, single-phase, 60 hertz
  - equipped with a discharge silencer
  - UL approved
- Control panel, automatic
  - NEMA 4
  - equipped with safety switches
- Operation: Continuous (24 hours/day, 7 days/week)

Request to Ed Bonds 8/4/95

FILE #	5367	SS	✓	BP	---	
RPT	---	QM	---	TRANSMITTAL	---	
1	2	✓	3	4	5	6

### Description of Ground-Water Treatment System

Two 1,000 pound vessels of liquid phase granular activated carbon (GAC) will be installed in series for adsorption of the petroleum-hydrocarbon impacted ground water extracted from the subsurface. The system design specifications are:

- Granular Activated Carbon - 2 vessels
  - 1,000 pounds liquid phase GAC connected in series
  - 99.9% removal efficiency
  
- Pipes
  - 1-inch Schedule 40 poly vinyl chloride (PVC) ground-water riser pipes
  - 1.5-inch Schedule 40 PVC pipe inside a 3-inch Schedule 40 PVC pipe double-containment ground-water conveyance pipes
  
- Electric ground-water extraction pumps, 2 units.
  - Maximum process liquid flow rate of 2.5 gallons per minute (gpm) each
  - 2.5 horsepower motor
    - 110-220 volts, single-phase, 60 hertz
    - UL approved
  
- Holding tank, 1 unit.
  - equipped with level meter
  
- Centrifugal pump, 1 unit.
  - Maximum process liquid flow rate of 5 gpm
  - 1.5 horsepower motor
    - 110-220 volts, single-phase, 60 hertz
    - equipped with a discharge silencer
    - UL approved
  
- Control panel, automatic
  - NEMA 4
  - equipped with safety switches
  
- Operation: Continuous (24 hours/day, 7 days/week)

**TECHNICAL SPECIFICATIONS**

Unocal Service Station 5367  
500 Bancroft Avenue, San Leandro, California

**Description of Vapor Treatment System**

Two 1,000 pound vessels of vapor phase granular activated carbon (GAC) will be installed in series for adsorption of the petroleum-hydrocarbon laden vapor extracted from the subsurface soil. The system design specifications are:

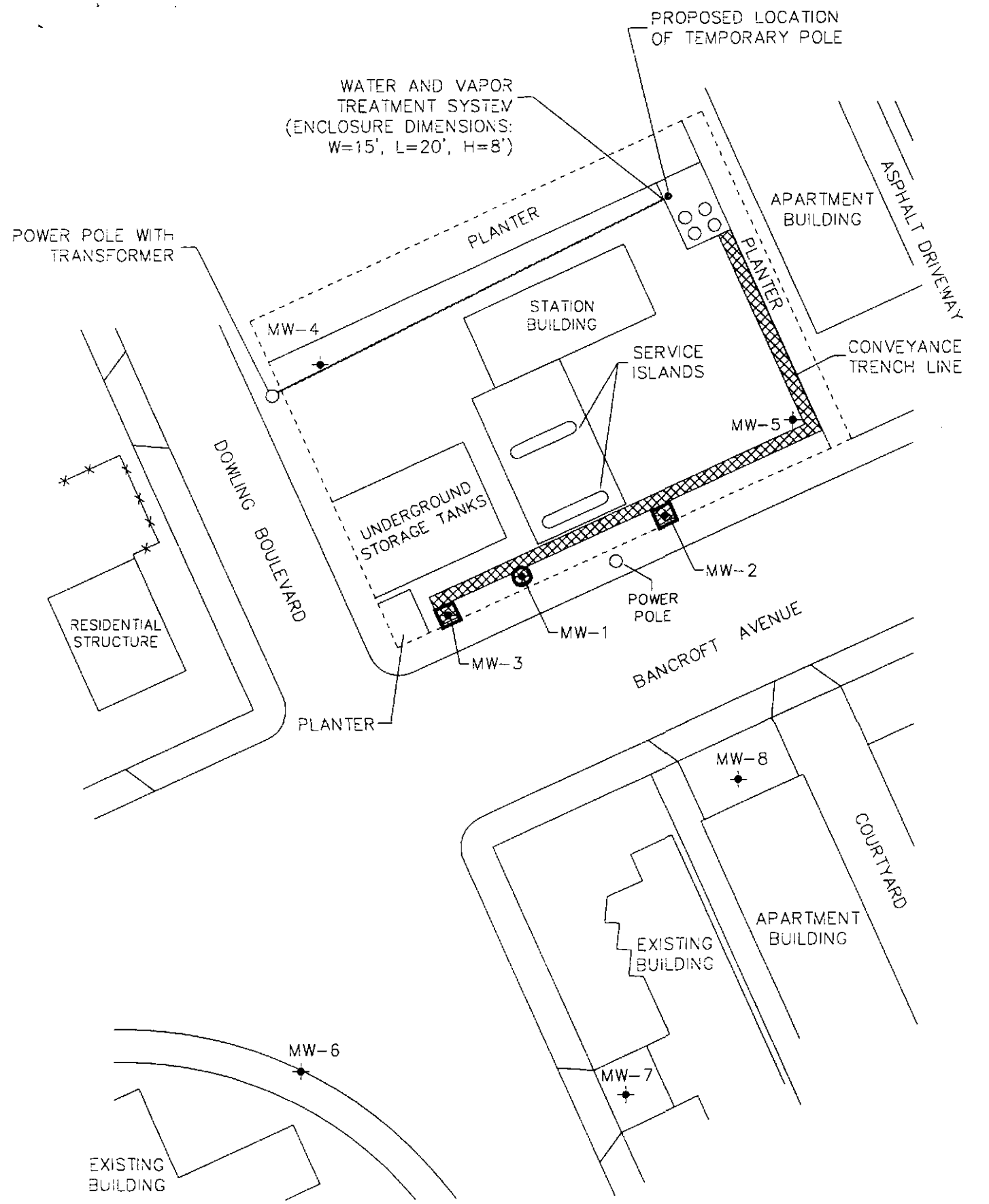
- Granular Activated Carbon - 2 vessels
  - 1,000 pounds vapor phase GAC connected in series
  - 99.9% removal efficiency
- Pipes
  - 2-inch Schedule 40 poly vinyl chloride (PVC) vapor conveyance pipes
  - 3-inch Schedule 40 PVC vapor manifold pipes
- Vacuum pump, 1 unit (for the vapor extraction system).
  - Maximum process vapor flow rate of 250-300 standard cubic feet per minute (scfm)
  - Maximum vacuum of 7.5 inches of mercury (in. Hg)
  - 10 horsepower motor
    - 230-460 volts, single-phase, 60 hertz
    - equipped with a discharge silencer
    - UL approved
- 55-gallon Knockout pot, 1 unit.
  - equipped with level meter
- Low vacuum centrifugal pump, 1 unit (for the knockout pot).
  - 1 horsepower motor
  - 110-220 volts, single-phase, 60 hertz
  - equipped with a discharge silencer
  - UL approved
- Control panel, automatic
  - NEMA 4
  - equipped with safety switches
- Operation: Continuous (24 hours/day, 7 days/week)

### Description of Ground-Water Treatment System

Two 1,000 pound vessels of liquid phase granular activated carbon (GAC) will be installed in series for adsorption of the petroleum-hydrocarbon impacted ground water extracted from the subsurface. The system design specifications are:

- Granular Activated Carbon - 2 vessels
  - 1,000 pounds liquid phase GAC connected in series
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- Pipes
  - 1-inch Schedule 40 poly vinyl chloride (PVC) ground-water riser pipes
  - 1.5-inch Schedule 40 PVC pipe inside a 3-inch Schedule 40 PVC pipe double-containment ground-water conveyance pipes
  
- Electric ground-water extraction pumps, 2 units (for the wells).
  - Maximum process liquid flow rate of 2.5 gallons per minute (gpm) each
  - 2.5 horsepower motor
    - 110-220 volts, single-phase, 60 hertz
    - UL approved
  
- Holding tank, 1 unit.
  - equipped with level meter
  
- Centrifugal pump, 1 unit (for the holding tank)
  - Maximum process liquid flow rate of 5 gpm
  - 1.5 horsepower motor
    - 110-220 volts, single-phase, 60 hertz
    - equipped with a discharge silencer
    - UL approved
  
- Control panel, automatic
  - NEMA 4
  - equipped with safety switches
  
- Operation: Continuous (24 hours/day, 7 days/week)

REV	COMMENTS	DATE	INT
A	MODIFIED LOCATION OF TEMPORARY POWER POLE	8/22/95	DJC



**CONSTRUCTION DETAILS**

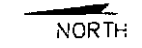
AT TIMES OF EXCAVATION OPERATIONS, THE SURFACE CAP SHALL BE CUT WITH A PAVEMENT SAW PRIOR TO BREAKING.

WHEN EXCAVATING NEAR EXISTING UNDERGROUND WIRING AND PIPING, ALL OPERATIONS SHALL BE DONE MANUALLY. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE EXISTING LINES.

TRENCHES OF APPROXIMATELY 12-INCHES IN WIDTH AND 2- FEET 6-INCHES IN DEPTH SHALL BE EXCAVATED TO INSTALL THE CONVEYANCE PIPES FROM VAPOR EXTRACTION WELLS TO THE REMEDIATION SYSTEM.

**LEGEND**

- MW-8 MONITORING WELL LOCATION
- MW-1 12" EMCO-WHEATON WELL BOX
- MW-3 3' X 3' MANWAY
- CONVEYANCE TRENCH LINE



0 10 20 40  
APPROXIMATE SCALE IN FEET

REFERENCE:  
MAP PROVIDED BY APPLIED GEOSYSTEMS, 3/94

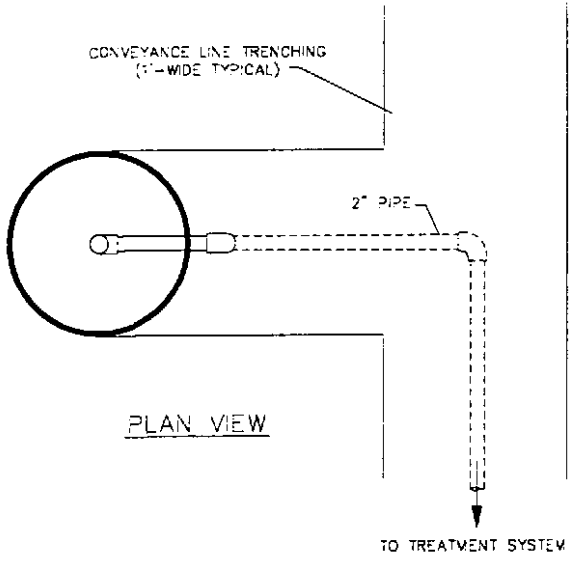
REV	INT	DATE
DRAWN	S. NASH	7/3/95
DESIGN	M. BELTRAN	7/3/95
REVIEWED	G. RAGLE	7/3/95
APPROVED	L. HALL	7/3/95
DRAWN	A. D. CHERNOW	8/22/95

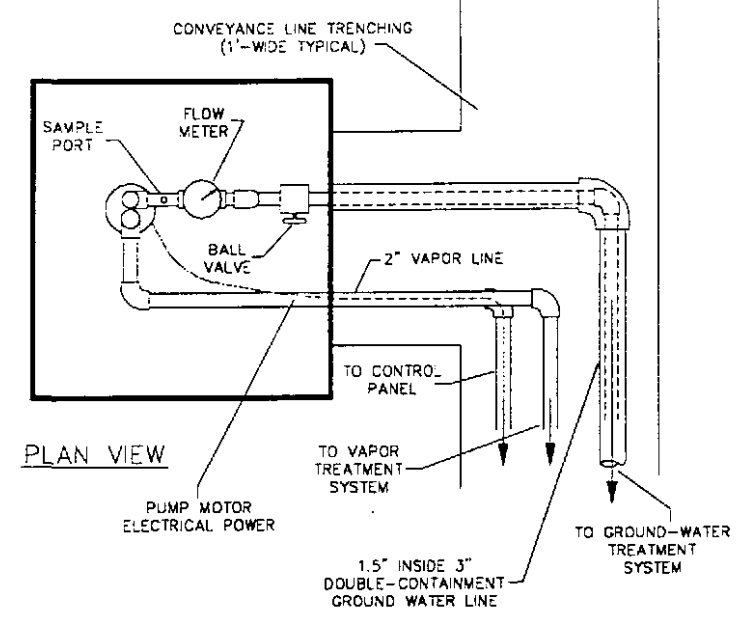
<b>GeoResearch</b>		
<small>3950 GILMAN STREET LONG BEACH, CA 90815 (310) 597-3977</small>		
<b>SITE LAYOUT AND TRENCHING LOCATION</b>		
UNOCAL SERVICE STATION 5367		
500 BANCROFT AVENUE		
SAN LEANDRO, CALIFORNIA		
PROJECT NUMBER: 9580600100		
SIZE	FILE NO.	REV
D	D1	A
SCALE: NTS	FIGURE NO.: 1	

REV	COMMENTS	DATE	INT
A	ADDED EQUIPMENT LAYOUT	5/15/95	DC

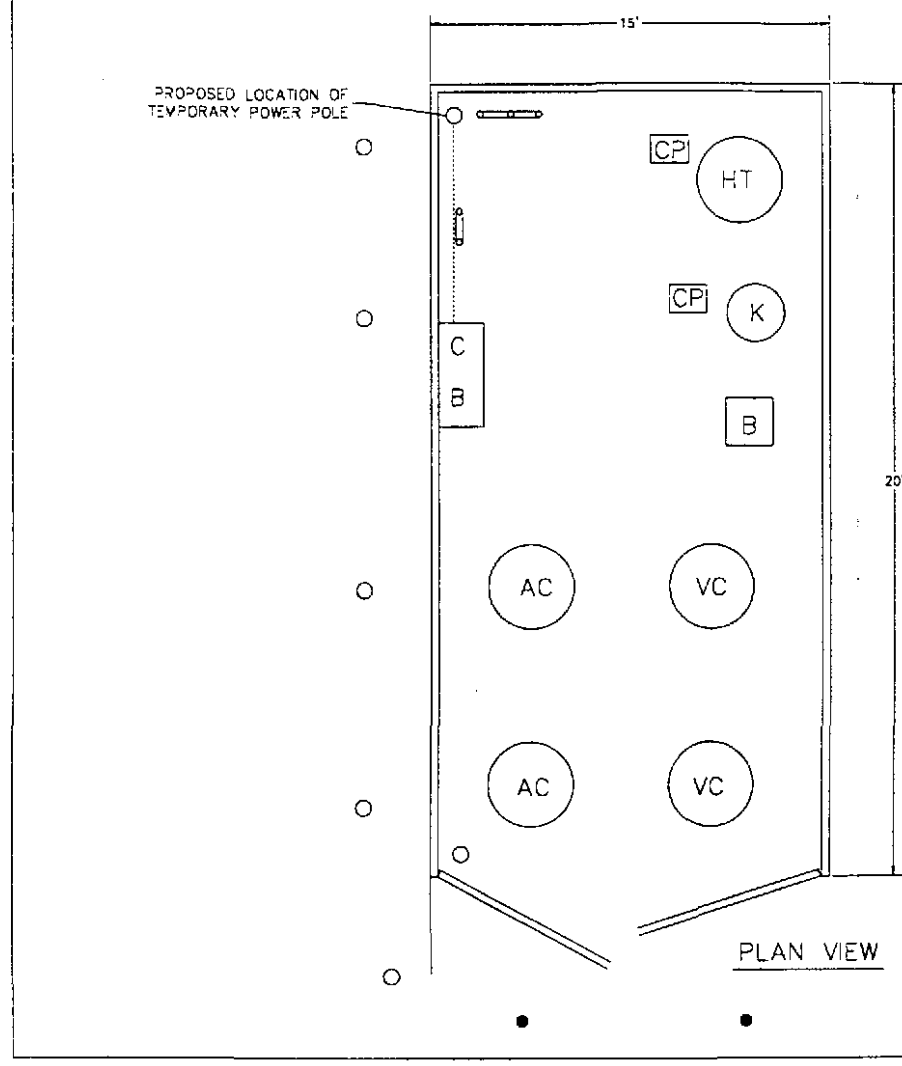
**SINGLE-COMPLETION WELL**



**DUAL-COMPLETION WELL**



PROPOSED LOCATION OF TEMPORARY POWER POLE



**ENCLOSURE**

- HT = HOLDING TANK
- K = KNOCKOUT POT
- CP = CENTRIFUGAL PUMP
- B = BLOWER
- VC = VAPOR CARBON
- AC = AQUA CARBON
- CB = CONTROL BOX

**CONSTRUCTION DETAILS**

AN ENCLOSURE SHALL BE CONSTRUCTED AROUND THE REMEDIATION SYSTEM.

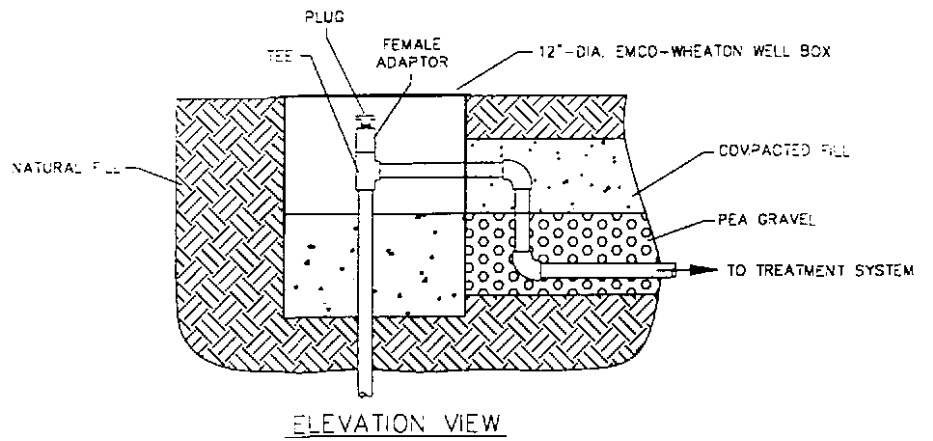
DIMENSIONS OF ENCLOSURE ARE 20 FEET LENGTH, 15 FEET WIDTH, AND 8 FEET HEIGHT WITH BARBED WIRE RUNNING ALONG THE TOP OF ENCLOSURE.

STRUCTURE OF ENCLOSURE SHALL BE MADE OF CHAIN-LINK FENCE WITH PRIVACY SLATS.

A GATE IN THE FRONT SHALL PROVIDE ACCESS TO THE ENCLOSURE SPACE, AS SHOWN IN THE FIGURE.

SAFETY POLES SHALL BE INSTALLED ON THE PERIMETER OF THE ENCLOSURE. REMOVABLE SAFETY POLES SHALL BE INSTALLED IN FRONT OF THE DOUBLE GATE TO ALLOW ACCESS.

**12"-DIA. TRAFFIC RATED CHRISTY BOX TYPICAL FOR SINGLE-COMPLETION (MW1)**

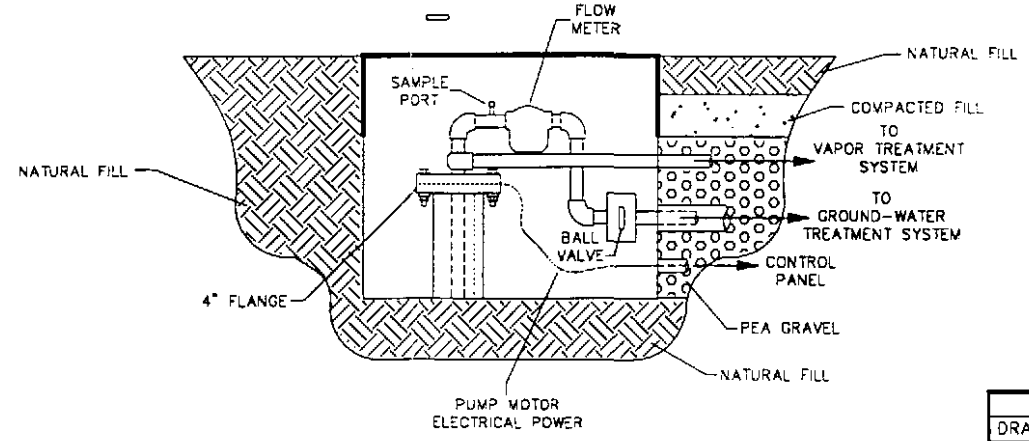


**CONSTRUCTION DETAILS**

12"-DIA. TRAFFIC RATED CHRISTY BOX SHALL BE INSTALLED AT LOCATIONS SHOWN IN FIGURE.

MANWAY SHALL BE LOCKABLE AND COMPLETED TO 1-INCH ABOVE GRADE.

**3' X 3' MANWAY TYPICAL FOR DUAL-COMPLETION WELL (MW2 AND MW3)**



**CONSTRUCTION DETAILS**

3' X 3' MANWAY SHALL BE INSTALLED AT LOCATIONS SHOWN ON FIGURE 1.

MANWAY SHALL BE LOCKABLE AND COMPLETED TO 1-INCH ABOVE GRADE.

REV	INT	DATE
DRAWN	S. NASH	6/30/95
DESIGN	M. BELTRAN	6/30/95
REVIEWED	G. RAGLE	6/30/95
APPROVED	L. HALL	6/30/95
DRAWN	A. D. CHERNOW	8/15/95

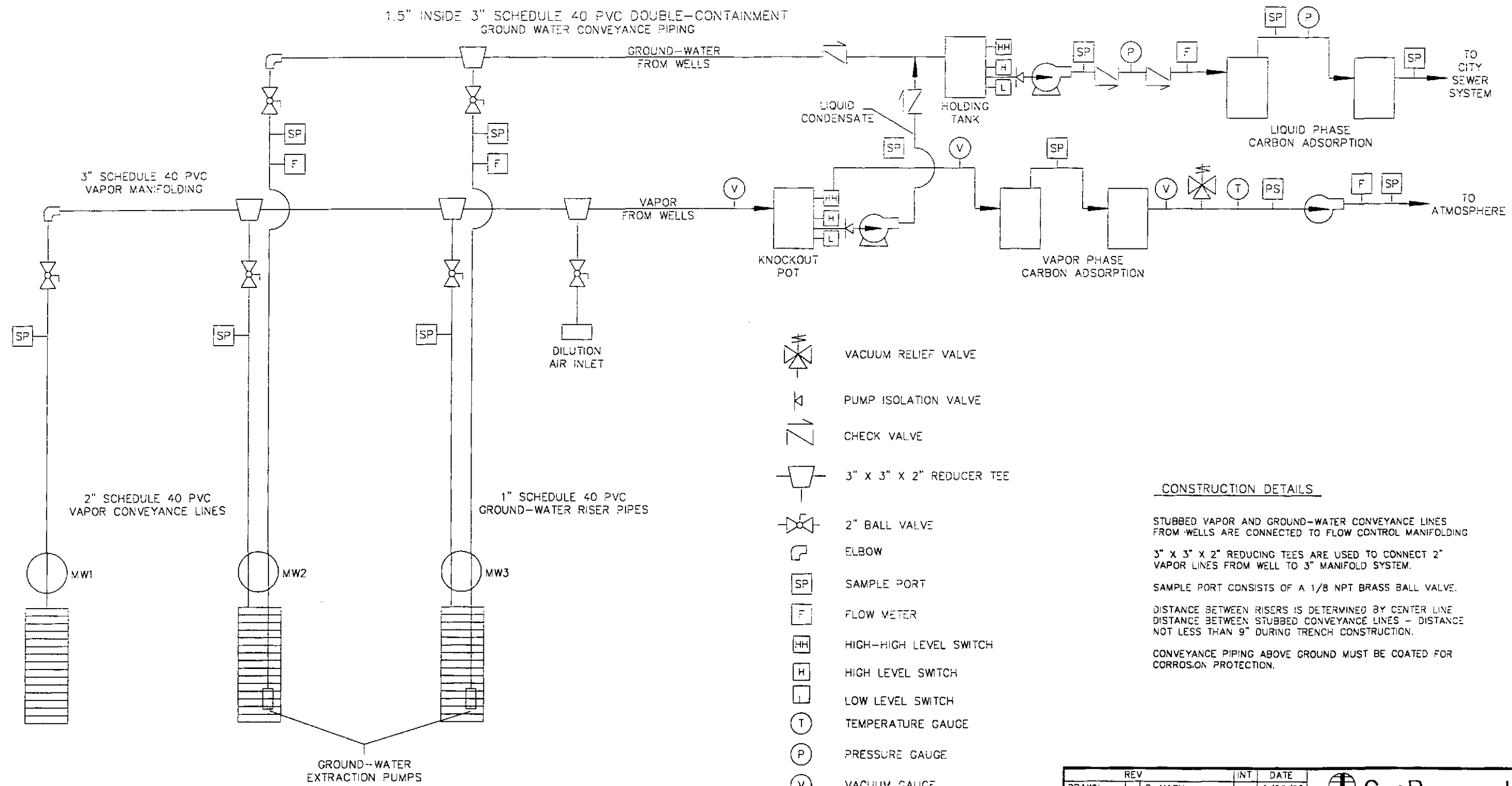
**GeoResearch**  
 3980 GILMAN STREET LONG BEACH, CA 90815 (310) 597-3977

**ENCLOSURE AND TRENCHING DETAILS**  
 UNOCAL SERVICE STATION 5367  
 500 BANCROFT AVENUE  
 SAN LEANDRO, CALIFORNIA  
 PROJECT NUMBER: 9580600100

SIZE	FILE NO.	REV
D	E1	A

SCALE: NTS      FIGURE NO.: 2

REV	COMMENTS	DATE	INT
A	ADDED SEVERAL VALVES	8/15/95	DC



- VACUUM RELIEF VALVE
- PUMP ISOLATION VALVE
- CHECK VALVE
- 3" X 3" X 2" REDUCER TEE
- 2" BALL VALVE
- ELBOW
- SAMPLE PORT
- FLOW METER
- HIGH-HIGH LEVEL SWITCH
- HIGH LEVEL SWITCH
- LOW LEVEL SWITCH
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- VACUUM GAUGE
- PRESSURE SWITCH
- BLOWER
- CENTRIFUGAL PUMP

**CONSTRUCTION DETAILS**

STUBBED VAPOR AND GROUND-WATER CONVEYANCE LINES FROM WELLS ARE CONNECTED TO FLOW CONTROL MANIFOLDING

3" X 3" X 2" REDUCING TEES ARE USED TO CONNECT 2" VAPOR LINES FROM WELL TO 3" MANIFOLD SYSTEM.

SAMPLE PORT CONSISTS OF A 1/8 NPT BRASS BALL VALVE.

DISTANCE BETWEEN RISERS IS DETERMINED BY CENTER LINE DISTANCE BETWEEN STUBBED CONVEYANCE LINES - DISTANCE NOT LESS THAN 9" DURING TRENCH CONSTRUCTION.

CONVEYANCE PIPING ABOVE GROUND MUST BE COATED FOR CORROSION PROTECTION.

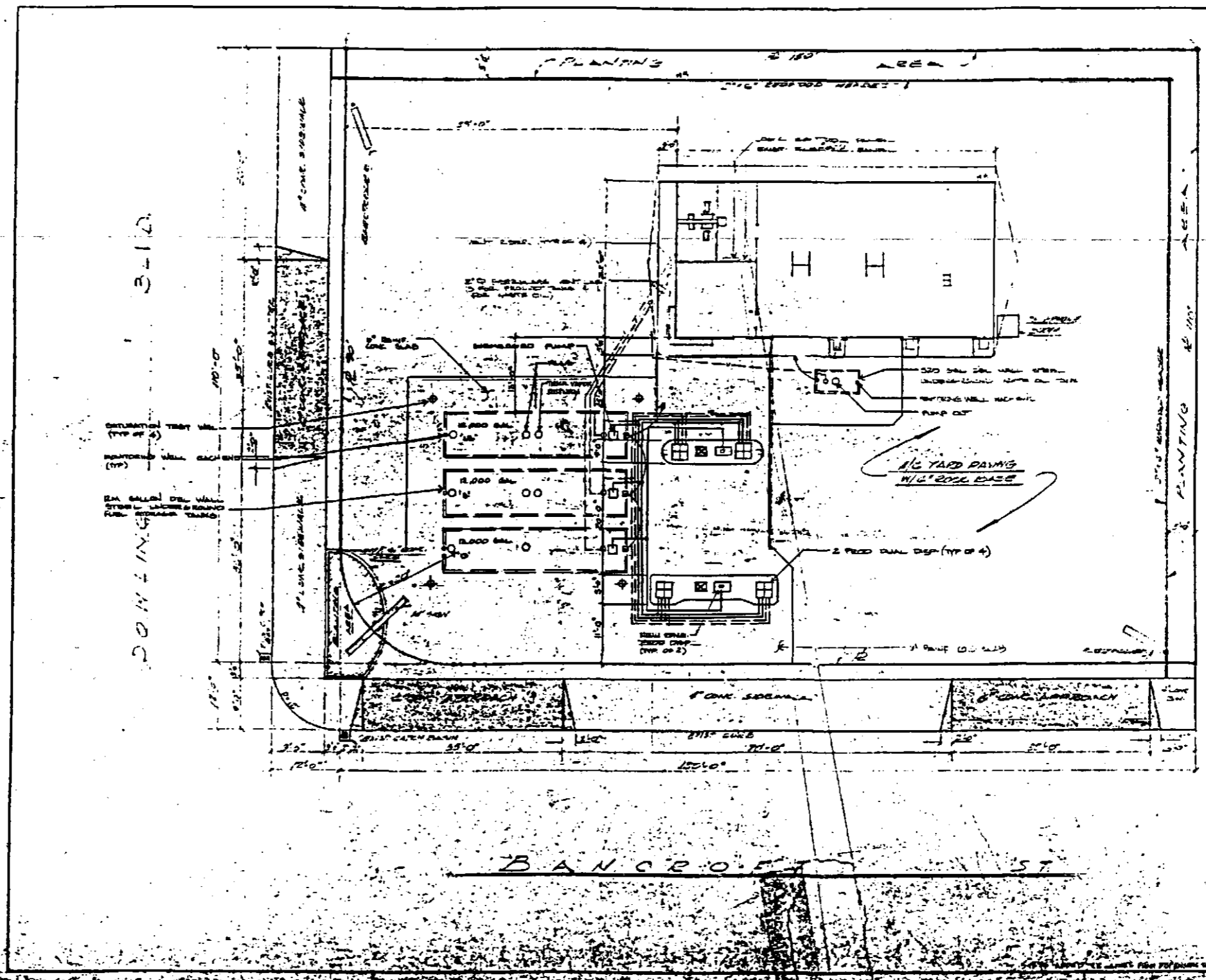
REV	INT	DATE
DRAWN	S. NASH	6/30/95
DESIGN	M. BELTRAN	6/30/95
REVIEWED	G. RAGLE	6/30/95
APPROVED	L. HALL	6/30/95
DRAWN	A. D. CHERNDW	8/15/95

**GeoResearch**  
 3960 GILMAN STREET LONG BEACH, CA 90815 (310) 597-3977

PROCESS AND INSTRUMENT DETAILS  
 UNOCAL SERVICE STATION 5367  
 500 BANCROFT AVENUE  
 SAN LEANDRO, CALIFORNIA  
 PROJECT NUMBER: 958060D100

SIZE	FILE NO.	REV
D	C1	A
SCALE: NTS	FIGURE NO.: 3	

Store # 255367 Date: 4/23/60  
 Unit # 5367 Code: GEN Color   
 Description: GEN ARRANGEMENT



WESTERN REGION BOX: -  
 #9532

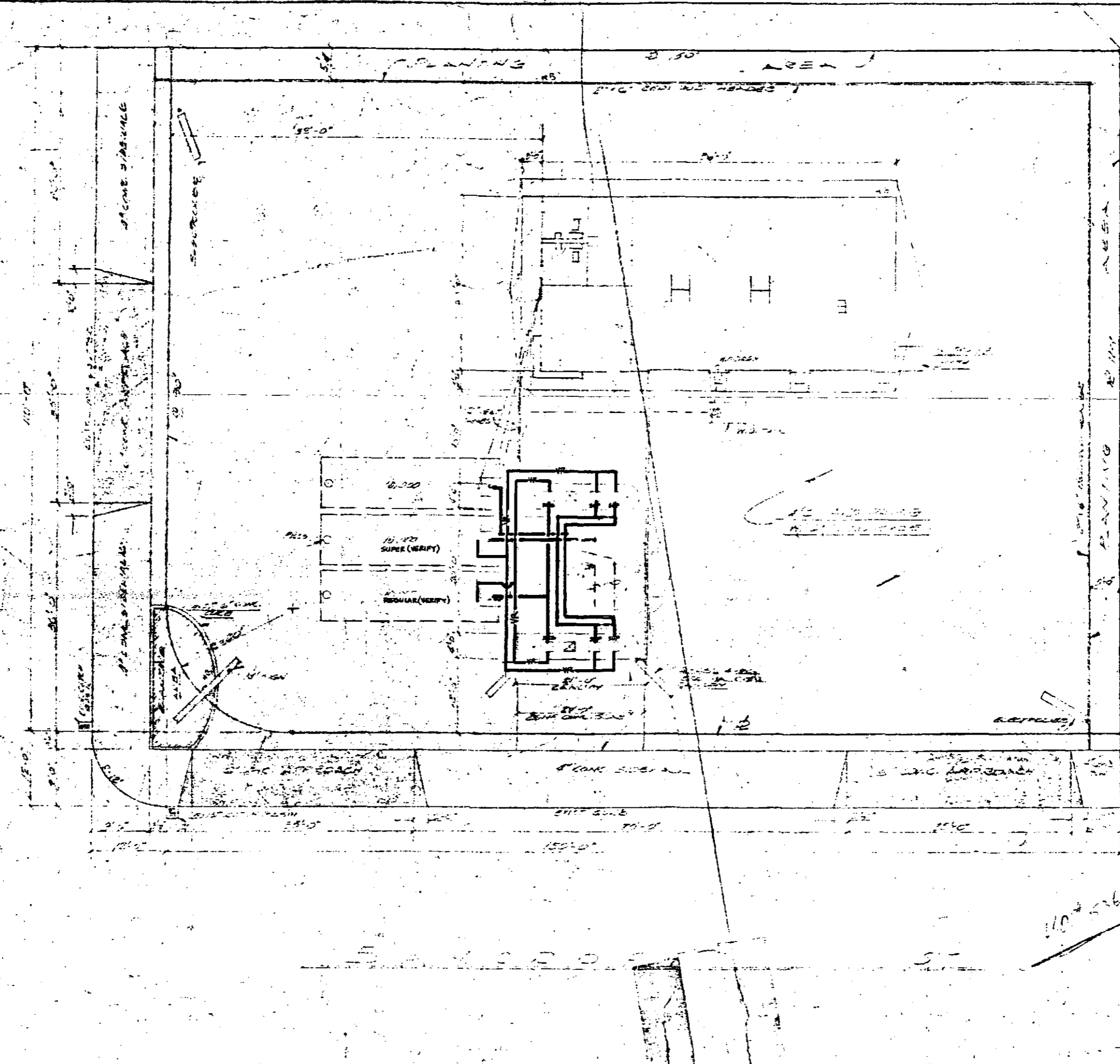
4-25-50	TANK REPLACEMENT BY	EN	
---------	---------------------	----	--

DESIGNED BY  
**SERVICE STATION ENGINEERING CO.**  
 1211 MARKET STREET, SAN FRANCISCO, CALIF.  
 SAN CALLEJO OIL CO.  
 LOCATION SAN LEANDRO, CALIF.  
 GENERAL ARRANGEMENT

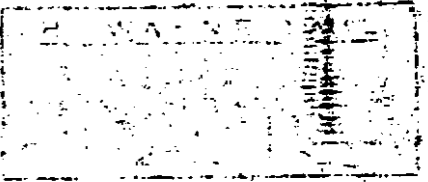


3470

294719



— VR — NEW VAPOR RETURN LINE FROM  
 DISPENSER TO TANK  
 REFER TO DNG. FID481-3, SHEETS A & B  
 "VAPOR RETURN SPECIF." DATED 2/25/74  
 + DNG. FID481-3, "TYPICAL VAPOR RETURN  
 SYSTEM" DATED 2/21/74, SHEET C.



