



groundwater resources inc.

A RESNA Company
1500 SO. UNION AVE
BAKERSFIELD, CALIFORNIA 93307

General Engineering Contractor
Class A/Haz License No. 609572

RESNA

Environmental Solutions
Through Applied Science,
Engineering & Construction

91 OCT 20 11:03

October 10, 1991

Ravi Arvlanantham
Alameda County Department
of Environmental Health
80 Swan Way, Rm. 200
Oakland, CA 94621

Re: Scotsman Corp., Dublin CA
Groundwater Remediation Update

Dear Mr. Arvlanantham:

This letter is an update on the groundwater remediation project underway at the Scotsman Corporation facility, 6055 Scarlett Ct., Dublin. Water samples were collected from all of the monitoring wells at the site on November 17, 1991. All samples were analyzed for BTX&E and TPH (gasoline). Enclosed are the analysis results from the samples collected from the wells.

Depth to groundwater measurements were recorded on August 27, 1991 and calculated to Mean Sea Level as follows:

WELL	WELL ELEVATION	WATER ELEVATION	DEPTH TO WATER
MW-1	328.86	318.46 ft msl	10.40 ft
MW-2	329.50	323.14 ft msl	6.36 ft
MW-3	327.69	323.18 ft msl	4.51 ft
MW-4	329.19	320.48 ft msl	8.71 ft
MW-5	**	**	9.08 ft
MW-6	328.16	**	10.30 ft
MW-7	**	**	8.91 ft
MW-8	**	**	8.15 ft
RW-1	**	**	10.44 ft

** Well not surveyed

Calculations indicate the direction of the groundwater gradient to be 37 degrees west of south with a slope of approximately 2.48 feet per 100 feet (see Plate 1). The measurements recorded for MW-6 used to determine the gradient direction and slope are affected by the pumping in RW-2 and RW-3. An isopleth map showing the zero limit for the total petroleum hydrocarbons and benzene remaining in the groundwater have been mapped and are presented on Plates 2 & 3. Groundwater is currently being pumped from RW-2 and RW-3 at a rate of 96,200 gallons per month. As of September 26, 1991, approximately 402,250 gallons of groundwater have been treated.

Since June, 1991, the area of the plume has been reduced approximately 85%. Since the start of the project in April, 1990, the area of the plume has been reduced at total of 95%.



Ravi Arvianantham
Alameda County Department
of Environmental Health
October 10, 1991
Page Two

The next quarterly report will be submitted to your office in January, 1992 with results of analysis for the monitoring wells and an update on remediation progress. Samples of the effluent water are sampled on a monthly basis and results are submitted to the Dublin San Ramon Services District.

If you have further questions or require additional information, please give me a call at (805) 835-7700.

