ATC ASSOCIATES INC.

6666 Owens Drive
Pleasanton, California 94588
925 460.5300
Fax 925.463.2559

November 4, 1999

Mr. Barney Chan
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Agency Response Letter
New Genico Site
3927 East 14th Street
Oakland, California

Dear Mr. Chan:

ATC Associates Inc. (ATC), on behalf of Ruben Hausauer, has prepared this response to comments in the Alameda County Health Care Service's (ACHCS's) letter dated August 3, 1999. The ACHCS had several comments regarding ATC's ASTM Tier 2 RBCA Analysis Amendment dated July 21, 1999, and Kleinfelder's Second Quarter 1999 Groundwater Monitoring Report dated July 22, 1999.

This response letter has been prepared to address the request of the ACHCS for technical information, reports, and comments on the ACHCS's observations. ATC has also attached a copy of the ACHCS letter dated August 3, 1999 as **Attachment A**.

ACHCS Request: "In order to complete the RBCA analysis, please provide a revised Tier 1 Analysis. This should reflect the California slope factor for benzene of 0.1 and the acceptable risk of 1X10E-05."

Response: On or about August 10, 1999, Ms. Dabra Sheldon of ATC and Mr. Barney Chan of ACHCS discussed whether or not a revised Tier 1 Analysis was necessary. Both parties then agreed that a revised Tier 1 Analysis would not be necessary.

ACHCS Request. "Please clarify your methods for estimating the representative benzene concentration in groundwater beneath the site. It appears that this concentration was not estimated as stated in Section 2.2 in the RBCA amendment. You may want to incorporate the groundwater data from the latest monitoring event to estimate this concentration."

Response: ATC will provide this information under separate cover on or around December 20, 1999.

ACHCS Request: "Please provide a rose diagram of the historical groundwater flow direction at this site. This will be used to support not evaluating exposure to residential properties."

Response: A copy of a rose diagram on the most recent groundwater elevation contour map prepared by ATC is included as **Attachment B**.

ACHCS Request: "Please provide copies of the GSI input and output data sheets for all derived SSTL values."

Response: ATC will provide this information under separate cover on or around December 20, 1999.

ACHCS Request: "It is interesting that the dissolved oxygen concentration in MW-4 from the Motor Partner's site increased after the ORC injections, while DO in the Hausauer's wells did not change significantly. Is this an indication of a difference in measuring dissolved oxygen by the two consultants?"

Response: ATC has prepared charts depicting oxygen concentrations and groundwater elevations vs. time. The charts are included in **Attachment C**. As depicted on Chart 1, Chart 2, Chart 3, and Chart 4, it appears that in November 1997, the oxygen concentrations were as high as 2.5 milligrams per liter (mg/l) and in June 1998, the oxygen concentrations were as high as 3.7 mg/l. Thereafter, the concentrations generally decreased until the injection of Oxygen Releasing Compound (ORC) in November 1998. The November 1997 and June 1998 reported concentrations may not be representative of actual levels of oxygen in groundwater beneath the site. These above average oxygen concentrations may be attributed to field personnel taking the oxygen readings after the monitoring wells had been purged, which would render erroneous oxygen readings. At the time these above average readings were recorded, monitoring for biological parameters was still relatively new, and proper protocol may not have been followed. Following the injection of ORC, the oxygen concentrations in all four monitoring wells increased until June 1999. Thereafter, the oxygen concentrations decreased. This decrease may or may not be attributed to the depletion of the ORC in the groundwater.

ATC was not present to observe Kleinfelder or Aquatic & Environmental Application obtain their oxygen readings for the New Genico or Motor Partner's sites, respectively, therefore, ATC cannot state with certainty the reasons for the differences in dissolved oxygen readings between consulting firms.

ACHCS Request: "Is there a need to re-inject additional ORC?"

Response: Prior to determining whether another injection of ORC is required for the site, ATC would like to gather one or two additional quarters of data from the site. Thereafter, ATC will review the data to determine whether there is a need for additional ORC to be injected.

ACHCS Request: "Please provide a report of the ORC injection including a site map, description of the boring, the amounts of ORC slurry added, and the calculations documenting the amount of oxygen needed to treat the plume."

Response: A copy of ATC's Letter Report "Installation of Oxygen Releasing Compound" dated November 17, 1998 is included in **Attachment D**. In addition, ATC has included a copy of the ORC Slurry Injection calculations that were derived using the ORC Applications Software Version 2.0. These calculations were followed in the field.

ACHCS Request: "The concentrations of TPHg and benzene have at times decreased, however, this may be reflective of groundwater elevation changes rather than bio-remediation."

Response: ATC has prepared charts depicting total petroleum hydrocarbons (TPH) as gasoline (TPH-G) concentrations and groundwater elevations vs. time. The charts are included in **Attachment C**. Based on Chart 5, Chart 6, Chart 7, and Chart 8, it appears that the TPH-G concentrations mimic groundwater elevations. However, the charts suggest that overall the TPH-G concentrations are decreasing with time. This is clearly shown by the exponential trend line that was calculated for each chart. explain

Additionally, ATC prepared Chart 9, Chart 10, Chart 11, and Chart 12 depicting the benzene concentrations and groundwater elevations vs. time. The charts are also included in **Attachment C**. The benzene concentrations follow the same trend as the TPH-G concentrations described above. Based on the overall decrease in TPH-G and benzene concentrations, it appears that natural attenuation of petroleum hydrocarbons is occurring beneath the site.

If you have any questions regarding this response letter, please call Al Martinez at (925) 460-5300.

Very truly yours,

ATC ASSOCIATES INC.

Al Martinez
Project Manager

James A. Lehrman, RG, CHG
Program Director, Subsurface/Remediation

Attachments

APPENDIX A

ALAMEDA COUNTY HEALTH CARE SERVICES LETTER

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9335 (FAX)

August 3, 1999
StID # 4610

Mr. Tommy Conner, Esq.
Conner Bak, LLP
444 De Haro St., Suite 121
San Francisco, CA 94107

Re: New Genico Site, 3927 E. 14th St., Oakland CA 94601

Dear Mr. Conner:

Our office has received and reviewed the two documents; **ASTM Tier 2 RBCA Analysis Amendment and the Second Quarter 1999 Groundwater Monitoring Report** by ATC Associates and Kleinfelder, respectively. This letter serves to comment on both of these reports.

In regards to the RBCA Analysis, our office has the following comments:

- There have been several conversations between our office and ATC regarding the original Tier 1 and subsequent Tier 2 risk assessments. These conversations were between Ms. Dabra Sheldon of ATC and Ms. Madhulla Logan of ACEH. Unfortunately, both these individuals are no longer with these respective companies. In order to complete the RBCA analysis, please provide a revised Tier 1 Analysis. This should reflect the California slope factor for benzene of 0.1 and the acceptable risk of 1X10E-5.
- Please clarify your method for estimating the representative benzene concentration in groundwater beneath the site. It appears that this concentration was not estimated as stated in section 2.2 in the RBCA amendment. You may want to incorporate the groundwater data from the latest monitoring event to estimate this concentration.
- Please provide a rose diagram of the historical groundwater flow direction at this site. This will be used to support not evaluating exposure to residential properties.
- Please provide copies of the GSI input and output data sheets for all derived SSTL values.

In regards to the groundwater monitoring report, I have the following comments:

- The site apparently has not seen the expected affect from the injection of ORC (oxygen releasing compound). The dissolved oxygen concentrations and the oxidation-reduction potentials do not reflect the anticipated increase in these parameters. It is interesting that the dissolved oxygen concentration in MW-4 from the Motor Partner's site increased after the ORC injections, while DO in the Hausauer's wells did not change significantly. Is this an indication of a difference in measuring dissolved oxygen by the two consultants? Is there a need to re-inject additional ORC? Please provide a report of the ORC injection including a site map, a description of the boring, the amounts of ORC slurry added, and the calculations documenting the amount of oxygen needed to treat the plume
- The concentration of TPHg and benzene have at times decreased, however, this may be reflective of groundwater elevation changes rather than bio-remediation

- Our office concurs with the amended groundwater monitoring plan for this site. Therefore, HMW-1 will continued to be sampled quarterly, wells HMW-2 and HMW-4 will be monitored semi-annually, and well HMW-3 will be sampled annually. However, please continue to take groundwater elevation, dissolved oxygen and oxidation-reduction potential on all wells on a quarterly basis.

Please provide the requested technical information and reports and comment to the above observations. Please respond **within 30 days or by September 7, 1999.**

You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

Barney M Chan

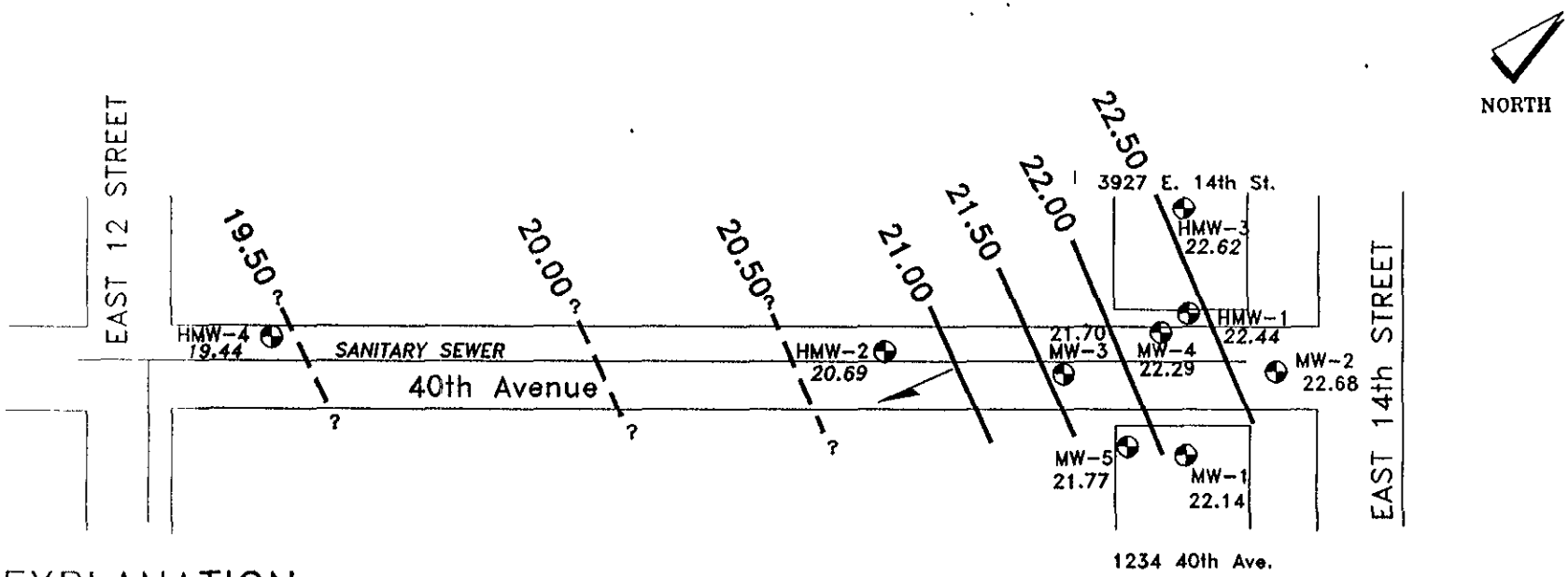
Barney M. Chan
Hazardous Materials Specialist