H. J. ...  
 ...

SERVICE STATION ENGINEERING CO.  
 ...  
 ...

APPROVED

NOV 16 1990

RONALD E. BOCK

Unocal Station No. 5367  
San Leandro

MW-2,3,8 → GM  
MW 4,5,6,7 → SM-A

Current Status

Quarterly ground-water monitoring

- o 5 onsite and 3 offsite wells.
- o Well MW-4 has been ND for 4 quarters.
- o Wells MW-5, MW-6, and MW-7 have been ND for 2, 3, and 1 quarters, respectively.

Technical Concerns

Further offsite delineation of soil and ground water.

Regulatory Concerns

None

Schedule

Quarterly monitoring conducted on August 24, 1990.

- o Letter report sent October 25, 1990.

Budget 1990

Total cost May 1990 to December 1990 is \$9,650.

Estimated budget 1991

- o Total cost is \$19,330

TABLE 3  
RESULTS OF LABORATORY ANALYSES OF GROUND WATER  
(Page 1 of 2)

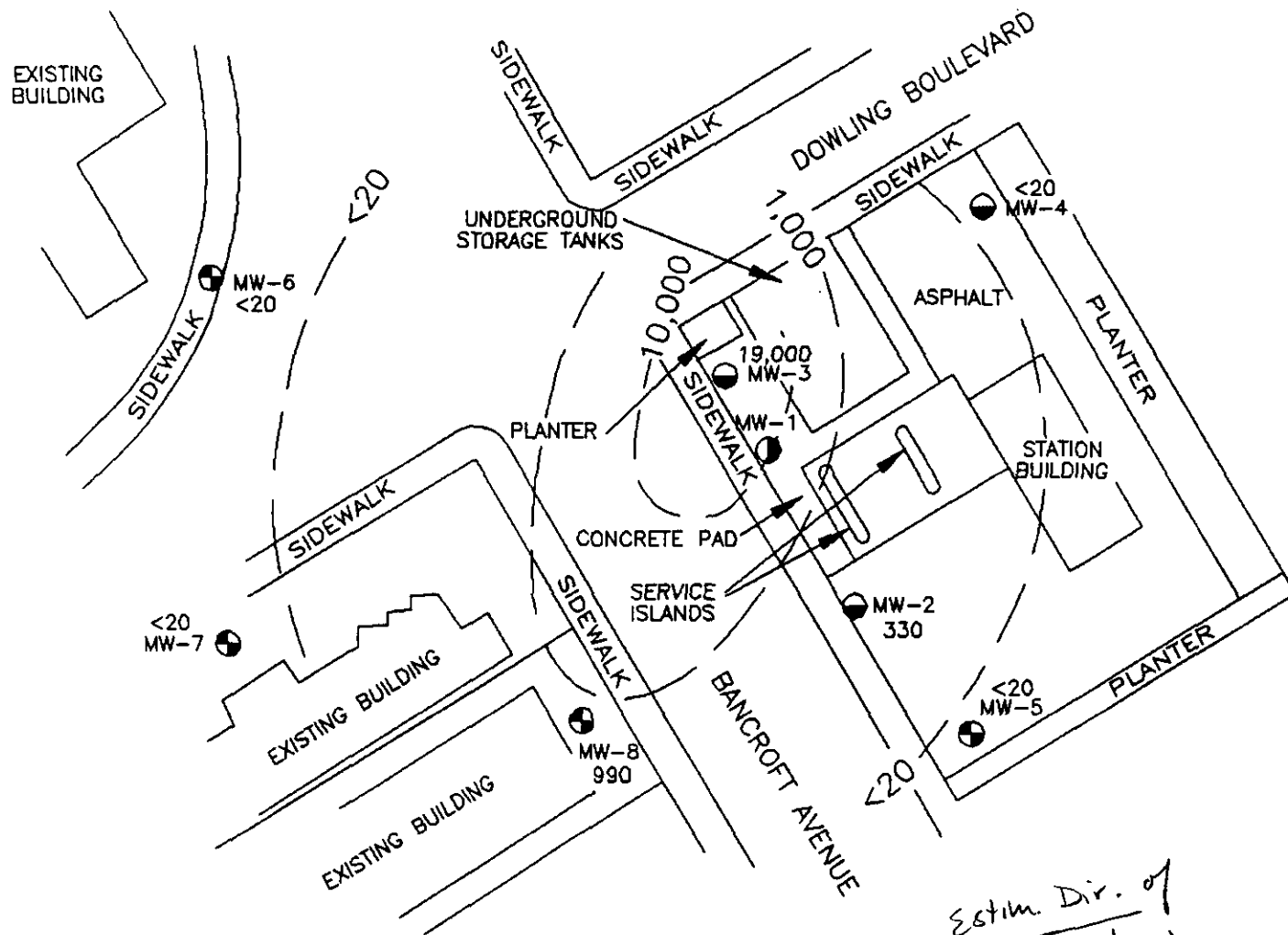
Date	Sample Number	TPHg	B	E	T	X
<b>WELL MW-1</b>						
10/88	Well dry therefore water sample not collected					
01/89	Well dry therefore water sample not collected					
02/90	Well dry therefore water sample not collected					
05/90	Well dry therefore water sample not collected					
08/90	Well dry therefore water sample not collected					
<b>WELL MW-2</b>						
10/88	W-37-MW2	1,760	47.8	20.9	7.4	81.6
01/89	W-35-MW2	510	58.0	22.6	8.7	20.3
02/90	W-36-MW2	840	50.0	28.0	0.5	44.0
05/90	W-36-MW2	1,000	39.0	32.0	<0.5	52.0
08/90	W-36-MW2	330	17	19	<0.5	20
<b>WELL MW-3</b>						
10/88	W-37-MW3	61	1.06	1.52	3.38	8.72
01/89	W-35-MW3	39	1.57	1.25	2.83	7.07
02/90	W-36-MW3	22,000	710	6.90	4.10	33,000
05/90	W-36-MW3	19,000	330	310	170	1,500
08/90	W-36-MW3	19,000	480	510	160	1,500
<b>WELL MW-4</b>						
10/88	W-37-MW4	<20	<0.5	<0.5	<0.5	<0.5
01/89	W-35-MW4	<20	<0.5	<0.5	<0.5	<0.5
02/90	W-36-MW4	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-36-MW4	<20	<0.5	0.68	<0.5	1.4
08/90	W-36-MW4	<20	<0.5	<0.5	<0.5	<0.5
<b>WELL MW-5</b>						
02/90	W-36-MW5	67	0.51	2.9	1.6	7.5
05/90	W-36-MW5	<20	<0.5	<0.5	<0.5	<0.5
08/90	W-35-MW5	<20	<0.5	<0.5	<0.5	<0.5
<b>WELL MW-6</b>						
02/90	W-35-MW6	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-37-MW6	<20	<0.5	<0.5	<0.5	<0.5
08/90	W-35-MW6	<20	<0.5	<0.5	<0.5	<0.5

TABLE 3  
RESULTS OF LABORATORY ANALYSES OF GROUND WATER  
(Page 2 of 2)

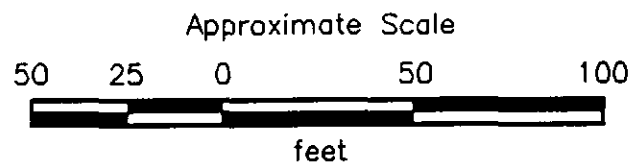
Date	Sample Number	TPHg	B	E	T	X
<b>WELL MW-7</b>						
02/90	W-36-MW7	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-35-MW7	24	<0.5	0.74	<0.5	1.7
08/90	W-35-MW7	<20	<0.5	<0.5	<0.5	<0.5
<b>WELL MW-7 BLANK</b>						
02/90	W-BLANK-MW7	<20	<0.5	<0.5	<0.5	<0.5
<b>WELL MW-8</b>						
02/90	W-35-MW8	1,900	11	52	<0.5	55
05/90	W-36-MW8	770	6.5	20	<0.5	32
08/90	W-36-MW8	990	13	48	<0.5	66

Results in milligrams/liter ( $\mu\text{g}/\text{l}$ ) = parts per billion (ppb)  
TPHg: Total petroleum hydrocarbons as gasoline  
BETX: Benzene, ethylbenzene, toluene, total xylene isomers  
<: Less than the detection limit for the method of analysis.  
Sample designation: W-37-MW2

┌───┐ Monitoring well number  
├───┐ Sample depth in feet  
└───┐ Water sample



- 10,000 = Line of equal concentration in parts per million
- 19,000 = Concentration in parts per million
- MW-8 ⊕ = New monitoring well (Applied GeoSystems, May 1989 and February 1990)
- MW-4 ● = Existing monitoring well (Applied GeoSystems, September 1988)
- MW-1 ◐ = Existing monitoring well (Applied GeoSystems, September 1987)
- TPHg = Total petroleum hydrocarbons as gasoline



PROJECT NO. 87091-4

CONCENTRATION OF TPHg  
 IN GROUND WATER  
 Unocal Station No. 5367  
 500 Bancroft Avenue  
 San Leandro, California

PLATE

P - 4

Unocal Station No. 5367  
500 Bancroft Avenue  
San Leandro, California  
AGS Job No. 87091-5

FILE #	5367	SS	<input checked="" type="checkbox"/>	BP	<input type="checkbox"/>						
RPT	<input type="checkbox"/>	QM	<input type="checkbox"/>	TRANSMITTAL	<input type="checkbox"/>						
1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input checked="" type="checkbox"/>

**Current Status**

**Quarterly and Semiannual Monitoring and Sampling:** The first quarter report was submitted on May 20, 1991. Field work for second quarter was performed on May 6, 1991.

**Technical Concerns**

Extent of hydrocarbons in ground waater is not delineated downgradient of MW-8 or cross gradient of MW-3. Increase of concentrations of hydrocarbons in the May sampling event a result of a rise in the water level.

**Regulatory Concerns**

None.

**Schedule**

Complete second quarter draft report by late July 1991.

**Proposed Additional Work in 1991**

None.

TABLE 3  
RESULTS OF LABORATORY ANALYSES OF GROUND WATER  
(Page 1 of 2)

Date	Sample Number	TPHg	B	T	E	X
<b>WELL MW-1</b>						
10/88	Well dry therefore water sample not collected					
01/89	Well dry therefore water sample not collected					
02/90	Well dry therefore water sample not collected					
05/90	Well dry therefore water sample not collected					
08/90	Well dry therefore water sample not collected					
11/90	Well dry therefore water sample not collected					
02/91	Well dry therefore water sample not collected					
05/91	Insufficient water to purge and sample well					
<b>WELL MW-2</b>						
10/88	W-37-MW2	1,760	47.8	7.4	20.9	81.6
01/89	W-35-MW2	510	58.0	8.7	22.6	20.3
02/90	W-36-MW2	840	50.0	0.5	28.0	44.0
05/90	W-36-MW2	1,000	39.0	<0.5	32.0	52.0
08/90	W-36-MW2	330	17	<0.5	19	20
11/90	W-37-MW2	400	41	<0.5	39	37
02/91	W-37-MW2	510	40	<0.5	29	44
05/91	W-33-MW2	2,300	150	10	52	110
<b>WELL MW-3</b>						
10/88	W-37-MW3	61,000	1,060	3,380	1,520	8,720
01/89	W-35-MW3	39,000	1,570	2,830	1,250	7,070
02/90	W-36-MW3	22,000	710	4,100	6,900	33,000
05/90	W-36-MW3	19,000	330	170	310	1,500
08/90	W-36-MW3	19,000	480	160	510	1,500
11/90	W-37-MW3	13,000	390	81	410	1,000
02/91	W-37-MW3	13,000	310	150	380	1,200
05/91	W-33-MW3	39,000	1,000	570	930	3,900
<b>WELL MW-4</b>						
10/88	W-37-MW4	<20	<0.5	<0.5	<0.5	<0.5
01/89	W-35-MW4	<20	<0.5	<0.5	<0.5	<0.5
02/90	W-36-MW4	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-36-MW4	<20	<0.5	<0.5	0.68	1.4
08/90	W-36-MW4	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-37-MW4	<50	<0.5	<0.5	<0.5	1.2
02/91	W-37-MW4	<50	<0.5	<0.5	<0.5	<0.5
05/91	Not Sampled					

See notes on page 2 of 2

TABLE 3  
 RESULTS OF LABORATORY ANALYSES OF GROUND WATER  
 (Page 2 of 2)

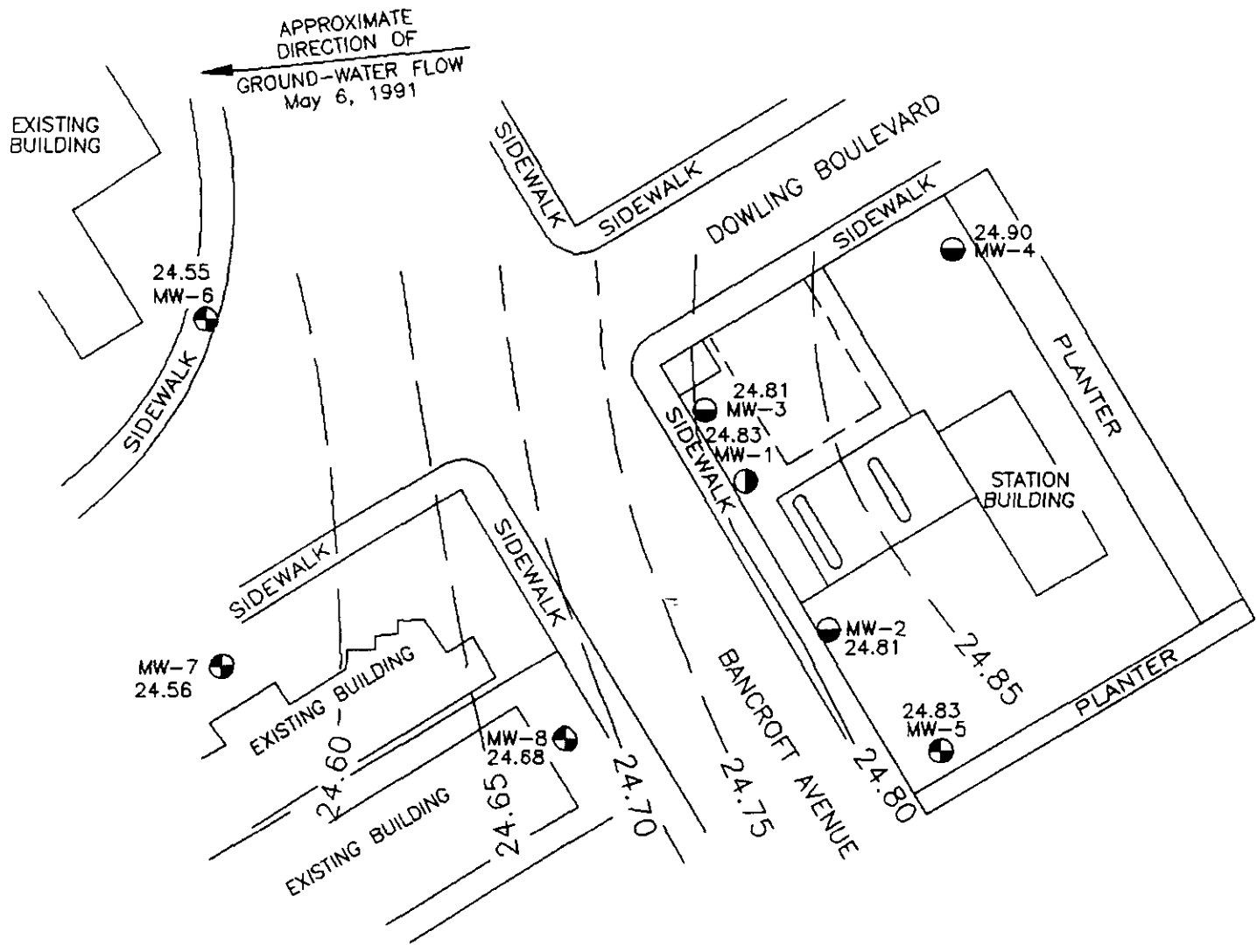
Date	Sample Number	TPHg	B	T	E	X
<b>WELL MW-5</b>						
02/90	W-36-MW5	67	0.51	1.6	2.9	7.5
05/90	W-36-MW5	<20	<0.5	<0.5	<0.5	<0.5
08/90	W-35-MW5	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-38-MW5	<50	<0.5	0.7	<0.5	<0.5
02/91	W-38-MW5	<50	<0.5	<0.5	<0.5	<0.5
05/91		Not Sampled				
<b>WELL MW-6</b>						
02/90	W-35-MW6	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-37-MW6	<20	<0.5	<0.5	<0.5	<0.5
08/90	W-35-MW6	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-36-MW6	<50	<0.5	<0.5	<0.5	<0.5
02/91	W-36-MW6	<50	<0.5	<0.5	<0.5	<0.5
05/91		Not Sampled				
<b>WELL MW-7</b>						
02/90	W-36-MW7	<20	<0.5	<0.5	<0.5	<0.5
05/90	W-35-MW7	24	<0.5	<0.5	0.74	1.7
08/90	W-35-MW7	<20	<0.5	<0.5	<0.5	<0.5
11/90	W-37-MW7	<50	<0.5	<0.5	0.6	1.5
02/91	W-37-MW7	<50	<0.5	<0.5	<0.5	<0.5
05/91		Not Sampled				
<b>WELL MW-8</b>						
02/90	W-35-MW8	1,900	11	<0.5	52	55
05/90	W-36-MW8	770	6.5	<0.5	20	32
08/90	W-36-MW8	990	13	<0.5	48	66
11/90	W-37-MW8	570	13	<0.5	45	36
02/91	W-37-MW8	630	9.6	<0.5	35	36
05/91	W-33-MW8	14,000	80	<0.5	250	550

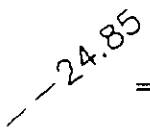



Results in micrograms/liter ( $\mu\text{g}/\text{l}$ ) = parts per billion (ppb)  
 TPHg = Total petroleum hydrocarbons as gasoline  
 BTEX = Benzene, ethylbenzene, toluene, total xylene isomers  
 < = Less than the detection limit for the method of analysis.

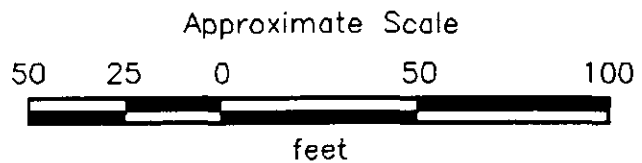
Sample designation: W-37-MW8

W — Monitoring well number  
 37 — Sample depth in feet  
 MW8 — Water sample





-  = Line of equal ground-water elevation in feet
- MW-8  = Monitoring well  
 (Applied GeoSystems, May 1989 and February 1990)
- MW-4  = Monitoring well  
 (Applied GeoSystems, September 1988)
- MW-1  = Monitoring well  
 (Applied GeoSystems, September 1987)



PROJECT NO. 87091-5

GENERALIZED SITE PLAN AND  
 GROUND-WATER ELEVATION MAP  
 Unocal Station No. 5367  
 500 Bancroft Avenue  
 San Leandro, California

PLATE  
 2



FACSIMILE  
TRANSMITTAL  
SHEET

ADDRESS/TELEPHONE	FAX NUMBERS
GeoResearch Divison 3960 Gilman Street Long Beach, CA 90815-1753 (310)597-3977	(310)597-8459

DATE: 9/6/95 TIME: \_\_\_\_\_ AM PM  
TOTAL NUMBER OF PAGES \_\_\_\_\_ IF YOU DO NOT  
RECEIVE ALL PAGES PLEASE CALL ASAP.

TO: NAME: TINA BEARY  
FIRM: UNOCAL CORP  
CITY: \_\_\_\_\_  
FAX NO: (510) 277-2309

FROM: NAME: HEI-LIN BELTRAN  
PLEASE DELIVER AS SOON AS POSSIBLE.  
OPERATOR INITIALS: \_\_\_\_\_

NOTES: Attached are the original  
quotes from a Carbon supplier for  
some calculations to help you in  
your decision.

FILE #	<u>5367</u>	SS	<input checked="" type="checkbox"/>	BP	_____
RPT	<u>QM</u>	TRANSMITTAL	_____	_____	_____
1	<input checked="" type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>
4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>



# GeoResearch

PROJECT NO.

FIGURE NO.:

PROJECT NAME: UNOCAL 5367

ADDRESS:

NAME: Mei-Lin BAIKIAN

CKD. BY:

DATE:

- 31 lbs per day of carbon usage for the first week
- assume 20% less carbon usage for the next three months.

## Carbon usage Calculation

$$\text{1st week} = 31 \frac{\text{lb Carbon}}{\text{day}} \left( \frac{7 \text{ day}}{\text{wk}} \right) = 217 \frac{\text{lb}}{\text{week}}$$

$$\text{Next 3 months} = 24.81 \frac{\text{lb Carbon}}{\text{day}} \left( \frac{7 \text{ day}}{\text{wk}} \right) \left( \frac{4.3 \text{ wk}}{\text{month}} \right) = 746.5 \frac{\text{lb}}{\text{month}}$$

Note that the quote was for 100 scfm (1 well). The blower will be specified out for 250 scfm (3 wells). For comparative purposes, the carbon usage for the first week will be doubled.

If you want to go for a smaller carbon vessel, GeoResearch recommends 2 - 500 lb carbon vessels. Although this might mean that 1 - carbon vessel would have to be changed out that 1st week, carbon changeout would lessen in frequency on the project progress.

Please keep in mind that actual amount may vary.

**CAMERON ENVIRONMENTAL, INC.**  
**527 VAN NESS AVENUE**  
**TORRANCE, CA 90501**  
**PHONE: (310)212-0610 FAX: (310)212-7222**

**FROM: Leslie Reeves**

**DATE: January 27, 1995**

**TO: Mei-Lin Beltran**

**COMPANY: Geo Research**

**FAX: 310-597-8459**

**PAGE 1 OF 2**

**REGARDING:**

Mei-Lin,

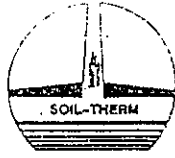
Attached, you will find a quote for the products your project will need.

According to your specifications of a flow of 100 CFM and concentration levels of 100 PPM for TPH, and 1200 PPB for Benzene; we have calculated your carbon consumption to be around 31 pounds per day to treat over 4 hrs. of VOC per day.

Assuming these concentration levels will drop lower within the first week, we can predict using over 700 lbs. of carbon per month, lessening as the project continues.

Thus we would recommend preparing with 1,000 lbs. of carbon per month, and thus cutting down on the regularity of changeouts.

If you have any questions, please call me.



# SOIL-THERM EQUIPMENT, INC.

Date of Transmission: 9/12/95 Project No.: \_\_\_\_\_

Total No. of Pages (including cover page): 7

Attention: Tina Berry FAX No: (510) 277-2309

COMPANY: \_\_\_\_\_ TEL NO: \_\_\_\_\_

CITY, STATE \_\_\_\_\_

From: Mark Dijkstra

(818) 706-9875 FAX (818) 706-2145

Description: Latest drawings for #5367, San Leandro.

I thank you,  
Mark

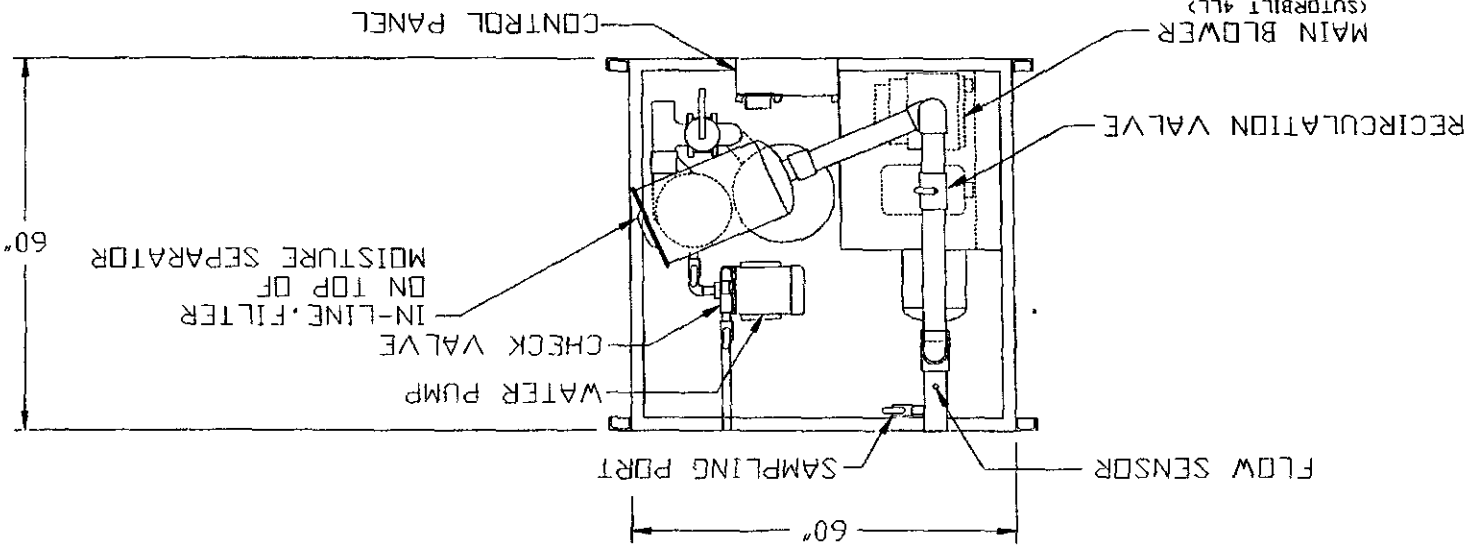
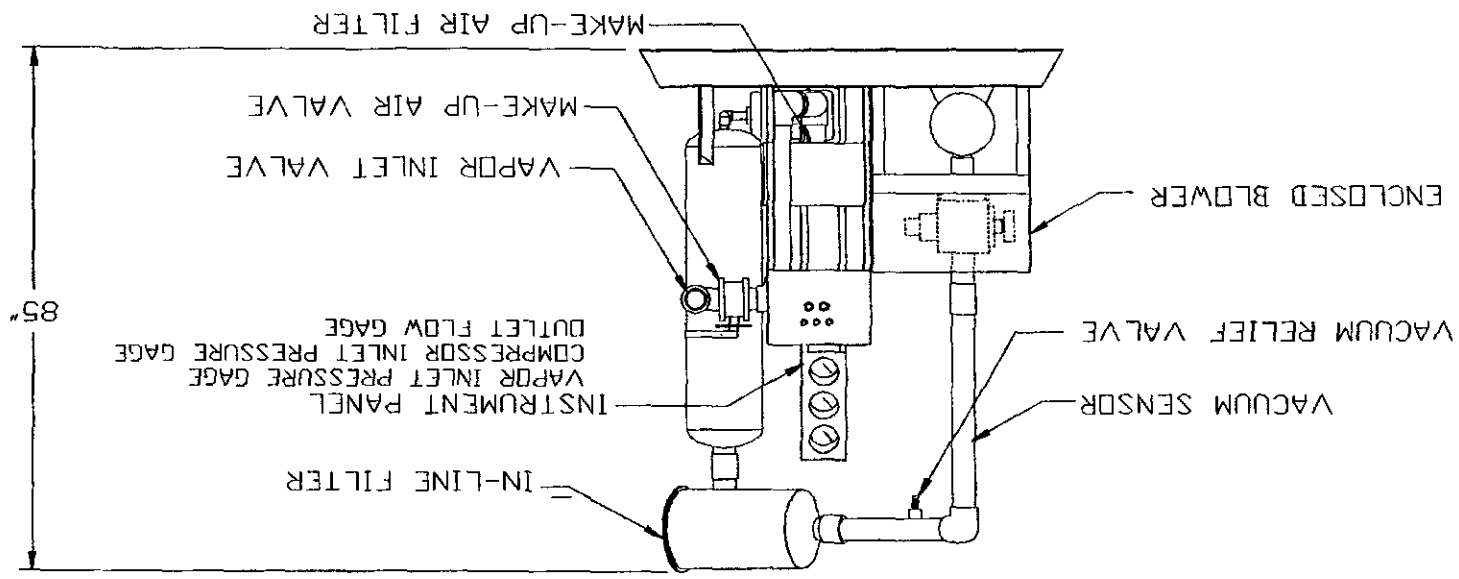
Special Instructions: \_\_\_\_\_

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RPT	_____	QM	_____	TRANSMITTAL	_____
1	<u>2</u>	3	4	5	6 <input checked="" type="checkbox"/>

Note: If you don't receive all pages, please call back.

REV	DATE	BY	CHKD	DESCRIPTION
1				ISSUED FOR CONSTRUCTION
2				REVISED TO ADD VAPOR INLET VALVE
3				REVISED TO ADD VAPOR INLET PRESSURE GAGE
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NOTES: UNLESS OTHERWISE SPECIFIED

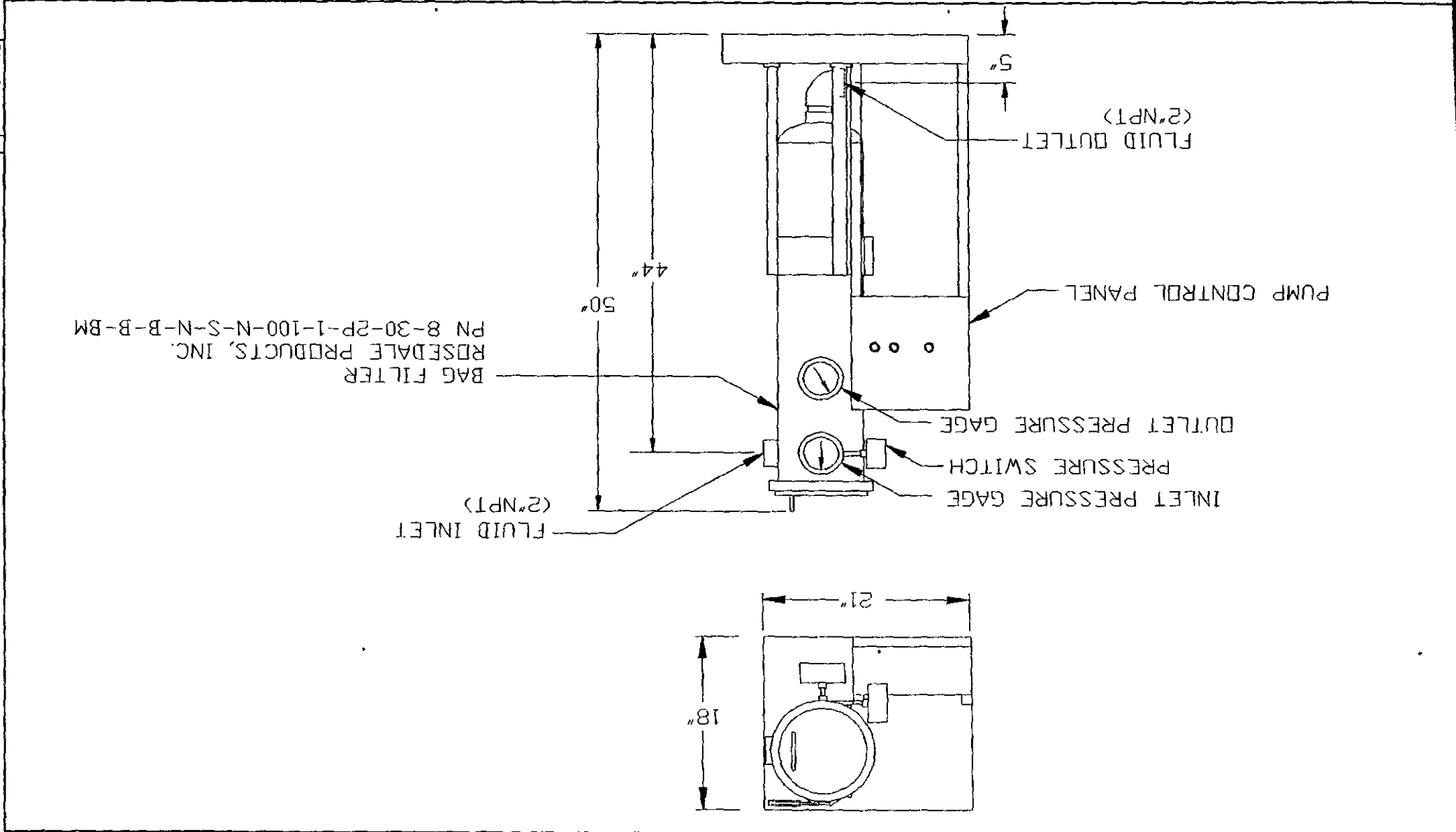


818-706-2145

548 P02

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<p>DO NOT SCALE THIS DRAWING</p> <p>ALL DIMENSIONS ARE IN INCHES</p> <p>UNLESS OTHERWISE SPECIFIED</p> <p>FINISHES ARE TO BE AS SHOWN</p> <p>ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED</p> <p>ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED</p>	<p>DATE: 09/12/95</p> <p>BY: [Signature]</p> <p>PROJECT: [Project Name]</p> <p>DESCRIPTION: [Description]</p> <p>SCALE: 1/2" = 1'-0"</p> <p>REV: 01</p>

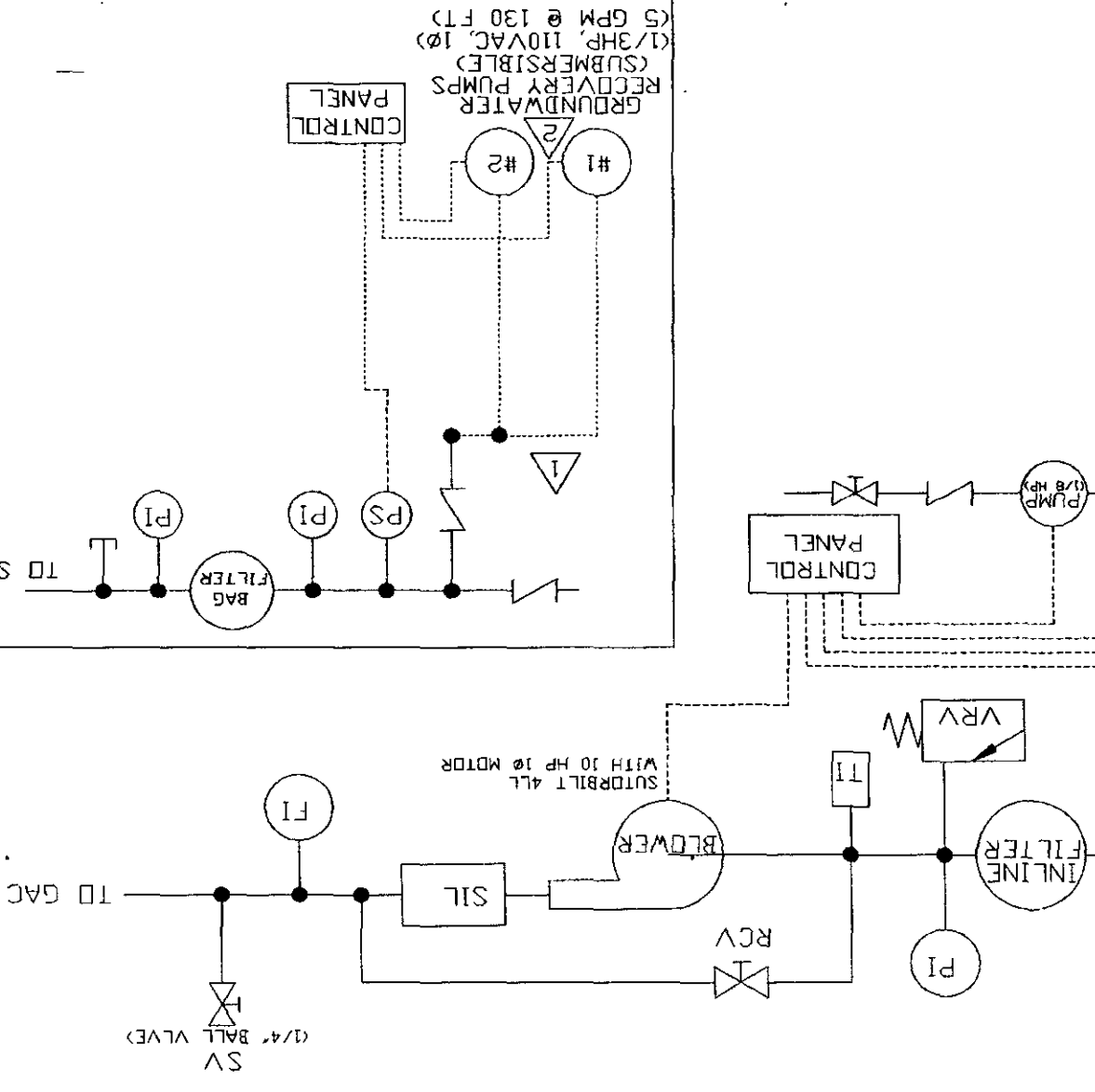


ROSEDALE PRODUCTS, INC.  
 PN 8-30-2P-1-100-N-S-N-B-B-BM  
 BAG FILTER

95-05304

- PS PRESSURE SWITCH
- LAH LEVEL ALARM HIGH
- FSA FLOAT SWITCH ALARM
- FSH FLOAT SWITCH HIGH
- FSL FLOAT SWITCH LOW
- TI TEMPERATURE INDICATOR
- PI PRESSURE INDICATOR
- FI FLOW INDICATOR
- SV VAPOR SAMPLING VALVE
- MUV AIR MAKE UP VALVE
- VIV VAPOR INLET VALVE
- VRV VACUUM RELIEF VALVE
- RCV RECIRCULATION VALVE
- SIL SILENCER