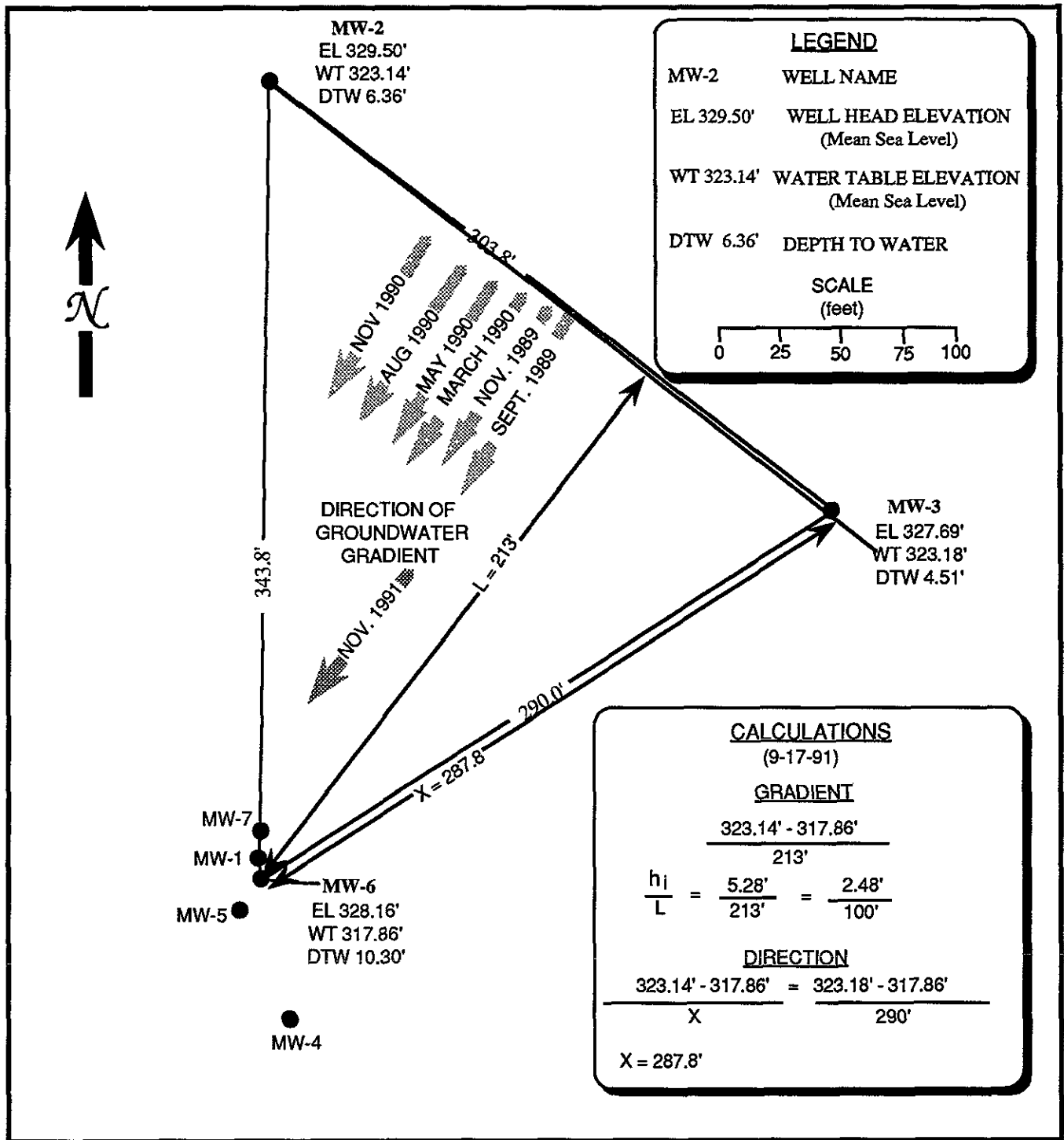
Sincerely,

A handwritten signature in cursive script that reads "Timothy C. Reed". The signature is written in black ink and is positioned above the printed name.

Timothy C. Reed
Project Geologist

Encl.