C: B. Chan, files
Mr. R. Hausauer, 6017 E. 14th St., Oakland CA 94621
Mr. W. Theyskins, Kleinfelder, 1362 Ridder Park Drive, San Jose, CA 95131
Mr. Al Martinez, ATC Associates Inc., 6666 Owens Drive, Pleasanton, CA 94588

RBCAmon3927

APPENDIX B

ROSE DIAGRAM



EXPLANATION

HMW-3 Groundwater **Monitoring Well**

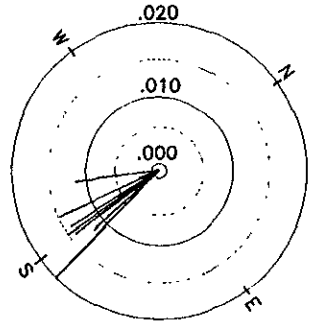
22.44 Groundwater **Elevation in Feet** (mean sea **level) Measured** on **September 23, 1999.**

22.50 Groundwater **Elevation Contour** Line **in Feet (mean sea level)**

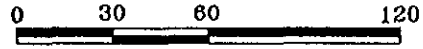
Approximate **Groundwater** Flow **Direction**

Notes:

1. Base Map **developed from** survey map **provided by** Kier & **Wright**
2. Location of **HMW-4 obtained** from Artesian **Environmental** Project No.: **197-002-01** Date: 1/8/**98**
3. Location of **MW-5 obtained** from Aquatic **& Environmental Applications,** Project No.: **1004** Date: 3/27/**98**



HISTORIC GROUNDWATER FLOW DIRECTIONS AND GRADIENTS BEGINNING 2/22/97



VATC ASSOCIATES INC.
ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

GROUNDWATER ELEVATION CONTOUR MAP (SEPTEMBER 23, 1999)
NEW GENICO
3927 E. 14th Street
Oakland, California

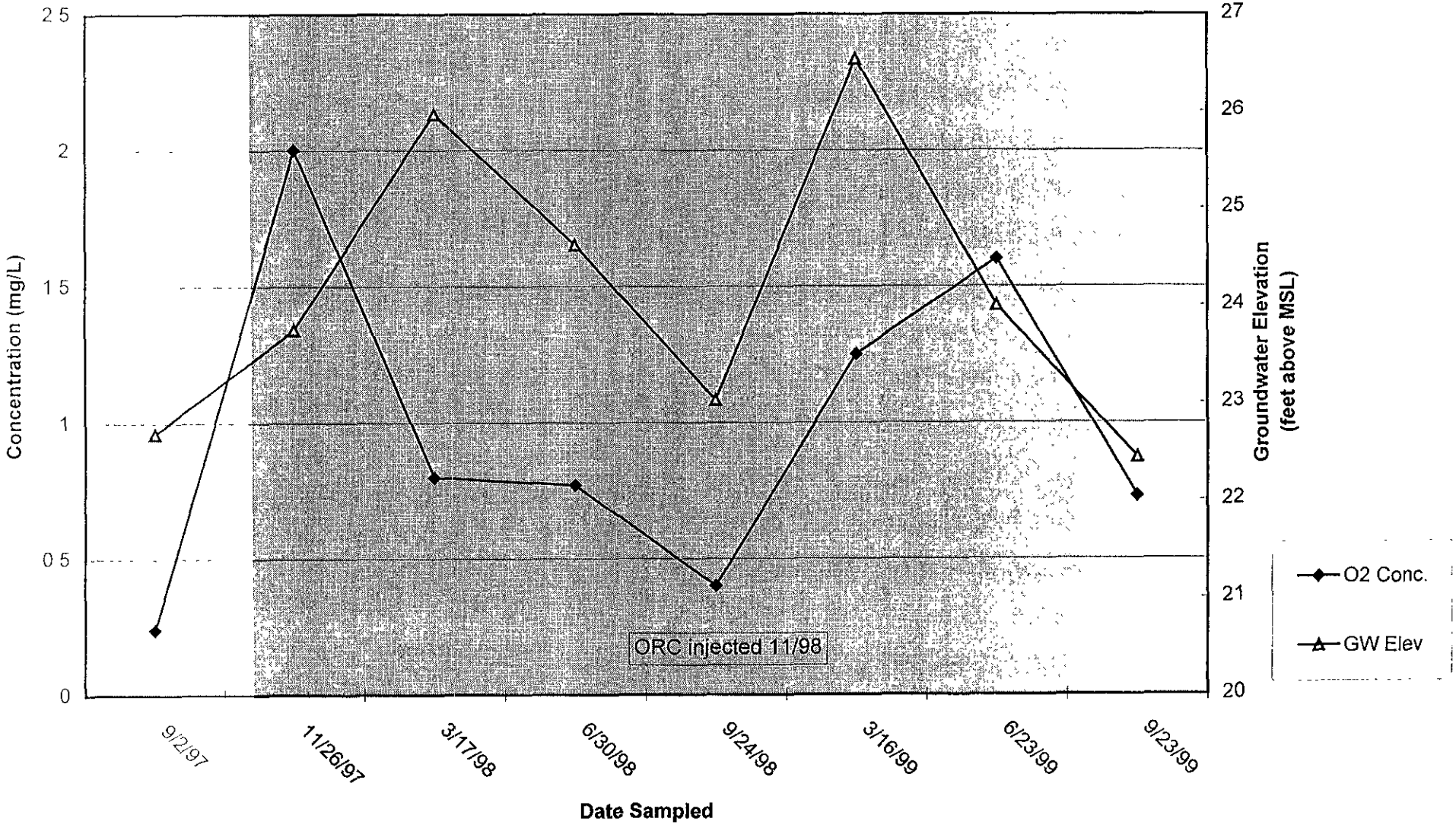
Project No. 61137.0008

APPENDIX C

CHARTS

After ORC inject. DO went from ~0.4 to 1.25 to 7.6 ppm, hardly significant

Chart 1. Oxygen Concentrations with Groundwater Hydrograph for Well HMW-1



HMW-2 is so far from ORC inj that you wouldn't expect an increase in D.O.

Chart 2. Oxygen Concentrations with Groundwater Hydrograph for Well HMW-2

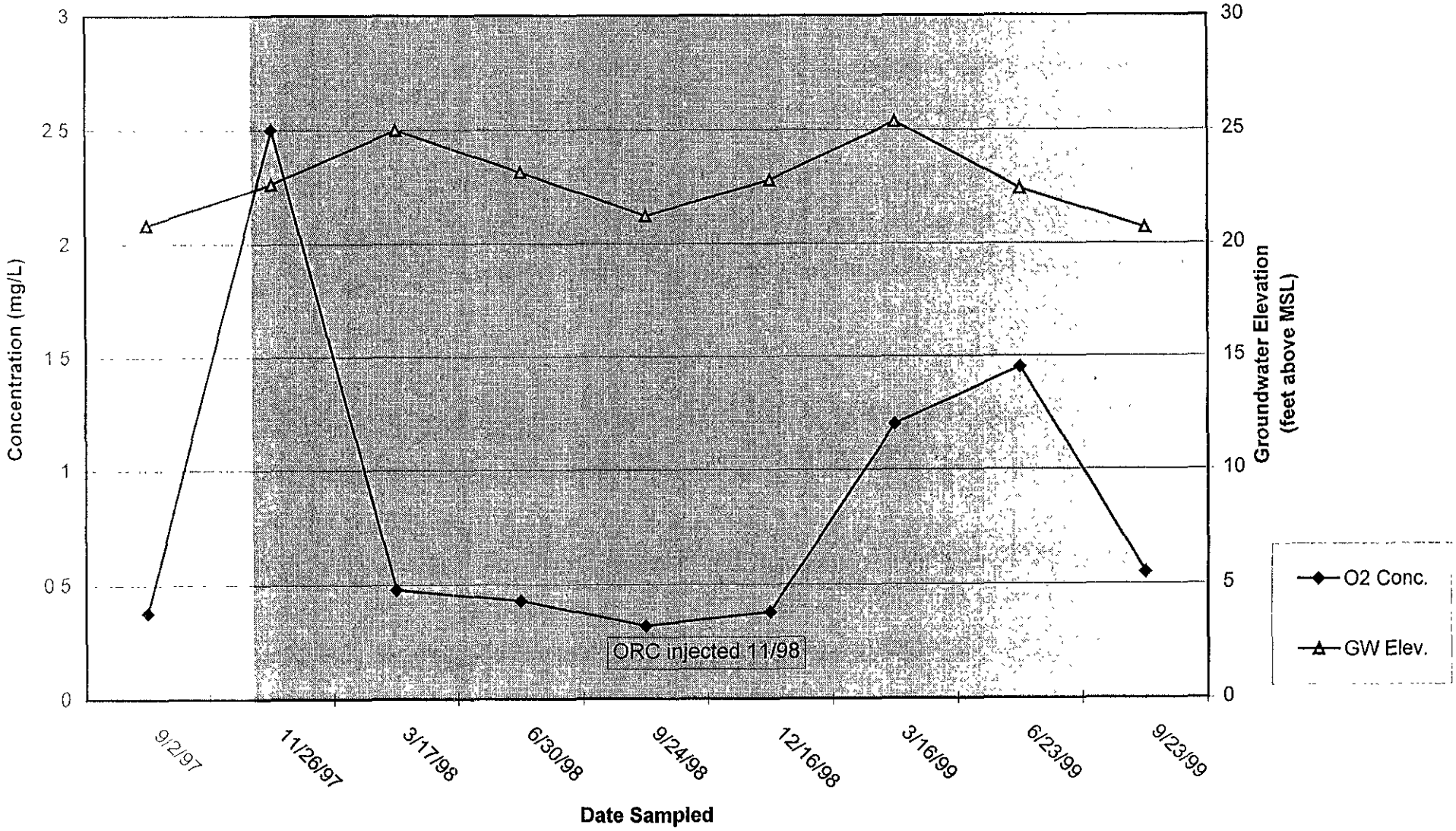


Chart 3. Oxygen Concentrations with Groundwater Hydrograph for Well HMW-3

also upgradient / Bg
these and are similar to that in HMW-1.