NOTES:  
 1 MECHANICAL INSTALLATION BY OTHERS  
 2 MECHANICAL AND ELECTRICAL INSTALLATION BY OTHERS  
 3 SUPPLY, MECHANICAL AND ELECTRICAL INSTALLATION BY OTHERS



NO.	REV.	DATE	DESCRIPTION
1			ISSUED FOR CONSTRUCTION
2			REVISED TO ADD VALVE
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SKID 1  
 SKID 2  
 TO SEWER



NO. OF SHEETS	1
TOTAL SHEETS	1
DATE	10/1/83
BY	W. J. ...
CHECKED BY	...
APPROVED BY	...
REVISIONS	
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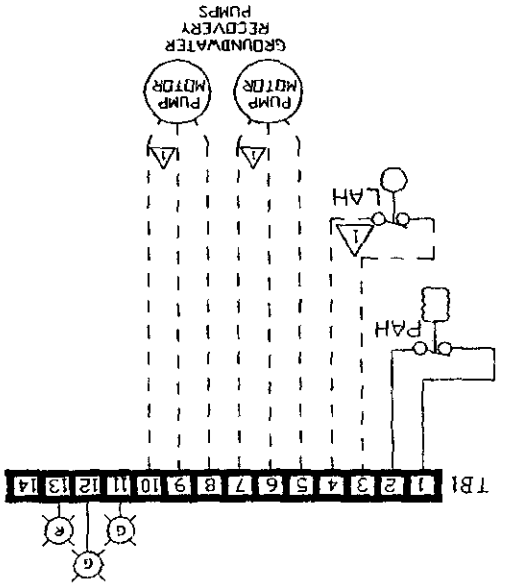
WIRING BY INSTALLER



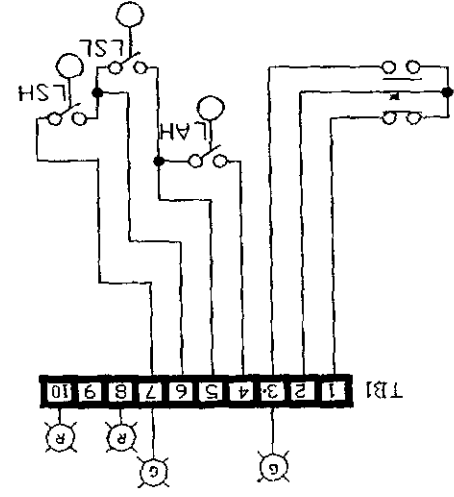
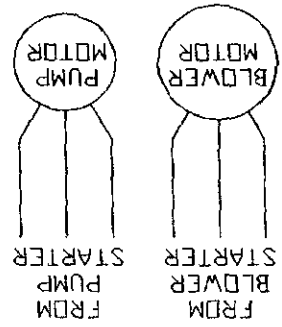
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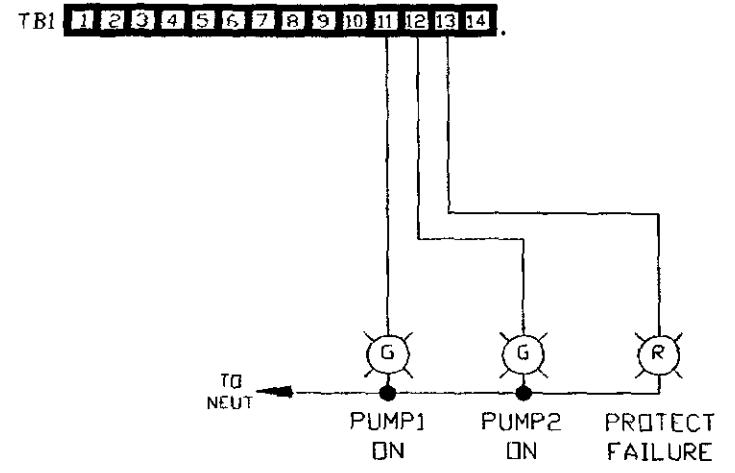
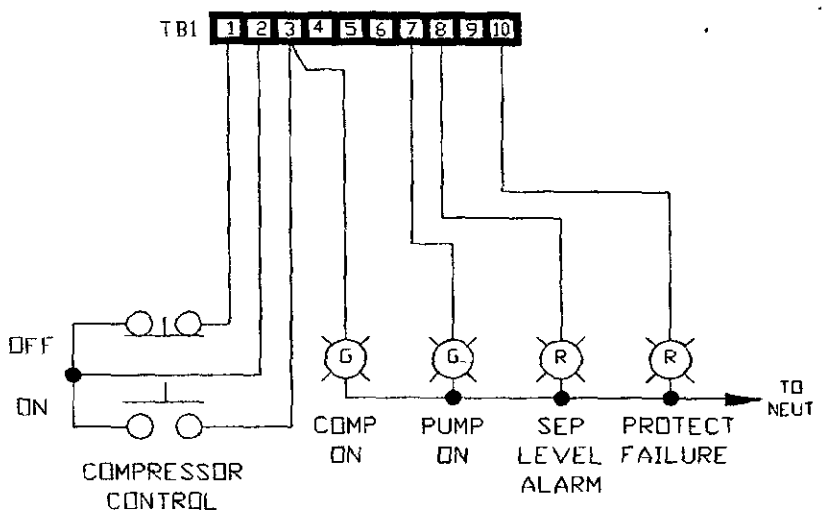
VAPOR EXTRACTION MODULE - DRAWING 95-05301 LIQUID HANDLING MODULE - DRAWING 95-05304

1. PAH AND LAH, NORMALLY CLOSED, IN SERIES, ACTIVATE THE TWO PUMP STARTER RELAYS, THIS MODULE, AND THE CUT-OFF RELAY OF VAPOR EXTRACTION MODULE, ALLOWING THE PUMPS TO OPERATE.
2. RISING PRESSURE AT THE INLET OF THE BAI FILTER OR RISING LEVEL AT THE CARBON F WILL OPEN PAH OR LAH, BREAKING THE SER. RELAY, STOPPING THE STARTER RELAYS AND THE PUMPS.



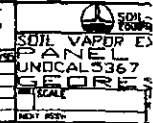
1. LSH WILL START FORWARDING PUMP WHEN ACTIVATED BY RISING FLUID LEVEL.
2. LSL WILL STOP FORWARDING PUMP WHEN DEACTIVATED BY RECEDED FLUID LEVEL.
3. LAH WILL ACTIVATE BLOWER CUT-OFF RELAY TO STOP BLOWER AND TURN ON ONE INDICATOR LAMP.

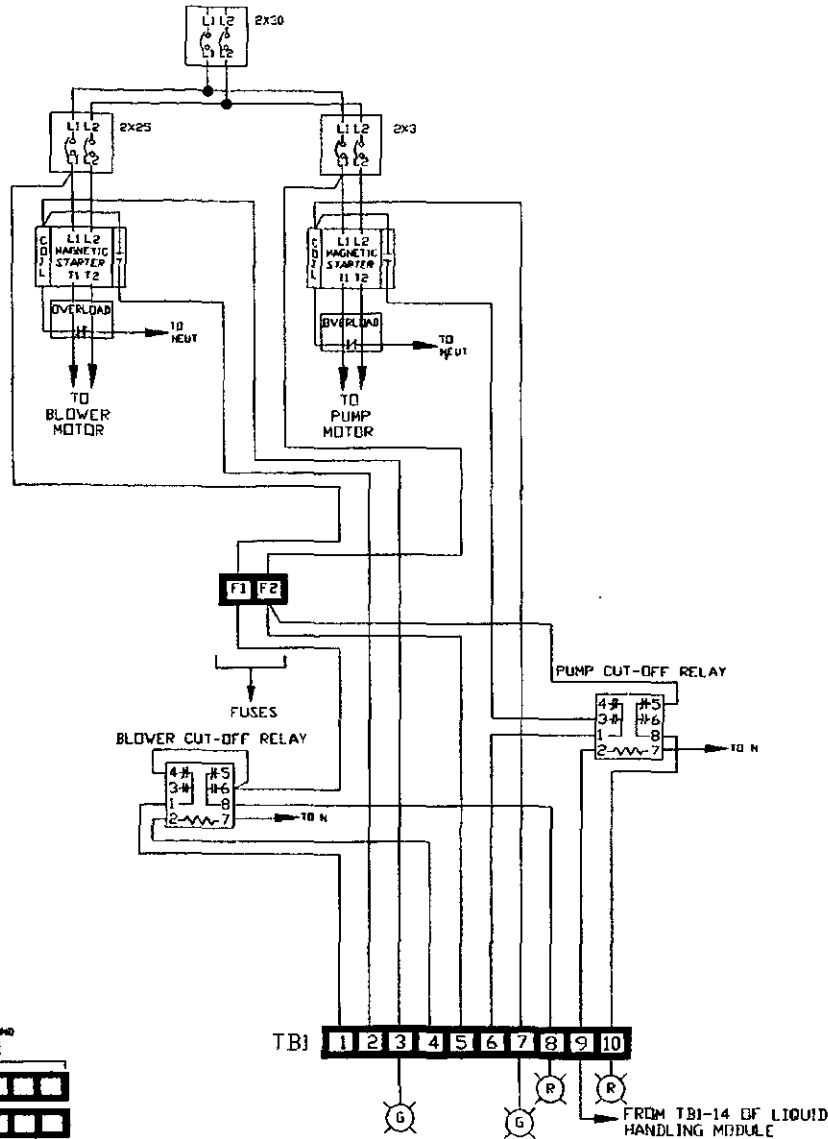




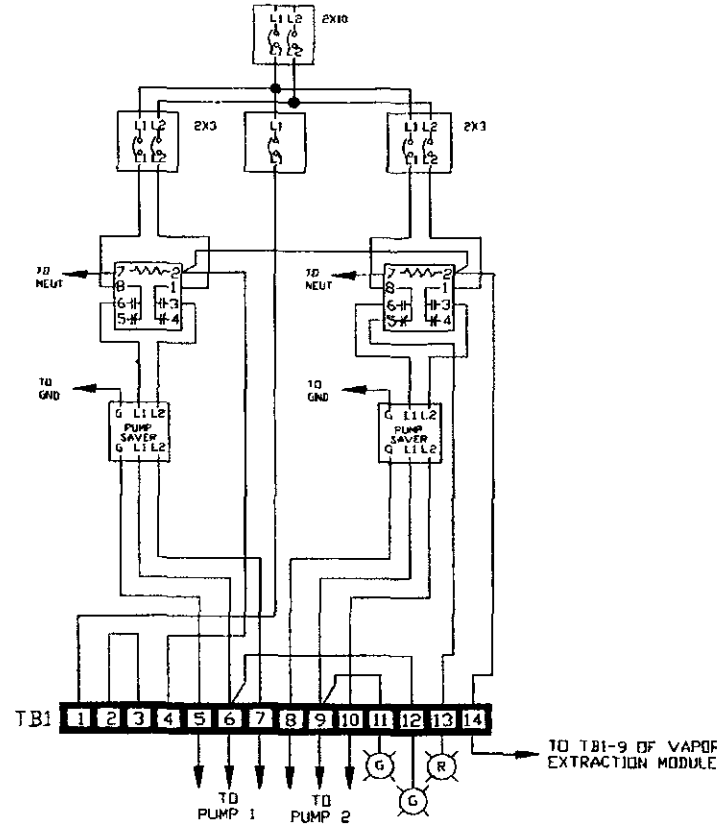
VAPOR EXTRACTION MODULE - DRAWING 95-05301      LIQUID HANDLING MODULE - DRAWING 95-05304

NOTES: UNLESS OTHERWISE SPECIFIED  
 ⚠ WIRING BY INSTALLER

DO NOT SCALE THIS DRAWING UNLESS SPECIFIED OTHERWISE	REV	BY	DATE	DESCRIPTION	THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND MAY NOT BE REPRODUCED OR USED WITHOUT THE WRITTEN PERMISSION OF THE COMPANY, INC.	
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VAPOR EXTRACTION MODULE - DRAWING 95-05301



LIQUID HANDLING MODULE - DRAWING 95-05304

NOTES: UNLESS OTHERWISE SPECIFIED

REV	BY	DATE	DESCRIPTION
1			
2			
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THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND ANY REPRODUCTION OR USE WITHOUT WRITTEN AUTHORITY FROM SOIL-THERM TECHNOLOGICAL, INC.

REVISION TABLE 4 10/10/95/24/25

UNIONCAL 5367 SAN GEORGE

SCALE: \_\_\_\_\_

DATE: \_\_\_\_\_

BY: \_\_\_\_\_

APP'D: \_\_\_\_\_

REVISED: \_\_\_\_\_

NEXT ASSY: \_\_\_\_\_

SOIL-THERM TECHNOLOGICAL, INC.  
 SOIL VAPOR EXTRACTION CONTROL BOX  
 UNIONCAL 5367 SAN GEORGE  
 SCALE: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_  
 APP'D: \_\_\_\_\_  
 REVISED: \_\_\_\_\_  
 NEXT ASSY: \_\_\_\_\_



PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

January 30, 1997  
Project 310-127.5A

Ms. Tina Berry  
76 Products Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

FILE #	<u>5367</u>	SS	<input checked="" type="checkbox"/>	BP	<input type="checkbox"/>
RPT	<input checked="" type="checkbox"/>	QM	<input type="checkbox"/>	TRANSMITTAL	<input type="checkbox"/>
1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>
4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>

Re: **Remedial Action Performance Summary - October through December 1996**  
76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling Boulevard  
San Leandro, California

Dear Ms. Berry:

This letter presents a remedial action performance summary for the site referenced above. Attachment A presents the remedial performance summary, which includes hydrocarbon mass removal and key operating parameters. Certified analytical reports and chain-of-custody documentation are presented as Attachment B, and field data sheets are included as Attachment C. The status of recent remedial activities is presented below.

**Remedial System Performance Evaluation**

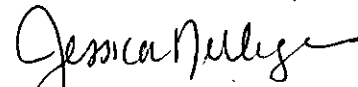
- During the current reporting period, the groundwater extraction (GWE) system ran intermittently due to system operational problems with the electric submersible pumps. During site visits throughout November and December, the pumps were found on but the totalizer had not advanced. On January 9, 1997, the pump controls were reset and the pumps restarted. Also, the totalizer was replaced with a new, precalibrated totalizer, in accordance with the discharge permit's requirement for annual flow meter calibration.
- During the current reporting period, the soil vapor extraction (SVE) system was approximately 98 percent operational. Influent vapor concentrations increased after the pumps were reset on September 18, 1996. Low concentrations during November and December coincide with pump operational problems.

- Pacific Environmental Group, Inc. (PACIFIC) recommends continued operation of the GWE and SVE systems throughout the first quarter 1997.

Should you have any questions regarding the contents of this remedial action performance summary, please do not hesitate to call our office.

Sincerely,

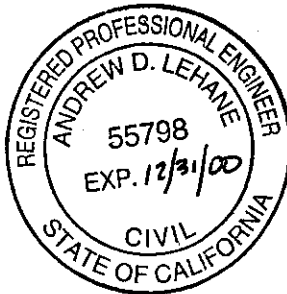
**Pacific Environmental Group, Inc.**



Jessica Nelligan  
Staff Engineer



Andrew D. Lehane  
Project Engineer  
RCE 55798



Attachments: Attachment A - Remedial Action Performance Summary  
Attachment B - Certified Analytical Reports and Chain-of-Custody Documentation  
Attachment C - Field Data Sheets

cc: Ms. Amy Leech, Alameda County Health Care Services

**ATTACHMENT A**  
**REMEDIAL ACTION PERFORMANCE SUMMARY**

**ATTACHMENT A**  
**REMEDIAL ACTION PERFORMANCE SUMMARY: FOURTH QUARTER 1996**  
**GROUNDWATER-BASED REMEDIAL SYSTEM**

Site Name: 76 Products Company Service Station 5367  
 Site Address: 500 Bancroft Avenue at Dowling, San Leandro  
 Abatement Equipment: Two 1,000-lb. Carbon Vessels  
 Start-Up Date: March 1996

Permitting Agency: City of San Leandro  
 Permit No.: SD-023  
 Permit Expiration Date: 3/15/97  
 Estimated Shutdown Date: Unknown

**REMEDIAL OBJECTIVES**

- o Mass Removal
- o Regulatory Compliance

**OPERATIONAL DATA**

**Treatment System Data**

Operational Status  
 Groundwater Volume Treated (gals)

	October	November	December
Operational Status	Operational	Intermittent	Down
Groundwater Volume Treated (gals)	16,707	1,126	0

Table 1 Page A-3

**Treatment System Analytical Data Summary**

EPA Method 8020 Analyses

	Influent	Effluent
EPA Method 8020 Analyses	Detected	ND

Table 2 Page A-4

**TPH and Benzene Summary**

Influent TPPH-gasoline (µg/L)  
 Influent Benzene (µg/L)  
 Effluent TPPH-gasoline (µg/L)  
 Effluent Benzene (µg/L)  
 Mass TPPH-gasoline Removed (lbs)  
 Mass Benzene Removed (lbs)

	October	November	December	
Influent TPPH-gasoline (µg/L)	54,000	NS	12,000	
Influent Benzene (µg/L)	200	NS	56	
Effluent TPPH-gasoline (µg/L)	ND	ND	ND	
Effluent Benzene (µg/L)	ND	ND	ND	
Mass TPPH-gasoline Removed (lbs)	4.4	0.5	0.0	Cumulative 32.4
Mass Benzene Removed (lbs)	0.02	0.00	0.00	0.18

Table 1 Page A-3

Table 1 Page A-3

Table 2 Page A-4

Table 2 Page A-4

Table 1 Page A-3

Table 1 Page A-3

**REMEDIAL ACTION PERFORMANCE EVALUATION**

**Mass Removal**

*Approximately 5 pounds of TPPH as Gasoline and 0.02 pound of benzene were removed during the current reporting period. The treatment system was down for most of November and December.*

**Regulatory Compliance**

*The remedial system operated in compliance with all discharge requirements.*

**ACTIONS/RECOMMENDATIONS**

- o Continue operation of the GWE system throughout the first quarter 1997.
- o Troubleshoot operational problems to optimize groundwater pump performance.

**NOTES:**

NS = Not sampled  
 ND = Not detected above detection limit  
 N/A = Not available or not applicable  
 gals = Gallons  
 µg/L = Micrograms per liter  
 lbs = Pounds  
 † = System start-up March 1996 performed by PSI (prior consultant); analytical results for March and April not available.  
 Note: When appropriate, tabulated data is followed by associated graphical presentation.

**ATTACHMENT A**  
**REMEDIAL ACTION PERFORMANCE SUMMARY: FOURTH QUARTER 1996**  
**SOIL-BASED REMEDIAL SYSTEM**

Site Name: 76 Products Company Service Station 5367  
 Site Address: 500 Bancroft Avenue at Dowling, San Leandro  
 Abatement Equipment: Two 1,000-lb. Carbon Vessels  
 Start-Up Date: March 1996

Permitting Agency: BAAQMD  
 Permit Number: 25758  
 Permit Expiration Date: 2/13/97  
 Estimated Shutdown Date: Unknown

**REMEDIAL OBJECTIVES**

- o Mass Removal
- o Regulatory Compliance

**OPERATIONAL DATA**

**Treatment System Data**

Operational Status  
 Average System Flow Rate (scfm)

	October	November	December
Operational Status	Operational	Operational	Operational
Average System Flow Rate (scfm)	84	185	64

Table 3 Page A-4

**TPPH and Benzene Summary**

Influent TPPH-gasoline (ppmv)  
 Influent Benzene (ppmv)  
 Effluent TPPH-gasoline (ppmv)  
 Effluent Benzene (ppmv)  
 Mass TPH Removed (lbs)  
 Mass Benzene Removed (lbs)

	October		November		December		
Influent TPPH-gasoline (ppmv)	15	61	52	4.0	ND	ND	
Influent Benzene (ppmv)	0.072	0.25	0.22	ND	ND	ND	
Effluent TPPH-gasoline (ppmv)	ND	ND	ND	ND	ND	ND	
Effluent Benzene (ppmv)	ND	ND	ND	ND	ND	ND	Cumulative
Mass TPH Removed (lbs)	29.7		67.0		1.1		179.2
Mass Benzene Removed (lbs)	0.10		0.23		0.00		0.46

Table 3 Page A-4  
 Table 3 Page A-4  
 Table 4 Page A-5  
 Table 4 Page A-5  
 Table 3 Page A-4  
 Table 3 Page A-4

**REMEDIAL ACTION PERFORMANCE EVALUATION**

**Mass Removal**

*Approximately 98 pounds of TPPH as Gasoline and 0.3 pound of benzene were removed by the treatment system during the current reporting period. The SVE system was approximately 98 percent operational.*

**Regulatory Compliance**

*The remedial system operated in compliance with all BAAQMD permit requirements.*

**ACTIONS/RECOMMENDATIONS**

- o Continue operation of the SVE system throughout the first quarter 1997.
- o Optimization of groundwater pump performance is expected to positively influence SVE system mass removal.

**NOTES:**

ND = Not detected above detection limits  
 N/A = Not available or not applicable  
 ppmv = Parts per million by volume  
 scfm = Standard cubic foot per minute  
 ‡ = Average TPPH reading for March 1996 using field instruments (provided by prior consultant).  
 Note: When appropriate, tabulated data is followed by associated graphical presentation.



Table 1  
Groundwater Extraction System Performance Data

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Sample ID	Date Sampled	Volume Reading (gallons)	Average Flow Rate (gpm)	TPPH as Gasoline			Benzene		
				Influent Concentration (µg/L)	Removed This Period (lbs)	Removed To Date (lbs)	Influent Concentration (µg/L)	Removed This Period (lbs)	Removed To Date (lbs)
INFL	03/18/96 a	0	5.9	NS	N/A	0.0	NS	N/A	0.00
INFL	05/16/96 b	133,800	1.6	17,000 c	19.0	19.0	98 c	0.11	0.11
INFL	06/06/96	216,850	2.7	5,500	7.8	26.8	35	0.05	0.16
INFL	07/17/96	233,320	0.3	1,700	0.5	27.2	14	0.003	0.16
INFL	08/05/96	249,570	0.6	1,800	0.2	27.5	10	0.002	0.16
INFL	09/10/96	249,820	N/A	9,700	0.0	27.5	29	0.000	0.16
INFL	10/15/96	266,527	0.3	54,000	4.4	31.9	200	0.016	0.18
INFL	11/14/96 d	267,653	0.03	54,000 c	0.5	32.4	200 c	0.002	0.18
INFL	12/11/96 d	267,663	N/A	12,000	0.0	32.4	56	0.000	0.18
<b>REPORTING PERIOD:</b>							<b>09/10/96 - 12/11/96 (d)</b>		
<b>TOTAL DAYS OF OPERATION:</b>							<b>225</b>		
<b>PERIOD DAYS OF OPERATION:</b>							<b>49</b>		
<b>TOTAL GALLONS EXTRACTED:</b>							<b>267,663</b>		
<b>PERIOD GALLONS EXTRACTED:</b>							<b>17,843</b>		
<b>TOTAL POUNDS TPPH-GASOLINE REMOVED:</b>							<b>32.4</b>		
<b>TOTAL GALLONS TPPH-GASOLINE REMOVED:</b>							<b>5.3</b>		
<b>TOTAL POUNDS BENZENE REMOVED:</b>							<b>0.18</b>		
<b>TOTAL GALLONS BENZENE REMOVED:</b>							<b>0.02</b>		
<b>PERIOD POUNDS TPPH-GASOLINE REMOVED:</b>							<b>4.9</b>		
<b>PERIOD POUNDS BENZENE REMOVED:</b>							<b>0.018</b>		
<b>PERIOD AVERAGE FLOW RATE (gpm):</b>							<b>0.3</b>		
TPPH = Total purgeable petroleum hydrocarbons gpm = Gallons per minute µg/L = Micrograms per liter lbs = Pounds NS = Not sampled N/A = Not available or not applicable				a. GWE system start-up by PSI. b. Project transferred to Pacific Environmental Group. c. No analytical data available; assume steady-state concentrations. d. Pumps are on but not cycling any groundwater.					
Mass removed is an approximation calculated using averaged concentrations.									

Table 2  
**Groundwater Extraction System Analytical Data**  
 Total Petroleum Hydrocarbons  
 (TPPH and BTEX Compounds)

76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

Date Sampled	TPPH (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)
<b>Influent Samples</b>					
05/16/96	17,000	98	92	1,300	3,900
06/06/96	5,500	35	17	200	780
07/17/96	1,700	14	<5.0	91	89
08/05/96	1,800	10	<5.0	160	410
09/10/96	9,700	29	<10	600	1,600
10/15/96	54,000	200	90	2,800	8,900
12/11/96	12,000	56	21	820	2,700
<b>Midpoint Samples</b>					
05/16/96	<50	<0.50	<0.50	<0.50	<0.50
06/06/96	<50	<0.50	<0.50	<0.50	<0.50
07/17/96	<50	<0.50	<0.50	<0.50	<0.50
08/05/96	<50	<0.50	<0.50	<0.50	<0.50
09/10/96	<50	<0.50	<0.50	<0.50	0.60
10/15/96	<50	<0.50	<0.50	<0.50	0.60
11/14/96	<50	<0.50	<0.50	<0.50	<0.50
12/11/96	<50	<0.50	<0.50	<0.50	<0.50
<b>Effluent Samples</b>					
05/16/96	<50	<0.50	<0.50	<0.50	<0.50
06/06/96	<50	<0.50	<0.50	<0.50	<0.50
07/17/96	<50	<0.50	<0.50	<0.50	<0.50
08/05/96	<50	<0.50	<0.50	<0.50	<0.50
09/10/96	<50	<0.50	<0.50	<0.50	<0.50
10/15/96	<50	<0.50	<0.50	<0.50	<0.50
11/14/96	<50	<0.50	<0.50	<0.50	<0.50
12/11/96	<50	<0.50	<0.50	<0.50	<0.50
TPPH = Total purgeable petroleum hydrocarbons					
µg/L = Micrograms per liter					
a. Project transferred to Pacific Environmental Group, Inc. from PSI.					

Table 3  
Soil Vapor Extraction System Performance Data

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Sample ID	Date Sampled	Hourmeter Reading (hours)	Net Hours of Operation (hours)	Flow Rate (scfm)	TPPH as Gasoline			Benzene			
					Influent Concentration (ppmv)	Removal Rate (lbs/day)	Removed to Date (lbs)	Influent Concentration (ppmv)	Removal Rate (lbs/day)	Removed to Date (lbs)	
INFL	03/18/96	a	N/A b	0 b	250	25 c	2.4	0.0	N/A c	N/A	N/A
INFL	03/19/96		N/A b	24 b	240	22 c	2.0	2.2	N/A c	N/A	N/A
INFL	03/20/96		N/A b	24 b	260	12 c	1.2	3.8	N/A c	N/A	N/A
INFL	03/21/96		N/A b	24 b	250	4 c	0.4	4.6	N/A c	N/A	N/A
INFL	03/22/96		N/A b	24 b	240	20 c	1.8	5.7	N/A c	N/A	N/A
INFL	04/08/96		N/A b	408 b	270	14 c	1.4	33.4	N/A c	N/A	N/A
INFL	04/26/96		N/A b	432 b	240	10 c	0.9	54.5	N/A c	N/A	N/A
INFL	05/30/96	d	N/A b	0	110	2.4	0.1	54.5	ND	0.00	0.00
INFL	06/06/96		N/A b	168	120	3.3	0.2	55.4	ND	0.00	0.01
INFL	06/26/96		N/A b	480	120	ND	0.1	58.0	ND	0.00	0.03
INFL	07/17/96		N/A b	504	120	ND	0.1	60.3	ND	0.00	0.05
INFL	07/26/96		N/A b	216	110	11	0.5	62.8	ND	0.00	0.06
INFL	08/05/96		6,372.5 e	240	119	ND	0.1	65.7	ND	0.00	0.07
INFL	08/19/96		6,414.1	42	115	2.6	0.1	65.9	ND	0.00	0.07
INFL	09/10/96		6,939.4	525	123	7.3	0.3	70.9	0.040	0.00	0.10
INFL	09/26/96		7,321.0	382	78	33	1.0	81.4	0.10	0.00	0.13
INFL	10/15/96	f	7,777.0	456	90	15	0.5	95.7	0.072	0.00	0.18
INFL	10/28/96		8,090.4	313	78	61	1.8	111.1	0.25	0.01	0.23
INFL	11/14/96		8,497.4	407	270	52	5.3	171.8	0.22	0.02	0.44
INFL	11/27/96		8,552.4	55	100	4.0 g	0.2	178.1	ND g	0.00	0.46
INFL	12/11/96		8,890.8	338	64	ND	0.0	179.2	ND	0.00	0.46
INFL	12/20/96		9,102.0	211	64	ND	0.0	179.2	ND	0.00	0.46

<b>REPORTING PERIOD: 09/26/96 - 12/20/96</b>											
<b>TOTAL POUNDS REMOVED:</b>								<b>179.2</b>			<b>0.46</b>
<b>TOTAL GALLONS REMOVED:</b>								<b>29.4</b>			<b>0.06</b>
<b>PERIOD POUNDS REMOVED:</b>						<b>97.7</b>			<b>0.33</b>		
<b>PERIOD GALLONS REMOVED:</b>						<b>16.0</b>			<b>0.05</b>		
<b>TOTAL DAYS OF OPERATION:</b>						<b>220 (b)</b>					
<b>PERIOD DAYS OF OPERATION:</b>						<b>74 (b)</b>					
<b>PERIOD PERCENT OPERATIONAL:</b>						<b>98%</b>					

TPPH = Total purgeable petroleum hydrocarbons  
scfm = Standard cubic feet per minute  
ppmv = Parts per million by volume  
lbs = Pounds  
N/A = Not available or not applicable  
ND = Not detected above the detection limit

a. System startup on March 18, 1996.  
b. No hourmeter installed on system; assumed continuous operation to estimate mass removal since system was on upon arrival.  
c. TPPH concentrations taken using a flame-ionization detector; benzene concentrations not available.  
d. Pacific Environmental Group, Inc. becomes consultant to site; all prior data provided by former consultant.  
e. Hourmeter installed 8/5/96 (initial reading: 6372.5 hours); system was running upon arrival.  
f. Assumed influent/effluent labels on samples were switched.  
g. Samples collected 11/27/96 exceeded hold time due to holiday; re-sampled on 12/2/96.

Mass removed is an approximation calculated using averaged mass removal rates; removal rates are instantaneous.  
Concentrations shown in ppmv are calculated from micrograms per liter (as reported by the laboratory).  
See certified analytical reports for detection limits.

Table 4  
Soil Vapor Extraction System Emission Data

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Sample I.D.	Date Sampled	Net Hours of Operation (hours)	Flow Rate (scfm)	TPPH as Gasoline			Benzene	
				Effluent Concentration (ppmv)	Destruction Efficiency (percent)	Emission Rate (lbs/day)	Effluent Concentration (ppmv)	Emission Rate (lbs/day)
EFFL	03/18/96	a	0	250	ND	N/A	N/A	N/A
EFFL	03/19/96		24	240	ND	N/A	N/A	N/A
EFFL	03/20/96		24	260	ND	N/A	N/A	N/A
EFFL	03/21/96		24	250	ND	N/A	N/A	N/A
EFFL	03/22/96		24	240	ND	N/A	N/A	N/A
EFFL	04/08/96		408	270	ND	N/A	N/A	N/A
EFFL	04/26/96		432	240	ND	N/A	N/A	N/A
EFFL	05/30/96	b	0	110	ND	N/A	0.10	ND
EFFL	06/06/96		168	120	3.1	7.1	0.14	ND
EFFL	06/26/96		480	120	ND	N/A	0.11	ND
EFFL	07/17/96		504	120	ND	N/A	0.11	ND
EFFL	07/26/96		216	110	2.8	74.5	0.12	ND
EFFL	08/05/96		240	119	ND	N/A	0.11	ND
EFFL	08/19/96		42	115	ND	N/A	0.10	ND
EFFL	09/10/96		525	123	ND	N/A	0.11	ND
EFFL	09/26/96		382	78	ND	N/A	0.07	ND
EFFL	10/15/96	c	456	90	ND	N/A	0.08	ND
EFFL	10/28/96		313	78	ND	N/A	0.07	ND
EFFL	11/14/96		407	270	ND	N/A	0.24	ND
EFFL	11/27/96		55	100	ND	N/A	0.09	ND
EFFL	12/11/96		338	64	ND	N/A	0.06	ND
EFFL	12/20/96		211	64	ND	N/A	0.06	ND

TPPH = Total purgeable petroleum hydrocarbons

scfm = Standard cubic feet per minute

ppmv = Parts per million by volume, converted from micrograms per liter, as reported by the laboratory

lbs = Pounds

N/A = Not available or not applicable

ND = Not detected above the detection limit

a. System startup on March 18, 1996.

d. Pacific Environmental Group, Inc. becomes consultant to site; all prior data provided by former consultant.

c. Assumed influent/effluent labels on samples were switched.

Destruction efficiencies and emission rates for ND concentrations are calculated using the detection limit.

Concentrations shown in ppmv are calculated from micrograms per liter.

See certified analytical reports for detection limits.

Table 5  
Soil Vapor Extraction System Analytical Data  
Individual Wells

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Well I.D.	Date Sampled	TPPH as			Ethyl-benzene (µg/L)	Xylenes (µg/L)
		Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)		
MW1	05/30/96	36	ND	0.48	0.46	3.3
	06/26/96	67	ND	ND	0.26	1.7
	07/26/96	160	11	31	4.8	24
	08/19/96	28	ND	0.23	0.28	1.2
	09/26/96	1,100	6.4	11	18	19
	10/28/96	1,000	ND	30	3.5	96
	12/02/96	950	ND	40	5.9	120
	12/20/96	13	ND	ND	ND	0.45
MW2	05/30/96	180	0.25	3.8	4.5	25
	06/26/96	23	ND	0.30	0.52	3.5
	07/26/96	46	0.81	1.9	0.95	2.4
	08/19/96	110	0.17	ND	1.4	1.8
	09/26/96	230	0.70	1.6	2.2	1.4
	10/28/96	250	1.3	3.3	0.50	1.1
	12/02/96	11	ND	ND	ND	0.14
	12/20/96	ND	ND	ND	ND	ND
MW3	05/30/96	20	ND	0.25	0.48	3.0
	06/26/96	ND	ND	ND	ND	0.35
	07/26/96	27	0.62	1.2	0.61	2.3
	08/19/96	120	0.43	0.16	2.6	3.9
	09/26/96	46	0.36	0.45	0.24	0.37
	10/28/96	NA	NA	NA	NA	NA
	11/14/96	76	ND	ND	0.31	0.96
	12/02/96	15	ND	ND	ND	0.55
	12/20/96	ND	ND	ND	0.42	0.87

TPPH = Total pidgeable petroleum hydrocarbons  
µg/L = Micrograms per liter  
ND = Not detected above the detection limit  
NA = Not analyzed (sample air bag leak); well re-sampled 11/14/96  
See certified analytical reports for detection limits.