cc: Ms. Amanda Howard, First Interstate Bank
Bud Gennoy, J.P. Gennoy Realty



groundwater resources, inc.
environmental/geotechnical services

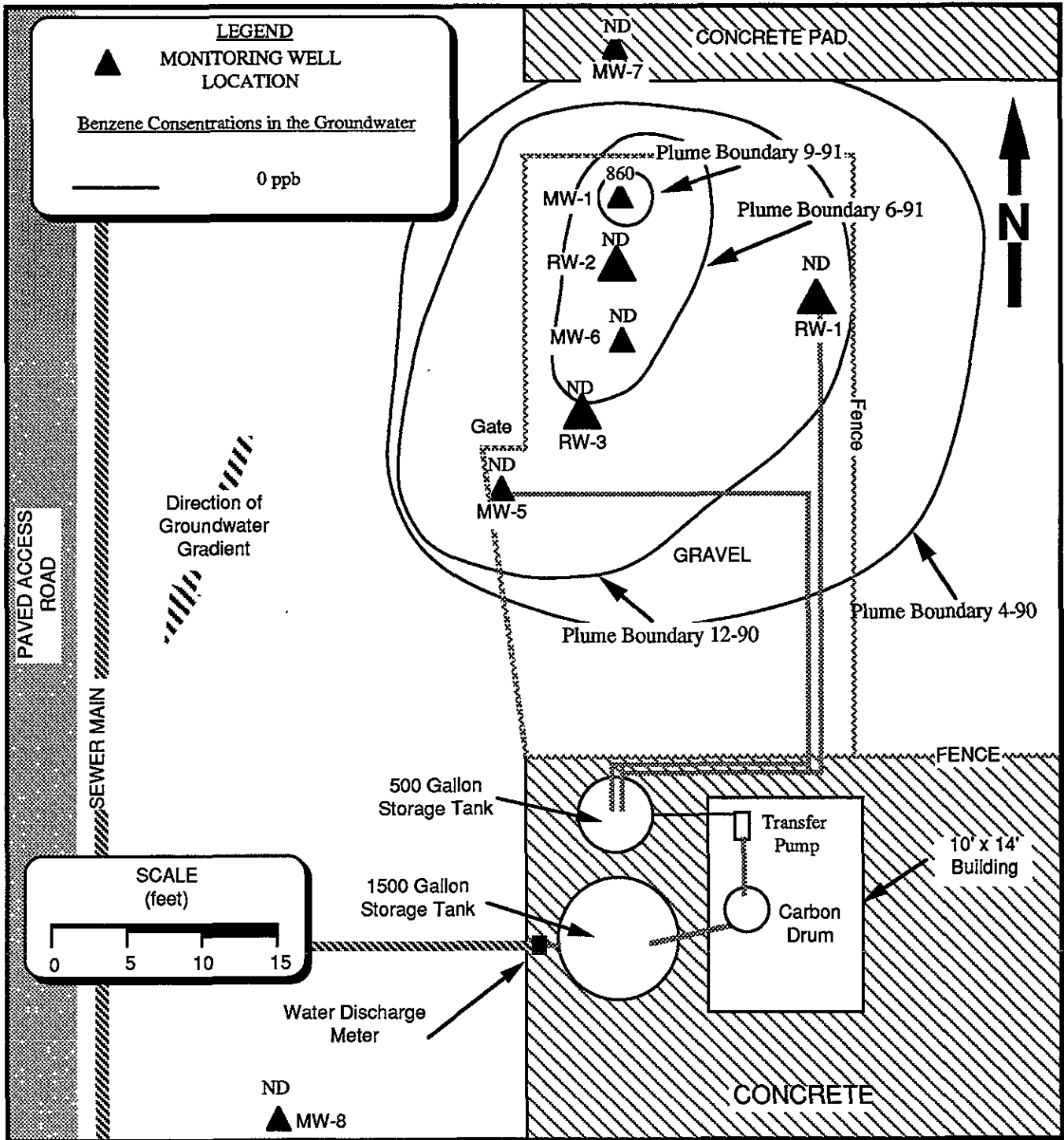
Project Number: 55018


10-10-91

SCOTSMAN CORPORATION
DUBLIN, CALIFORNIA

SHALLOW GROUNDWATER GRADIENT MAP
November 17, 1991

PLATE
1

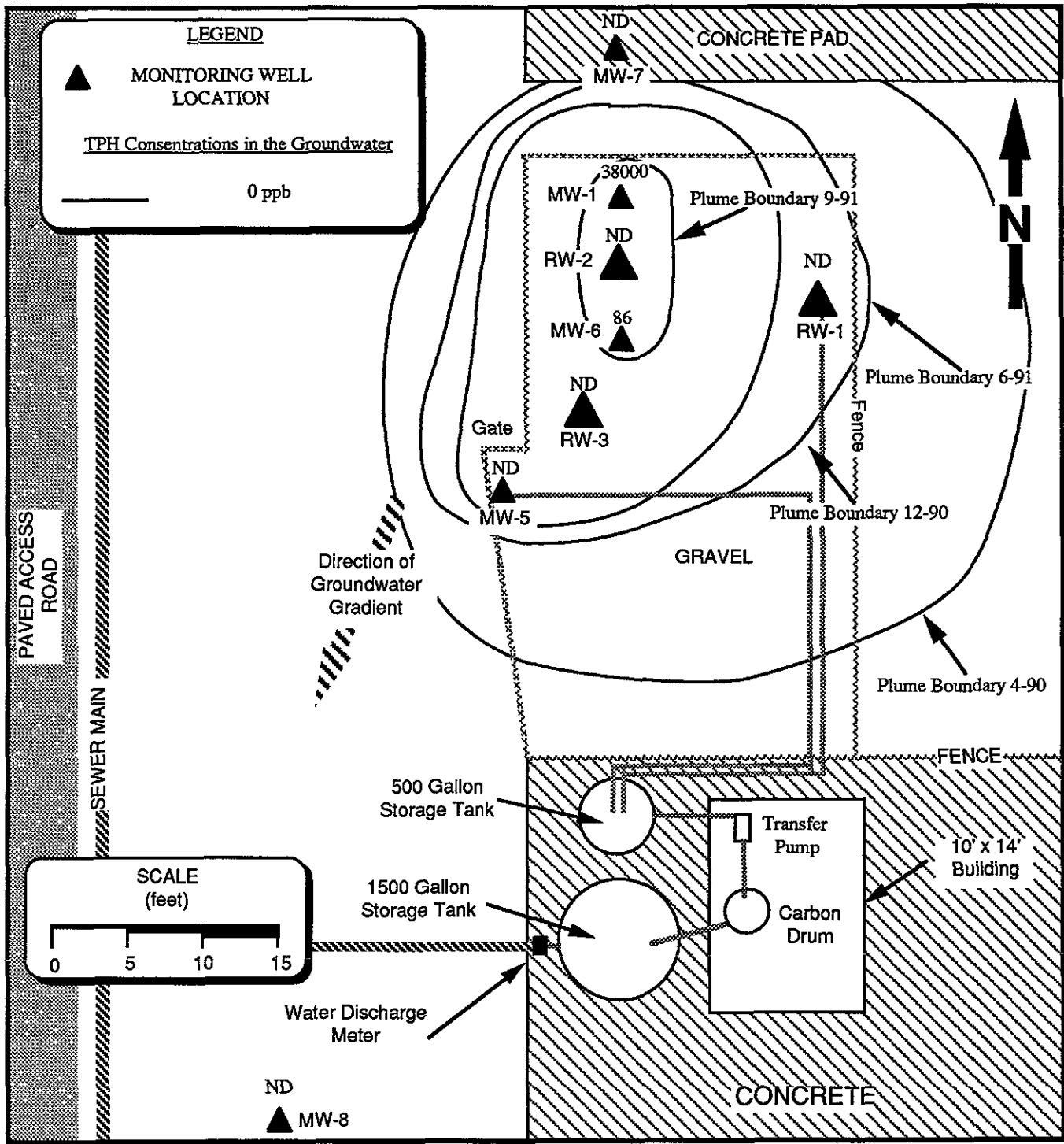




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 Project Number: 55018
 10-10-91

SCOTSMAN CORP.
DUBLIN, CA.

BENZENE ISOPLETH MAP
 September 17, 1991

PLATE
2



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environmental/geotechnical services

Project Number: 55018

10-10-91

SCOTSMAN CORP.
DUBLIN, CA.

TOTAL PETROLEUM HYDROCARBON ISOPLETH MAP
September 17, 1991

PLATE

3

SMC Laboratory

Analytical Chemistry

Client Name: Groundwater Resources, Inc.
Address : P.O. Box 9383
Bakersfield, CA 93389

Attention : Tim Reed

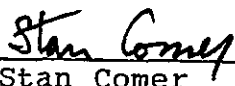
Date samples received : 6-10-91
Date analysis completed: 6-14-91
Date of report : 6-17-91

Project Name: Dublin
Project # : 55018
P.O. # : 6234 G

RESULTS OF ANALYSIS:

#2258 ID: MW-4	ugm/L	MDL, ugm/L
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	ND	50.0

Method of Analysis for BTX/TPH (Gasoline): 5030/8020 (PID)
MDL = Minimum Detection Level
TPH = Total Petroleum Hydrocarbons
ugm/L = micrograms per liter (ppb)