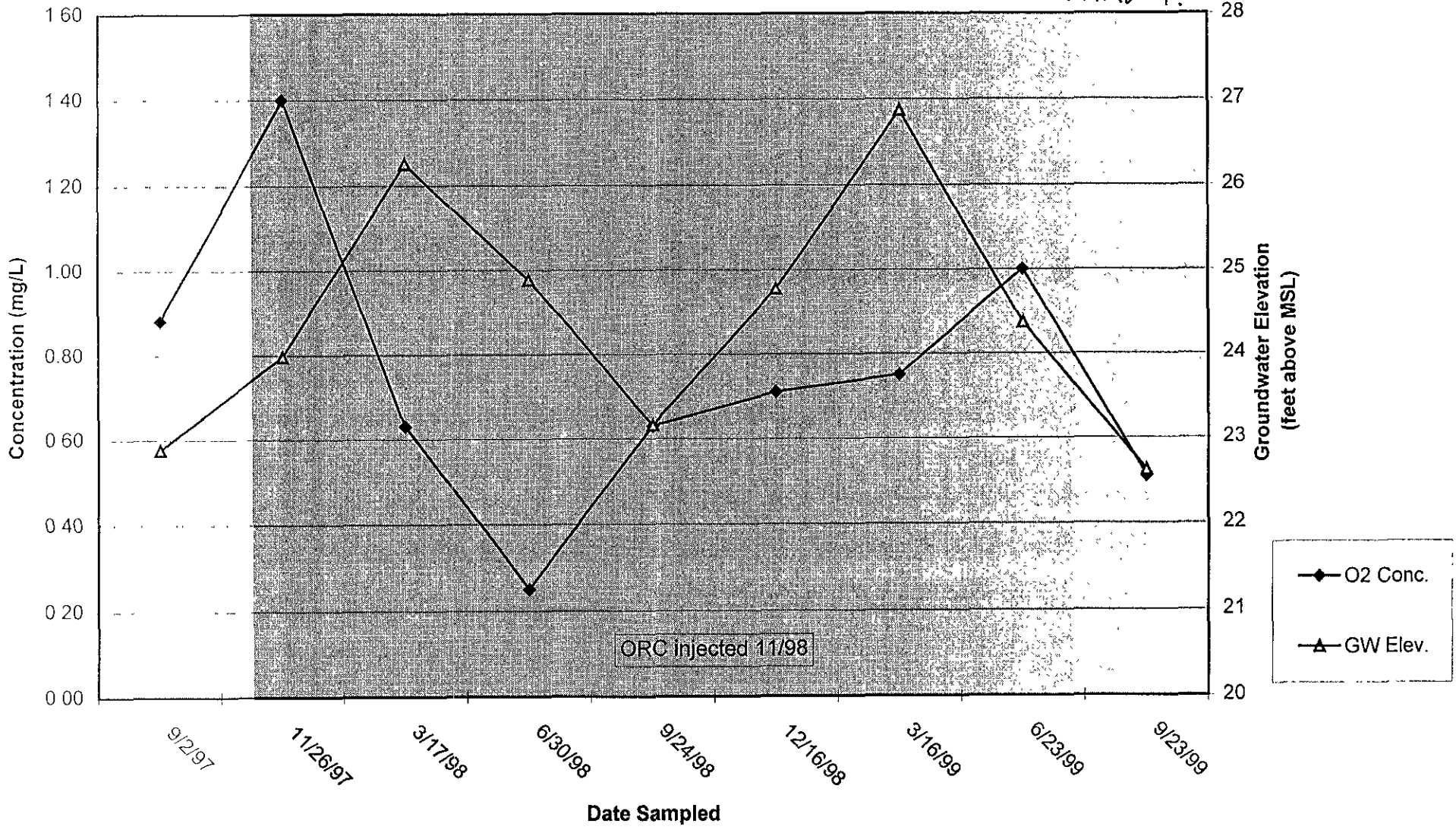


Chart 4. Oxygen Concentrations with Groundwater Hydrograph for Well HMW-4

For downgradient & [DO] lushes than w/i injection area

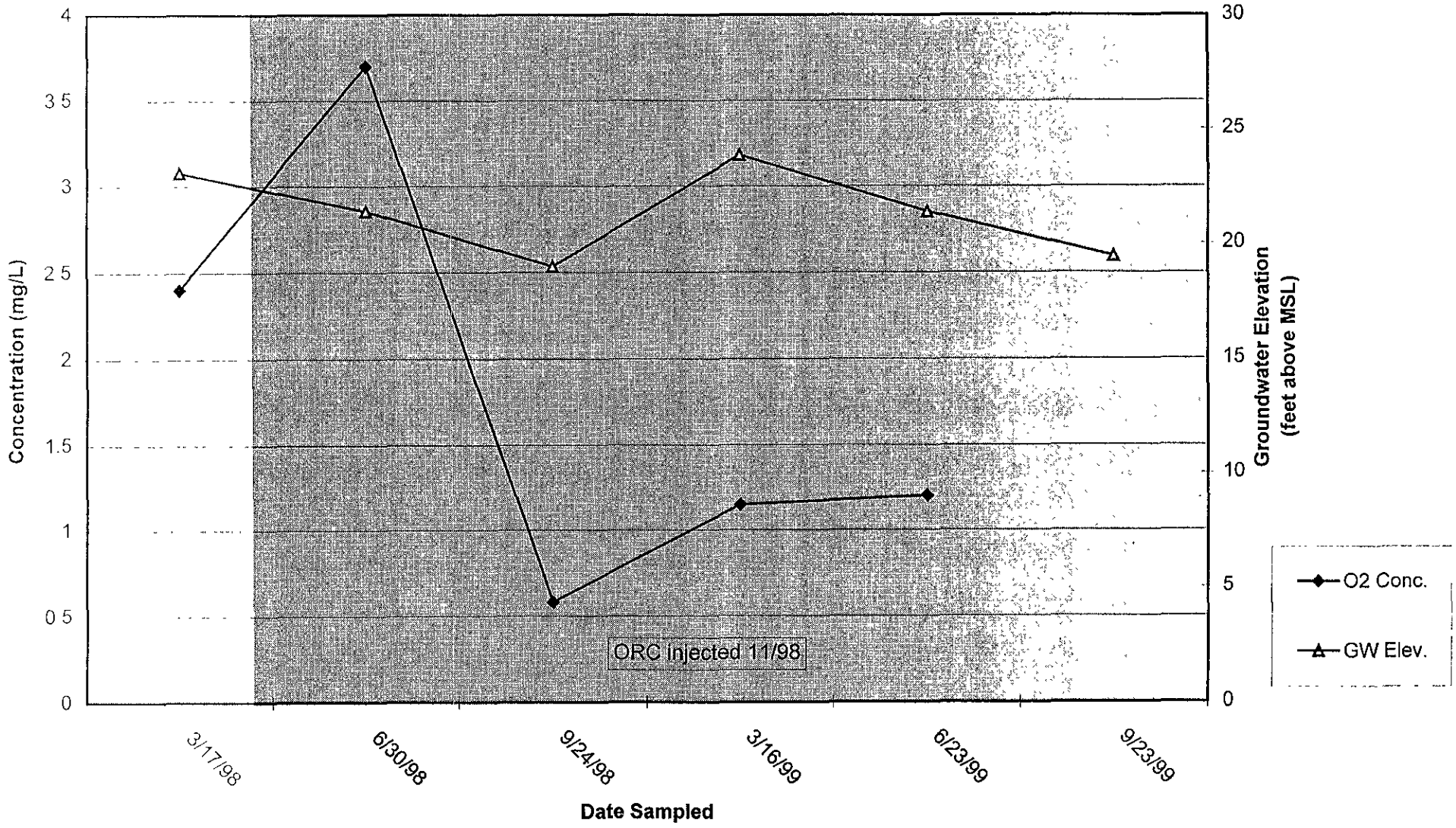


Chart 5. TPH-G Concentrations with Groundwater Hydrograph for Well HMW-1

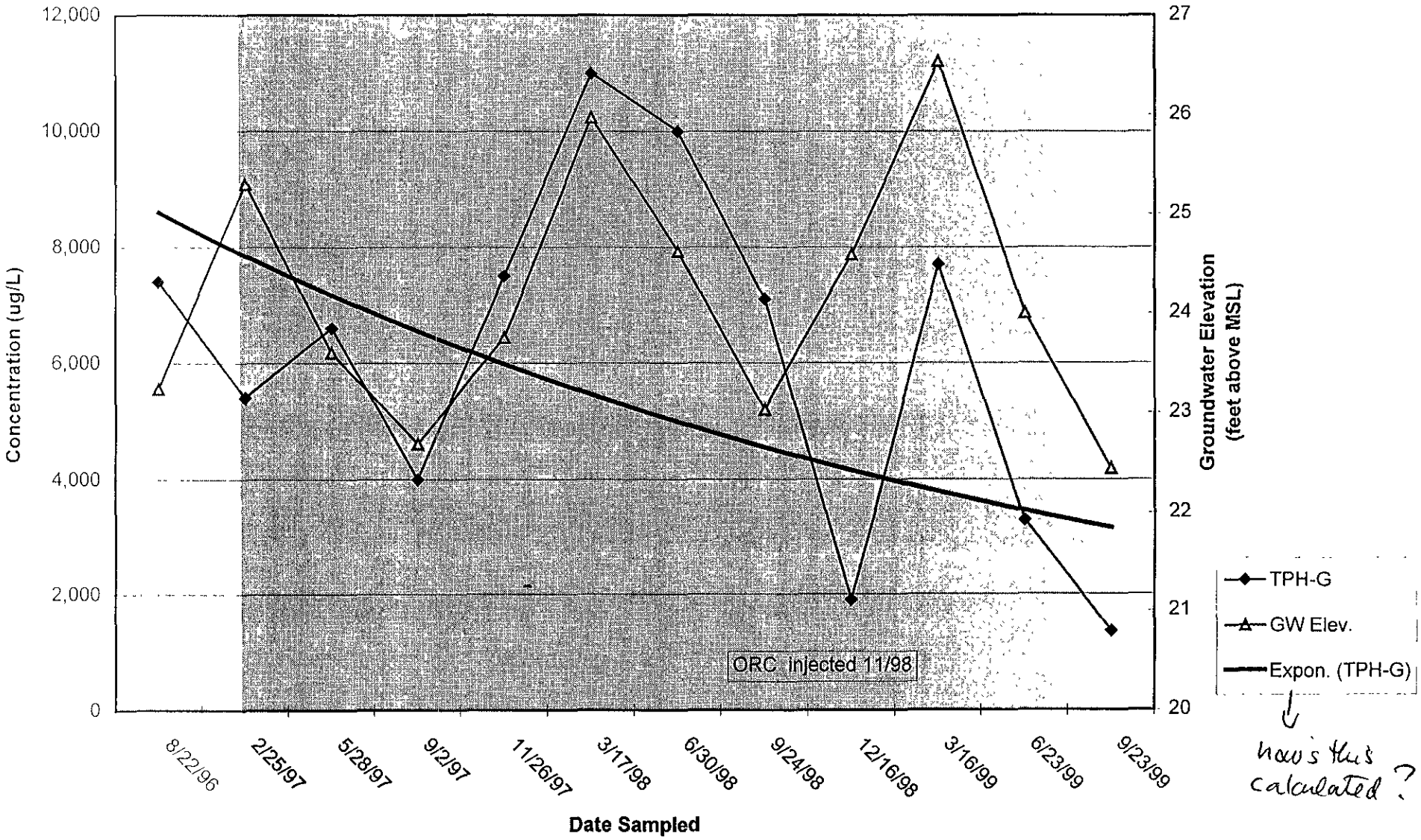