Figure 1  
**Groundwater Extraction System Mass Removal Trend**  
 76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

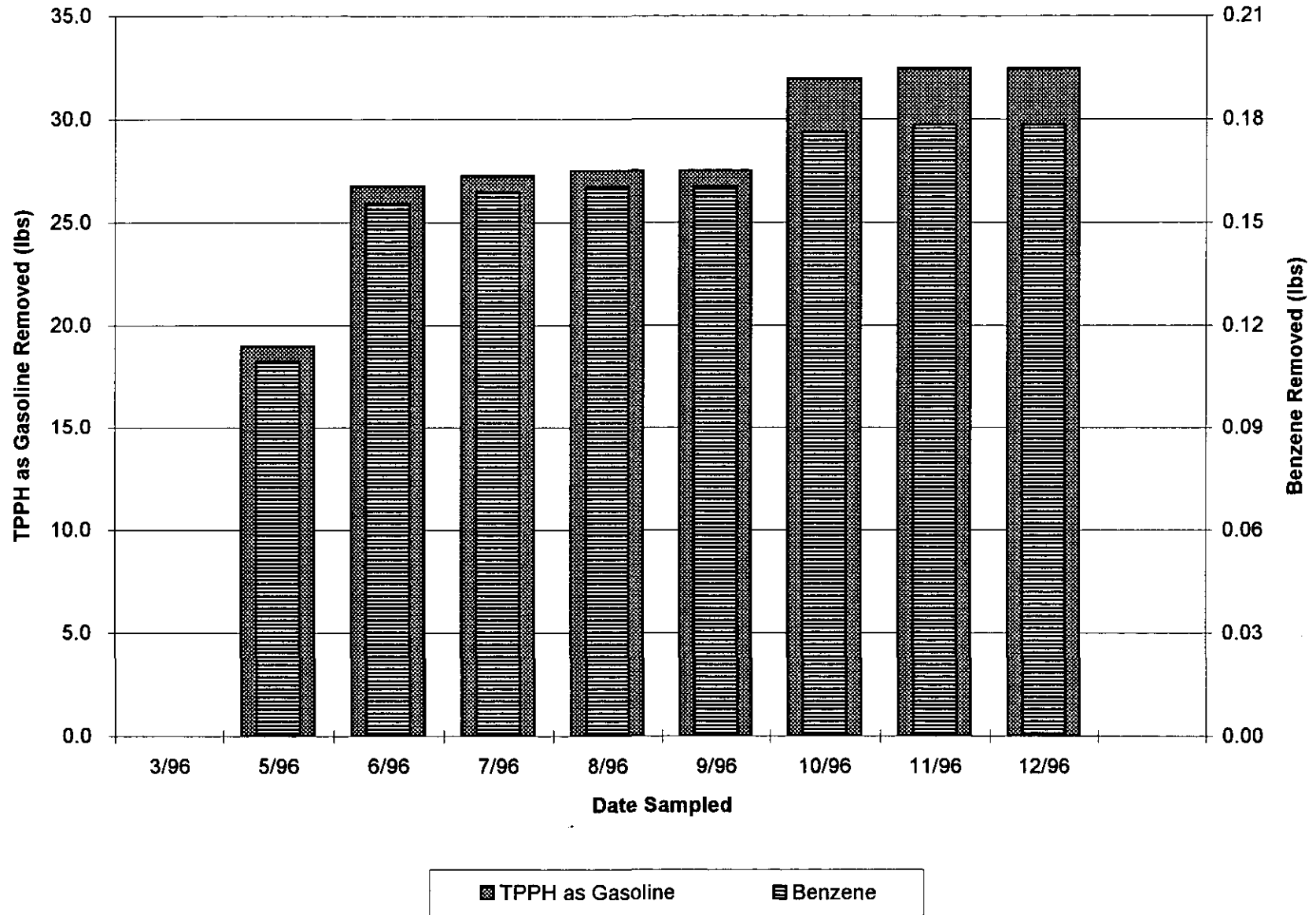


Figure 2  
**Groundwater Extraction System Hydrocarbon Concentrations**  
 76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

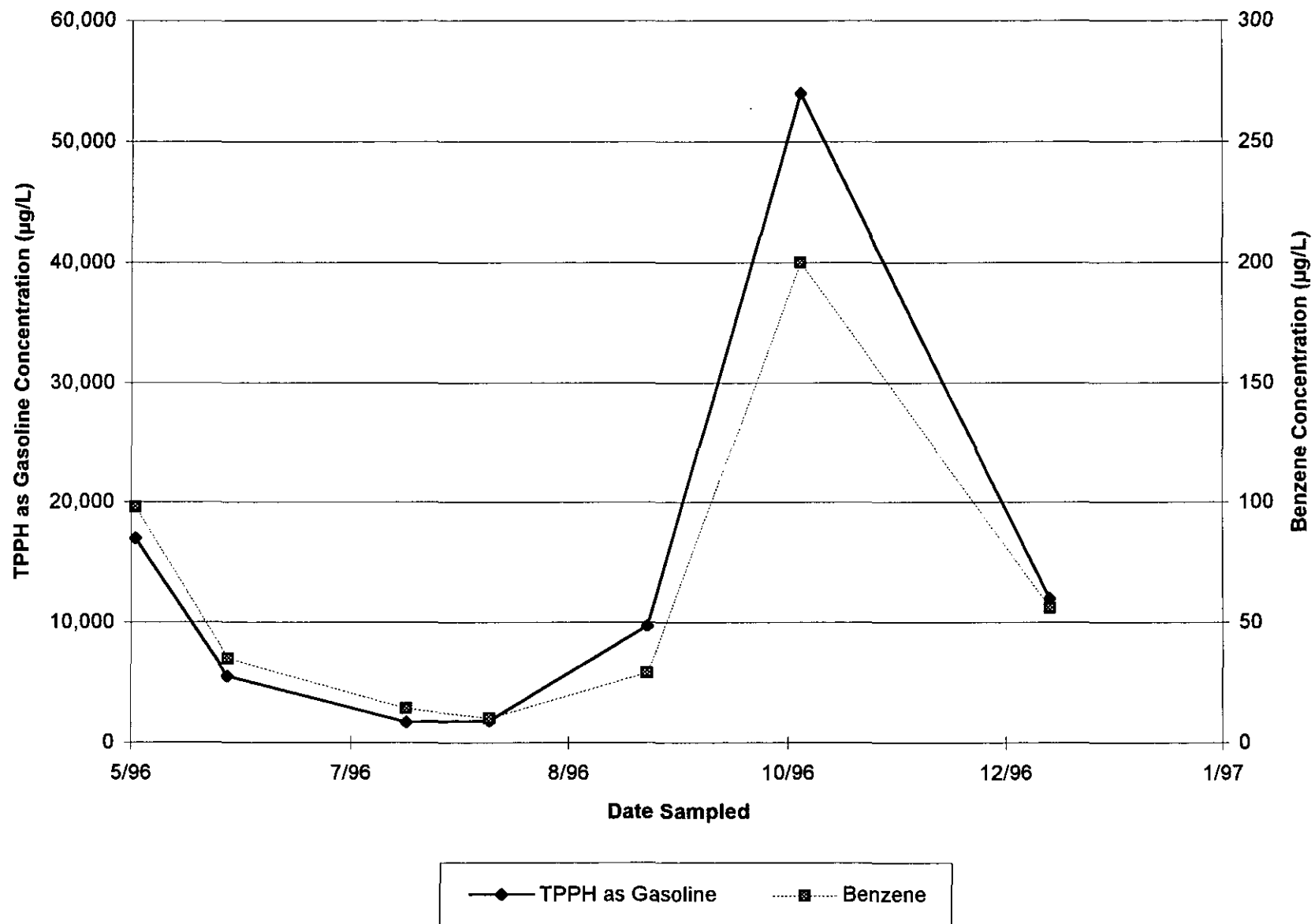


Figure 3  
**Soil Vapor Extraction System Mass Removal Trend**  
 76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

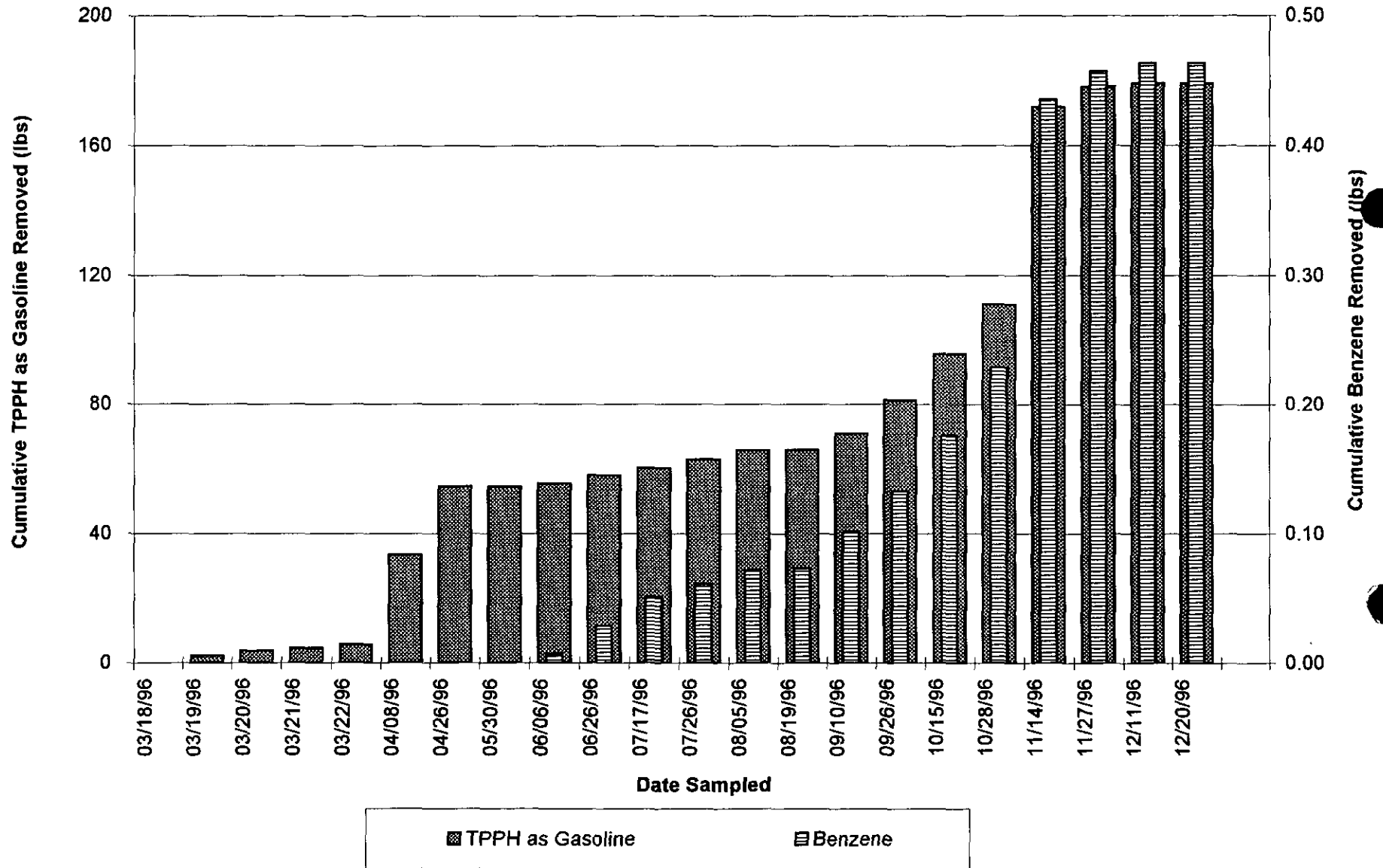
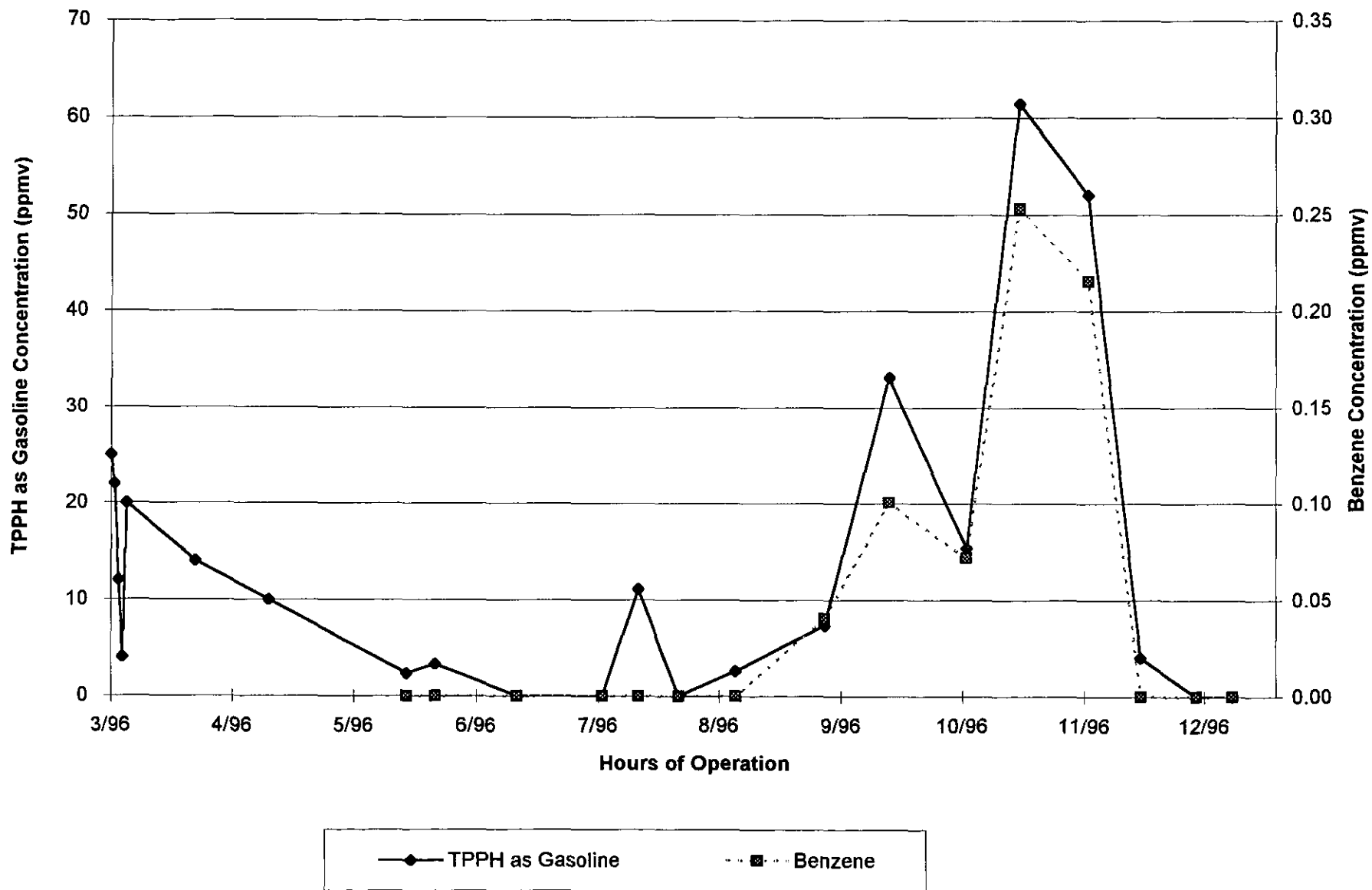




Figure 4  
**Soil Vapor Extraction System Hydrocarbon Concentrations**

76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California



**ATTACHMENT B**

**CERTIFIED ANALYTICAL REPORTS  
AND CHAIN-OF-CUSTODY DOCUMENTATION**

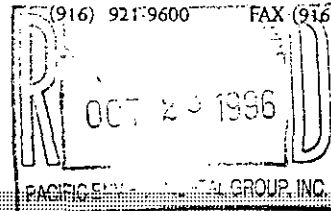


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(510) 988-9600 FAX (510) 988-9673  
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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: INFL Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610A49-01	Sampled: 10/15/96 Received: 10/16/96 Analyzed: 10/21/96 Reported: 10/24/96
Attention: Andrew Lahane		

QC Batch Number: GC102196BTEX18A  
Instrument ID: GCHP18

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	5000	54000
Benzene	50	200
Toluene	50	90
Ethyl Benzene	50	2800
Xylenes (Total)	50	8900
Chromatogram Pattern:		Gas
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	143 Q

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

**SEQUOIA ANALYTICAL** - ELAP #1210

*Joe*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: MID Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610A49-02	Sampled: 10/15/96 Received: 10/16/96 Analyzed: 10/18/96 Reported: 10/24/96
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QC Batch Number: GC101896BTEX01A  
Instrument ID: GCHP01

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	75

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

**SEQUOIA ANALYTICAL** - ELAP #1210

*Tod*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: EFFL Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9610A49-03	Sampled: 10/15/96 Received: 10/16/96 Analyzed: 10/18/96 Reported: 10/24/96
Attention: Andrew Lahane		

QC Batch Number: GC101896BTEX01A  
Instrument ID: GCHP01

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	95

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*Tod*  
\_\_\_\_\_  
Tod Granicher  
Project Manager



Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lahane

Client Project ID: 310-127-5A / 5367, San Leandro  
Matrix: LIQUID

Work Order #: 9610A49 01

Reported: Oct 28, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC101896BTEX01A	GC101896BTEX01A	GC101896BTEX01A	GC101896BTEX01A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	961081109	961081109	961081109	961081109
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/18/96	10/18/96	10/18/96	10/18/96
Analyzed Date:	10/18/96	10/18/96	10/18/96	10/18/96
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	10	9.9	30
MS % Recovery:	100	100	99	100
Dup. Result:	10	9.8	9.7	29
MSD % Recov.:	100	98	97	97
RPD:	0.0	2.0	2.0	3.4
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK101896	BLK101896	BLK101896	BLK101896
Prepared Date:	10/18/96	10/18/96	10/18/96	10/18/96
Analyzed Date:	10/18/96	10/18/96	10/18/96	10/18/96
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.1	8.8	8.7	26
LCS % Recov.:	91	88	87	87

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**SEQUOIA ANALYTICAL**

*Tod*  
Tod Granicher  
Project Manager

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS= Matrix Spike, MSD= MS Duplicate, RPD= Relative % Difference

9610A49.PPP <1>



Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lahane

Client Project ID: 310-127-5A / 5367, San Leandro  
Matrix: LIQUID

Work Order #: 9610A49 01

Reported: Oct 28, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC102196BTEX18A	GC102196BTEX18A	GC102196BTEX18A	GC102196BTEX18A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	961091602	961091602	961091602	961091602
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/21/96	10/21/96	10/21/96	10/21/96
Analyzed Date:	10/21/96	10/21/96	10/21/96	10/21/96
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	9.8	9.6	29
MS % Recovery:	103	98	96	96
Dup. Result:	10	9.5	9.4	29
MSD % Recov.:	100	95	94	96
RPD:	3.0	3.1	2.1	0.0
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK102196	BLK102196	BLK102196	BLK102196
Prepared Date:	10/21/96	10/21/96	10/21/96	10/21/96
Analyzed Date:	10/21/96	10/21/96	10/21/96	10/21/96
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	12	11	10	32
LCS % Recov.:	120	110	100	108

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**SEQUOIA ANALYTICAL**

*True*  
Tod Granicher  
Project Manager

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.







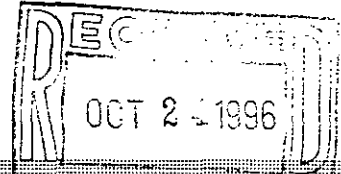
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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Lorenzo Sample Descript: Infl Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9610974-01	 Sampled: 10/15/96 Received: 10/16/96  Analyzed: 10/17/96 Reported: 10/21/96
--	--	--


QC Batch Number: GC101796BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	103

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Lorenzo Sample Descript: Effl Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9610974-02	Sampled: 10/15/96 Received: 10/16/96 Analyzed: 10/17/96 Reported: 10/21/96
Attention: Andrew Lahane		

QC Batch Number: GC101796BTEX17A  
Instrument ID: GCHP17

### Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	25	65
Benzene	0.25	N.D.
Toluene	0.25	1.5
Ethyl Benzene	0.25	0.38
Xylenes (Total)	0.25	5.5
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	107

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

SEQUOIA ANALYTICAL - ELAP #1210

*Tod*  
\_\_\_\_\_  
Tod Granicher  
Project Manager



Pacific Environmental Group      Client Project ID: 310-127.5A / 5367, San Lorenzo  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lahane      Work Order #: 9610974 01, 02      Reported: Oct 22, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC101796BTEX17A	GC101796BTEX17A	GC101796BTEX17A	GC101796BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyt:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	961057903	961057903	961057903	961057903
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/17/96	10/17/96	10/17/96	10/17/96
Analyzed Date:	10/17/96	10/17/96	10/17/96	10/17/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	10	9.6	29
MS % Recovery:	110	100	96	97
Dup. Result:	11	11	9.5	29
MSD % Recov.:	110	110	95	97
RPD:	0.0	9.5	1.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK101796	BLK101796	BLK101796	BLK101796
Prepared Date:	10/17/96	10/17/96	10/17/96	10/17/96
Analyzed Date:	10/17/96	10/17/96	10/17/96	10/17/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	10	9.2	28
LCS % Recov.:	110	100	92	93

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**SEQUOIA ANALYTICAL**

*Joye*  
Tod Granicher  
Project Manager

**Please Note:**  
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS= Matrix Spike, MSD= MS Duplicate, RPD=Relative % Difference

9610974.PPP <1>

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18939 120th Ave., N.E., Suite 101 • Bothell, WA 98011 • (206) 481-9200  
 East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200  
 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: <u>DOC. ENV. GRP.</u>	Project Name: <u>310-127.5A</u>
Address: <u>5075 GATEWAY PL. #440</u>	UNOCAL Project Manager: <u>TINA BERRY</u>
City: <u>SAN JOSE</u> State: <u>CA</u> Zip Code: <u>95110</u>	AFE #:
Telephone: <u>408 447 5000</u> FAX #: <u>408 447 9339</u>	Site #, City, State: <u>5367, SAN LEANDRO</u>
Report To: <u>ANDREW KAHANE</u> Sampler: <u>MARK CUBRUJ</u>	QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A

Turnaround  10 Work Days  5 Work Days  3 Work Days  
 Time:  2 Work Days  1 Work Day  2-8 Hours

CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure

Analyses Requested:  Drinking Water  Waste Water  Other air

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Comments
1. <u>INFL</u>	<u>10/15/96</u>	<u>HPD</u>	<u>3</u>	<u>Voa</u>	<u>X</u>	
2. <u>MID</u>	<u>10/15/96</u>	<u>HPD</u>	<u>3</u>	<u>Voa</u>	<u>X</u>	
3. <u>EFFL</u>	<u>10/15/96</u>	<u>HPD</u>	<u>3</u>	<u>Voa</u>	<u>X</u>	
4.						
5. <u>INFL</u>	<u>10/15/96</u>	<u>Air</u>	<u>1</u>	<u>POB</u>	<u>X</u>	
6. <u>EFFL</u>	<u>10/15/96</u>	<u>Air</u>	<u>1</u>	<u>POB</u>	<u>X</u>	
7.						
8.						
9.						
10.						

Relinquished By: <u>[Signature]</u>	Date: <u>10/16/96</u>	Time: <u>7:46</u>	Received By: <u>D. Alarcon</u>	Date: <u>10/16/96</u>	Time: <u>0746</u>
Relinquished By: <u>D. Alarcon</u>	Date: <u>10/16/96</u>	Time: <u>1045</u>	Received By: <u>[Signature]</u>	Date: <u>12/16/96</u>	Time: <u>1045</u>
Relinquished By: <u>[Signature]</u>	Date:	Time:	Received By Lab: <u>Abner</u>	Date: <u>10/16/96</u>	Time: <u>11:54</u>

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_

2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Approved by: \_\_\_\_\_ Signature: \_\_\_\_\_ Company: \_\_\_\_\_ Date: \_\_\_\_\_

Pink - Client  
Yellow - Laboratory  
White - Laboratory

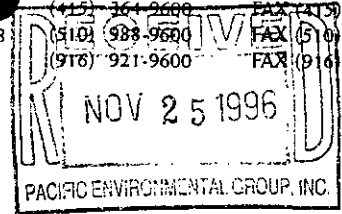


**Sequoia  
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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367 Sample Descript: Infl Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9610H64-01	Sampled: 10/28/96 Received: 10/29/96 Analyzed: 10/30/96 Reported: 11/24/96
Attention: PEG Engineer		

QC Batch Number: GC103096BTEX03A  
Instrument ID: GCHP03

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	20	260
Benzene	0.20	0.88
Toluene	0.20	10
Ethyl Benzene	0.20	1.9
Xylenes (Total)	0.20	27
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	76

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

**SEQUOIA ANALYTICAL** - ELAP #1210

*Joe*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group	Client Proj. ID: 310-127.5A/5367	Sampled: 10/28/96
2025 Gateway Place, Suite 440	Sample Descript: Effl	Received: 10/29/96
San Jose, CA 95110	Matrix: AIR	
Attention: PEG Engineer	Analysis Method: 8015Mod/8020	Analyzed: 10/30/96
	Lab Number: 9610H64-02	Reported: 11/24/96

QC Batch Number: GC103096BTEX03A  
Instrument ID: GCHP03

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
<b>Xylenes (Total)</b>	<b>0.10</b>	<b>0.39</b>
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	80

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

**SEQUOIA ANALYTICAL** - ELAP #1210

*Jose*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367 Sample Descript: MW-1 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9610H64-03	Sampled: 10/28/96 Received: 10/29/96 Analyzed: 10/30/96 Reported: 11/24/96
Attention: PEG Engineer		

QC Batch Number: GC103096BTEX02A  
Instrument ID: GCHP02

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	100	1000
Benzene	1.0	N.D.
Toluene	1.0	30
Ethyl Benzene	1.0	3.5
Xylenes (Total)	1.0	96
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	269 Q

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

**SEQUOIA ANALYTICAL** - ELAP #1210

Tod Granicher  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367 Sample Descript: MW-2 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9610H64-04	Sampled: 10/28/96 Received: 10/29/96 Analyzed: 10/30/96 Reported: 11/24/96
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QC Batch Number: GC103096BTEX03A  
Instrument ID: GCHP03

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	250
Benzene	0.50	1.3
Toluene	0.50	3.3
Ethyl Benzene	0.50	0.50
Xylenes (Total)	0.50	1.1
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	85

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager







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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110 Attention: PEG Engineer	Client Proj. ID: 310-127.5A/5367 Lab Proj. ID: 9610H64	Received: 10/29/96 Reported: 11/24/96
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### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 9 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

High surrogate recovery for sample 03 has been confirmed.

The bag for sample 05 was completely flat when received by the laboratory.

**SEQUOIA ANALYTICAL**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: Unocal 310-127.5A / 5367  
Matrix: Air

Work Order #: 9610H64 01-05

Reported: Nov 11, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC103096BTEX02A	GC103096BTEX02A	GC103096BTEX02A	GC103096BTEX02A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	9610D1401	9610D1401	9610D1401	9610D1401
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/30/96	10/30/96	10/30/96	10/30/96
Analyzed Date:	10/30/96	10/30/96	10/30/96	10/30/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	13	11	10	29
MS % Recovery:	130	110	100	97
Dup. Result:	12	11	10	29
MSD % Recov.:	120	110	100	97
RPD:	8.0	0.0	0.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK103096	BLK103096	BLK103096	BLK103096
Prepared Date:	10/30/96	10/30/96	10/30/96	10/30/96
Analyzed Date:	10/30/96	10/30/96	10/30/96	10/30/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	12	10	9.9	27
LCS % Recov.:	120	100	99	90

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

**SEQUOIA ANALYTICAL**

Tod Granicher  
Project Manager

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9610H64.PPP < 1 >





Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: Unocal 310-127.5A / 5367  
Matrix: Air

Work Order #: 9610H64 01-05

Reported: Nov 11, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC103096BTEX03a	GC103096BTEX03a	GC103096BTEX03a	GC103096BTEX03a
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	G. Fish	G. Fish	G. Fish	G. Fish
MS/MSD #:	9610D1407	9610D1407	9610D1407	9610D1407
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/30/96	10/30/96	10/30/96	10/30/96
Analyzed Date:	10/30/96	10/30/96	10/30/96	10/30/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	12	9.7	9.6	29
MS % Recovery:	120	97	96	97
Dup. Result:	11	9.1	8.9	27
MSD % Recov.:	110	91	89	90
RPD:	8.7	6.4	7.6	7.1
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK103196	BLK103196	BLK103196	BLK103196
Prepared Date:	10/31/96	10/31/96	10/31/96	10/31/96
Analyzed Date:	10/31/96	10/31/96	10/31/96	10/31/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	9.4	9.2	27
LCS % Recov.:	110	94	92	90

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

*Joe*  
Tod Granicher  
Project Manager

Please Note:  
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

9610H64.PPP <2>



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- 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: Pac. Env. Group, Inc Project Name: 310-127.5A  
 Address: 2025 GATEWAY PL. #440 UNOCAL Project Manager: TINA Berry  
 City: SAN JOSE State: CA Zip Code: 95110 AFE #:  
 Telephone: (408) 441-7500 FAX #: (408) 441-7539 Site #, City, State: #5367 SAN Leandro  
 Report To: Andrew Lehane Sampler: Don Waterpaul QC Data:  Level D (Standard)  Level C  Level B  Level A

Turnaround  10 Work Days  5 Work Days  3 Work Days  
 Time:  2 Work Days  1 Work Day  2-8 Hours  
 CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure  
 Drinking Water  Waste Water  Other Air  
 Analyses Requested: 9610 H64

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	GAS/BTEX										Comments				
1. <u>TnF1</u>	<u>10/28/96 11:00</u>	<u>AIR</u>	<u>1</u>	<u>BAG</u>	<u>1</u>	<u>X</u>														
2. <u>EFF1</u>	<u>10/28/96 11:00</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>2</u>	<u>X</u>														
3. <u>MW-1</u>	<u>↓ ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>3</u>	<u>X</u>														
4. <u>MW-2</u>	<u>↓ ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>4</u>	<u>X</u>														
5. <u>MW-3</u>	<u>↓ ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>5</u>	<u>X</u>														
6.																				
7.																				
8.																				
9.																				
10.																				

Relinquished By: Don Waterpaul Date: 10/28/96 Time: 14:00 Received By: D. Alarcon Date: 10/28/96 Time: 1400  
 Relinquished By: D. Alarcon Date: 10/29/96 Time: 10:40 Received By: St Wright Date: 10/29/96 Time: 10:40  
 Relinquished By: St Wright Date: 10/29/96 Time: 11:24 Received By Lab: phug Date: 10/29/96 Time: 1124

Were Samples Received in Good Condition?  Yes  No Samples on Ice?  Yes  No Method of Shipment \_\_\_\_\_ Page \_\_\_ of \_\_\_

To be completed upon receipt of report:  
 1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed?  
 2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? 11 days (air reported as liquid)  
 Approved by: D. Alarcon Signature: D. Alarcon Company: PEG Date: 11/13/96  
corrected copy rec'd 11/25/96

Pink - Client  
Yellow - Laboratory  
White - Laboratory

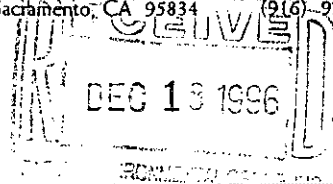


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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/ 5367 San Leandro Sample Descript: MID 1 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9611B55-01	Sampled: 11/14/96 Received: 11/15/96 Analyzed: 11/27/96 Reported: 12/17/96
Attention: Andrew Lehane		

QC Batch Number: GC112796BTEX01A  
Instrument ID: GCHP01

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	81

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*base*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





**Sequoia  
Analytical**

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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/ 5367 San Leandro Sample Descript: EFFL Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9611B55-02	Sampled: 11/14/96 Received: 11/15/96 Analyzed: 11/26/96 Reported: 12/17/96
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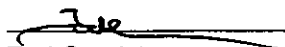
QC Batch Number: GC112696BTEX18A  
Instrument ID: GCHP18

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	101

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Tod Granicher  
Project Manager





**Sequoia  
Analytical**

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FAX (510) 988-9673  
FAX (916) 921-0100

Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: 310-127.5A / 5367, San Leandro  
Matrix: LIQUID

Work Order #: 9611B55 01, 02

Reported: Dec 5, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC112696BTEX18A	GC112696BTEX18A	GC112696BTEX18A	GC112696BTEX18A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	A. Porter	A. Porter	A. Porter	A. Porter
MS/MSD #:	9611B3904	9611B3904	9611B3904	9611B3904
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/26/96	11/26/96	11/26/96	11/26/96
Analyzed Date:	11/26/96	11/26/96	11/26/96	11/26/96
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	11	11	32
MS % Recovery:	110	110	110	107
Dup. Result:	11	11	11	31
MSD % Recov.:	110	110	110	103
RPD:	0.0	0.0	0.0	3.2
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK112696	BLK112696	BLK112696	BLK112696
Prepared Date:	11/26/96	11/26/96	11/26/96	11/26/96
Analyzed Date:	11/26/96	11/26/96	11/26/96	11/26/96
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	11	11	32
LCS % Recov.:	110	110	110	107

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

Please Note:  
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

**SEQUOIA ANALYTICAL**

Tod Granicher  
Project Manager

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

9611B55.PPP <1>





**Sequoia  
Analytical**

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FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: 310-127.5A / 5367, San Leandro  
Matrix: LIQUID

Work Order #: 9611B55 01, 02

Reported: Dec 5, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC112796BTEX01A	GC112796BTEX01A	GC112796BTEX01A	GC112796BTEX01A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	A. Porter	A. Porter	A. Porter	A. Porter
MS/MSD #:	9611E4703	9611E4703	9611E4703	9611E4703
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/27/96	11/27/96	11/27/96	11/27/96
Analyzed Date:	11/27/96	11/27/96	11/27/96	11/27/96
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	12	10	9.9	31
MS % Recovery:	120	100	99	103
Dup. Result:	11	9.4	9.1	28
MSD % Recov.:	110	94	91	93
RPD:	8.7	6.2	8.4	10
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK112796	BLK112796	BLK112796	BLK112796
Prepared Date:	11/27/96	11/27/96	11/27/96	11/27/96
Analyzed Date:	11/27/96	11/27/96	11/27/96	11/27/96
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	12	10	10	31
LCS % Recov.:	120	100	100	103

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

**SEQUOIA ANALYTICAL**

*Tod*  
Tod Granicher  
Project Manager

\*\* MS= Matrix Spike, MSD= MS Duplicate, RPD=Relative % Difference

9611B55.PPP <2>





Consultant Company: <u>PAC ENV. Group, Inc.</u>		Project Name: <u>310-127.5A</u>	
Address: <u>2025 GATEWAY PL. #440</u>		UNOCAL Project Manager: <u>Tina Berry</u>	
City: <u>SAN JOSE</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:
Telephone: <u>(408) 441-7500</u>		FAX #: <u>(408) 441-7539</u>	
Report To: <u>Andrew Leone</u>		Sampler: <u>Dmw</u>	
Turnaround <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	
Time: <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours		Site #, City, State: <u>5367 San Leandro, CA</u>	

Drinking Water  
 Waste Water  
 Other

Misc.  Detect.  Eval.  Remed.  Demol.  Closure

**CODE:**  Misc.  Detect.  Eval.  Remed.  Demol.  Closure

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested										Comments									
1. <u>mid 1</u>	<u>11/14/96 8:30</u>	<u>H<sub>2</sub>O</u>	<u>3</u>	<u>VOA</u>	<u>1 A-C</u>	<u>X</u>																			
2. <u>EFF1</u>	<u>11/14/96 8:30</u>	<u>H<sub>2</sub>O</u>	<u>3</u>	<u>VOA</u>	<u>2 }</u>	<u>X</u>																			
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									

Relinquished By: <u>Dan Williams</u>	Date: <u>11/14/96</u>	Time: <u>11:00</u>	Received By: <u>L.O. Alarcón</u>	Date: <u>11/14/96</u>	Time: <u>11:00</u>
Relinquished By: <u>L.O. Alarcón</u>	Date: <u>11/15/96</u>	Time: <u>1:05</u>	Received By: <u>Steve Ter</u>	Date: <u>11-15-96</u>	Time: <u>1:05</u>
Relinquished By: <u>Steve Ter</u>	Date: <u>11-15-96</u>	Time:	Received By Lab: <u>XO Cardenas</u>	Date: <u>11/15/96</u>	Time: <u>1:57</u>

Were Samples Received in Good Condition?  Yes  No     
 Samples on Ice?  Yes  No     
 Method of Shipment \_\_\_\_\_     
 Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_

2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Approved by: \_\_\_\_\_ Signature: \_\_\_\_\_ Company: \_\_\_\_\_ Date: \_\_\_\_\_

Pink - Client  
 Yellow - Laboratory  
 White - Laboratory



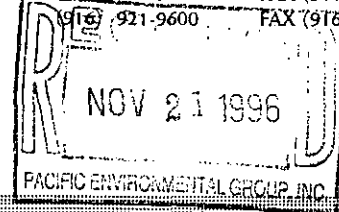
**Sequoia  
Analytical**

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FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100



Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
  
Attention: Andrew Lehane

Client Proj. ID: 310-127.5A/5367, San Leandro  
Sample Descript: Infl  
Matrix: AIR  
Analysis Method: 8015Mod/8020  
Lab Number: 9611910-01

Sampled: 11/14/96  
Received: 11/15/96  
Analyzed: 11/15/96  
Reported: 11/19/96

QC Batch Number: GC111596BTEX22A  
Instrument ID: GCHP22

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	20	220
Benzene	0.20	0.75
Toluene	0.20	4.7
Ethyl Benzene	0.20	0.61
Xylenes (Total)	0.20	19
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	86

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*Signature*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: Effl Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9611910-02	Sampled: 11/14/96 Received: 11/15/96 Analyzed: 11/15/96 Reported: 11/19/96
Attention: Andrew Lehane		

QC Batch Number: GC111596BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
<b>Xylenes (Total)</b>	<b>0.10</b>	<b>0.40</b>
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	106

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: MW 3 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9611910-03	Sampled: 11/14/96 Received: 11/15/96 Analyzed: 11/15/96 Reported: 11/19/96
Attention: Andrew Lehane		

QC Batch Number: GC111596BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**


Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	76
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	0.31
Xylenes (Total)	0.10	0.96
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	172 Q

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
Tod Granicher  
Project Manager



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Analytical

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FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Proj. ID: 310-127.5A/5367, San Leandro

Received: 11/15/96

Lab Proj. ID: 9611910

Reported: 11/19/96

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 9 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

Surrogate coelution confirmed for sample 03.