ND = None Detected



Stan Comer
Analytical Chemist

RESULTS OF ANALYSIS

#2260 ID:MW-2	ugm/L	MDL, ugm/L
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	ND	50.0

#2261 ID:MW-7	ugm/L	MDL, ugm/L
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	ND	50.0

#2262 ID:MW-6	ugm/L	MDL, ugm/L
Benzene	190	0.5
Toluene	44	0.5
Ethylbenzene	180	0.5
p-Xylene	64	0.5
m-Xylene	20	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	2070	50.0

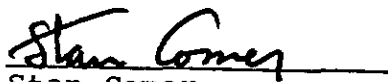

 Stan Comer
 Analytical Chemist

RESULTS OF ANALYSIS

#2263 ID:MW-5	ugm/L	MDL, ugm/L
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	14	50.0

#2264 ID:MW-8	ugm/L	MDL, ugm/L
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	ND	50.0

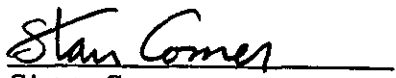
#2265 ID:RW-3	ugm/L	MDL, ugm/L
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	ND	50.0


 Stan Comer
 Analytical Chemist

RESULTS OF ANALYSIS

#2266 ID:MW-1	ugm/L	MDL, ugm/L
Benzene	320	0.5
Toluene	240	0.5
Ethylbenzene	1200	0.5
p-Xylene	2500	0.5
m-Xylene	ND	0.5
o-Xylene	450	0.5
Isopropylbenzene	90	0.5
TPH (Gasoline)	15000	50.0

#2267 ID:RW-1	ugm/L	MDL, ugm/L
Benzene	6.2	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
p-Xylene	ND	0.5
m-Xylene	ND	0.5
o-Xylene	ND	0.5
Isopropylbenzene	ND	0.5
TPH (Gasoline)	150	50.0


Stan Comer
Analytical Chemist



groundwater resources, inc.