Chart 6. TPH-G Concentrations with Groundwater Hydrograph for Well HMW-2

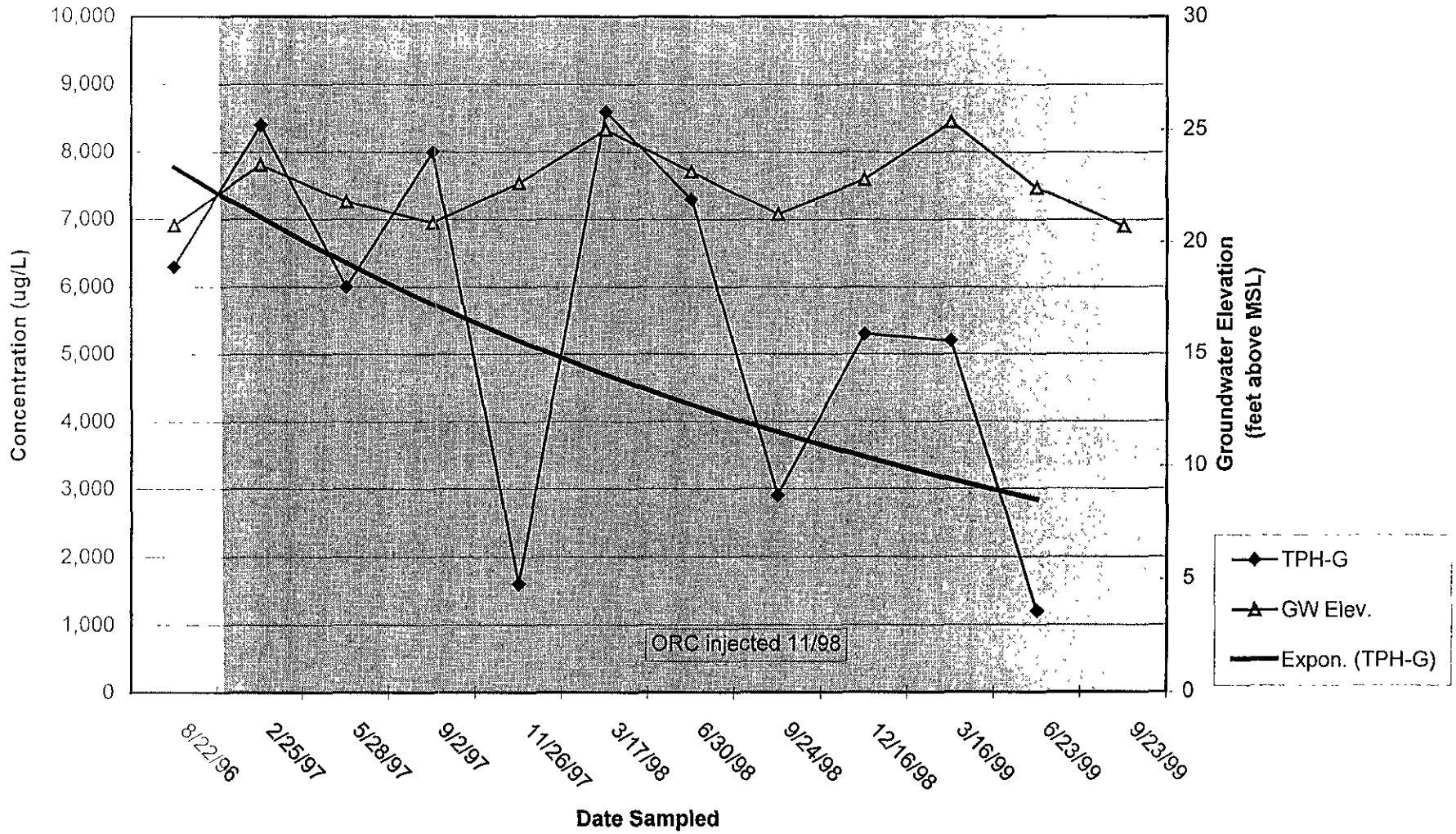


Chart 7. TPH-G Concentrations with Groundwater Hydrograph for Well HMW-3

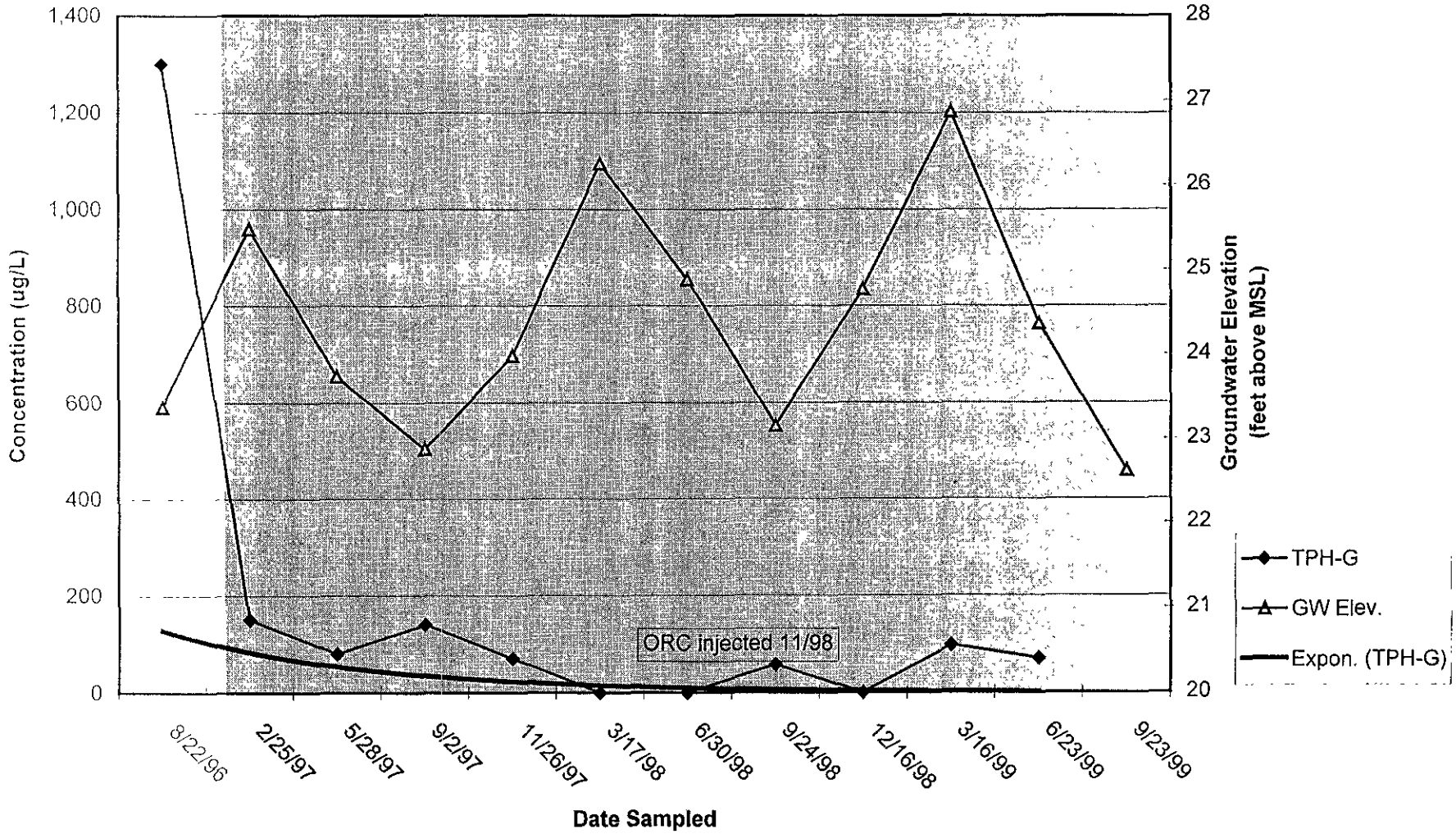


Chart 8. TPH-G Concentrations with Groundwater Hydrograph for Well HMW-4