**SEQUOIA ANALYTICAL**

  
Tod Granicher  
Project Manager





Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: 310-127.5A / 5367, San Leandro

Work Order #: 9611910 01

Reported: Nov 20, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC111596BTEX22A	GC111596BTEX22A	GC111596BTEX22A	GC111596BTEX22A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	A. Porter	A. Porter	A. Porter	A. Porter
MS/MSD #:	961047103	961047103	961047103	961047103
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/15/96	11/15/96	11/15/96	11/15/96
Analyzed Date:	11/15/96	11/15/96	11/15/96	11/15/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.2	9.3	9.4	29
MS % Recovery:	92	93	94	97
Dup. Result:	7.8	7.7	7.6	24
MSD % Recov.:	78	77	76	80
RPD:	16	19	21	19
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK111596	BLK111596	BLK111596	BLK111596
Prepared Date:	11/15/96	11/15/96	11/15/96	11/15/96
Analyzed Date:	11/15/96	11/15/96	11/15/96	11/15/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.4	9.6	9.8	30
LCS % Recov.:	94	96	98	100

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**SEQUOIA ANALYTICAL**

*Jose*  
Tod Granicher  
Project Manager

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9611910.PPP <1>





Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: 310-127.5A / 5367, San Leandro

Work Order #: 9611910 02-03

Reported: Nov 20, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC111596BTEX17A	GC111596BTEX17A	GC111596BTEX17A	GC111596BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	J. Heider	J. Heider	J. Heider	J. Heider
MS/MSD #:	961138810	961138810	961138810	961138810
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/15/96	11/15/96	11/15/96	11/15/96
Analyzed Date:	11/15/96	11/15/96	11/15/96	11/15/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	10	10	30
MS % Recovery:	100	100	100	100
Dup. Result:	8.3	8.2	8.2	24
MSD % Recov.:	83	82	82	80
RPD:	19	20	20	22
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK111596	BLK111596	BLK111596	BLK111596
Prepared Date:	11/15/96	11/15/96	11/15/96	11/15/96
Analyzed Date:	11/15/96	11/15/96	11/15/96	11/15/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.2	9.0	9.0	26
LCS % Recov.:	92	90	90	87

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

Please Note:  
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

*Joe*  
Tod Granicher  
Project Manager

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9611910.PPP <2>



Consultant Company: <u>Pac. ENW. Group, Inc</u>		Project Name: <u>310-127.5A</u>	
Address: <u>2025 GATEWAY PL. #440</u>		UNOCAL Project Manager: <u>TARA BARRY</u>	
City: <u>SAN JOSE</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:
Telephone: <u>(408)441-7500</u>		FAX #: <u>(408)441-7539</u>	
Report To: <u>Andrew Johnson</u>		Sampler: <u>OMW</u>	
Turnaround <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days		Site #, City, State: <u>5367 San Leandro, CA</u>	
Time: <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Drinking Water      Waste Water      Other AIR     **Analyses Requested**  
 Misc.  Detect.  Eval.  Remed.  Demol.  Closure

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested										Comments				
1. <u>INF1</u>	<u>11/14/96 9:15</u>	<u>AIR</u>	<u>1</u>	<u>BAG</u>	<u>1</u>	<u>X</u>														
2. <u>EFF1</u>	<u>11/14/96 9:15</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>2</u>	<u>X</u>														
3. <u>MW3</u>	<u>11/14/96 8:45</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>3</u>	<u>X</u>														
4.																				
5.																				
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Relinquished By: <u>D. Alarcón</u>	Date: <u>11/14/96</u>	Time: <u>11:00</u>	Received By: <u>D. Alarcón</u>	Date: <u>11/14/96</u>	Time: <u>11:00</u>
Relinquished By: <u>D. Alarcón</u>	Date: <u>11/15/96</u>	Time: <u>1:05</u>	Received By: <u>Steve Te</u>	Date: <u>11-15-96</u>	Time: <u>1:05</u>
Relinquished By: <u>Steve Te</u>	Date: <u>11-15-96</u>	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition?  Yes  No    
 Samples on Ice?  Yes  No    
 Method of Shipment \_\_\_\_\_    
 Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_  
 2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Approved by: D. Alarcón     Signature: D. Alarcón     Company: PECC     Date: 11/21/96

Pink - Client  
 Yellow - Laboratory  
 White - Laboratory





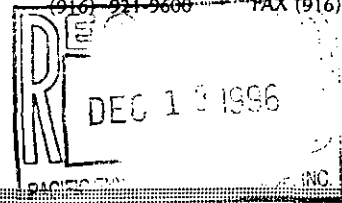
**Sequoia Analytical**

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FAX (916) 921-0100



Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A/5367 Sample Descript: INFL Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612060-01	Sampled: 12/02/96 Received: 12/03/96 Analyzed: 12/05/96 Reported: 12/10/96
Attention: Andrew Lehane		

QC Batch Number: GC120596BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	17
Benzene	0.10	N.D.
Toluene	0.10	0.43
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	1.0
Chromatogram Pattern:		Gas

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	109

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

**SEQUOIA ANALYTICAL** - ELAP #1210

*Tod Granicher*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A/5367 Sample Descript: EFFL Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612060-02	Sampled: 12/02/96 Received: 12/03/96 Analyzed: 12/04/96 Reported: 12/10/96
Attention: Andrew Lehane		


QC Batch Number: GC120396BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	0.31
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	98

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

**SEQUOIA ANALYTICAL** - ELAP #1210

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





**Sequoia  
Analytical**

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FAX (415) 364-9233  
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FAX (916) 921-0100

Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A/5367 Sample Descript: MW-1 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612060-03	Sampled: 12/02/96 Received: 12/03/96 Analyzed: 12/04/96 Reported: 12/10/96
Attention: Andrew Lehane		

QC Batch Number: GC120396BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	950
Benzene	5.0	N.D.
Toluene	5.0	40
Ethyl Benzene	5.0	5.9
Xylenes (Total)	5.0	120
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	102

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager



Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110 Attention: Andrew Lehane	Client Proj. ID: Unocal 310-127.5A/5367 Sample Descript: MW-2 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612060-04	Sampled: 12/02/96 Received: 12/03/96 Analyzed: 12/04/96 Reported: 12/10/96
--	--	---

QC Batch Number: GC120396BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	11
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	0.14
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	118

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

**SEQUOIA ANALYTICAL** - ELAP #1210

*Tod*  
\_\_\_\_\_  
Tod Granicher  
Project Manager



Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A/5367 Sample Descript: MW-3 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612060-05	Sampled: 12/02/96 Received: 12/03/96 Analyzed: 12/04/96 Reported: 12/10/96
Attention: Andrew Lehane		


QC Batch Number: GC120396BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
<b>TPPH as Gas</b>	<b>10</b>	<b>15</b>
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
<b>Xylenes (Total)</b>	<b>0.10</b>	<b>0.55</b>
<b>Chromatogram Pattern:</b>		<b>Gas</b>
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	113

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager



**Sequoia  
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Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Proj. ID: Unocal 310-127.5A/5367

Received: 12/03/96

Lab Proj. ID: 9612060

Reported: 12/10/96

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 11 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

TPHGBA Note: High surrogate recovery was confirmed for the set.

**SEQUOIA ANALYTICAL**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager



**Sequoia Analytical**

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FAX (916) 921-0100

Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: Unocal 310-127.5A / 5367

Work Order #: 9612060 01-05

Reported: Dec 10, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC120396BTEX17A	GC120396BTEX17A	GC120396BTEX17A	GC120396BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	9611C6915	9611C6915	9611C6915	9611C6915
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/3/96	12/3/96	12/3/96	12/3/96
Analyzed Date:	12/3/96	12/3/96	12/3/96	12/3/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	10	10	31
MS % Recovery:	110	100	100	103
Dup. Result:	11	10	11	33
MSD % Recov.:	110	100	110	110
RPD:	0.0		9.5	6.3
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK120396	BLK120396	BLK120396	BLK120396
Prepared Date:	12/3/96	12/3/96	12/3/96	12/3/96
Analyzed Date:	12/3/96	12/3/96	12/3/96	12/3/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	11	10	11	32
LCS % Recov.:	110	100	110	107

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

**SEQUOIA ANALYTICAL**

*Joe*  
Tod Granicher  
Project Manager

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9612060.PPP <1>





Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: Unocal 310-127.5A / 5367

Work Order #: 9612060 01-05

Reported: Dec 10, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC120596BTEX17A	GC120596BTEX17A	GC120596BTEX17A	GC120596BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	9611D9803	9611D9803	9611D9803	9611D9803
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/5/96	12/5/96	12/5/96	12/5/96
Analyzed Date:	12/5/96	12/5/96	12/5/96	12/5/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.2	8.7	9.3	29
MS % Recovery:	92	87	93	97
Dup. Result:	9.9	9.5	9.7	29
MSD % Recov.:	99	95	97	97
RPD:	7.3	8.8	4.2	0.0
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK120596	BLK120596	BLK120596	BLK120596
Prepared Date:	12/5/96	12/5/96	12/5/96	12/5/96
Analyzed Date:	12/5/96	12/5/96	12/5/96	12/5/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	8.7	8.6	8.7	26
LCS % Recov.:	87	86	87	87

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**SEQUOIA ANALYTICAL**

*Joe*  
Tod Granicher  
Project Manager

**Please Note:**  
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

9612060.PPP <2>







Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: Unocal 310-127.5A / 5367

Work Order #: 9612060 01-05

Reported: Dec 10, 1996

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC120696BTEX17B	GC120696BTEX17B	GC120696BTEX17B	GC120696BTEX17B
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	Y. Arteaga	Y. Arteaga	Y. Arteaga	Y. Arteaga
MS/MSD #:	9611G6201	9611G6201	9611G6201	9611G6201
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/6/96	12/6/96	12/6/96	12/6/96
Analyzed Date:	12/6/96	12/6/96	12/6/96	12/6/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	10	11	31
MS % Recovery:	110	100	110	103
Dup. Result:	11	11	11	32
MSD % Recov.:	110	110	110	107
RPD:	0.0	9.5	0.0	3.2
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK120796	BLK120796	BLK120796	BLK120796
Prepared Date:	12/6/96	12/6/96	12/6/96	12/6/96
Analyzed Date:	12/6/96	12/6/96	12/6/96	12/6/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	10	10	10	30
LCS % Recov.:	100	100	100	100

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

**SEQUOIA ANALYTICAL**

*ode*  
Tod Granicher  
Project Manager

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.



Consultant Company: Pac. ENV. Group, Inc. Project Name: 310-127.5A  
 Address: 2025 GATEWAY PL #44D UNOCAL Project Manager: TINA Berry  
 City: SAN Jose State: CA Zip Code: 95110 AFE #:  
 Telephone: (408) 441-7500 FAX #: (408) 441-7539 Site #, City, State: 5367 SAN Leandro, CA  
 Report To: Andrew Lehane Sampler: OmW QC Data:  Level D (Standard)  Level C  Level B  Level A

Turnaround  10 Work Days  5 Work Days  3 Work Days  
 Time:  2 Work Days  1 Work Day  2-8 Hours  
 CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure

Drinking Water  Waste Water  Other AR  
 Analyses Requested: 96/2060

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	T-PAH-5/1/ETEX										Comments			
1. <u>INF1</u>	<u>12/2/96 13:30</u>	<u>AIR</u>	<u>1</u>	<u>BAG</u>	<u>1</u>	<u>X</u>													
2. <u>EFF1</u>	↓	↓	↓	↓	<u>2</u>	↓													
3. <u>MW-1</u>	↓	↓	↓	↓	<u>3</u>	↓													
4. <u>MW-2</u>	↓	↓	↓	↓	<u>4</u>	↓													
5. <u>MW-3</u>	↓	↓	↓	↓	<u>5</u>	↓													
6.																			
7.																			
8.																			
9.																			
10.																			

Relinquished By: <u>Don Waterman</u>	Date: <u>12/2/96</u>	Time: <u>14:30</u>	Received By: <u>D. Alarcón</u>	Date: <u>12/2/96</u>	Time: <u>14:30</u>
Relinquished By: <u>D. Alarcón</u>	Date: <u>12/3/96</u>	Time: <u>11:36</u>	Received By: <u>[Signature]</u>	Date: <u>12/3/96</u>	Time: <u>11:36</u>
Relinquished By: <u>[Signature]</u>	Date: <u>12/3/96</u>	Time:	Received By Lab: <u>[Signature]</u>	Date: <u>12/3/96</u>	Time: <u>1307</u>

Were Samples Received in Good Condition?  Yes  No     
 Samples on Ice?  Yes  No     
 Method of Shipment \_\_\_\_\_     
 Page \_\_\_ of \_\_\_

To be completed upon receipt of report:  
 1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_  
 2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_  
 Approved by: D. Alarcón Signature: D. Alarcón Company: PEG Date: 12/16/96

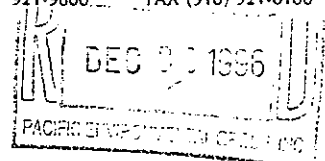
Pink - Client  
 Yellow - Laboratory  
 White - Laboratory



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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A San Leandro Sample Descript: Infl Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9612989-01	Sampled: 12/11/96 Received: 12/13/96 Analyzed: 12/18/96 Reported: 12/23/96
Attention: Andrew Lehane		


QC Batch Number: GC121896BTEX01A  
Instrument ID: GCHP01

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	1000	12000
Benzene	10	56
Toluene	10	21
Ethyl Benzene	10	820
Xylenes (Total)	10	2700
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	87

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





**Sequoia  
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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A San Leandro Sample Descript: Mid-1 Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9612989-02	Sampled: 12/11/96 Received: 12/13/96 Analyzed: 12/18/96 Reported: 12/23/96
Attention: Andrew Lehane		

QC Batch Number: GC121896BTEX01A  
Instrument ID: GCHP01

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	80

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager

Page:

2





**Sequoia  
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FAX (916) 921-0100

Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: Unocal 310-127.5A San Leandro Sample Descript: Effl Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9612989-03	Sampled: 12/11/96 Received: 12/13/96 Analyzed: 12/19/96 Reported: 12/23/96
Attention: Andrew Lehane		

QC Batch Number: GC121996BTEX22A  
Instrument ID: GCHP22

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	105

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*Love*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Sequoia  
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Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: Unocal 310-127.5A / San Leandro  
Matrix: LIQUID

Work Order #: 9612989 01

Reported: Dec 26, 1996

### QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC121896BTEX01A	GC121896BTEX01A	GC121896BTEX01A	GC121896BTEX01A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	961275105	961275105	961275105	961275105
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/17/96	12/17/96	12/17/96	12/17/96
Analyzed Date:	12/17/96	12/17/96	12/17/96	12/17/96
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.0	8.9	8.8	27
MS % Recovery:	90	89	88	90
Dup. Result:	8.6	8.7	8.6	27
MSD % Recov.:	86	87	86	90
RPD:	4.5	2.3	2.3	0.0
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK121896	BLK121896	BLK121896	BLK121896
Prepared Date:	12/17/96	12/17/96	12/17/96	12/17/96
Analyzed Date:	12/17/96	12/17/96	12/17/96	12/17/96
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	8.8	8.7	8.8	27
LCS % Recov.:	88	87	88	90

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

Tod Granicher  
Project Manager

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\*\* MS= Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9612989.PPP <1>





Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110

Client Project ID: Unocal 310-127.5A / San Leandro  
Matrix: LIQUID

Attention: Andrew Lehane

Work Order #: 9612989 01-03

Reported: Dec 26, 1996

### QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC121996BTEX22A	GC121996BTEX22A	GC121996BTEX22A	GC121996BTEX22A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	A. Porter	A. Porter	A. Porter	A. Porter
MS/MSD #:	961298001	961298001	961298001	961298001
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/19/96	12/19/96	12/19/96	12/19/96
Analyzed Date:	12/19/96	12/19/96	12/19/96	12/19/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L

Result:	8.6	11	10	38
MS % Recovery:	86	110	100	93

Dup. Result:	8.9	11	10	29
MSD % Recov.:	89	110	100	97

RPD:	3.4	0.0	0.0	3.5
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK121996	BLK121996	BLK121996	BLK121996
Prepared Date:	12/19/96	12/19/96	12/19/96	12/19/96
Analyzed Date:	12/19/96	12/19/96	12/19/96	12/19/96
Instrument I.D.#:	GCHP22	GCHP22	GCHP22	GCHP22
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.0	11	11	29
LCS % Recov.:	90	110	110	97

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

Tom Granicher  
Project Manager

**Please Note:**

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9612989.PPP <2>





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Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Proj. ID: Unocal 310-127.5A San Leandro  
Lab Proj. ID: 9612989

Received: 12/13/96  
Reported: 12/23/96

### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 12 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

  
Tod Granicher  
Project Manager

Page: 1





SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: PEG  
 REC. BY (PRINT) L Kim

WORKORDER: 9612989  
 DATE OF LOG-IN: 12-17-96

CIRCLE THE APPROPRIATE RESPONSE		LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Intact / Broken*	Present <input checked="" type="radio"/> Absent	1	A-C	Infl	3voa	liq	12/11	
2. Custody Seal #:	Put in Remarks Section	2	↓	mid-1	↓	↓	↓	
3. Chain-of-Custody	Present / Absent*	3	↓	EFF1	↓	↓	↓	
4. Traffic Reports or Packing List:	Present <input checked="" type="radio"/> Absent							
5. Airbill:	Airbill / Slicker Present / Absent							
6. Airbill #:								
7. Sample Tags:	Present / Absent							
Sample Tags #s:	Listed / Not Listed on Chain-of-Custody							
8. Sample Condition:	Intact / Broken* / Leaking*							
9. Does information on custody reports, traffic reports and sample tags agree?	Yes / No*							
10. Proper Preservatives used:	Yes / No*							
11. Date Rec. at Lab:	<u>12/13/96</u>							
12. Time Rec. at Lab:	<u>1344</u>							
13. Temp Rec. at Lab:	<u>14°C</u>							

*[A large diagonal line is drawn across the bottom half of the table. The signature 'L Kim' and the date '12/13' are written over the line.]*

\*if Circled, contact Project Manager and attach record of resolution.

# UNOCAL 76

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East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200

15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: <u>PAC. ENV. Group, Inc.</u>		Project Name: <u>310-127.5A</u>	
Address: <u>2025 GATEWAY PL #440</u>		UNOCAL Project Manager: <u>TINA BERRY</u>	
City: <u>SAN JOSE</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:
Telephone: <u>408 441 7500</u>		FAX #: <u>408 441 7539</u>	
Report To: <u>Andrew Lehane</u>		Site #, City, State: <u>5367 SAN LEANDRO, CA</u>	
Sampler: <u>DON WATENPAUGH</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days	<input type="checkbox"/> Drinking Water	Analyses Requested
Time: <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours	<input checked="" type="checkbox"/> Waste Water	
CODE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input checked="" type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure	<input type="checkbox"/> Other	

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPHs/BTEX 9612989										Comments				
1. <u>INF1</u>	<u>12/11/96 11:00</u>	<u>H2O</u>	<u>3</u>	<u>VOL</u>	<u>1 A-C</u>	<u>X</u>														
2. <u>Mid-1</u>	<u>↓ ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>2 ↓</u>	<u>XX</u>														
3. <u>EFF1</u>	<u>↓ ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>3 ↓</u>	<u>XX</u>														
4.																				
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

Relinquished By: <u>Don Watenpaugh</u>	Date: <u>12/11/96</u>	Time: <u>15:20</u>	Received By: <u>Jeanne McCallister</u>	Date: <u>12/11/96</u>	Time: <u>1520</u>
Relinquished By: <u>Jeanne McCallister</u>	Date: <u>12/13/96</u>	Time: <u>10:40</u>	Received By: <u>G. [Signature]</u>	Date: <u>12/13/96</u>	Time: <u>10:40</u>
Relinquished By: <u>G. [Signature]</u>	Date: <u>12/13/96</u>	Time:	Received By Lab: <u>G. [Signature]</u>	Date: <u>12/13/96</u>	Time: <u>1344</u>

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_

2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Approved by: \_\_\_\_\_ Signature: \_\_\_\_\_ Company: \_\_\_\_\_ Date: \_\_\_\_\_

Pink - Client

Yellow - Laboratory

White - Labo

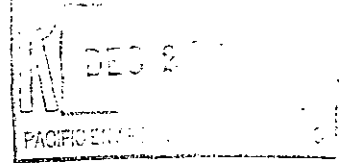


**Sequoia  
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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: INFL Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612795-01	Sampled: 12/11/96 Received: 12/13/96 Analyzed: 12/13/96 Reported: 12/19/96
Attention: Andrew Lehane		

QC Batch Number: GC121396BTEX17A  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
<b>Xylenes (Total)</b>	<b>0.10</b>	<b>0.15</b>
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	99

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: EFFL Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612795-02	Sampled: 12/11/96 Received: 12/13/96 Analyzed: 12/13/96 Reported: 12/19/96
Attention: Andrew Lehane		

QC Batch Number: GC121396BTEX17A  
Instrument ID: GCHP17

### Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70                      130	107

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

**SEQUOIA ANALYTICAL - ELAP #1210**

Tod Granicher  
Tod Granicher  
Project Manager



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Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Proj. ID: 310-127.5A/5367, San Leandro

Received: 12/13/96

Lab Proj. ID: 9612795

Reported: 12/19/96

## LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 6 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

**SEQUOIA ANALYTICAL**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager



Pacific Environmental Group  
2025 Gateway Place, Suite 440  
San Jose, CA 95110  
Attention: Andrew Lehane

Client Project ID: 310-127.5A / 5367, San Leandro

Work Order #: 9612795 01

Reported: Dec 20, 1996

### QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
<b>QC Batch#:</b>	GC121396BTEX17A	GC121396BTEX17A	GC121396BTEX17A	GC121396BTEX17A
<b>Analy. Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020
<b>Prep. Method:</b>	EPA 5030	EPA 5030	EPA 5030	EPA 5030

<b>Analyst:</b>	D. Jirsa	D. Jirsa	D. Jirsa	D. Jirsa
<b>MS/MSD #:</b>	961251804	961251804	961251804	961251804
<b>Sample Conc.:</b>	N.D.	N.D.	N.D.	N.D.
<b>Prepared Date:</b>	12/13/96	12/13/96	12/13/96	12/13/96
<b>Analyzed Date:</b>	12/13/96	12/13/96	12/13/96	12/13/96
<b>Instrument I.D.#:</b>	GCHP17	GCHP17	GCHP17	GCHP17
<b>Conc. Spiked:</b>	10 µg/L	10 µg/L	10 µg/L	30 µg/L
<b>Result:</b>	9.0	10	11	33
<b>MS % Recovery:</b>	90	100	110	110
<b>Dup. Result:</b>	8.6	10	11	33
<b>MSD % Recov.:</b>	86	100	110	110
<b>RPD:</b>	4.5	0.0	0.0	0.0
<b>RPD Limit:</b>	0-25	0-25	0-25	0-25

<b>LCS #:</b>	BLK121396	BLK121396	BLK121396	BLK121396
<b>Prepared Date:</b>	12/13/96	12/13/96	12/13/96	12/13/96
<b>Analyzed Date:</b>	12/13/96	12/13/96	12/13/96	12/13/96
<b>Instrument I.D.#:</b>	GCHP17	GCHP17	GCHP17	GCHP17
<b>Conc. Spiked:</b>	10 µg/L	10 µg/L	10 µg/L	30 µg/L
<b>LCS Result:</b>	8.4	9.6	10	31
<b>LCS % Recov.:</b>	84	96	100	103

<b>MS/MSD</b>	60-140	60-140	60-140	60-140
<b>LCS</b>	70-130	70-130	70-130	70-130
<b>Control Limits</b>				

**SEQUOIA ANALYTICAL**

*Joe*

Tod Granicher  
Project Manager

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS= Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

9612795.PPP <1>



SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: PEG  
 REC. BY (PRINT) PN

WORKORDER: 9612 795  
 DATE OF LOG-IN: 12/13/96

CIRCLE THE APPROPRIATE RESPONSE		LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION (ETC.)
1. Custody Seal(s)	Present / <input checked="" type="radio"/> Absent Intact / Broken*	1	A	INFL	Jedlar	A	12/11	
2. Custody Seal #:	Put in Remarks Section	2	↓	EFPL	↓	↓	↓	
3. Chain-of-Custody	<input checked="" type="radio"/> Present / Absent*	Prop: 12/13/96 						
4. Traffic Reports or Packing List:	Present / <input checked="" type="radio"/> Absent							
5. Airbill:	Airbill / Sticker Present / <input checked="" type="radio"/> Absent							
6. Airbill #:	<u>                    </u>							
7. Sample Tags:	<input checked="" type="radio"/> Present / Absent							
Sample Tags #s:	<input checked="" type="radio"/> Listed / Not Listed on Chain-of-Custody							
8. Sample Condition:	<input checked="" type="radio"/> Intact / Broken* / Leaking*							
9. Does information on custody reports, traffic reports and sample tags agree?	<input checked="" type="radio"/> Yes / No*							
10. Proper Preservatives used:	<input checked="" type="radio"/> Yes / No*							
11. Date Rec. at Lab:	<u>12/13/96</u>							
12. Time Rec. at Lab:	<u>                    </u> <sup>5:12</sup>							
13. Temp Rec. at Lab:	<u>1344</u> <sup>5:12</sup>							

\*if Circled, contact Project Manager and attach record of resolution.



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Consultant Company: <u>Pac. Env. Group Inc</u>		Project Name: <u>310-127.5A</u>	
Address: <u>2025 GATEWAY PL #440</u>		UNOCAL Project Manager: <u>TINA BERRY</u>	
City: <u>SAN JOSE</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:
Telephone: <u>(408) 441-7500</u>		FAX #: <u>(408) 441-7589</u>	
Report To: <u>Andrew Lehane</u>		Site #, City, State: <u>5367 San Leandro, CA</u>	
Sampler: <u>Don Waterman</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround  10 Work Days  5 Work Days  3 Work Days     Drinking Water  
 Time:  2 Work Days  1 Work Day  2-8 Hours     Waste Water  
 CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure     Other AIR

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested										Comments
1. <u>EnPI</u>	<u>12/11/96 12:00</u>	<u>AIR</u>	<u>1</u>	<u>BAG</u>	<u>1</u>	<div style="border: 1px solid black; padding: 5px; display: inline-block;">           TP449/BTEX            976/2795         </div>										
2. <u>EFFI</u>	<u>12/11/96 12:00</u>	<u>AIR</u>	<u>1</u>		<u>2</u>											
3.																
4.																
5.																
6.																
7.																
8.																
9.																
10.																

Relinquished By: <u>Don Waterman</u>	Date: <u>12/11/96</u>	Time: <u>15:00</u>	Received By: <u>Shane McLeod</u>	Date: <u>12/11/96</u>	Time: <u>15:00</u>
Relinquished By: <u>Shane McLeod</u>	Date: <u>12/13/96</u>	Time: <u>10:40</u>	Received By: <u>[Signature]</u>	Date: <u>12/13/96</u>	Time: <u>10:45</u>
Relinquished By: <u>[Signature]</u>	Date: <u>12/14/96</u>	Time:	Received By Lab: <u>[Signature]</u>	Date: <u>12/13/96</u>	Time: <u>1394</u>

Were Samples Received in Good Condition?  Yes  No   
 Samples on Ice?  Yes  No   
 Method of Shipment \_\_\_\_\_   
 Page \_\_\_ of \_\_\_

To be completed upon receipt of report:  
 1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_  
 2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? 7 days  
 Approved by: D. Alarcon   
 Signature: D. Alarcon   
 Company: PEG   
 Date: 12/24/96

Pink - Client  
 Yellow - Laboratory  
 White - Laboratory



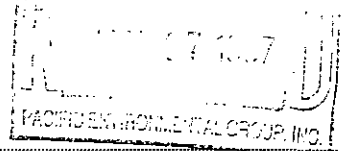


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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: Infl Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612C26-01	Sampled: 12/20/96 Received: 12/20/96 Analyzed: 12/21/96 Reported: 12/31/96
--	--	---

QC Batch Number: GC122096BTEX17B  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	88

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*Tod*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





**Sequoia  
Analytical**

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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: Effi Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612C26-02	Sampled: 12/20/96 Received: 12/20/96 Analyzed: 12/21/96 Reported: 12/31/96
--	--	---

QC Batch Number: GC122096BTEX17B  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	92

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: MW-1 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612C26-03	Sampled: 12/20/96 Received: 12/20/96 Analyzed: 12/21/96 Reported: 12/31/96
Attention: Jessica Nelligan		


QC Batch Number: GC122096BTEX17B  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	13
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	0.45
Chromatogram Pattern:		Gas
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	94

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
Tod Granicher  
Project Manager



**Sequoia  
Analytical**

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FAX (916) 921-0100

Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: MW-2 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612C26-04	Sampled: 12/20/96 Received: 12/20/96 Analyzed: 12/21/96 Reported: 12/31/96
--	--	---


QC Batch Number: GC122096BTEX17B  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Xylenes (Total)	0.10	N.D.
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	93

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

**SEQUOIA ANALYTICAL - ELAP #1210**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





**Sequoia  
Analytical**

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Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110	Client Proj. ID: 310-127.5A/5367, San Leandro Sample Descript: MW-3 Matrix: AIR Analysis Method: 8015Mod/8020 Lab Number: 9612C26-05	Sampled: 12/20/96 Received: 12/20/96 Analyzed: 12/21/96 Reported: 12/31/96
--	--	---

QC Batch Number: GC122096BTEX17B  
Instrument ID: GCHP17

**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	10	N.D.
Benzene	0.10	N.D.
Toluene	0.10	N.D.
Ethyl Benzene	0.10	0.42
Xylenes (Total)	0.10	0.87
Chromatogram Pattern:		
<b>Surrogates</b>	<b>Control Limits %</b>	<b>% Recovery</b>
Trifluorotoluene	70 130	88

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

**SEQUOIA ANALYTICAL - ELAP #1210**

*Tod*  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Sequoia  
Analytical

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834

(415) 364-9600  
(510) 988-9600  
(916) 921-9600


FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110 Attention: Jessica Nelligan	Client Proj. ID: 310-127.5A/5367, San Leandro Lab Proj. ID: 9612C26	Received: 12/20/96 Reported: 12/31/96
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### LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 9 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

**SEQUOIA ANALYTICAL**

  
\_\_\_\_\_  
Tod Granicher  
Project Manager





Pacific Environmental Group 2025 Gateway Place, Suite 440 San Jose, CA 95110 Attention: Jessica Nelligan	Client Project ID: 310-127.5A/5367, San Leandro Matrix: Liquid Work Order #: 9612C26 -01-05	Reported: Jan 3, 1997
---	---	-----------------------

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC122096BTEX17B	GC122096BTEX17B	GC122096BTEX17B	GC122096BTEX17B
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	J. Heider	J. Heider	J. Heider	J. Heider
MS/MSD #:	961299203	961299203	961299203	961299203
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/20/96	12/20/96	12/20/96	12/20/96
Analyzed Date:	12/20/96	12/20/96	12/20/96	12/20/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	8.6	8.4	8.4	25
MS % Recovery:	86	84	84	83
Dup. Result:	9.1	8.8	8.8	26
MSD % Recov.:	91	88	88	87
RPD:	5.6	4.7	4.7	3.9
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	BLK122096	BLK122096	BLK122096	BLK122096
Prepared Date:	12/20/96	12/20/96	12/20/96	12/20/96
Analyzed Date:	12/20/96	12/20/96	12/20/96	12/20/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	8.8	8.6	8.7	25
LCS % Recov.:	88	86	87	83

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130
Control Limits				

SEQUOIA ANALYTICAL

*Tod*  
Tod Granicher  
Project Manager

Please Note:

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

# UNOCAL 76

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18939 120th Ave., N.E., Suite 101 • Bothell, WA 98011 • (206) 481-9200  
 East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200  
 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: <u>Pacific ENV. Group, Inc</u>		Project Name: <u>310-0127.54</u>	
Address: <u>2025 GATEWAY PI #440</u>		UNOCAL Project Manager: <u>TINA Berry</u>	
City: <u>SAN JOSE</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:
Telephone: <u>(408) 441-7500</u>		FAX #: <u>(408) 441-7539</u>	
Report To: <u>Jessica Nelligan</u>		Sampler: <u>Don Waterpaul</u>	
		Site #, City, State: <u>5367 SAN Leandro</u>	
		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround  10 Work Days  5 Work Days  3 Work Days  
 Time:  2 Work Days  1 Work Day  2-8 Hours

Drinking Water  Waste Water  Other  
 Analyses Requested: 9612026

CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	TPH-5 / BTEX										Comments				
1. INF1	12/20/96 8:00	AIR	1	BAG	1	X														
2. EFF1	↓	↓	↓	↓	2	X														
3. MW-1	↓	↓	↓	↓	3	X														
4. MW-2	↓	↓	↓	↓	4	X														
5. MW-3	↓	↓	↓	↓	5	X														
6.																				
7.																				
8.																				
9.																				
10.																				