1500 S. Union Avenue
Bakersfield, CA 93307
Telephone: (805) 835-7700
Tele-Fax: (805) 835-7717

CHAIN OF CUSTODY RECORD

LAB DESTINATION: <u>SMC Lab</u>		PROJECT NUMBER: <u>55018</u>			PROJECT CONTACT: <u>Tim Reed</u>			
SAMPLER(S): (Signature) <u>Tim Moore</u>		P.O. NUMBER <u>62349</u>			COUNTY: <u>Alameda</u>			
LAB NUMBER	SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	CONDITION ON RECEIPT <u>10/10/91</u>	ANALYSIS REQUESTED	SAMPLE TYPE	CONTAINER TYPE
<u>2258</u>	<u>MW-4</u>	<u>6/7/91</u>	<u>7:50</u>	<u>Dublin</u>		<u>BTX-F</u>	<u>Water</u>	<u>VOL: ()</u>
<u>2259</u>	<u>RS-3</u>		<u>7:55</u>			<u>TPH(gas)</u>		
<u>2260</u>	<u>MW-2</u>		<u>8:10</u>					
<u>2261</u>	<u>MW-7</u>		<u>8:40</u>					
<u>2262</u>	<u>MW-6</u>		<u>9:00</u>					
<u>2263</u>	<u>MW-5</u>		<u>9:25</u>					
<u>2264</u>	<u>MW-8</u>		<u>9:47</u>					
<u>2265</u>	<u>RW-3</u>		<u>10:00</u>					
<u>2266</u>	<u>MW-1</u>		<u>10:20</u>					
<u>2267</u>	<u>RW-1</u>		<u>10:30</u>					

SPECIAL INSTRUCTIONS: _____

POSSIBLE SAMPLE HAZARDS: _____

- 1. Relinquished by: Tim Moore Date/Time: 6/10/91 9:45 Received by: [Signature] Date/Time: 4/14/91 11:13
- 1. Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
- 1. Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
- 1. Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

APPLIED ANALYTICAL

Environmental Laboratories

17062 Murphy Ave.
Irvine, CA 92714-5914
714 851-1544

Project Name: Alameda
Project No. : 55018

October 03, 1991

Tim Reed
Groundwater Resources
1500 S. Union Ave.
Bakersfield, CA 93307

Dear Mr. Reed:

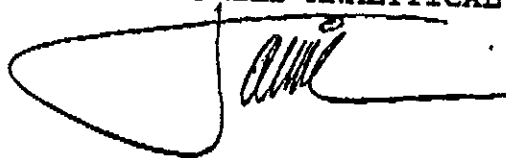
Enclosed please find the analytical results for the water samples received by Applied Analytical Environmental Laboratory on 09-20-91.

Applied Analytical maintains a strict Quality Assurance/Quality Control (QA/QC) program designed to meet or exceed EPA requirements. Analytical data presented in this report met QA/QC criteria.

The specific analytical methods used and cited in this report are approved by the State of California's Department of Health Services (DOHS) under certificate number E678.

If you have any questions regarding these analyses, or if we can be of further assistance, please give us a call.

Sincerely,
APPLIED ANALYTICAL

A handwritten signature in black ink, appearing to read 'F.A. Jaime', written over a horizontal line.

F.A. Jaime
Laboratory Supervisor



groundwater resources, inc.