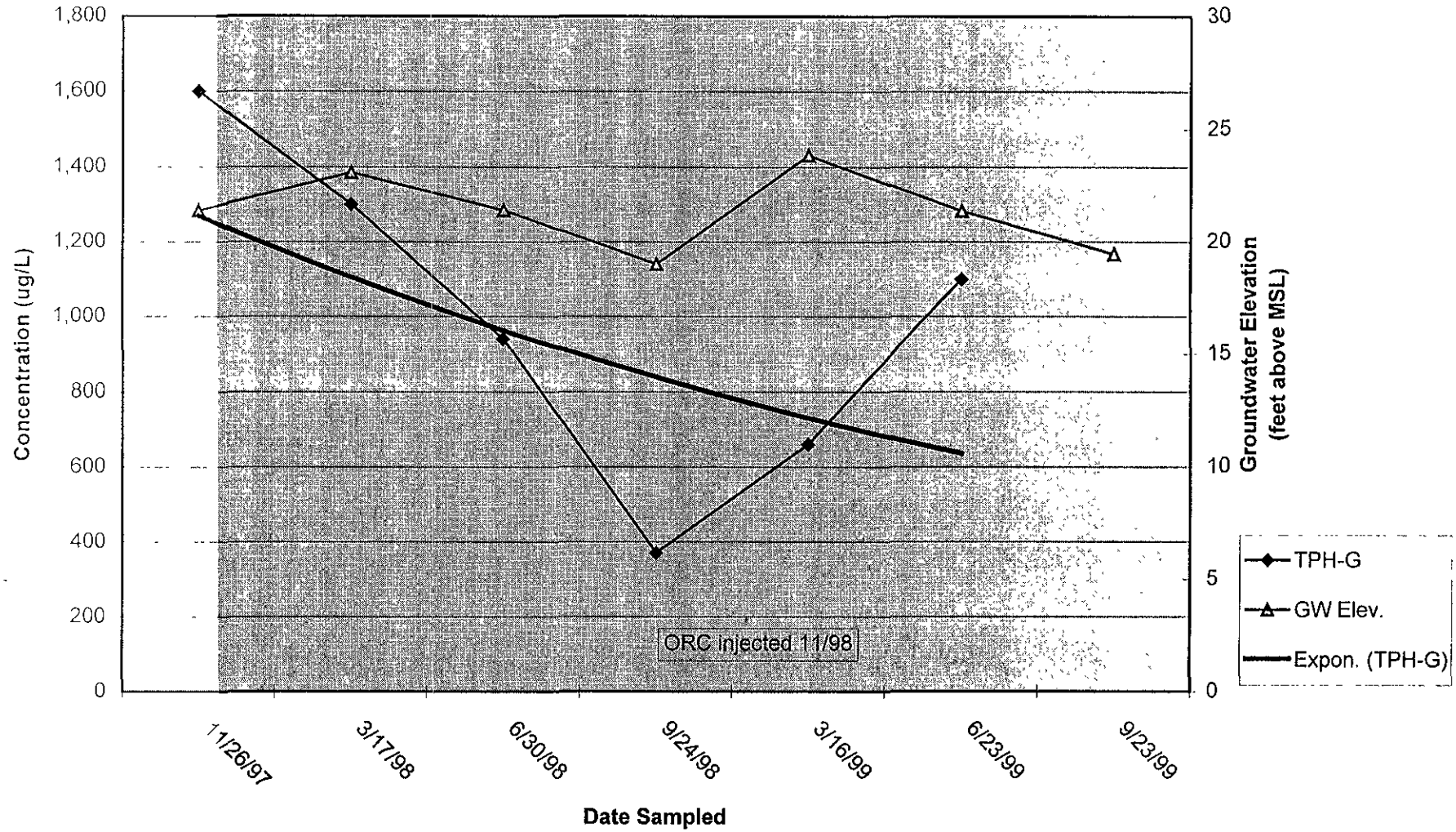


Chart 9. Benzene Concentrations with Groundwater Hydrograph for Well HMW-1

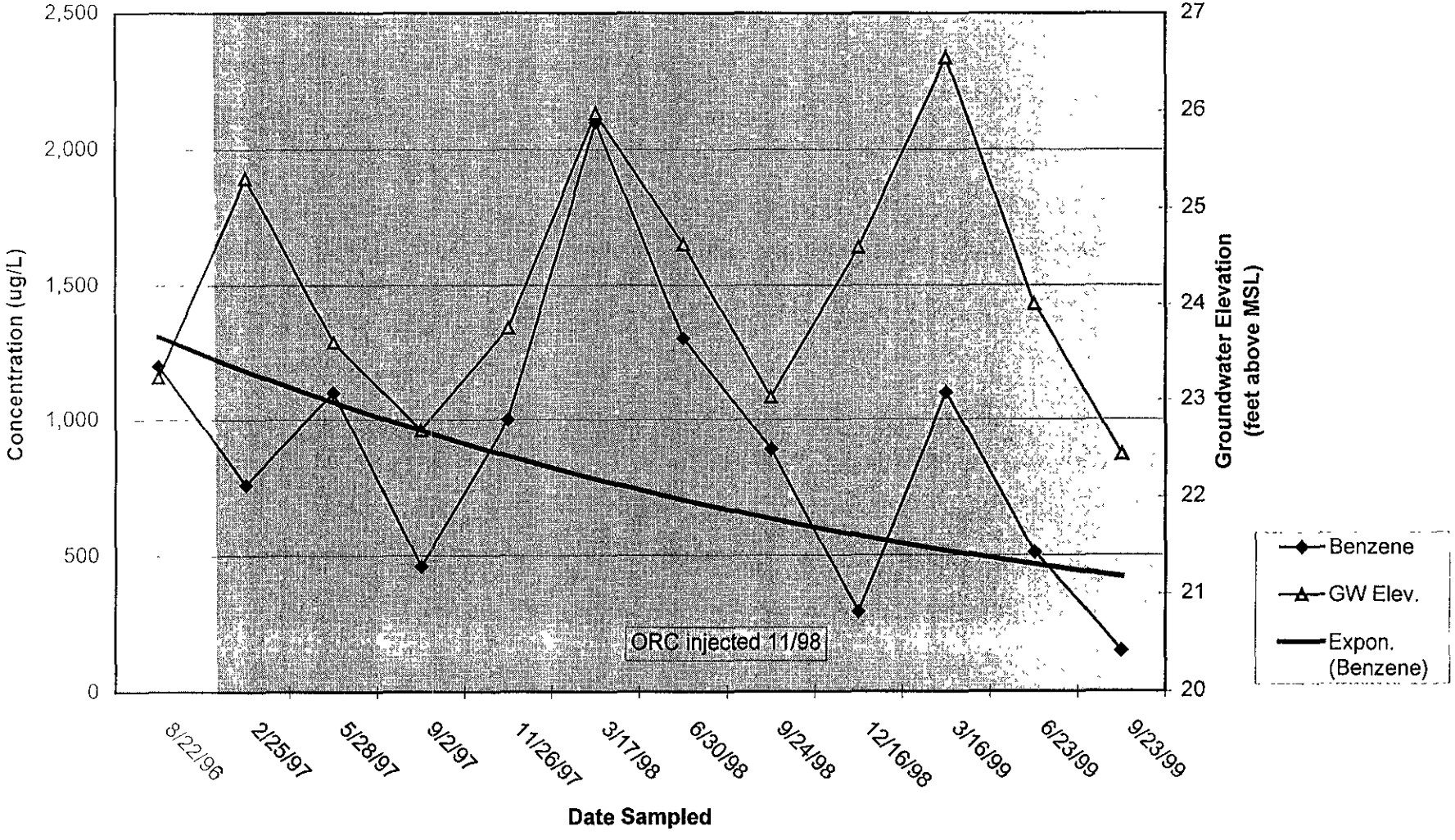


Chart 10. Benzene Concentrations with Groundwater Hydrograph for Well HMW-2

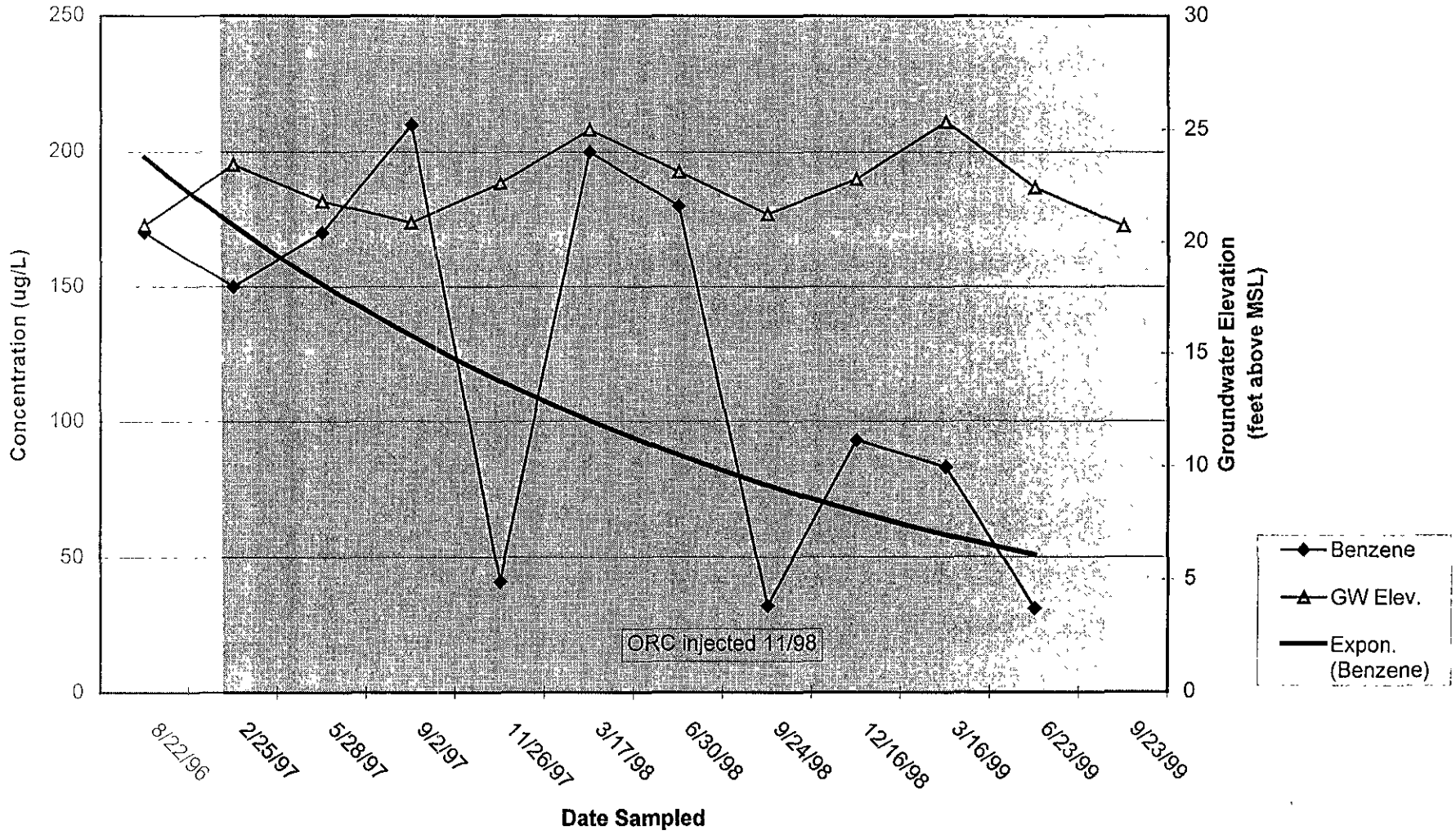


Chart 11. Benzene Concentrations with Groundwater Hydrograph for Well HMW-3