Relinquished By: <u>Don Waterpaul</u>	Date: <u>12/20/96</u>	Time: <u>11:20</u>	Received By: <u>D. Alarcón</u>	Date: <u>12/20/96</u>	Time: <u>11:20</u>
Relinquished By: <u>D. Alarcón</u>	Date: <u>12/20/96</u>	Time: <u>3:15</u>	Received By: <u>Steve Tan</u>	Date: <u>12/20/96</u>	Time: <u>3:15</u>
Relinquished By: <u>SPC</u>	Date: <u>12/20/96</u>	Time:	Received By: <u>[Signature]</u>	Date: <u>12/20/96</u>	Time: <u>1711</u>

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page \_\_\_ of \_\_\_

To be completed upon receipt of report:  
 1) Were the analyses requested on the Chain of Custody reported?  Yes  No. If no, what analyses are still needed? \_\_\_\_\_  
 2) Was the report issued within the requested turnaround time?  Yes  No. If no, what was the turnaround time? \_\_\_\_\_

Approved by: D. Alarcón      Signature: [Signature]      Company: PGC      Date: 1/3/97

Pink - Client  
Yellow - Laboratory  
White - Laboratory



**ATTACHMENT C**  
**FIELD DATA SHEETS**

Work Order # 5547

## FIELD SERVICES / ROUTINE O&M REQUEST

**Identification**

Project # 310-127.5A  
 Station # 5367  
 Site Address: 500 Bancroft Ave @  
 Dowling  
 San Leandro  
 County: Alameda  
 Project Manager: ADL  
 Requestor: Alexis M. Bahou  
 Client: Unocal  
 Client P.O.C.: Tina Berry  
 Revision Date: 08/12/96  
 Laboratory: Sequoia

Request Frequency: [Semi-Monthly]

### Site Remedial Technologies:

Groundwater Extraction (GWE)     Soil Vapor Extraction (SVE)     Air Sparging (AS)     Bio-Augmentation (BIO)

Complete attached Data Sheets as prescribed in the following table:

### Scheduling Table

Data Sheet Section(s) / Part(s)	To be Completed	Budgeted Hrs	Actual Hrs	Mob-de Mob	Completed
SVE(A, B, C, D)	week 1 †		4.5		MS
SVE(A, B, C, D, E, F)	week 3				
GWE(A, B, C, D)	monthly				
SVE(H, I)	quarterly †				MS
	semi-annually				

† = sampling to be performed

### Definition of frequencies:

semi-monthly = once every other week on weeks 1 & 3  
 monthly = first week of the month (day 1 or 2 preferred)  
 quarterly = once every quarter in months 1, 4, 7, 10 on week 1

### Field Technician Response:

Completed by: MC  
 Arrival time: 9:45  
 Sample this visit?: YES

Date: 10/15/96  
 Departure time: 11:45  
 Engineer contacted? YES

**Groundwater Extraction & Treatment System**  
**Unocal Service Station 5367**  
**500 Bancroft @ Dowling**  
**San Leandro, CA**  
**310-127.5A**

**System Description:**

**Groundwater Pumps**

Well	Type	Size	Control	Set Depth (TOB)
MW-2	electric			
MW-3	electric			

Carbon Vessels: 2 Cetco 1,000 lbs vessels  
 Filter: Rosedale 8-30

Transfer Pump: 1.5 hp, 110/220V, 1Φ, 60 Hz  
 oil/water separator: N/A

**PART A: SYSTEM DATA**

System on upon arrival? YES (if no, specify reason in comments)

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
TOTALIZER (gallons)	<u>0266527</u>	
FILTER INLET PRESSURE (psig)	<u>5</u>	(ideal range < 30 psig)
CARBON #1 INLET PRESSURE (psig)	<u>5</u>	
CARBON #2 INLET PRESSURE (psig)	<u>0</u>	(ideal range 12 psig)
DISCHARGE PRESSURE (psig)	<u>n/a</u>	(ideal range 0 psig)
TRANSFER PUMP FLOWRATE (gpm)	<u>n/a</u>	(ideal range 10 gpm)
% RESTRICTION VALVE OPEN	<u>n/a</u>	(ideal range 100 % open)

**PART B: COMMENTS**

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**PART C: WELL DATA**

H:\PROJECT\305\065\5E\GWE.DOC

WELL	DTW (FOB)	TOTALIZER (gallons)	FLOWRATE (gpm)	COMMENTS/ ADJUSTMENTS
MW-2	29.60	0264844	0	} DTW CHARGES AS APPLIED LOC. IS GONE.
MW-3	29.6	0070432	.7	

**PART D: SAMPLING & READINGS I**

SAMPLE	ANALYSIS	COMPLETED
<del>MID 1</del> INFL ?	TPH-gasoline/BTEX compounds	YES
MID 2	TPH-gasoline/BTEX compounds	YES
Effluent	TPH-gasoline/BTEX compounds	YES

**PART G: SYSTEM MAINTENANCE I**

NUMBER OF SPARE FILTERS ON SITE?	3	CHANGE FILTERS? (if necessary)	no
DRAIN COMPRESSOR	n/a		

**PART H: SYSTEM MAINTENANCE II**

CLEAN TOTALIZERS	n/a	TEST ALARM SWITCHES	n/a
BACKFLUSH CARBON VESSELS		CALIBRATE LEL	
CHANGE COMPRESSOR OIL			

**Oil Vapor Extraction & Treatment System**  
**Unocal Service Station #5367**  
**500 Bancroft Avenue @ Dowling**  
**San Leandro, CA**  
**310-127.5A**

**PART A: SYSTEM DATA**

System on upon arrival? YES (if no, specify reason in comments)

HOUR METER (hrs)	07777	CONTENTS OF KNOCKOUT BARREL	0
ELECTRIC METER (kW-hrs)	13882		

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
% DILUTION VALVE OPEN	20	
% RECIRCULATION VALVE OPEN	75	
% HEAT EXCHANGER BYPASS VALVE OPEN	n/a	
MANIFOLD AIR FLOW (before dilution) ( $\Delta P$ , inches of water)	<.05	
TOTAL SYSTEM AIR FLOW (after dilution) ( $\Delta P$ , inches of water)	59.20	
BLOWER VACUUM (inches of water)	28.5	

**PART B: COMMENTS** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**PART C: SYSTEM FID READINGS**

READING (ppmv)	WC/WOC/DF before adjustments	WC/WOC/DF after adjustments
INFLUENT (before dilution)	27/0	27/200/0
INFLUENT (after dilution)	18/0	8/49/0
PRIMARY GAC EFFLUENT	18/0	8/8/0
SYSTEM EFFLUENT	8/8/0	8/8/0
FIELD INSTRUMENT USED: FID # 3		
LAST CALIBRATED: 10/96		

**PART D: SAMPLING I**

SAMPLE	ANALYSIS	COMPLETED
INFLUENT	TPH-g/BTEX	YES
EFFLUENT	TPH-g/BTEX	YES

**PART E:  
SAMPLING II**

WELLS (MW-1, MW-2, MW-3)	TPH-g/BTEX	n/a
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**PART F: WELL DATA**

WELL	VALVE POSITION		FID (ppmv)			VAC/PRESSURE ("H <sub>2</sub> O)		FLOW	
	INITIAL	FINAL	DILUTION FACTOR USED	WC	WOC	@ MANIFOLD	@ WELL	Δ P ("H <sub>2</sub> O)	PIPE SIZE
MW-1									
MW-2	n/a								
MW-3									

# UNOCAL 76

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 East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200  
 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: <u>DR. ENU-GRP.</u>		Project Name: <u>310-127.5A</u>	
Address: <u>7025 GATEWAY PL. #440</u>		UNOCAL Project Manager: <u>TINA BERRY</u>	
City: <u>San Jose</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:
Telephone: <u>408 447 5000</u>	FAX #: <u>408 447 5338</u>	Site #, City, State: <u>5367, SAN LEONDRIO</u>	
Report To: <u>Andrew Nakane</u>	Sampler: <u>Mark Gubini</u>	QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround Time: <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours	<input type="checkbox"/> Drinking Water <input checked="" type="checkbox"/> Waste Water <input checked="" type="checkbox"/> Other <u>air</u>	<b>Analyses Requested</b>
CODE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input checked="" type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure		

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Comments
1. <u>INFL</u>	<u>10/5/96</u>	<u>H<sub>2</sub>O</u>	<u>3</u>	<u>100</u>	<u>X</u>	
2. <u>MID</u>	<u>10/5/96</u>	<u>H<sub>2</sub>O</u>	<u>3</u>	<u>100</u>	<u>X</u>	
3. <u>EFFL</u>	<u>10/5/96</u>	<u>H<sub>2</sub>O</u>	<u>3</u>	<u>100</u>	<u>X</u>	
4.						
5. <u>INFL</u>	<u>10/5/96</u>	<u>Air</u>	<u>1</u>	<u>100</u>	<u>X</u>	
6. <u>EFFL</u>	<u>10/5/96</u>	<u>Air</u>	<u>1</u>	<u>100</u>	<u>X</u>	
7.						
8.						
9.						
10.						

Relinquished By: <u>[Signature]</u>	Date: <u>10/19/96</u>	Time: <u>7:40</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_

2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Pink - Client  
Yellow - Laboratory  
White - Laboratory

**SITE INFORMATION FORM**

**Identification**

Project # 310-053.5A / 310-127.5A  
 Station # 5760 / 5367  
 Site Address:  
5760 - 376 Lewelling Blvd, Snake River  
5367 - 500 Bancroft Ave, Snake River  
 County: \_\_\_\_\_  
 Project Manager: JæM  
 Requestor: JoëM  
 Client: Unocal

**Project Type**

1st Time Visit

Quarterly  
 1st  2nd  3rd  4th

Monthly

Semi-Monthly

Weekly

One time event

Other: \_\_\_\_\_

Client P.O.C.: Tina Berry  
 Date of Request 9/26/96  
 Ideal field date(s): 10/15/96  
MARK GUBRVO

**Check Appropriate Category**

Budget Hrs. \_\_\_\_\_  
 Actual Hrs. \_\_\_\_\_  
 Mob de Mob \_\_\_\_\_

**Field Tasks: For General Description**

circle one:  
 Priority: 1. (emergency, must be done within 24 hrs); 2. (next visit); 3. (when available)

- Please schedule O&M visits for Tues 10/15/96 in A.M.

Unocal will be performing site safety audits of our work - need to make sure of following:

- Tech has attached Handbook
- Site safety Plan is onsite
- Necessary PPE is being worn
- Permits (Air/Water) posted
- Prop 65 sign posted
- Emergency phone # posted
- Compound is clean
- Drums labeled

Andrew Lehane will follow up on the above prior to site visits on 10/15/96.

**Comments, remarks, etc. from Field Staff (include problems encountered and out-of-scope work)**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Samples taken  Samples not required  Soil Vapor  Groundwater  
 Weekly  Semi-Monthly  Monthly  Quarterly  Semi-Annual

PACIFIC ENVIRONMENTAL GROUP, INC. Completed by: MG Date: 10/15/96  
 Checked by: \_\_\_\_\_



SITE INFORMATION FORM

Identification

Project # 310 1275A

Station # 5367

Site Address:

500 Bancroft Ave @  
Dunhill San Leandro  
County: Alameda

Project Manager: ADL

Requestor: Jessica N

Client: Unocal

Project Type

- 1st Time Visit
  - Quarterly
    - 1st  2nd  3rd
  - Monthly
  - Semi-Monthly
  - Weekly
  - One time event
  - Other: \_\_\_\_\_
- ARRIVED = 10:00  
DEPART = 10:30

Client P.O.C.: Tina Berry

Date of Request 10/10/96

Ideal field date(s): 10/12

Check Appropriate Category

Budget Hrs. \_\_\_\_\_

Actual Hrs. (2)

Mob de Mob \_\_\_\_\_

Field Tasks: For General Description

circle one:

Priority: 1. (emergency, must be done within 24 hrs); 2. (next visit); 3. (when available)

Mark Gubrud

POST Attached: (1) Permits (2) Prep 65 + phone contact sites  
(3) SSP

- LABEL, DRUMS / CONTAINERS

AUDIT @ Ham 10/15/96

Comments, remarks, etc. from Field Staff (include problems encountered and out-of-scope work)

Systems running upon arrival, posted permits/etc.  
- purchased storage container for air P&S / BOG filters  
- need labels made for sample / flow ports (will install on 10/15)

- Samples taken  Samples not required  Soil Vapor  Groundwater
  - Weekly  Semi-Monthly  Monthly  Quarterly  Semi-Annual
- \* well field sample port " " " Flow



Oil Vapor Extraction & Treatment System  
 Unocal Service Station #5367  
 500 Bancroft Avenue @ Dowling  
 San Leandro, CA  
 310-127.5A

**PART A: SYSTEM DATA**

System on upon arrival? yes (if no, specify reason in comments)

HOUR METER (hrs)	08090.4	CONTENTS OF KNOCKOUT BARREL	Empty
ELECTRIC METER (kW-hrs)	15202		

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
% DILUTION VALVE OPEN	≈ 20%	/
% RECIRCULATION VALVE OPEN	≈ 75%	
% HEAT EXCHANGER BYPASS VALVE OPEN	n/a	
MANIFOLD AIR FLOW (before dilution) (Δ P. inches of water)	< .05	
TOTAL SYSTEM AIR FLOW (after dilution) (ΔP. inches of water)	.15" H <sub>2</sub> O	
BLOWER VACUUM (inches of water)	26" H <sub>2</sub> O	

**PART B: COMMENTS** InfI Temp. 58°F

MW-2 Totalizer 0264854

~~MW-1 Totalizer~~ MW-3 Totalizer 0071766

EFFI totalizer - 0267653

GWE system needs warning light bulbs

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**PART C: SYSTEM FID READINGS**

READING (ppmv)	WC/WOC/DF before adjustments	WC/WOC/DF after adjustments
INFLUENT (before dilution)	16/80/0	/
INFLUENT (after dilution)	6/14/0	
PRIMARY GAC EFFLUENT	6/6/0	
SYSTEM EFFLUENT	10/6/0	
FIELD INSTRUMENT USED: FID #2		
LAST CALIBRATED: 10/96		

BK910 - 3 ppm

**PART F: WELL DATA**

WELL	VALVE POSITION % open		FID (ppmv)			VAC/PRESSURE ("H <sub>2</sub> O)		FLOW	
	INITIAL	FINAL	DILUTION FACTOR USED	WC	WOC	@ MANIFOLD	@ WELL	Δ P ("H <sub>2</sub> O)	PIPE SIZE
MW-1	100%	100%	0	40	600	N/A	26	N/A	2"
MW-2	100%	↓	0	10	50	↓	26	↓	↓
MW-3	100%	↓	0	9	30	↓	26	↓	↓

\* checked ppm woc twice ≈ 600 ppm

**PART D: SAMPLING I**

SAMPLE	ANALYSIS	COMPLETED
INFLUENT	TPH-g/BTEX	yes
EFFLUENT	TPH-g/BTEX	yes

**PART E:  
SAMPLING II**

WELLS (MW-1, MW-2, MW-3)	TPH-g/BTEX	yes
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11-14

Work Order # 5547

# FIELD SERVICES / ROUTINE O&M REQUEST

### Identification

Project # 310-127.5A  
 Station # 5367  
 Site Address: 500 Bancroft Ave @  
 Dowling  
 San Leandro  
 County: Alameda  
 Project Manager: ADL  
 Requestor: Alexis M. Bahou  
 Client: Unocal  
 Client P.O.C.: Tina Berry  
 Revision Date: 08/12/96  
 Laboratory: Sequoia

Request Frequency: [Semi-Monthly]

NOV 14 1996  
 PACIFIC ENVIRONMENTAL GROUP, INC.

### Site Remedial Technologies:

Groundwater Extraction (GWE)

Soil Vapor Extraction (SVE)

Air Sparging (AS)

Bio-Augmentation (BIO)

Complete attached Data Sheets as prescribed in the following table:

### Scheduling Table

Data Sheet Section(s) / Part(s)	To be Completed	Budgeted Hrs	Actual Hrs	Mob-de Mob	Completed
SVE(A, B, C, D)	week 1 †		1.5	2	
SVE(A, B, C, D, E, F)	week 3				
GWE(A, B, C, D)	monthly		1.5		yes
SVE(H, I)	quarterly †				
	semi-annually				

† = sampling to be performed

4.5 hr

### Definition of frequencies:

semi-monthly = once every other week on weeks 1 & 3  
 monthly = first week of the month (day 1 or 2 preferred)  
 quarterly = once every quarter in months 1, 4, 7, 10 on week 1

### Field Technician Response:

Completed by: Amur  
 Arrival time: 8:00  
 Sample this visit?: yes

Date: 11/14/96  
 Departure time: 10:00  
 Engineer contacted? yes

**Groundwater Extraction & Treatment System**  
**Unocal Service Station 5367**  
**500 Bancroft @ Dowling**  
**San Leandro, CA**  
**310-127.5A**

**System Description:**

Groundwater Pumps				
Well	Type	Size	Control	Set Depth (TOB)
MW-2	electric			
MW-3	electric			

Carbon Vessels: 2 Cetco 1,000 lbs vessels

Transfer Pump: 1.5 hp, 110/220V, 1Φ, 60 Hz

Filter: Rosedale 8-30

oil/water separator: N/A

**PART A: SYSTEM DATA**

System on upon arrival? yes (if no, specify reason in comments)

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
TOTALIZER (gallons)	0267650	0267650
FILTER INLET PRESSURE (psig)	0	(ideal range < 30 psig) 0
CARBON #1 INLET PRESSURE (psig)	0	0
CARBON #2 INLET PRESSURE (psig)	0	(ideal range 12 psig) 0
DISCHARGE PRESSURE (psig)	0	(ideal range 0 psig) 0
TRANSFER PUMP FLOWRATE (gpm)	0	(ideal range 10 gpm) 0
% RESTRICTION VALVE OPEN	100	(ideal range 100 % open) 100

PART B: COMMENTS Pumps on - Not pumping any water  
panel needs 1 light bulb 120PSBS 425YI

WELL	DTW (TOB)	TOTALIZER (gallons)	FLOWRATE (gpm)	COMMENTS/ ADJUSTMENTS
MW-2	30.45	0264950	NA	NO Adjustments
MW-3	30.35	0071760	NA	↓

**PART D: SAMPLING & READINGS I**

SAMPLE	ANALYSIS	COMPLETED
MID 1	TPH-gasoline/BTEX compounds	yes
MID 2	TPH-gasoline/BTEX compounds	NA
Effluent	TPH-gasoline/BTEX compounds	yes

**PART G: SYSTEM MAINTENANCE I**

NUMBER OF SPARE FILTERS ON SITE?	/	CHANGE FILTERS? (if necessary)	/
DRAIN COMPRESSOR			

**PART H: SYSTEM MAINTENANCE II**

CLEAN TOTALIZERS	/	TEST ALARM SWITCHES	/
BACKFLUSH CARBON VESSELS		CALIBRATE LEL	
CHANGE COMPRESSOR OIL			



**Oil Vapor Extraction & Treatment System**  
**Unocal Service Station #5367**  
**500 Bancroft Avenue @ Dowling**  
**San Leandro, CA**  
**310-127.5A**

**PART A: SYSTEM DATA**

System on upon arrival? yes (if no, specify reason in comments)

HOUR METER (hrs)	08497.4	CONTENTS OF KNOCKOUT BARREL	Empty
ELECTRIC METER (kW-hrs)	16895		

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
% DILUTION VALVE OPEN	≈ 20%	/
% RECIRCULATION VALVE OPEN	≈ 50%	
% HEAT EXCHANGER BYPASS VALVE OPEN	NA	
MANIFOLD AIR FLOW (before dilution) (Δ P, inches of water)	15" H <sub>2</sub> O	
TOTAL SYSTEM AIR FLOW (after dilution) (ΔP, inches of water)	1.85" H <sub>2</sub> O	
BLOWER VACUUM (inches of water)	25" H <sub>2</sub> O	

**PART B: COMMENTS** Temp. 52° F

panel needs 2 light bulbs 120 PS BS 42 SYI

Swept leaves out of compound

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PART C: SYSTEM FID READINGS**

READING (ppmv)	WC/WOC/DF before adjustments	WC/WOC/DF after adjustments
INFLUENT (before dilution)	7 / 80 / 0	NO Adjustments
INFLUENT (after dilution)	5 / 25 / 0	↓
PRIMARY GAC EFFLUENT	5 / 6 / 0	
SYSTEM EFFLUENT	5 / 6 / 0	
FIELD INSTRUMENT USED: F10 2		
LAST CALIBRATED: 11-12-96		

Bkgd 3.5 ppm

**PART F: WELL DATA**

WELL	VALVE POSITION		FID (ppmv)			VAC/PRESSURE ("H <sub>2</sub> O)		FLOW	
	INITIAL	FINAL	DILUTION FACTOR USED	WC	WOC	@ MANIFOLD	@ WELL	Δ P ("H <sub>2</sub> O)	PIPE SIZE
MW-1	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>
MW-2	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>
MW-3	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>

**PART D: SAMPLING I**

SAMPLE	ANALYSIS	COMPLETED
INFLUENT	TPH-g/BTEX	yes
EFFLUENT	TPH-g/BTEX	yes

**PART E:  
SAMPLING II**

WELLS (MW-1, MW-2, MW-3)	TPH-g/BTEX	COMPLETED
		<del> </del> MW-3

**PART G: SVE INFLUENCE**

SVE WELL	APPLIED VACUUM (inches of water)	MONITORING WELL	MEASURED VACUUM (inches of water)
MW-9	/	MW-10	/
MW-8		MW-4	
MW-3		MW-2	
		MW-3	
		MW-7	

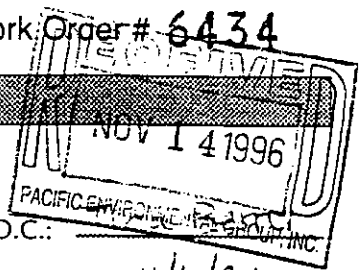
**PART H: SYSTEM MAINTENANCE I  
CHECK LIST**

DRIVE BELTS	/	BLOWER OIL	/
INLINE FILTER		LEAKS	
RATTLES		EXCESSIVE NOISE	
INDICATOR LIGHTS			

**PART I: SYSTEM MAINTENANCE II**

CHANGE BLOWER OIL	/	CHANGE DRIVE BELTS	/
GREASE LINKAGE AND BEARINGS		TEST ALARM SWITCHES	

SITE INFORMATION FORM



Identification

Project # 310-127.SA

Station # 5367

Site Address:

500 Bancroft Ave  
San Leandro  
County: Alameda

Project Manager: ADL

Requestor: Jessica x259

Client: UNOCAL

Project Type

- 1st Time Visit
- Quarterly
  - 1st  2nd  3rd  4th
- Monthly
- Semi-Monthly
- Weekly
- One time event
- Other: \_\_\_\_\_

Client P.O.C.: \_\_\_\_\_  
Date of Request 11/6/96  
Ideal field date(s): next visit

Check Appropriate Category

Budget Hrs. \_\_\_\_\_  
Actual Hrs. 1  
Mob de Mob \_\_\_\_\_

Field Tasks: For General Description

circle one:  
Priority: 1. (emergency, must be done within 24 hrs); 2. (next visit); 3. (when available)

- Resample MW3 air per Data Sheet Section SVE PART 1:  
(bag had collapsed when reached lab)
- Light bulbs that need replacing HOW MANY? 3  
Place order 120 PS BS 42 SY1111 correct #
- Please check meter supply on GWF 10 or 3d!  
We may order an Ohm meter to tell when it is  
no longer working.

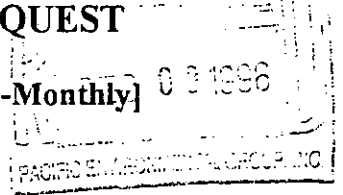
Comments, remarks, etc. from Field Staff (include problems encountered and out-of-scope work)

Bulb 120 PS BS 42 SY1 - need at least 3 a couple extra would be nice  
Resampled mw3, I think power supply is single phase

- Samples taken  Samples not required  Soil Vapor  Groundwater
- Weekly  Semi-Monthly  Monthly  Quarterly  Semi-Annual

Completed by: Drew Date: 11/14/96  
Checked by: \_\_\_\_\_

**FIELD SERVICES / ROUTINE O&M REQUEST**



Identification

Request Frequency: [Semi-Monthly]

Project # 310-127.5A  
 Station # 5367  
 Site Address: 500 Bancroft Ave @  
 Dowling  
 San Leandro  
 County: Alameda  
 Project Manager: ADL  
 Requestor: Alexis M. Bahou  
 Client: Unocal  
 Client P.O.C.: Tina Berry  
 Revision Date: 08/12/96  
 Laboratory: Sequoia

Site Remedial Technologies:

Groundwater Extration (GWE)  Soil Vapor Extraction (SVE)  Air Sparging (AS)  Bio-Augmentation (BIO)

Complete attached Data Sheets as prescribed in the following table:

Scheduling Table

Data Sheet Section(s) / Part(s)	To be Completed	Budgeted Hrs	Actual Hrs	Mob-de Mob	Completed
SVE(A, B, C, D)	week 1 †				
SVE(A, B, C, D, E, F)	week 3		3		<i>ADL</i>
GWE(A, B, C, D)	monthly				
SVE(H, I)	quarterly †				
	semi-annually				

† = sampling to be performed

Definition of frequencies:

semi-monthly = once every other week on weeks 1 & 3  
 monthly = first week of the month (day 1 or 2 preferred)  
 quarterly = once every quarter in months 1, 4, 7, 10 on week 1

Field Technician Response:

Completed by: *David*  
 Arrival time: 7:00  
 Sample this visit?: yes

Date: 11/27/96  
 Departure time: 11:00  
 Engineer contacted? \_\_\_\_\_

Soil Vapor Extraction & Treatment Syst  
 Unocal Service Station #5367  
 500 Bancroft Avenue @ Dowling  
 San Leandro, CA  
 310-127.5A

**PART A: SYSTEM DATA**

System on upon arrival?   No   (if no, specify reason in comments)

HOUR METER (hrs)	8552.4	CONTENTS OF KNOCKOUT BARREL	Empty
ELECTRIC METER (kW-hrs)	17118		

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
% DILUTION VALVE OPEN	25%	
% RECIRCULATION VALVE OPEN	50%	
% HEAT EXCHANGER BYPASS VALVE OPEN	NA	
MANIFOLD AIR FLOW (before dilution) (Δ P. inches of water)	1.10" H <sub>2</sub> O	
TOTAL SYSTEM AIR FLOW (after dilution) <i>after blower</i> (ΔP. inches of water)	.25" H <sub>2</sub> O	
BLOWER VACUUM (inches of water)	30" <del>H<sub>2</sub>O</del> H <sub>2</sub> O	

**PART B: COMMENTS**   Inlet Temp 59°F  

  System was not running / Restarted system  

  manifold Air flow before blower after dilution 40" ~~H<sub>2</sub>O~~ H<sub>2</sub>O  

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**PART C: SYSTEM FID READINGS**

READING (ppmv)	WC/WOC/DF before adjustments	WC/WOC/DF after adjustments
INFLUENT (before dilution)	60/170/10	
INFLUENT (after dilution)	11/30/0	
PRIMARY GAC EFFLUENT	12/12/0	
SYSTEM EFFLUENT	7/7/0	
FIELD INSTRUMENT USED: <del>H-46</del> FID #2		
LAST CALIBRATED: 11-96		

BKG 1.0 3.5 ppm  
PART F: WELL DATA

**PART D: SAMPLING I**

SAMPLE	ANALYSIS	COMPLETED
INFLUENT	TPH-g/BTEX	ye
EFFLUENT	TPH-g/BTEX	ye

**PART E:  
SAMPLING II**

WELLS (MW-1, MW-2, MW-3)	TPH-g/BTEX	ye
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WELL	VALVE POSITION % open		FID (ppmv)			VAC/PRESSURE ("H <sub>2</sub> O)		FLOW	
	INITIAL	FINAL	DILUTION FACTOR USED	WC	WOC	@ MANIFOLD	@ WELL	Δ P ("H <sub>2</sub> O)	PIPE SIZE
MW-1	100%		10	70	300	/	28" H <sub>2</sub> O	/	
MW-2	100%		10	45	100		28" H <sub>2</sub> O		
MW-3	100%		10	40	110		28" H <sub>2</sub> O		

Consultant Company: <u>Pac. Env. Group, Inc</u>			Project Name: <u>310-127.5A</u>		
Address: <u>2025 GATEWAY PL #440</u>			UNOCAL Project Manager: <u>TINA BERRY</u>		
City: <u>SAN JOSE</u> State: <u>CA</u>		Zip Code: <u>95110</u>		AFE #:	
Telephone: <u>(408) 441-7500</u>		FAX #: <u>(408) 441-7539</u>		Site #, City, State: <u>5367 SAN LEANDELO, CA</u>	
Report To: <u>Andrew Lehone</u>		Sampler: <u>Amw</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days		<input type="checkbox"/> Drinking Water	
Time: <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours		<input type="checkbox"/> Waste Water	
CODE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure		<input checked="" type="checkbox"/> Other: <u>AIR</u>	

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested										Comments		
						TPH	S	BTEX										
1. <u>INP1</u>	<u>12/2/96 13:30</u>	<u>AIR</u>	<u>1</u>	<u>BAG</u>		<u>X</u>												
2. <u>EPPI</u>	↓	↓	↓	↓		↓												
3. <u>MW-1</u>	↓	↓	↓	↓														
4. <u>MW-2</u>	↓	↓	↓	↓														
5. <u>MW-3</u>	↓	↓	↓	↓		↓												
6.																		
7.																		
8.																		
9.																		
10.																		

Relinquished By: <u>Don Waterman</u>	Date: <u>12/2/96</u>	Time: <u>14:30</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition?  Yes  No      Samples on Ice?  Yes  No      Method of Shipment \_\_\_\_\_      Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_

2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

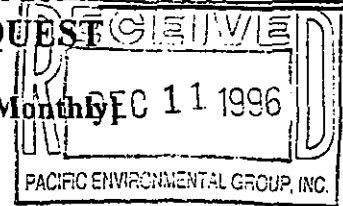
Pink - Client  
Yellow - Laboratory  
White - Laboratory



#25

Work Order # 5547

**FIELD SERVICES / ROUTINE O&M REQUEST**



**Identification**

Project # 310-127.5A  
 Station # 5367  
 Site Address: 500 Bancroft Ave @  
                   Dowling  
                   San Leandro  
 County: Alameda  
 Project Manager: ADL  
 Requestor: Alexis M. Bahou  
 Client: Unocal  
 Client P.O.C.: Tina Berry  
 Revision Date: 08/12/96  
 Laboratory: Sequoia

Request Frequency: [Semi-Monthly]

**Site Remedial Technologies:**

Groundwater Extration (GWE)     Soil Vapor Extraction (SVE)     Air Sparging (AS)     Bio-Augmentation (BIO)

Complete attached Data Sheets as prescribed in the following table:

**Scheduling Table**

Data Sheet Section(s) / Part(s)	To be Completed	Budgeted Hrs	Actual Hrs	Mob-de Mob	Completed
SVE(A, B, C, D)	week 1 †		2	4.5	Done
SVE(A, B, C, D, E, F)	week 3				
GWE(A, B, C, D)	monthly		1		Done
SVE(H, I)	quarterly †			4.5	
	semi-annually				

† = sampling to be performed

**Definition of frequencies:**

semi-monthly = once every other week on weeks 1 & 3  
 monthly = first week of the month (day 1 or 2 preferred)  
 quarterly = once every quarter in months 1, 4, 7, 10 on week 1

**Field Technician Response:**

Completed by: DMW  
 Arrival time: 10:30  
 Sample this visit?: yes

Date: 12/11/96  
 Departure time: 1:30  
 Engineer contacted? yes AL

Groundwater Extraction & Treatment System  
 Unocal Service Station 5367  
 500 Bancroft @ Dowling  
 San Leandro, CA  
 310-127.5A

**System Description:**

Groundwater Pumps				
Well	Type	Size	Control	Set Depth (TOB)
MW-2	electric			
MW-3	electric			

Carbon Vessels: 2 Cetco 1,000 lbs vessels  
 Filter: Rosedale 8-30

Transfer Pump: 1.5 hp, 110/220V, 1Φ, 60 Hz  
 oil/water separator: N/A

**PART A: SYSTEM DATA**

System on upon arrival? yes (if no, specify reason in comments)

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
TOTALIZER (gallons)	0267653	
FILTER INLET PRESSURE (psig)	24 psi	(ideal range < 30 psig)
CARBON #1 INLET PRESSURE (psig)	<del>24 psi</del> 0 psi	
CARBON #2 INLET PRESSURE (psig)	<del>24 psi</del> 0 psi	(ideal range 12 psig)
DISCHARGE PRESSURE (psig)	0	(ideal range 0 psig)
TRANSFER PUMP FLOWRATE (gpm)	N/A	(ideal range 10 gpm)
% RESTRICTION VALVE OPEN	100%	(ideal range 100 % open)

**PART B: COMMENTS**

Pumps on, not pumping very much water  
changed bag filter  
No flow was observed when checking totalizers

**PART C: WELL DATA**

H:\PROJECT\305\065\5E\GWE.DOC

WELL	DTW (TOB)	TOTALIZER (gallons)	FLOWRATE (gpm)	COMMENTS/ ADJUSTMENTS
MW-2	29.25'	0071766	0	None
MW-3	28.54	0264857	0	↓

**PART D: SAMPLING & READINGS I**

SAMPLE	ANALYSIS	COMPLETED
<del>MED-1</del> INF1	TPH-gasoline/BTEX compounds	yes
<del>MED-2</del> mtd1	TPH-gasoline/BTEX compounds	yes
Effluent	TPH-gasoline/BTEX compounds	yes

**PART G: SYSTEM MAINTENANCE I**

NUMBER OF SPARE FILTERS ON SITE?	8	CHANGE FILTERS? (if necessary)	yes
DRAIN COMPRESSOR	NA		

**PART H: SYSTEM MAINTENANCE II**

CLEAN TOTALIZERS		TEST ALARM SWITCHES	
BACKFLUSH CARBON VESSELS		CALIBRATE LEL	
CHANGE COMPRESSOR OIL <i>Blower</i>	<i>check oil/ok</i>		

*Belts OK  
greased Blower*

Vapor Extraction & Treatment System  
 Unocal Service Station #5367  
 500 Bancroft Avenue @ Dowling  
 San Leandro, CA  
 310-127.5A

**PART A: SYSTEM DATA**

System on upon arrival? yes (if no, specify reason in comments)

HOUR METER (hrs)	08890.8	CONTENTS OF KNOCKOUT BARREL	50% full
ELECTRIC METER (kW-hrs)	18549		

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
% DILUTION VALVE OPEN	≈ 20%	
% RECIRCULATION VALVE OPEN	50%	
% HEAT EXCHANGER BYPASS VALVE OPEN	NA	
MANIFOLD AIR FLOW (before dilution) (Δ P. inches of water)	.05" H <sub>2</sub> O	
TOTAL SYSTEM AIR FLOW (after dilution) (ΔP. inches of water)	.10" H <sub>2</sub> O	
BLOWER VACUUM (inches of water)	40" <del>30"</del> H <sub>2</sub> O	

PART B: COMMENTS after Dilution manifold vacuum 30" H<sub>2</sub>O

Drained KO Barrel

INDI Temp 66°F

Checked blower belts, oil and greased blower

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**PART C: SYSTEM FID READINGS**

READING (ppmv)      WC/WOC/DF      WC/WOC/DF  
 before adjustments      after adjustments

INFLUENT (before dilution)	4.5/7/0	
INFLUENT (after dilution)	4.5/5/0	
PRIMARY GAC EFFLUENT	4/3.5/0	
SYSTEM EFFLUENT	4/3.5/0	
FIELD INSTRUMENT USED: FID #2		
LAST CALIBRATED: Nov 96		

BACKGROUND 4/3.5/0

**PART F: WELL DATA**

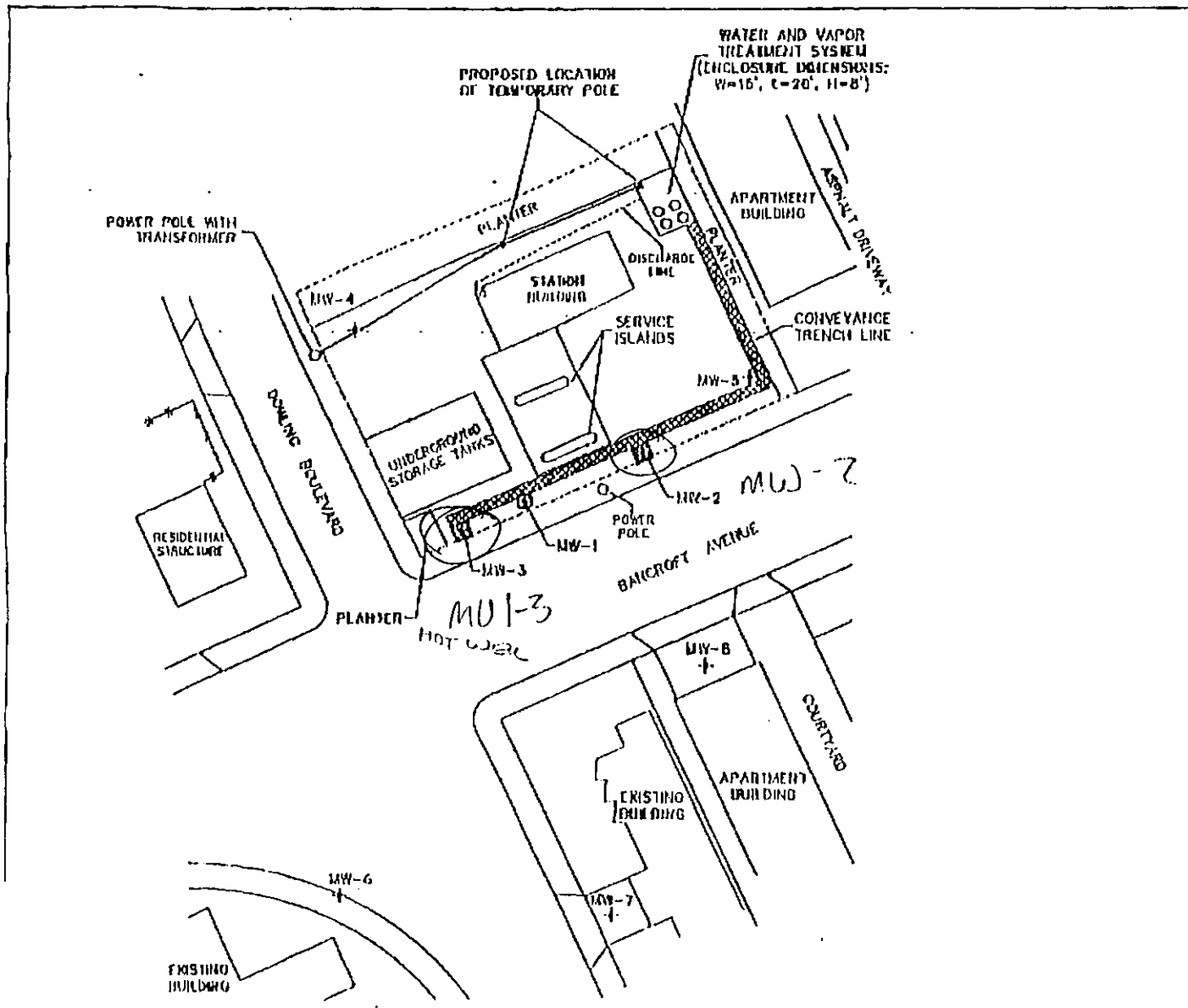
WELL	VALVE POSITION		FID (ppmv)			VAC/PRESSURE ("H <sub>2</sub> O)		FLOW	
	INITIAL	FINAL	DILUTION FACTOR USED	WC	WOC	@ MANIFOLD	@ WELL	Δ P ("H <sub>2</sub> O)	PIPE SIZE
MW-1									
MW-2									
MW-3									

**PART D: SAMPLING I**

SAMPLE	ANALYSIS	COMPLETED
INFLUENT	TPH-g/BTEX	yes
EFFLUENT	TPH-g/BTEX	yes

**PART E: SAMPLING II**

WELLS (MW-1, MW-2, MW-3)	TPH-g/BTEX	



REV	REVISION	DATE	BY
A	ISSUED (CHECKED BY ENGINEER) (DATE) (S)	09/20/95	DC
B	ASCD (DATE) (S)	09/20/95	DC

**CONSTRUCTION DETAILS**

AT TIME OF EXCAVATION OPERATIONS, THE SURFACE CAP SHALL BE LIFTED WITH A PAVEMENT SAW PRIOR TO EXCAVATION.

