

July 21, 1999

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**SUBJECT: ASTM Tier 2 RBCA Analysis Amendment
New Genico Site
3927 East 14th Street, Oakland, California
ATC Project No. 61137.0007**

Dear Mr. Conner:

In response to additional comments from the Alameda County Health Care Services (ACHCS), ATC Associates Inc. (ATC) has completed this ASTM Tier 2 RBCA Analysis Amendment for the New Genico site (site) located at 3927 East 14th Street in Oakland, California (**Figure 1**).

1.0 INTRODUCTION

ATC is pleased to present this letter report summarizing the results of an additional American Society of Testing and Materials (ASTM) Tier 2 Risk Based Corrective Action (RBCA) evaluations for the subject site. The ACHCS's requests were made following the review of ATC's "Well Survey, Conduit Study and ASTM Tier 2 RBCA Analysis for 3927 East 14th Street, Oakland, California", dated August 22, 1997 (ATC, 1997) and "Response to Agency Comments: ASTM Tier 2 RBCA Analysis, 3927 East 14th Street, Oakland, California", dated May 12, 1998. This ASTM Tier 2 RBCA evaluation was performed to assess the potential impact of contamination at the site and to support remedial actions that may be considered.

2.0 ASTM TIER 2 RBCA EVALUATION

The ASTM Tier 2 RBCA evaluation was performed following Standard E 1739-95 and the ASTM Tier 2 Guidance Manual for Risk Based Corrective Action published by Groundwater Services, Inc. (GSI) of Houston, Texas

At the request of ACHCS, ATC used a different averaging technique to estimate the representative concentration of benzene in groundwater beneath the site. In addition, ATC describes herein the justification for not assessing the exposure pathway of volatilization from groundwater into indoor, off-site, residential properties. Other input parameters remained the same as the May 1998 evaluation.

cleanup method
Ave of last 4 qtrs is OK

2.1 Pathway Justification

Figure 1 shows the site and the site across the street, the Motor Partners site. Data from the site and the Motor Partners site has consistently shown that the groundwater flow direction is generally southerly and varies between south-southwesterly to south-southeasterly. Groundwater analytical data from the site (Table 1), indicates that the highest concentration of contaminants have been detected in groundwater samples obtained from HMW-1, located in the vicinity of the former underground storage tank (UST). Groundwater analytical data from the Motor Partners site well MW-4, located 15 feet downgradient (south) from HMW-1, indicates that the concentration of contaminants decreases dramatically between HMW-1 and MW-4. This data suggests that the groundwater contamination detected in the vicinity of the former UST at the site is not migrating. ~~The exposure pathway of volatilization from groundwater into indoor, off-site, residential properties was therefore not evaluated.~~

Avg of HMW-1 + HMW-3
for past 4 mon events

ppm B
.38 used
latest mon
6/99

may be results
of ORC inj.

OK

may need to provide
risk diagram

2.2 Representative Concentration

The constituent of concern for the ASTM Tier 2 RBCA evaluation was benzene. The area-weighted average technique was used in the previous evaluations to estimate the representative concentration of benzene. The area-weighted average of benzene dissolved in groundwater beneath the site was estimated previously to be 0.25 milligrams per liter (mg/L). Table 1 shows the historical and most current (December 1998) benzene concentrations in groundwater samples obtained from the site. Review of this data suggests that benzene concentrations have generally been decreasing over the last four quarterly monitoring events. ATC used benzene concentrations from the last four quarterly monitoring events from groundwater monitoring wells HMW-1, HMW-2, HMW-3, and HMW-4 to estimate a representative concentration of 0.57 mg/L. In addition, ATC used several subsets of this data and estimated concentrations. The most conservative (i.e. the highest) concentration was obtained using the full set of data (benzene concentrations from four events from four wells); therefore, this concentration, 0.57 mg/L, was selected as the representative concentration for this RBCA analysis.

3.0 RESULTS OF RBCA MODELING

Using the above referenced representative concentration, the indoor and outdoor air pathways were evaluated. Cleanup goals for the site, or Site Specific Target Levels (SSTL's) were estimated.

3.1 Groundwater SSTL's

Under Tier 2, the groundwater SSTL's for benzene were determined. The results are presented below in comparison to the representative benzene concentration in groundwater.

Scenario	target risk	Exposure	SSTL (mg/L)	Representative Concentration (mg/L)
Volatilization from groundwater into on-site indoor air	1.0 E-5	Commercial	0.55	0.57 <hr/> 0.38
Volatilization from groundwater into on-site outdoor air	1.0 E-5	Commercial	61	0.57

*Area of
HMW-1
& HMW-1
part 4 spl...*

The applicable SSTL would be the lowest calculated SSTL which is 0.55 mg/L. As shown on the table above this SSTL is slightly lower than the representative groundwater concentration of 0.57 mg/L. This analysis indicates that the representative concentration is marginally above the SSTL for benzene dissolved in groundwater.

4.0 DISCUSSION AND CONCLUSIONS

The SSTL (0.55 mg/L) and the representative concentration (0.57 mg/L) are within the typical margin of error expected due to sampling discrepancies and analytical laboratory discrepancies. Therefore, these values are so close that they are essentially the same. The representative concentration of benzene beneath the site is therefore at the site-specific cleanup goal calculated using the ASTM Tier 2 RBCA methodology.