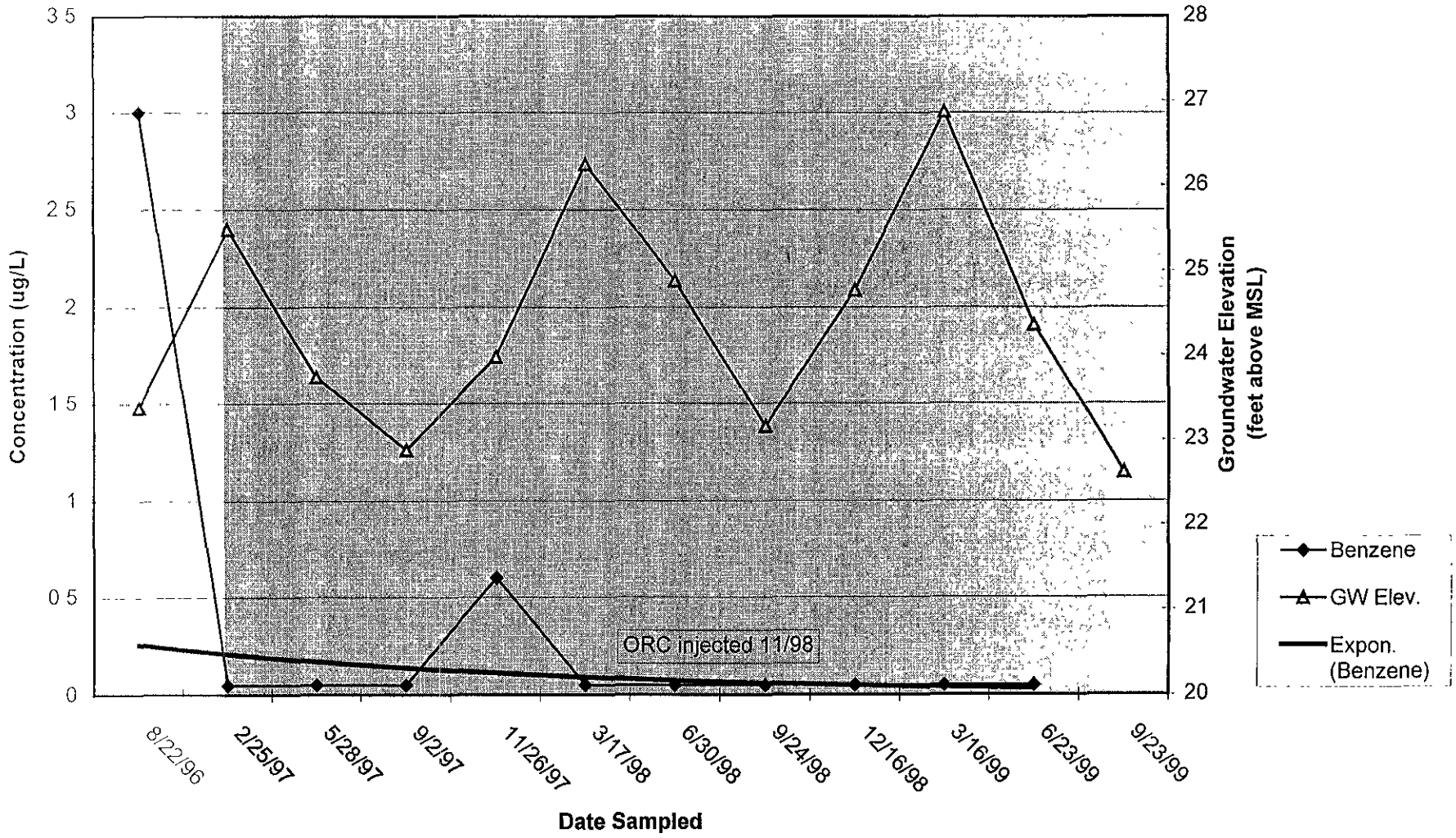
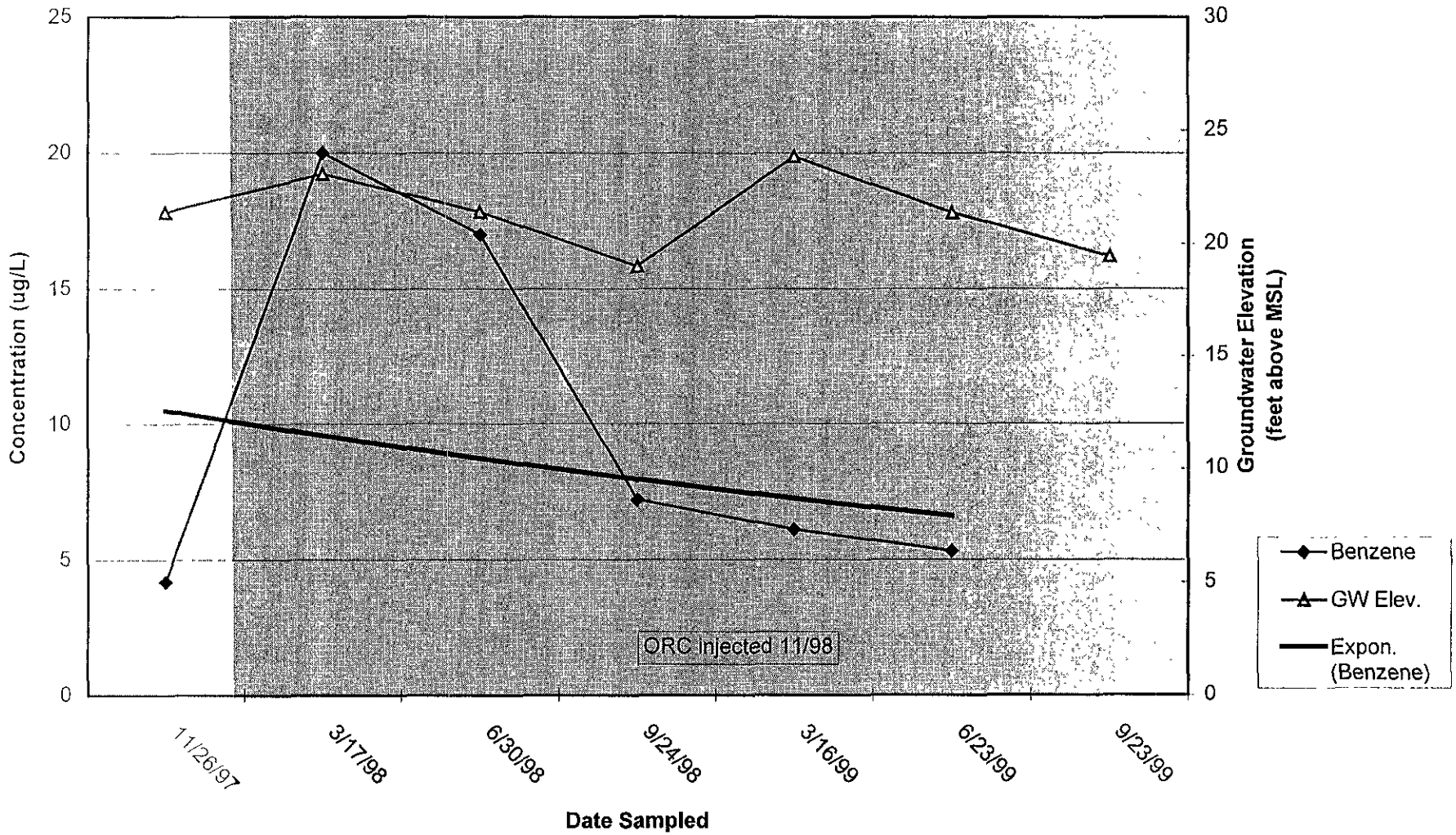


Chart 12. Benzene Concentrations with Groundwater Hydrograph for Well HMW-4



APPENDIX D

ATC's LETTER REPORT "INSTALLATION OF OXYGEN RELEASING COMPOUND" AND ORC SLURRY INJECTION CALCULATIONS

ATC ASSOCIATES INC.