WHEN EXCAVATING NEAR EXISTING UNDERGROUND WIRING AND PIPING, ALL OPERATIONS SHALL BE DONE CAREFULLY. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE EXISTING LINES.

TRENCHES OF APPROXIMATELY 12-INCHES IN WIDTH AND 2-24 IN 8-INCHES DEPTH SHALL BE EXCAVATED TO INSTALL THE CONVEYANCE PANS FROM WHICH EXTRACTION WILLS TO THE HEAVYDUTY SYSTEM.

**LEGEND**

- MW-8 MONITORING WELL LOCATION
- MW-1 12" EUCO-WHEATON WELL BOX
- MW-3 3' X 3' MANWAY
- CONVEYANCE TRENCH LINE
- SEWER LINE CONNECTION TO COPY OF SAN LEONARD WATCH POLLUTION CONTROL PLAN
- DISCHARGE LINE GOING TO SEWER LINE

NORTH

0 10 20 40

APPROXIMATE SCALE IN FEET

REFERENCES  
MAP PROVIDED BY APPLIC (GEO SYSTEM), 3/94

REV	DATE	BY	CHK
001	9/20/95	G. HARRIS	
002	9/20/95	G. HARRIS	
003	9/20/95	G. HARRIS	
004	9/20/95	G. HARRIS	
005	9/20/95	G. HARRIS	
006	9/20/95	G. HARRIS	

**GeoResearch**  
 300 BANCROFT AVENUE  
 SAN LEONARD, CALIFORNIA 92583  
 PHONE (951) 371-0010







Work Order # 5547

**FIELD SERVICES / ROUTINE O&M REQUEST**

**Identification**

Request Frequency: [Semi-Monthly]

Project # 310-127.5A  
 Station # 5367  
 Site Address: 500 Bancroft Ave @  
 Dowling  
 San Leandro  
 County: Alameda  
 Project Manager: ADL  
 Requestor: Jessica Nelligan  
 Client: Unocal  
 Client P.O.C.: Tina Berry  
 Revision Date: November 19, 1996  
 Laboratory: Sequoia

**Site Remedial Technologies:**

Groundwater Extration (GWE)  Soil Vapor Extraction (SVE)  Air Sparging (AS)  Bio-Augmentation (BIO)

Complete attached Data Sheets as prescribed in the following table:

**Scheduling Table**

Data Sheet Section(s) / Part(s)	To be Completed	Budgeted Hrs	Actual Hrs	Mob-de Mob	Completed
SVE(A, B, C, D)	week 1 †		3		
SVE(A, B, C, D, E, F)	week 3		<del>2.5</del> 1.5		Done
GWE(A, B, C, D)	monthly				
SVE(G, H, I)	quarterly †			4.5	
	semi-annually				

† = sampling to be performed

**Definition of frequencies:**

semi-monthly = once every other week on weeks 1 & 3  
 monthly = first week of the month (day 1 or 2 preferred)  
 quarterly = once every quarter in months 1, 4, 7, 10 on week 1

**Field Technician Response:**

Completed by: Don Patampang Date: 12/20/96  
 Arrival time: 6:50 Departure time: 10:00  
 Sample this visit?: yes Engineer contacted? yes JN,

Soil Vapor Extraction & Treatment System  
 Unocal Service Station #5367  
 500 Bancroft Avenue @ Dowling  
 San Leandro, CA  
 310-127.5A

**PART A: SYSTEM DATA**

System on upon arrival? yes (if no, specify reason in comments)

HOUR METER (hrs)	09102	CONTENTS OF KNOCKOUT BARREL	Empty
ELECTRIC METER (kW-hrs)	19455		

MEASUREMENT	ON ARRIVAL	ON DEPARTURE
% DILUTION VALVE OPEN	20%	
% RECIRCULATION VALVE OPEN	50%	
% HEAT EXCHANGER BYPASS VALVE OPEN	NA	
MANIFOLD AIR FLOW (before dilution) ( $\Delta P$ , inches of water)	.05" H <sub>2</sub> O	
TOTAL SYSTEM AIR FLOW (after dilution) ( $\Delta P$ , inches of water)	.10" H <sub>2</sub> O	
BLOWER VACUUM (inches of water)	42" <del>30"</del> H <sub>2</sub> O	

30" H<sub>2</sub>O After Dilution value

**PART B: COMMENTS**

INFL. TEMP 46°F

VACUUM - MW-2 @ 30" H<sub>2</sub>O - DTW 27.86'

MW-1 @ 30" H<sub>2</sub>O DTW 28.83'

MW-3 @ 30" H<sub>2</sub>O DTW 28.45'

When not performing GWE activities, use this space to note GWE operating conditions.

GWE system on upon arrival? POWER ON

If no, specify reason. (NOT pumping)

MW-2 @ 0264854

MW-3 @ 0071766

GWE Totalizer Reading: 0267869

**PART C: SYSTEM FID READINGS**

*Bkgnd - 4.5 ppm*

READING (ppmv)	WC/WOC/DF before adjustments	WC/WOC/DF after adjustments
INFLUENT (before dilution)	5/5/0	
INFLUENT (after dilution)	5/5/0	
PRIMARY GAC EFFLUENT	5/6/0	
SYSTEM EFFLUENT	4.5/4.5/0	
FIELD INSTRUMENT USED: <i>F70 #2</i>		
LAST CALIBRATED: <i>12-96</i>		

**PART D: SAMPLING I**

SAMPLE	ANALYSIS	COMPLETED
INFLUENT	TPH-g/BTEX	<i>YLO</i>
EFFLUENT	TPH-g/BTEX	<i>YLO</i>

**PART E:  
SAMPLING II**

WELLS (MW-1, MW-2, MW-3)	TPH-g/BTEX	COMPLETED
		<i>YLO</i>

**PART F: WELL DATA**

WELL	VALVE POSITION <i>100% open</i>		FID (ppmv)			VAC/PRESSURE ("H <sub>2</sub> O)		FLOW	
	INITIAL	FINAL	DILUTION FACTOR USED	WC	WOC	$\bar{a}$ . MANIFOLD	$\bar{a}$ . WELL	$\Delta$ P ("H <sub>2</sub> O)	PIPE SIZE
MW-1	<i>100%</i>		<i>0</i>	<i>5</i>	<i>6</i>	<i>NA</i>	<i>30" H<sub>2</sub>O</i>	<i>NA</i>	<i>3"</i>
MW-2	<i>100%</i>		<i>0</i>	<i>4</i>	<i>4</i>	<i>↓</i>	<i>30" H<sub>2</sub>O</i>	<i>↓</i>	<i>4"</i>
MW-3	<i>100%</i>		<i>0</i>	<i>4.5</i>	<i>4.5</i>	<i>↓</i>	<i>30" H<sub>2</sub>O</i>	<i>↓</i>	<i>4"</i>

# FIELD DATA SHEET

Client: Unocal

Date: 12-20-96

Job Address: 500 Bancroft Ave  
San Leandro, CA.

Project No.: 310-127.5A

Time Arrived: 6:45

Time Departed: 10:00

Weather Conditions: Cold

Equipment at Site: SUE, GWE

Personnel at Site: \_\_\_\_\_

## FIELD NOTES

Totalizer - Precision Meter, Serial # 93734602      3/4"  
Tag # 93 ?

Located 8 wells

Q: MW-2 & 3 are accessible for Dissolved O<sub>2</sub> testing  
without removing pumps.

MW-8 is in the Apartment Complex driveway across the  
street. It is possible a car might be in the way.

Rest GWE pumps seems to be running fine now.

Don W

Signature

# UNOCAL 76

680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600  
 819 Striker Ave., Suite B • Sacramento, CA 95834 • (916) 921-9600  
 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600

18939 120th Ave., N.E., Suite 101 • Bothell, WA 98011 • (206) 481-9200  
 East 11115 Montgomery, Suite B • Spokane, WA 99206 • (509) 924-9200  
 15055 S.W. Sequoia Pkwy, Suite 110 • Portland, OR 97222 • (503) 624-9800

Consultant Company: <u>Pacific ENV. Group, Inc</u>			Project Name: <u>310-0127.5A</u>		
Address: <u>2025 GATEWAY PL #440</u>			UNOCAL Project Manager: <u>TINA Berry</u>		
City: <u>SAN JOSE</u>	State: <u>CA</u>	Zip Code: <u>95110</u>	AFE #:		
Telephone: <u>(408) 441-7500</u>		FAX #: <u>(408) 441-7539</u>		Site #, City, State: <u>5367 SAN Leandro</u>	
Report To: <u>Jessica Nelligan</u>		Sampler: <u>Don Waterpaugh</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround  10 Work Days  5 Work Days  3 Work Days  
 Time:  2 Work Days  1 Work Day  2-8 Hours  
 CODE:  Misc.  Detect.  Eval.  Remed.  Demol.  Closure

Drinking Water  
 Waste Water  
 Other

Analyses Requested									
<div style="border: 1px solid black; padding: 5px; display: inline-block;">           TPH3 / BTEX         </div>									

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Laboratory Sample #	Analyses Requested										Comments				
1. <u>INF1</u>	<u>12/20/96 8:00</u>	<u>AIR</u>	<u>1</u>	<u>BAG</u>		<input checked="" type="checkbox"/>														
2. <u>EFF1</u>	↓	↓	↓	↓		<input checked="" type="checkbox"/>														
3. <u>MW-1</u>	↓	↓	↓	↓		<input checked="" type="checkbox"/>														
4. <u>MW-2</u>	↓	↓	↓	↓		<input checked="" type="checkbox"/>														
5. <u>MW-3</u>	↓	↓	↓	↓		<input checked="" type="checkbox"/>														
6.																				
7.																				
8.																				
9.																				
10.																				

Relinquished By: <u>Don Waterpaugh</u>	Date: <u>12/20/96</u>	Time: <u>11:20</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition?  Yes  No     
 Samples on Ice?  Yes  No     
 Method of Shipment \_\_\_\_\_     
 Page \_\_\_ of \_\_\_

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported?  Yes  No If no, what analyses are still needed? \_\_\_\_\_  
 2) Was the report issued within the requested turnaround time?  Yes  No If no, what was the turnaround time? \_\_\_\_\_

Approved by: \_\_\_\_\_ Signature: \_\_\_\_\_ Company: \_\_\_\_\_ Date: \_\_\_\_\_

Pink - Client  
 Yellow - Laboratory  
 White - Laboratory

SITE INFORMATION FORM

Identification

Project # 310-127.5A

Station # 5367

Site Address: 500 Bancroft Ave  
Dowling San Leandro  
County: Alameda

Project Manager: ADL

Requestor: Jessica

Client: Wheel

Project Type

- 1st Time Visit
- Quarterly
  - 1st  2nd  3rd  4th
- Monthly
- Semi-Monthly
- Weekly
- One time event
- Other: \_\_\_\_\_

Client P.O.C.: Tina Berry

Date of Request 12/17/96

Ideal field date(s): 12/20/96

Check Appropriate Category

Budget Hrs. \_\_\_\_\_

Actual Hrs. 1.5

Mob de Mob \_\_\_\_\_

Field Tasks: For General Description

circle one:

Priority: 1. (emergency, must be done within 24 hrs); 2. (next visit); 3. (when available)

- Calibration of flow meter
  - check on flow meter type style size etc.
  - May just replace meter rather than do thru calibration exercise (Due Jan 15, 1997)
- SVE
  - Sample mid air TPHg/BTEX (request 5 day turn around)
- MPDS Dissolved O<sub>2</sub> Sampling
  - locate all wells MW-1-10 make sure all can be accessed for 1/20/97 visit (What needs to be done?)
  - may have to make special trip up there to disconnect wells from MW/SVE systems
- Pump depths
  - if possible please mark the depth of pumps.
  - Can you at least give where top of pumps is? Is it below water level?

Remember: 12/20/96 last date to submit...

Comments, remarks, etc. from Field Staff (include problems encountered and out-of-scope work)

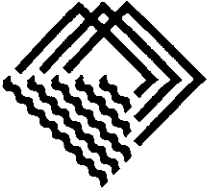
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Samples taken  Samples not required  Soil Vapor  Groundwater
- Weekly  Semi-Monthly  Monthly  Quarterly  Semi-Annual

PACIFIC ENVIRONMENTAL GROUP, INC.

Completed by: Don Date: 12/20/96

Checked by: \_\_\_\_\_



PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

**RECEIVED**

JAN 27 1997

January 31, 1997  
Project 310-127.5A

Ms. Tina Berry  
76 Products Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

**APPROVED**

JAN 27 1997

**TINA R. BERRY**

Re: *Remedial Action Performance Summary - October through December 1996*  
76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling Boulevard  
San Leandro, California

Dear Ms. Berry:

This letter presents a remedial action performance summary for the site referenced above. Attachment A presents the remedial performance summary, which includes hydrocarbon mass removal and key operating parameters. Certified analytical reports and chain-of-custody documentation are presented as Attachment B, and field data sheets are included as Attachment C. The status of recent remedial activities is presented below.

**Remedial System Performance Evaluation**

- During the current reporting period, the groundwater extraction (GWE) system ran intermittently due to system operational problems with the electric submersible pumps. During site visits throughout November and December, the pumps were found on but the totalizer had not advanced. On January 9, 1997, the pump controls were reset and the pumps restarted. Also, the totalizer was replaced with a new, precalibrated totalizer, in accordance with the discharge permit's requirement for annual flow meter calibration.
- During the current reporting period, the soil vapor extraction (SVE) system was approximately 98 percent operational. Influent vapor concentrations increased after the pumps were reset on September 18, 1996. Low concentrations during November and December coincide with pump operational problems.

*Andrew to send original report  
per 2/6/97 request. (JB)*

FILE #	5367	SS	<input checked="" type="checkbox"/>	BP	<input type="checkbox"/>
RPT	<input checked="" type="checkbox"/>	QM	<input type="checkbox"/>	TRANSMITTAL	<input type="checkbox"/>
1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>
4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>

Should you have any questions regarding the contents of this remedial action performance summary, please do not hesitate to call our office.

Sincerely,

**Pacific Environmental Group, Inc.**

Jessica Nelligan  
Staff Engineer

Andrew D. Lehane  
Project Engineer  
RCE 55798

Attachments: Attachment A - Remedial Action Performance Summary  
Attachment B - Certified Analytical Reports and Chain-of-Custody  
Documentation  
Attachment C - Field Data Sheets



**ATTACHMENT A**

**REMEDIAL ACTION PERFORMANCE SUMMARY**

**DRAFT**

**ATTACHMENT A  
REMEDIAL ACTION PERFORMANCE SUMMARY: FOURTH QUARTER 1996  
GROUNDWATER-BASED REMEDIAL SYSTEM**

Site Name: 76 Products Company Service Station 5367  
 Site Address: 500 Bancroft Avenue at Dowling, San Leandro  
 Abatement Equipment: Two 1,000-lb. Carbon Vessels  
 Start-Up Date: March 1996

Permitting Agency: City of San Leandro  
 Permit No.: SD-023  
 Permit Expiration Date: 3/15/97  
 Estimated Shutdown Date: Unknown

**REMEDIAL OBJECTIVES**

- o Mass Removal
- o Regulatory Compliance

**OPERATIONAL DATA**

**Treatment System Data**

Operational Status  
 Groundwater Volume Treated (gals)

	October	November	December
Operational Status	Operational	Intermittent	Down
Groundwater Volume Treated (gals)	16,707	1,126	0

Table 1 Page A-3

**Treatment System Analytical Data Summary**

EPA Method 8020 Analyses

	Influent	Effluent
EPA Method 8020 Analyses	Detected	ND

Table 2 Page A-4

**TPH and Benzene Summary**

Influent TPH-gasoline (µg/L)  
 Influent Benzene (µg/L)  
 Effluent TPH-gasoline (µg/L)  
 Effluent Benzene (µg/L)  
 Mass TPH-gasoline Removed (lbs)  
 Mass Benzene Removed (lbs)

	October	November	December	
Influent TPH-gasoline (µg/L)	54,000	NS	12,000	
Influent Benzene (µg/L)	200	NS	56	
Effluent TPH-gasoline (µg/L)	ND	ND	ND	
Effluent Benzene (µg/L)	ND	ND	ND	Cumulative
Mass TPH-gasoline Removed (lbs)	4.4	0.5	0.0	32.4
Mass Benzene Removed (lbs)	0.02	0.00	0.00	0.18

Table 1 Page A-3

Table 1 Page A-3

Table 2 Page A-4

Table 2 Page A-4

Table 1 Page A-3

Table 1 Page A-3

**REMEDIAL ACTION PERFORMANCE EVALUATION**

**Mass Removal**      *Approximately 5 pounds of TPH as Gasoline and 0.02 pound of benzene were removed during the current reporting period. The treatment system was down for most of November and December.*

**Regulatory Compliance**      *The remedial system operated in compliance with all discharge requirements.*

**ACTIONS/RECOMMENDATIONS**

- o Continue operation of the GWE system throughout the first quarter 1997.
- o Troubleshoot operational problems to optimize groundwater pump performance.

**NOTES:**

NS = Not sampled  
 ND = Not detected above detection limit  
 N/A = Not available or not applicable  
 gals = Gallons  
 µg/L = Micrograms per liter  
 lbs = Pounds  
 † = System start-up March 1996 performed by PSI (prior consultant); analytical results for March and April not available.  
 Note: When appropriate, tabulated data is followed by associated graphical presentation.

**ATTACHMENT A**  
**REMEDIAL ACTION PERFORMANCE SUMMARY: FOURTH QUARTER 1996**  
**SOIL-BASED REMEDIAL SYSTEM**

Site Name: 76 Products Company Service Station 5367  
 Site Address: 500 Bancroft Avenue at Dowling, San Leandro  
 Abatement Equipment: Two 1,000-lb. Carbon Vessels  
 Start-Up Date: March 1996

Permitting Agency: BAAQMD  
 Permit Number: 25758  
 Permit Expiration Date: 2/13/97  
 Estimated Shutdown Date: Unknown

**REMEDIAL OBJECTIVES**

- o Mass Removal
- o Regulatory Compliance

**OPERATIONAL DATA**

**Treatment System Data**

Operational Status  
 Average System Flow Rate (scfm)

October	November	December
Operational	Operational	Operational
84	185	64

Table 3 Page A-4

**TPPH and Benzene Summary**

Influent TPPH-gasoline (ppmv)  
 Influent Benzene (ppmv)  
 Effluent TPPH-gasoline (ppmv)  
 Effluent Benzene (ppmv)  
 Mass TPH Removed (lbs)  
 Mass Benzene Removed (lbs)

	October		November		December		
Influent TPPH-gasoline (ppmv)	15	61	52	4.0	ND	ND	
Influent Benzene (ppmv)	0.072	0.25	0.22	ND	ND	ND	
Effluent TPPH-gasoline (ppmv)	ND	ND	ND	ND	ND	ND	
Effluent Benzene (ppmv)	ND	ND	ND	ND	ND	ND	
Mass TPH Removed (lbs)	29.7		67.0		1.1		Cumulative 179.2
Mass Benzene Removed (lbs)	0.19		0.23		0.00		0.46

Table 3 Page A-4

Table 3 Page A-4

Table 4 Page A-5

Table 4 Page A-5

Table 3 Page A-4

Table 3 Page A-4

**REMEDIAL ACTION PERFORMANCE EVALUATION**

**Mass Removal**      *Approximately 98 pounds of TPPH as Gasoline and 0.3 pound of benzene were removed by the treatment system during the current reporting period. The SVE system was approximately 98 percent operational.*

**Regulatory Compliance**      *The remedial system operated in compliance with all BAAQMD permit requirements.*

**ACTIONS/RECOMMENDATIONS**

- o Continue operation of the SVE system throughout the first quarter 1997.
- o Optimization of groundwater pump performance is expected to positively influence SVE system mass removal.

**NOTES:**

ND = Not detected above detection limits  
 N/A = Not available or not applicable  
 ppmv = Parts per million by volume  
 scfm = Standard cubic foot per minute  
 ‡ = Average TPPH reading for March 1996 using field instruments (provided by prior consultant).  
 Note: When appropriate, tabulated data is followed by associated graphical presentation.

Table 1  
Groundwater Extraction System Performance Data

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Sample ID	Date Sampled	Volume Reading (gallons)	Average Flow Rate (gpm)	TPPH as Gasoline			Benzene		
				Influent Concentration (µg/L)	Removed This Period (lbs)	Removed To Date (lbs)	Influent Concentration (µg/L)	Removed This Period (lbs)	Removed To Date (lbs)
INFL	03/18/96 a	0	5.9	NS	N/A	0.0	NS	N/A	0.00
INFL	05/16/96 b	133,800	1.6	17,000 c	19.0	19.0	98 c	0.11	0.11
INFL	06/06/96	216,850	2.7	5,500	7.8	26.8	35	0.05	0.16
INFL	07/17/96	233,320	0.3	1,700	0.5	27.2	14	0.003	0.16
INFL	08/05/96	249,570	0.6	1,800	0.2	27.5	10	0.002	0.16
INFL	09/10/96	249,820	N/A	9,700	0.0	27.5	29	0.000	0.16
INFL	10/15/96	266,527	0.3	54,000	4.4	31.9	200	0.016	0.18
INFL	11/14/96 d	267,653	0.03	54,000 c	0.5	32.4	200 c	0.002	0.18
INFL	12/11/96 d	267,663	N/A	12,000	0.0	32.4	56	0.000	0.18
<b>REPORTING PERIOD:</b>							09/10/96 - 12/11/96 (d)		
<b>TOTAL DAYS OF OPERATION:</b>							225		
<b>PERIOD DAYS OF OPERATION:</b>							49		
<b>TOTAL GALLONS EXTRACTED:</b>							267,663		
<b>PERIOD GALLONS EXTRACTED:</b>							17,843		
<b>TOTAL POUNDS TPPH-GASOLINE REMOVED:</b>							32.4		
<b>TOTAL GALLONS TPPH-GASOLINE REMOVED:</b>							5.3		
<b>TOTAL POUNDS BENZENE REMOVED:</b>							0.18		
<b>TOTAL GALLONS BENZENE REMOVED:</b>							0.02		
<b>PERIOD POUNDS TPPH-GASOLINE REMOVED:</b>							4.9		
<b>PERIOD POUNDS BENZENE REMOVED:</b>							0.018		
<b>PERIOD AVERAGE FLOW RATE (gpm):</b>							0.3		
TPPH = Total purgeable petroleum hydrocarbons gpm = Gallons per minute µg/L = Micrograms per liter lbs = Pounds NS = Not sampled N/A = Not available or not applicable				a. GWE system start-up by PSI. b. Project transferred to Pacific Environmental Group. c. No analytical data available; assume steady-state concentrations. d. Pumps are on but not cycling any groundwater.					
Mass removed is an approximation calculated using averaged concentrations.									

Table 2  
**Groundwater Extraction System Analytical Data**  
 Total Petroleum Hydrocarbons  
 (TPPH and BTEX Compounds)

76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

Date Sampled	TPPH (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
<b>Influent Samples</b>					
05/16/96	17,000	98	92	1,300	3,900
06/06/96	5,500	35	17	200	780
07/17/96	1,700	14	<5.0	91	89
08/05/96	1,800	10	<5.0	160	410
09/10/96	9,700	29	<10	600	1,600
10/15/96	54,000	200	90	2,800	8,900
12/11/96	12,000	56	21	820	2,700
<b>Midpoint Samples</b>					
05/16/96	<50	<0.50	<0.50	<0.50	<0.50
06/06/96	<50	<0.50	<0.50	<0.50	<0.50
07/17/96	<50	<0.50	<0.50	<0.50	<0.50
08/05/96	<50	<0.50	<0.50	<0.50	<0.50
09/10/96	<50	<0.50	<0.50	<0.50	0.60
10/15/96	<50	<0.50	<0.50	<0.50	0.60
11/14/96	<50	<0.50	<0.50	<0.50	<0.50
12/11/96	<50	<0.50	<0.50	<0.50	<0.50
<b>Effluent Samples</b>					
05/16/96	<50	<0.50	<0.50	<0.50	<0.50
06/06/96	<50	<0.50	<0.50	<0.50	<0.50
07/17/96	<50	<0.50	<0.50	<0.50	<0.50
08/05/96	<50	<0.50	<0.50	<0.50	<0.50
09/10/96	<50	<0.50	<0.50	<0.50	<0.50
10/15/96	<50	<0.50	<0.50	<0.50	<0.50
11/14/96	<50	<0.50	<0.50	<0.50	<0.50
12/11/96	<50	<0.50	<0.50	<0.50	<0.50
TPPH = Total purgeable petroleum hydrocarbons µg/L = Micrograms per liter a. Project transferred to Pacific Environmental Group, Inc. from PSI.					

Table 3  
Soil Vapor Extraction System Performance Data

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Sample ID	Date Sampled	Hourmeter Reading (hours)	Net Hours of Operation (hours)	Flow Rate (scfm)	TPPH as Gasoline			Benzene		
					Influent Concentration (ppmv)	Removal Rate (lbs/day)	Removed to Date (lbs)	Influent Concentration (ppmv)	Removal Rate (lbs/day)	Removed to Date (lbs)
INFL	03/18/96 a	N/A b	0 b	250	25 c	2.4	0.0	N/A c	N/A	N/A
INFL	03/19/96	N/A b	24 b	240	22 c	2.0	2.2	N/A c	N/A	N/A
INFL	03/20/96	N/A b	24 b	260	12 c	1.2	3.8	N/A c	N/A	N/A
INFL	03/21/96	N/A b	24 b	250	4 c	0.4	4.6	N/A c	N/A	N/A
INFL	03/22/96	N/A b	24 b	240	20 c	1.8	5.7	N/A c	N/A	N/A
INFL	04/08/96	N/A b	408 b	270	14 c	1.4	33.4	N/A c	N/A	N/A
INFL	04/26/96	N/A b	432 b	240	10 c	0.9	54.5	N/A c	N/A	N/A
INFL	05/30/96 d	N/A b	0	110	2.4	0.1	54.5	ND	0.00	0.00
INFL	06/06/96	N/A b	168	120	3.3	0.2	55.4	ND	0.00	0.01
INFL	06/26/96	N/A b	480	120	ND	0.1	58.0	ND	0.00	0.03
INFL	07/17/96	N/A b	504	120	ND	0.1	60.3	ND	0.00	0.05
INFL	07/26/96	N/A b	216	110	11	0.5	62.8	ND	0.00	0.06
INFL	08/05/96	6,372.5 e	240	119	ND	0.1	65.7	ND	0.00	0.07
INFL	08/19/96	6,414.1	42	115	2.6	0.1	65.9	ND	0.00	0.07
INFL	09/10/96	6,939.4	525	123	7.3	0.3	70.9	0.040	0.00	0.10
INFL	09/26/96	7,321.0	382	78	33	1.0	81.4	0.10	0.00	0.13
INFL	10/15/96 f	7,777.0	456	90	15	0.5	95.7	0.072	0.00	0.18
INFL	10/28/96	8,090.4	313	78	61	1.8	111.1	0.25	0.01	0.23
INFL	11/14/96	8,497.4	407	270	52	5.3	171.8	0.22	0.02	0.44
INFL	11/27/96	8,552.4	55	100	4.0 g	0.2	178.1	ND g	0.00	0.46
INFL	12/11/96	8,890.8	338	64	ND	0.0	179.2	ND	0.00	0.46
INFL	12/20/96	9,102.0	211	64	ND	0.0	179.2	ND	0.00	0.46

REPORTING PERIOD:	09/26/96 - 12/20/96		
TOTAL POUNDS REMOVED:		179.2	0.46
TOTAL GALLONS REMOVED:		29.4	0.06
PERIOD POUNDS REMOVED:		97.7	0.33
PERIOD GALLONS REMOVED:		16.0	0.05
TOTAL DAYS OF OPERATION:	220 (b)		
PERIOD DAYS OF OPERATION:	74 (b)		
PERIOD PERCENT OPERATIONAL:	98%		

TPPH = Total purgeable petroleum hydrocarbons  
scfm = Standard cubic feet per minute  
ppmv = Parts per million by volume  
lbs = Pounds  
N/A = Not available or not applicable  
ND = Not detected above the detection limit

- a. System startup on March 18, 1996.
- b. No hourmeter installed on system; assumed continuous operation to estimate mass removal since system was on upon arrival.
- c. TPPH concentrations taken using a flame-ionization detector; benzene concentrations not available.
- d. Pacific Environmental Group, Inc. becomes consultant to site; all prior data provided by former consultant.
- e. Hourmeter installed 8/5/96 (initial reading: 6372.5 hours); system was running upon arrival.
- f. Assumed influent/effluent labels on samples were switched.
- g. Samples collected 11/27/96 exceeded hold time due to holiday; re-sampled on 12/2/96.

Mass removed is an approximation calculated using averaged mass removal rates; removal rates are instantaneous.

Concentrations shown in ppmv are calculated from micrograms per liter (as reported by the laboratory).

See certified analytical reports for detection limits.

Table 4  
Soil Vapor Extraction System Emission Data

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Sample I.D.	Date Sampled	Net Hours of Operation (hours)	Flow Rate (scfm)	TPPH as Gasoline			Benzene	
				Effluent Concentration (ppmv)	Destruction Efficiency (percent)	Emission Rate (lbs/day)	Effluent Concentration (ppmv)	Emission Rate (lbs/day)
EFFL	03/18/96	a 0	250	ND	N/A	N/A	N/A	N/A
EFFL	03/19/96	24	240	ND	N/A	N/A	N/A	N/A
EFFL	03/20/96	24	260	ND	N/A	N/A	N/A	N/A
EFFL	03/21/96	24	250	ND	N/A	N/A	N/A	N/A
EFFL	03/22/96	24	240	ND	N/A	N/A	N/A	N/A
EFFL	04/08/96	408	270	ND	N/A	N/A	N/A	N/A
EFFL	04/26/96	432	240	ND	N/A	N/A	N/A	N/A
EFFL	05/30/96	b 0	110	ND	N/A	0.10	ND	0.001
EFFL	06/06/96	168	120	3.1	7.1	0.14	ND	0.001
EFFL	06/26/96	480	120	ND	N/A	0.11	ND	0.001
EFFL	07/17/96	504	120	ND	N/A	0.11	ND	0.001
EFFL	07/26/96	216	110	2.8	74.5	0.12	ND	0.001
EFFL	08/05/96	240	119	ND	N/A	0.11	ND	0.001
EFFL	08/19/96	42	115	ND	N/A	0.10	ND	0.001
EFFL	09/10/96	525	123	ND	N/A	0.11	ND	0.001
EFFL	09/26/96	382	78	ND	N/A	0.07	ND	0.001
EFFL	10/15/96	c 456	90	ND	N/A	0.08	ND	0.001
EFFL	10/28/96	313	78	ND	N/A	0.07	ND	0.001
EFFL	11/14/96	407	270	ND	N/A	0.24	ND	0.002
EFFL	11/27/96	55	100	ND	N/A	0.09	ND	0.001
EFFL	12/11/96	338	64	ND	N/A	0.06	ND	0.001
EFFL	12/20/96	211	64	ND	N/A	0.06	ND	0.001

TPPH = Total purgeable petroleum hydrocarbons  
scfm = Standard cubic feet per minute  
ppmv = Parts per million by volume, converted from micrograms per liter, as reported by the laboratory  
lbs = Pounds  
N/A = Not available or not applicable  
ND = Not detected above the detection limit

a. System startup on March 18, 1996.  
d. Pacific Environmental Group, Inc. becomes consultant to site; all prior data provided by former consultant.  
c. Assumed influent/effluent labels on samples were switched.