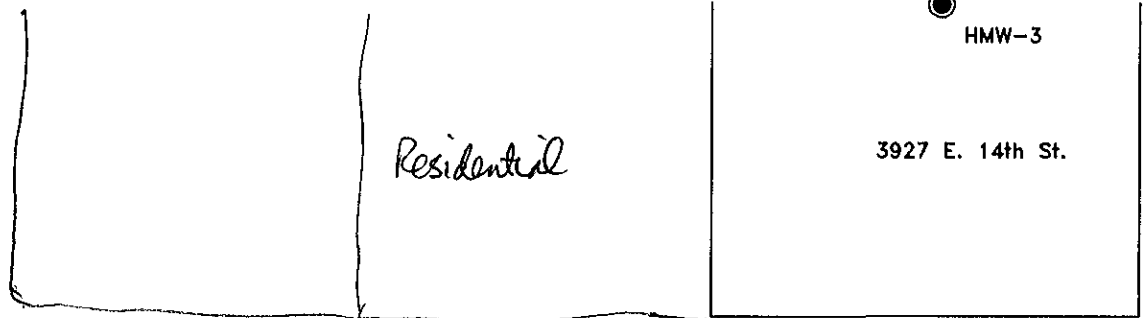
~~On November 12, 1998, as an interim remedial measure, ATC injected an oxygen-releasing compound (ORC) into the aquifer in the vicinity of HMW-1. This substance will likely continue to augment biodegradation of the contaminants beneath the site and the concentration of benzene will likely continue to decrease.~~

Based on the information presented in this report, current regulatory guidelines, and the judgment of ATC, the following conclusions are presented:

- Using a target risk of 1.0E-5, the representative concentration of benzene in groundwater is at the calculated SSTL.



NORTH



● HMW-4

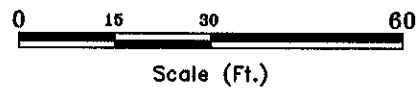
● HMW-2

■ MW-4

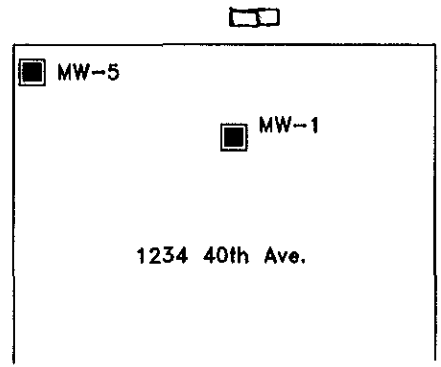
40th Avenue

■ MW-3

■ MW-2



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.

Notes:

1. Base Map developed from survey map provided by Kler & 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
3927 E. 14th Street
Oakland, California

Project No. 61137.0005 Figure 1

Table 1. Summary of Groundwater Analytical Results, 3927 East 14th Street, Oakland, California

Monitoring Well	Sampling Date	Concentrations							
		TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TPHd (µg/L)	TPHmo (µg/L)
HMW1	8/22/96	7,400	1,200	170	530	490	----	ND	ND
	2/25/97	5,400	760	110	260	260	ND	2,000	ND
	5/28/97	6,600	1,100	100	290	340	130	2,000	600
	9/2/97	4,000	460	40	200	100	ND	8,700 ²	3,700 ²
	11/26/97	7,500	1,000	120	270	320	ND ¹	4,700	3,000
	3/17/98	11,000	2,100	290	600	760	1,200	ND	16,000
	6/30/98	10,000	1,300	160	390	390	160	ND	5,900
	9/24/98	7,100	890	89	230	180	ND ¹	ND	6,600
	12/16/98	1,900	290	39	85	100	NR	ND	1,400
HMW2	8/22/96	6,300	170	57	370	120	----	7,400*	2,100*
	2/25/97	8,400	150	35	280	70	ND ¹	90	ND
	5/28/97	6,000	170	35	170	67	150	130	200
	9/2/97	8,000	210	30	160	90	ND ¹	450 ²	ND ²
	11/26/97	1,600	41	7.5	40	10	31 ¹	180	ND
	3/17/98	8,600	200	96	410	120	330	ND	ND
	6/30/98	7,300	180	52	240	88	170	ND	ND
	9/24/98	2,900	32	1.5	38	16	ND	ND	ND
	12/16/98	5,300	93	25	160	53	NR	ND	ND
HMW3	8/22/96	1,300	3	6	8	12	----	ND	ND
	2/25/97	150	ND	ND	ND	ND	ND	70	ND
	5/28/97	80	ND	ND	0.60	ND	ND	ND	ND
	9/2/97	140	ND	ND	2.1	ND	ND	ND ²	ND ²
	11/26/97	70	0.6	0.8	0.8	ND	ND	50	ND
	3/17/98	ND	ND	ND	ND	ND	ND	ND	200
	6/30/98	ND	ND	ND	ND	ND	ND	ND	ND
	9/24/98	58	ND	ND	ND	0.76	ND	ND	ND
	12/16/98	ND	ND	ND	ND	ND	NR	ND	ND
HMW4	11/26/97	1,600	4.2	3.1	1.7	5.9	ND	400	ND
	3/17/98	1,300	20	1.4	6.8	3.0	19	ND	ND
	6/30/98	940	17	1.5	18	2	10	ND	ND
	9/24/98	370	7.2	ND	0.75	1.3	11	ND	ND
	12/16/98	830	11	ND	2.7	5	NR	ND	ND

ND - Not detectable in concentrations greater than the method detection limit.

"----" - Not analyzed

* Laboratory notes that the concentration for diesel is estimated. due to overlapping fuel patterns Hydrocarbons reported as motor oil does not match the pattern of the motor oil standard

ND¹ - Results using EPA Method 8260 to confirm analytical result

² - Samples collected on 10 03 97

HMW 4 data and from 11 26 98 and all data from 3 17 98, obtained from Groundworks Environmental, Inc. 6 30 98, 9 24 98 and 12 16 98 data from Kleinfelder, Inc.