6666 Owens Drive
Pleasanton, California
94588
510 460 5300
Fax 510.463 2559

COPY

November 17, 1998

Mr. Ruben Hausauer c/o
Mr. Tommy Conner, Esquire
444 DeHaro Street, Suite 121
San Francisco, California 94107

SUBJECT: LETTER REPORT
INSTALLATION OF OXYGEN RELEASING COMPOUND
GENICO
3927 EAST 14TH STREET
OAKLAND, CALIFORNIA

Dear Mr. Hausauer:

ATC Associates Inc. (ATC) is pleased to present this letter report summarizing the installation of oxygen releasing compound (ORC) at the above referenced site. A site plan showing the location of the building, adjacent streets, monitoring wells, ORC Injection Points, and other site-specific features is included as **Figure 1** in **Appendix A.**

Prior to the installation of the ORC, ATC applied for a Excavation Permit from the City of Oakland. A copy of the approved Excavation Permit is included as **Appendix B.** Subsequently, ATC applied for a Drilling Permit from the Alameda County Public Works Agency (ACPWA). A copy of the approved Drilling Permit is included as **Appendix C.**

ATC retained the services of Fisch Environmental Exploration Services (Fisch) of Valley Springs, California for advancing the ORC Injection Points. The field investigation was performed on November 12, 1998. Underground Services Alert (USA) was notified of the proposed drilling activities to ensure that no utility lines were located within the immediate vicinity of the ORC Injection Points. Cruz Brothers Sub-Surface Locators Inc. of Milpitas, California provided a subsurface survey of utility lines and other buried objects in and around the ORC Injection Point locations.

Based on ATC's Corrective Action Plan dated July 23, 1998, eight (8) ORC Injection Points were completed in the vicinity of the former waste oil underground storage tank (UST) area (**Figure 1**). Each ORC injection point was completed to a depth of approximately 20 feet below ground surface (bgs). Based on the groundwater plume dimensions, TPH-G concentrations and calculations performed using the *ORC®*

Applications Software Version 2.0, 408 pounds of ORC (51 pounds per ORC injection point) was injected to enhance the aerobic bioremediation process beneath the site.

To complete the ORC injection process, Fisch drove one-and-one-half-inch diameter rods with a expendable tip(s) from surface level to approximately 20 feet bgs at each ORC Injection Point location. The injection tool at the bottom of the rods has numerous jets along its length which are directed at the right angles to each other. Upon achieving the desired depth, Fisch then disconnected the rod(s) from the expendable tip(s). Per ATC's instructions, Fisch mixed the appropriate quantities of water and dry ORC material. A slurry pump was then used to inject the ORC slurry through the rods as the rods were being retracted from the borehole(s). The ORC slurry was injected from approximately 10 feet bgs to approximately 20 feet bgs. Injecting the ORC through this interval allowed the ORC to be injected through the petroleum hydrocarbon contaminated zone, including the capillary fringe and "smear zone". Upon completing the ORC injection process, a bentonite/cement grout was tremied from approximately 10 feet bgs to surface level. Each ORC Injection Point was then capped with concrete.

Upon completion of the ORC injection activities, ATC hand bailed groundwater monitoring wells HMW-1 in order to remove any residual ORC material that may have entered the well, which could potentially obstruct the monitoring well screen. The purged groundwater was stored on-site in a 55-gallon Department of Transportation (DOT) approved drum. The water will be properly disposed of at a later date and a copy of the manifest will be submitted under separate cover.

If you have any questions regarding this response letter, please feel free to contact me at your convenience at (925) 460-5300.

Sincerely,

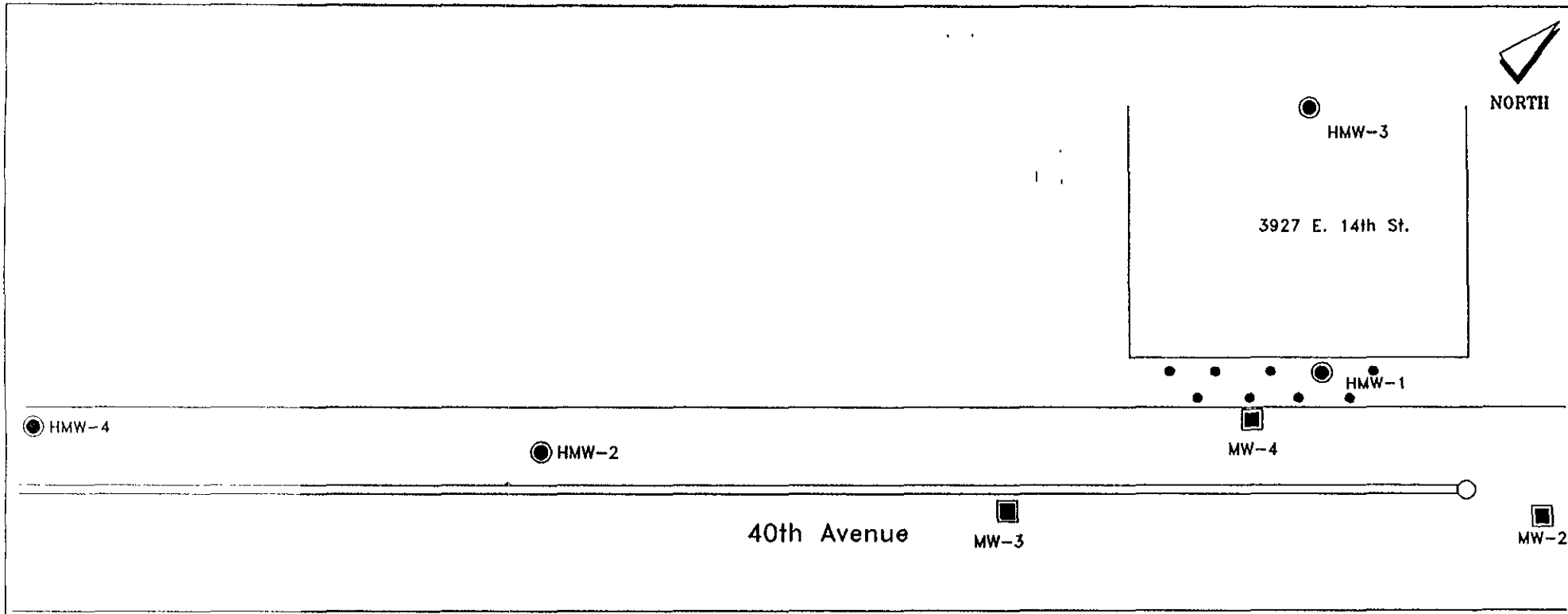
ATC ASSOCIATES INC.

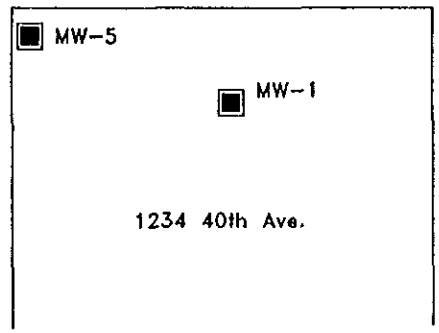
Al Martinez
Project Manager

Attachments

APPENDIX A

FIGURE





0 15 30 60

Scale (Ft.)

EXPLANATION

- HMW-3 — Groundwater Monitoring Well (3927 E. 14th St.)
- MW-1 — Groundwater Monitoring Well (1234 40th Ave.)
- Designation of sanitary sewer.
- Designation of storm sewer.
- ORC Injection point

Notes:

1. Base Map developed from survey map provided by Kier & Wright
2. Location of HMW-2 obtained from Artesian Environmental Project No.: 197-002-01 Date: 1/8/98
3. Location of MW-5 obtained from Aquatic & Environmental Applications, Project No.: 1004 Date: 3/27/98

VATC ASSOCIATES INC.
ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

SITE MAP

GENICO
3927 E. 14th Street
Oakland, California

Project No. 61137.0005 | Figure 1

APPENDIX B

CITY OF OAKLAND EXCAVATION PERMIT

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

(INTOLNATIONAL BL)

PERMIT NUMBER	SITE ADDRESS/LOCATION
X9800794	3927 E 14TH ST
APPROX. START DATE / APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS	CITY BUSINESS TAX #

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: 297084

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X Bahram Zarrabi-Agam — 11/3/98

Signature of Permittee ☐ Agent for ☐ Contractor ☒ Owner — Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED?	HOLIDAY RESTRICTION? (NOV 1 - JAN 1)	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM)
19 90	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO

ISSUED BY: M. Mulet — DATE ISSUED: 11/3/98

SIDEWALK AREA

APPENDIX C

DRILLING PERMIT

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT New Gemini Date
3927 E. 14th Street
Oakland, CA 94601

California Coordinates Source _____ ft. Accuracy ± ___ ft.
CON ✓✓✓✓ ft. CCE ✓✓✓✓ ft.
APN _____

CLIENT
Name Ruben Hausauer
Address 6017 E. 14th Street Phone
City Oakland Zip 94621

APPLICANT
Name A.T.C. Associates Inc. c/o
Al Martinez Fax (925) 463-2559
Address 6666 Owens Drive Phone (925) 460-5300
City Pleasanton Zip 94550

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☒
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☐
Cable	☐	Other	☒ Geoprobe		

DRILLER'S LICENSE NO. 720904

WELL PROJECTS
Drill Hole Diameter 1.5 in. Maximum
Casing Diameter N/A in. Depth 20 ft.
Surface Seal Depth N/A ft. Number 8

GEOTECHNICAL PROJECTS
Number of Borings 8 Maximum
Hole Diameter 1.5 in. Depth 20 ft.

ESTIMATED STARTING DATE 10/30/98
ESTIMATED COMPLETION DATE 10/30/98

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68

APPLICANT'S SIGNATURE A.A. Martinez DATE 10/21/98

FOR OFFICE USE

PERMIT NUMBER 98WR452
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(D.) GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED A.K. DATE 10/27/98

ORC SLURRY INJECTION

Dissolved Hydrocarbon Level (ppm)	16
(For gasoline sites use BTEX measurements)	
Treatment Zone Width (ft)	10
Treatment Zone Length (ft)	50
Thickness of Saturated Treatment Zone (ft)	10
Porosity	0.35
(sand = 0.3, silt = 0.35, clay = 0.4)	
Total Treatment Zone Volume (cu. ft)	5,000
Dissolved Phase Hydrocarbon Mass (lbs)	1.7
Additional Demand Factor	8
(REGENESIS recommends a factor of about 8)	
Loaded Hydrocarbon Mass (lbs)	13.6
Oxygen Required (lbs)	40.8
ORC Required (lbs)	408.0
ORC Unit Cost	$ 10.00
Total Cost of ORC	$ 4,080.00

FOR SOLUTE TRANSPORT MODEL ENTER VALUES BELOW

GW Velocity (ft / day)	0.1
Compliance Pt (ft)	100
Ratio of O2 provided O2 required (percent)	75%
HC Level at compliance point after selected ratio of oxygen in ppm	0.040

Solids Content (%)	40%
Hole Spacing (ft)	8
Number of Holes in Grid	8
ORC per Hole (lbs)	51.0
Water needed per Hole for Slurry (gal)	9.2

APPLICATION COMMENTS

* ORC per hole is above lower limit of 1 pound per linear foot.