Destruction efficiencies and emission rates for ND concentrations are calculated using the detection limit.  
Concentrations shown in ppmv are calculated from micrograms per liter.  
See certified analytical reports for detection limits.

Table 5  
Soil Vapor Extraction System Analytical Data  
Individual Wells

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

Well I.D.	Date Sampled	TPPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)
MW1	05/30/96	36	ND	0.48	0.46	3.3
	06/26/96	67	ND	ND	0.26	1.7
	07/26/96	160	11	31	4.8	24
	08/19/96	28	ND	0.23	0.25	1.2
	09/26/96	1,100	6.4	11	18	19
	10/28/96	1,000	ND	30	3.5	96
	12/02/96	950	ND	40	5.9	120
	12/20/96	13	ND	ND	ND	0.45
MW2	05/30/96	180	0.25	3.8	4.5	25
	06/26/96	23	ND	0.30	0.52	3.5
	07/26/96	46	0.81	1.9	0.95	2.4
	08/19/96	110	0.17	ND	1.4	1.8
	09/26/96	230	0.70	1.6	2.2	1.4
	10/28/96	250	1.3	3.3	0.50	1.1
	12/02/96	11	ND	ND	ND	0.14
	12/20/96	ND	ND	ND	ND	ND
MW3	05/30/96	20	ND	0.25	0.48	3.0
	06/26/96	ND	ND	ND	ND	0.35
	07/26/96	27	0.62	1.2	0.61	2.3
	08/19/96	120	0.43	0.16	2.6	3.9
	09/26/96	46	0.36	0.45	0.24	0.37
	10/28/96	NA	NA	NA	NA	NA
	11/14/96	76	ND	ND	0.31	0.96
	12/02/96	15	ND	ND	ND	0.55
12/20/96	ND	ND	ND	0.42	0.87	
TPPH = Total pirgeable petroleum hydrocarbons µg/L = Micrograms per liter ND = Not detected above the detection limit NA = Not analyzed (sample air bag leak); well re-sampled 11/14/96 See certified analytical reports for detection limits.						



Figure 1  
Groundwater Extraction System Mass Removal Trend

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California

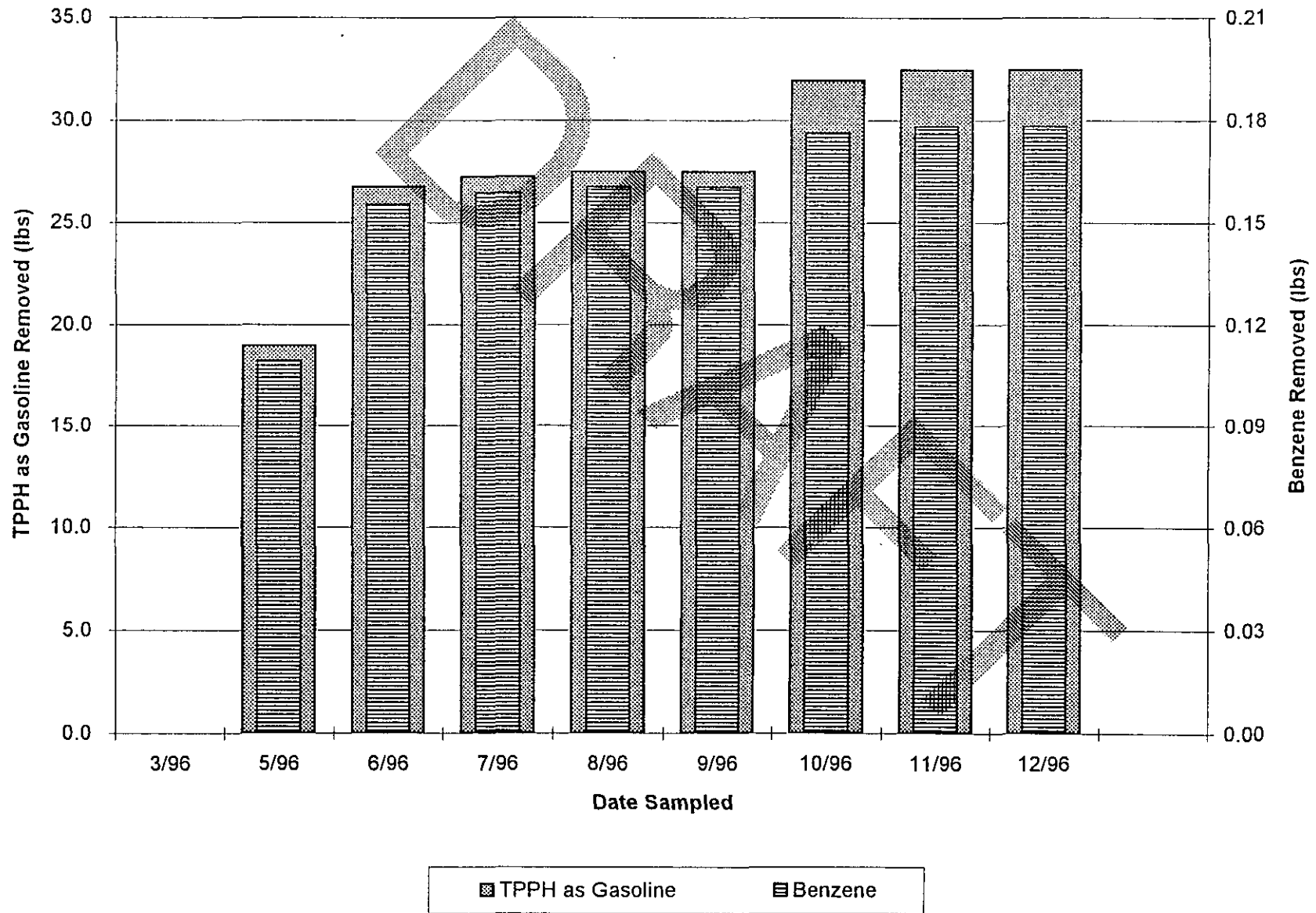


Figure 2  
 Groundwater Extraction System Hydrocarbon Concentrations  
 76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

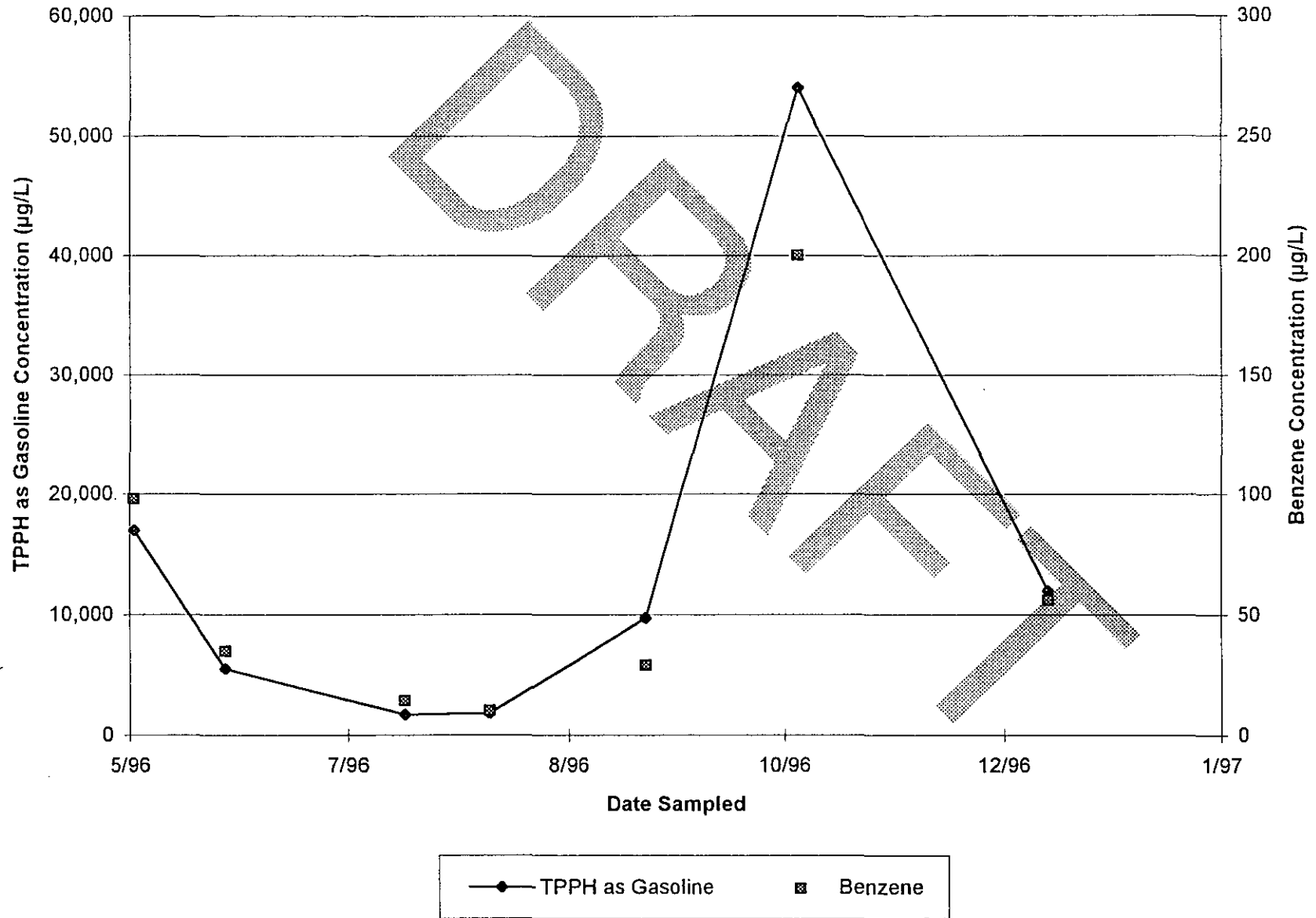


Figure 3  
 Soil Vapor Extraction System Mass Removal Trend  
 76 Products Company Service Station 5367  
 500 Bancroft Avenue at Dowling  
 San Leandro, California

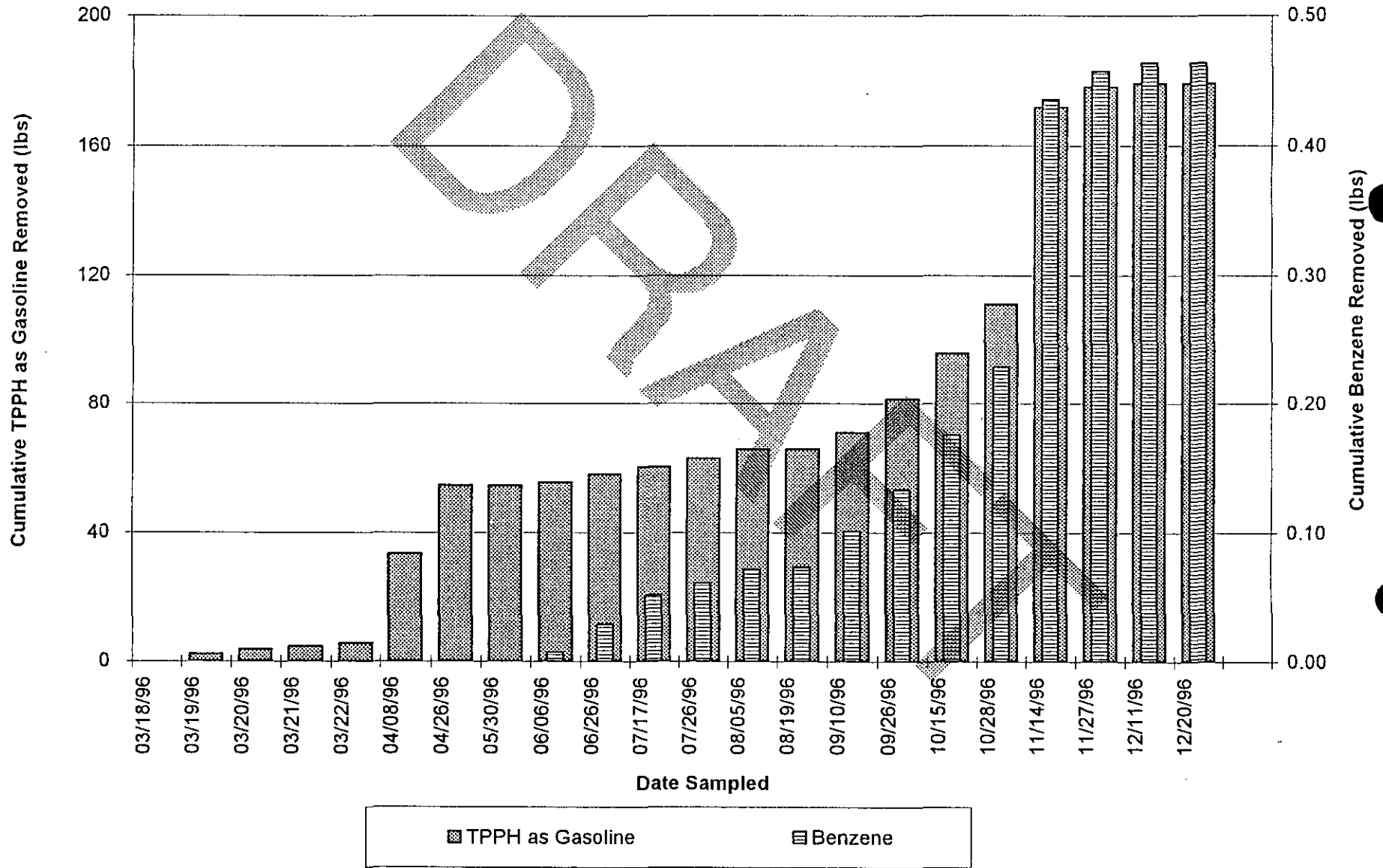
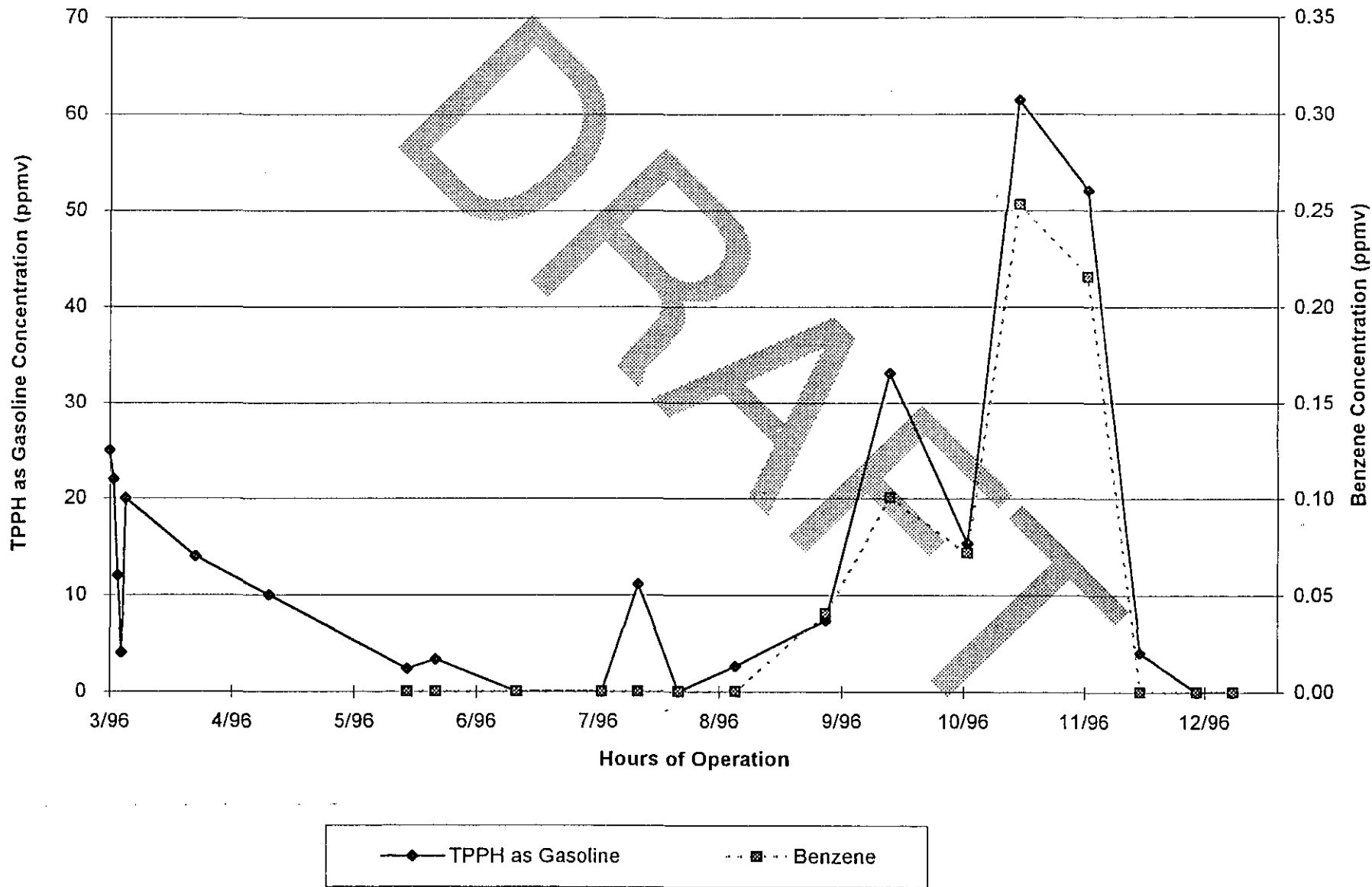


Figure 4  
Soil Vapor Extraction System Hydrocarbon Concentrations

76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling  
San Leandro, California



January 31, 1997  
Project 310-127.5A

Ms. Tina Berry  
76 Products Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

Re: *Remedial Action Performance Summary - October through December 1996*  
76 Products Company Service Station 5367  
500 Bancroft Avenue at Dowling Boulevard  
San Leandro, California

Dear Ms. Berry:

This letter presents a remedial action performance summary for the site referenced above. Attachment A presents the remedial performance summary, which includes hydrocarbon mass removal and key operating parameters. Certified analytical reports and chain-of-custody documentation are presented as Attachment B, and field data sheets are included as Attachment C. The status of recent remedial activities is presented below.

#### **Remedial System Performance Evaluation**

- During the current reporting period, the groundwater extraction (GWE) system ran intermittently due to system operational problems with the electric submersible pumps. During site visits throughout November and December, the pumps were found on but the totalizer had not advanced. On January 9, 1997, the pump controls were reset and the pumps restarted. Also, the totalizer was replaced with a new, precalibrated totalizer, in accordance with the discharge permit's requirement for annual flow meter calibration.
- During the current reporting period, the soil vapor extraction (SVE) system was approximately 98 percent operational. Influent vapor concentrations increased after the pumps were reset on September 18, 1996. Low concentrations during November and December coincide with pump operational problems.

~~FOLD OUTS~~

Store #	255367	Date:	1997 2/10
Unit #	5367	Code:	SI Color <input type="checkbox"/>
Description:	BASELINE DUE DILIGENCE DATA		

WESTERN REGION BOX

#9533

**AREAS OF CONCERN**  
**76 Products Company #: 5367**  
**500 Bancroft Ave.**  
**Oakland CA**

Area of Concern		Basis of Concern	General Comments	Reference	Category
UST's	Active	Laboratory Confirmation of GW Impact  Source Structure Operating	Monitoring wells: TPHg ND-110,000 ug/l	mpds, MPDS-UN5367.11, 10/22/96	
UST's	Former	Source Structure Removed	No data. tanks removed in '95.	GeoResearch, Monitoring Well Installation, 06/29/95	
Dispensers	Active	Source Structure Operating	No specifics.	mpds, MPDS-UN5367-11, 10/22/96	
W/O Tank	Status Unknown		No data.		

**AREAS OF CONCERN**

76 Products Company #: 5367

500 Bancroft Ave.

Oakland CA

Area of Concern		Baseline Category		Borings Impacted/Existing	Wells Impacted/Existing	Gaps	Proposed Borings	Proposed Wells
		SOIL	GW					
UST's	Active	Sufficient	Sufficient					
UST's	Former	Insufficient	Insufficient			General Analytical-Soil General Analytical-GW	3	
Dispensers	Active	Insufficient	Sufficient			General Analytical-Soil	2	
W/O Tank	Status Unknown	Insufficient	Insufficient					



**AREAS OF CONCERN**

**76 Products Company #: 5367**

**500 Bancroft Ave.**

**Oakland CA**

Area of Concern	Basis of Concern	General Comments	Reference	Category
Clarifier/Sewer System	Status Unknown	No data.		
Hoists	Status Unknown	No data.		

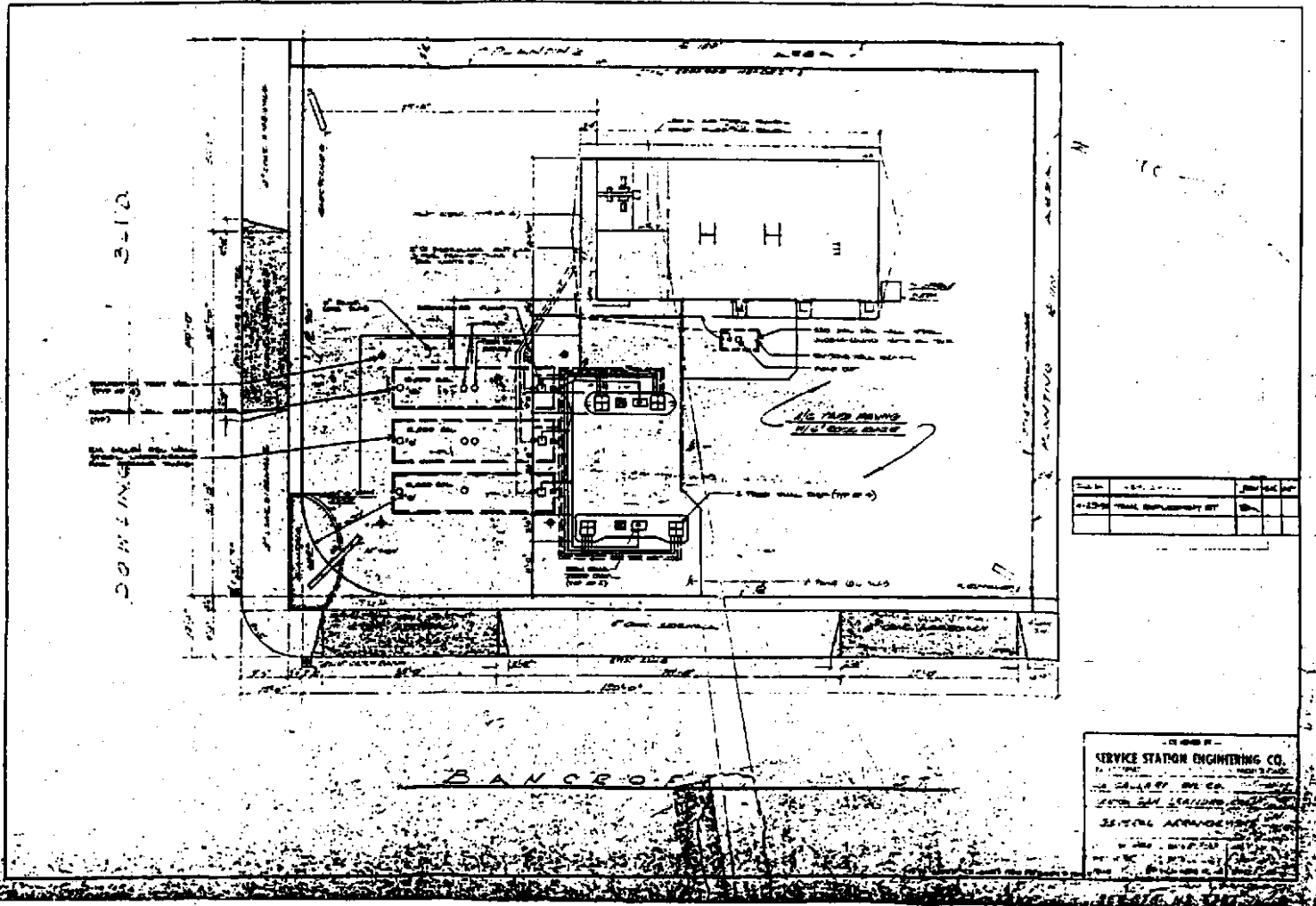
**AREAS OF CONCERN**

**76 Products Company #: 5367**

**500 Bancroft Ave.**

**Oakland CA**

Area of Concern	Status	Baseline Category		Borings Impacted/Existing	Wells Impacted/Existing	Gaps	Proposed Borings	Proposed Wells
		SOIL	GW					
Clarifier/Sewer System	Unknown	Insufficient	Insufficient					
Hoists	Unknown	Insufficient	Insufficient					

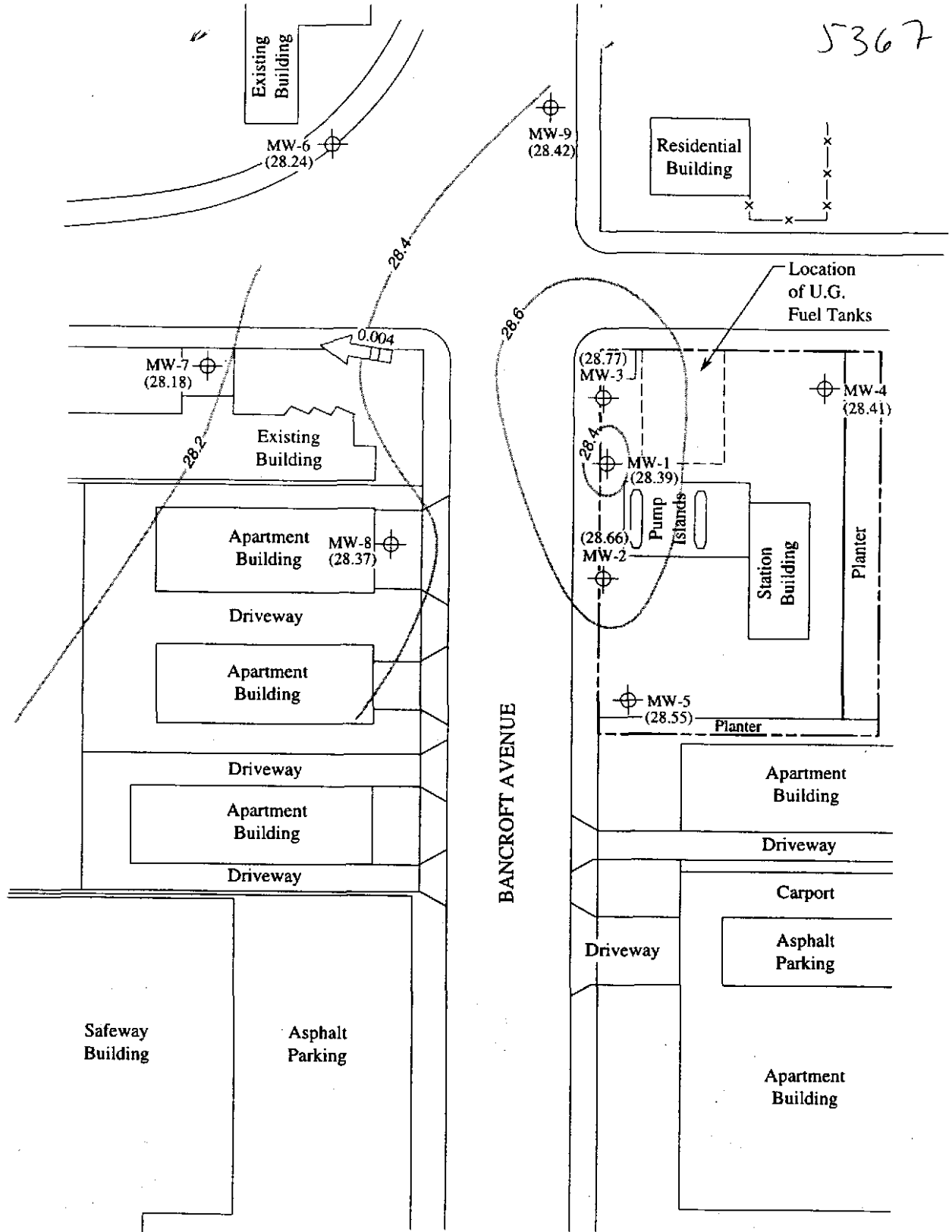


5.5 5367

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5367



**LEGEND**

- Monitoring well
- Ground water elevation in feet above Mean Sea Level
- Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

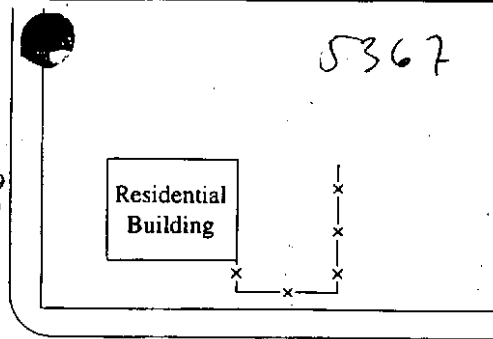
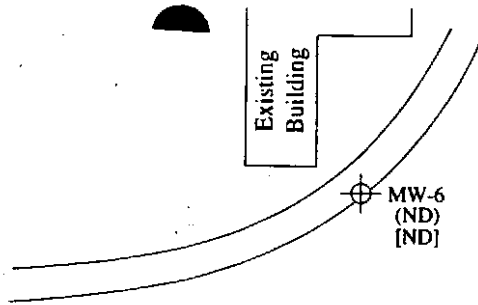
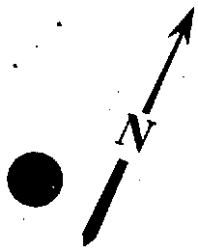


**POTENTIOMETRIC SURFACE MAP FOR THE SEPTEMBER 21, 1996 MONITORING EVENT**

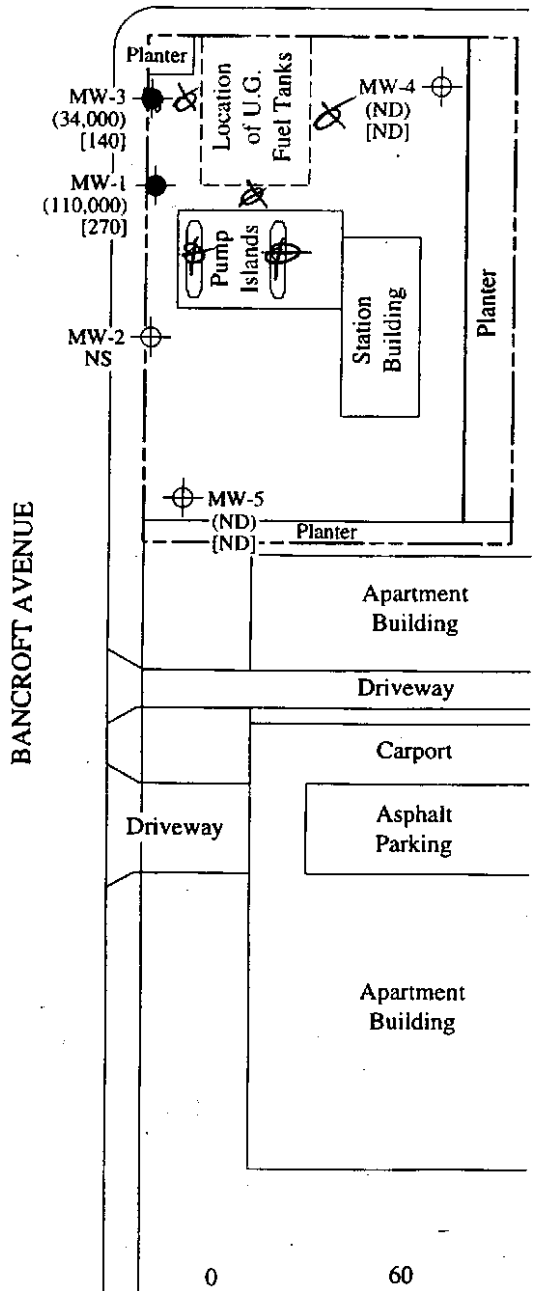
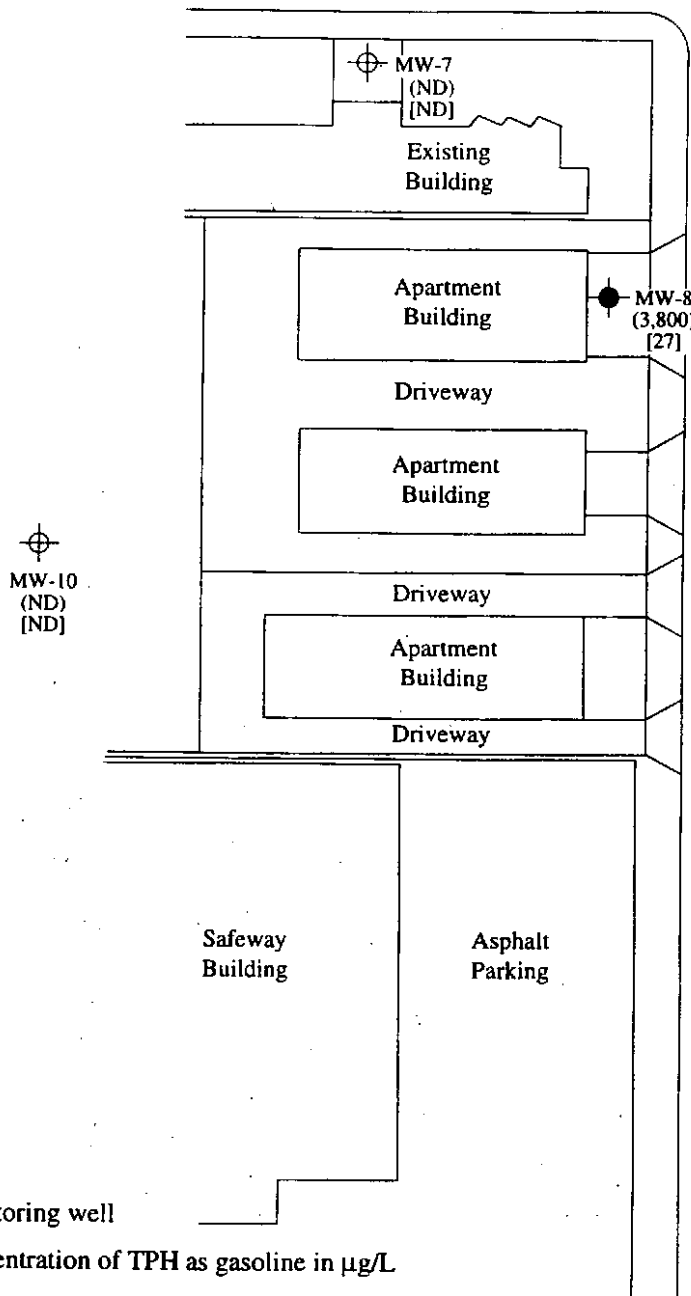
**MPDS** SERVICES, INCORPORATED

**UNOCAL SERVICE STATION #5367  
500 BANCROFT AVENUE  
SAN LEANDRO, CALIFORNIA**

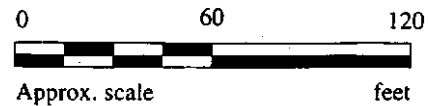
**FIGURE  
1**



DOWLING BOULEVARD



BANCROFT AVENUE



**LEGEND**

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in  $\mu\text{g/L}$
- [ ] Concentration of benzene in  $\mu\text{g/L}$
- ND Non-detectable, NS Not sampled

**PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON SEPTEMBER 21, 1996**