1500 S. Unic Avenue
Bakersfield, CA 93307
Telephone: (805) 835-7700
Tele-Fax: (805) 835-7717

CHAIN OF CUSTODY RECORD

LAB DESTINATION: RESWA ENV. LAB	PROJECT NUMBER: <u>SS018</u>	PROJECT CONTACT: <u>TIM REED</u>
SAMPLER(S): (Signature) <u>Tim Reed</u>		
P.O. NUMBER _____		COUNTY: <u>ALAMEDA</u>

LAB NUMBER	SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	CONDITION ON RECEIPT	ANALYSIS REQUESTED	SAMPLE TYPE	CONTAINER TYPE
							WATER	VDA
109-189	MW-1	9-17-91	4:40	broken	1	BTEX, TPA (GAS)	WATER	VDA
109-178	MW-2		4:10					
109-179	MW-3		3:55					
109-180	MW-5		4:30					
109-181	MW-6		4:35		1			
109-182	MW-7		3:15					
109-183	MW-8		2:45					
109-184	RW-1		4:20					
109-185	RW-2		2:30					
109-186	RW-3		2:35					
109-187	INFLENT		2:00					
109-188	EFFLENT		2:10					
109-189	TRAP BANK							

SPECIAL INSTRUCTIONS: PRESERVED w/ HCl 1:1

POSSIBLE SAMPLE HAZARDS: _____

- 1. Relinquished by: Tim Reed Date/Time: 9/19/91 11:30 Received by: Dawn Matney Date/Time: 9/19/91 3:12
- 1. Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
- 1. Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
- 1. Relinquished by: _____ Date/Time: _____ Received by: Diana Klancar Date/Time: 9/20 1:10

APPLIED ANALYTICAL

Environmental Laboratories

17062 Murphy Ave.
Irvine, CA 92714-5914
714 851-1544

ANALYSIS REPORT

Attention: Tim Raed
Groundwater Resources, Inc.
1500 S. Union Ave.
Bakersfield, CA 93307

Date Sampled: 09-17-91
Date Received: 09-20-91
Date Analyzed: 09-25-91
Date Reported: 10-02-91

Project: 55018

Matrix: Water

Detection limit (ug/L)	<u>Benzene</u> 0.3	<u>Toluene</u> 0.3	<u>Ethyl- benzene</u> 0.3	<u>Total Xylenes</u> 0.5	<u>TPH</u> 50
<u>Sample description</u>					
MW-1 W2-109-189*	1,200	520	1,400	2,300	38,000
MW-2 W2-109-178*	ND	ND	ND	ND	ND
MW-3 W2-109-179*	ND	ND	ND	ND	ND
MW-5 W2-109-180*	ND	ND	ND	ND	ND
MW-6 W2-109-181*	ND	ND	ND	ND	86
MW-7 W2-109-182*	ND	ND	ND	ND	ND
MW-8 W2-109-183*	ND	ND	ND	ND	ND
RW-1 W2-109-184*	ND	ND	ND	ND	ND

TPH = total petroleum hydrocarbons as gasoline.

ug/L = Micrograms per liter = ppb = parts per billion.

* = Laboratory identification number.

ND = Analytes not detected at or above the stated detection limit.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene ethylbenzene, and total Xylene isomers are measured in accordance with EPA Method 5030 followed by analysis using EPA Method 8020.

TPH-- Total petroleum hydrocarbons as gasoline are measured in accordance with EPA Method 5030, followed by modified EPA Method 8015.

APPLIED ANALYTICAL

Environmental Laboratories

17062 Murphy Ave.
Irvine, CA 92714-5914
714 851-1544

ANALYSIS REPORT

Attention: Tim Reed
Groundwater Resources, Inc.
1500 S. Union Ave.
Bakersfield, CA 93307

Date Sampled: 09-17-91
Date Received: 09-20-91
Date Analyzed: 09-25-91
Date Reported: 10-02-91

Project: 55018

Matrix: Water

Detection Limit (ug/L)	Benzene 0.3	Toluene 0.3	Ethyl- benzene 0.3	Total Xylenes 0.5	TPH 50
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Sample description

RW-2 W2-109-185*	ND	ND	ND	ND	ND
RW-3 W2-109-186*	ND	ND	ND	ND	ND
INFLUENT W2-109-187*	ND	ND	ND	ND	ND
EFFLUENT W2-109-188*	ND	ND	ND	ND	ND
TRAVEL BLANK W2-109-190*	ND	ND	ND	ND	86

TPH = total petroleum hydrocarbons as gasoline.

ug/L = Micrograms per liter = ppb = parts per billion.

* = Laboratory identification number.

ND = Analytes not detected at or above the stated detection limit.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene ethylbenzene, and total Xylene isomers are measured in accordance with EPA Method 5030 followed by analysis using EPA Method 8020.

TPH-- Total petroleum hydrocarbons as gasoline are measured in accordance with EPA Method 5030, followed by modified EPA Method 8015.