ASSOCIATES INC.

6666 Owens Drive
Pleasanton, California
94588
510.460.5300
Fax 510.463.2559

November 17, 1998

Mr. Ruben Hausauer c/o
Mr. Tommy Conner, Esquire
444 DeHaro Street, Suite 121
San Francisco, California 94107

SUBJECT: LETTER REPORT
INSTALLATION OF OXYGEN RELEASING COMPOUND
GENICO
3927 EAST 14TH STREET
OAKLAND, CALIFORNIA

Dear Mr. Hausauer:

ATC Associates Inc. (ATC) is pleased to present this letter report summarizing the installation of oxygen releasing compound (ORC) at the above referenced site. A site plan showing the location of the building, adjacent streets, monitoring wells, ORC Injection Points, and other site-specific features is included as **Figure 1** in **Appendix A**.

Prior to the installation of the ORC, ATC applied for a Excavation Permit from the City of Oakland. A copy of the approved Excavation Permit is included as **Appendix B**. Subsequently, ATC applied for a Drilling Permit from the Alameda County Public Works Agency (ACPWA). A copy of the approved Drilling Permit is included as **Appendix C**.

ATC retained the services of Fisch Environmental Exploration Services (Fisch) of Valley Springs, California for advancing the ORC Injection Points. The field investigation was performed on November 12, 1998. Underground Services Alert (USA) was notified of the proposed drilling activities to ensure that no utility lines were located within the immediate vicinity of the ORC Injection Points. Cruz Brothers Sub-Surface Locators Inc. of Milpitas, California provided a subsurface survey of utility lines and other buried objects in and around the ORC Injection Point locations.

Based on ATC's Corrective Action Plan dated July 23, 1998, eight (8) ORC Injection Points were completed in the vicinity of the former waste oil underground storage tank (UST) area (**Figure 1**). Each ORC injection point was completed to a depth of approximately 20 feet below ground surface (bgs). Based on the groundwater plume dimensions, TPH-G concentrations and calculations performed using the *ORC*R

Applications Software Version 2.0, 408 pounds of ORC (51 pounds per ORC injection point) was injected to enhance the aerobic bioremediation process beneath the site.

To complete the ORC injection process, Fisch drove one-and-one-half-inch diameter rods with a expendable tip(s) from surface level to approximately 20 feet bgs at each ORC Injection Point location. The injection tool at the bottom of the rods has numerous jets along its length which are directed at the right angles to each other. Upon achieving the desired depth, Fisch then disconnected the rod(s) from the expendable tip(s). Per ATC's instructions, Fisch mixed the appropriate quantities of water and dry ORC material. A slurry pump was then used to inject the ORC slurry through the rods as the rods were being retracted from the borehole(s). The ORC slurry was injected from approximately 10 feet bgs to approximately 20 feet bgs. Injecting the ORC through this interval allowed the ORC to be injected through the petroleum hydrocarbon contaminated zone, including the capillary fringe and "smear zone". Upon completing the ORC injection process, a bentonite/cement grout was tremied from approximately 10 feet bgs to surface level. Each ORC Injection Point was then capped with concrete.

Upon completion of the ORC injection activities, ATC hand bailed groundwater monitoring wells HMW-1 in order to remove any residual ORC material that may have entered the well, which could potentially obstruct the monitoring well screen. The purged groundwater was stored on-site in a 55-gallon Department of Transportation (DOT) approved drum. The water will be properly disposed of at a later date and a copy of the manifest will be submitted under separate cover.

If you have any questions regarding this response letter, please feel free to contact me at your convenience at (925) 460-5300.

Sincerely,

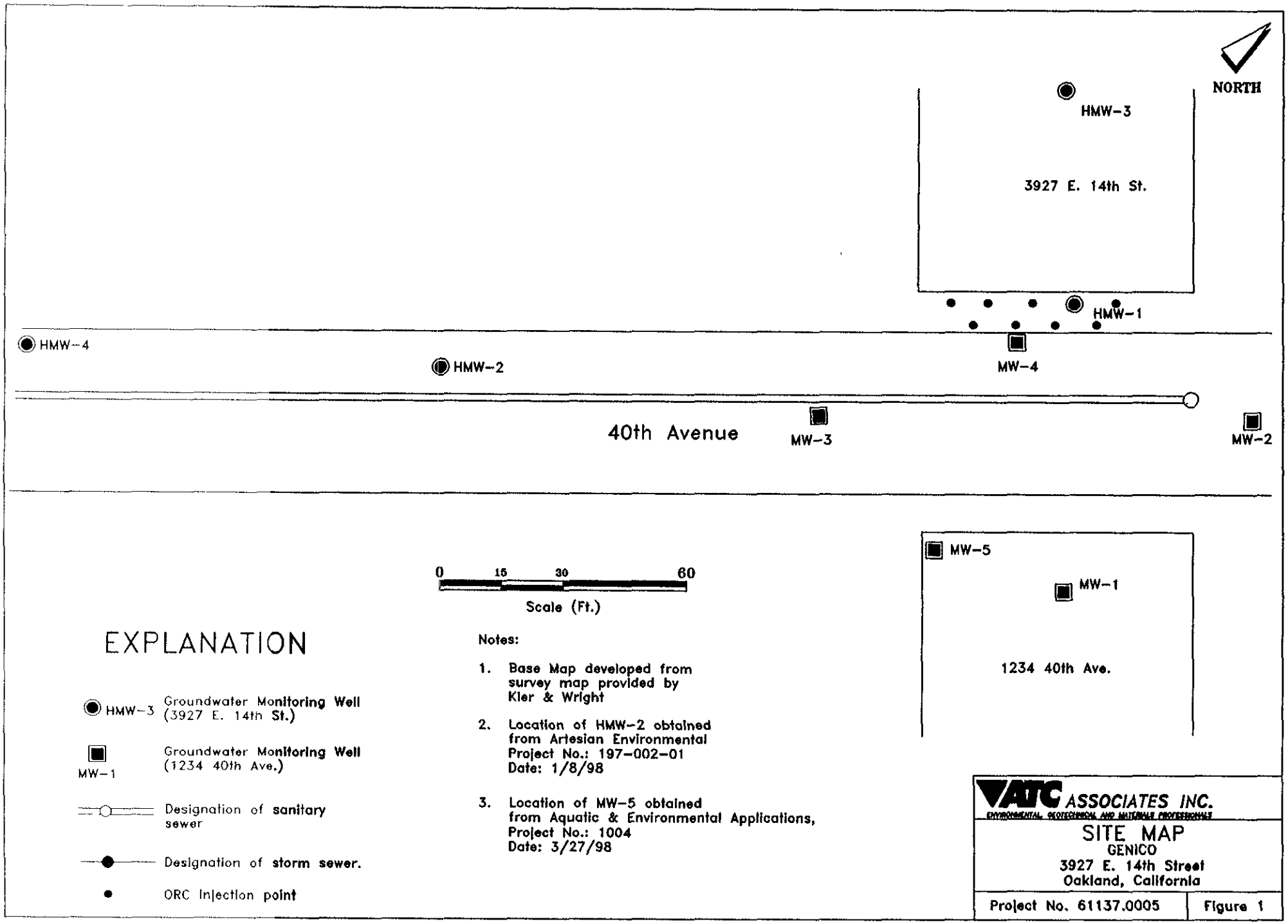
ATC ASSOCIATES INC.

Al Martinez
Project Manager

Attachments

APPENDIX A

FIGURE



EXPLANATION

- HMW-3 — Groundwater Monitoring Well (3927 E. 14th St.)
- MW-1 — Groundwater Monitoring Well (1234 40th Ave.)
- Designation of sanitary sewer
- Designation of storm sewer.
- ORC Injection point

Notes:

1. Base Map developed from survey map provided by Kier & Wright
2. Location of HMW-2 obtained from Artesian Environmental Project No.: 197-002-01 Date: 1/8/98
3. Location of MW-5 obtained from Aquatic & Environmental Applications, Project No.: 1004 Date: 3/27/98

VATC ASSOCIATES INC.
ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

SITE MAP

GENICO
3927 E. 14th Street
Oakland, California

Project No. 61137.0005 | Figure 1

APPENDIX B

CITY OF OAKLAND EXCAVATION PERMIT

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

(INTERNATIONAL BL)

PERMIT NUMBER	SITE ADDRESS/LOCATION
X9800794	3927 E 14TH ST
APPROX. START DATE / APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS	CITY BUSINESS TAX #

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: 297084

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____.

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law

X Bahram Zargarch-Agam — 11/3/98

Signature of Permittee ☐ Agent for ☐ Contractor ☒ Owner — Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED?	HOLIDAY RESTRICTION? (NOV 1 - JAN 1)	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM)
1990	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO
ISSUED BY: M. Mulet	DATE ISSUED: 11/3/98		

SIDEWALK AREA

APPENDIX C

DRILLING PERMIT

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT New Gemuso Site
3927 E. 14th Street
Oakland, CA 94601

California Coordinates Source _____ ft. Accuracy ± ___ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Ruben Hausauer
Address 6017 E. 14th Street Phone
City Oakland Zip 94621

APPLICANT
Name ATC. Associates Inc c/o
Al Martinez Fax (925) 463-0959
Address 6116 Owens Drive Phone (925) 460-5300
City Pleasanton Zip 94588

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☒
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
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DRILLER'S LICENSE NO. 720904

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ESTIMATED COMPLETION DATE 10/30/98

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G. SPECIAL CONDITIONS

APPROVED [signature] DATE 10/27/98