RO-374

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June 16, 2003

Ms. Karen Streich
ChevronTexaco
P. O. Box 6004
San Ramon, California 94583

Re: **Responsible Party Status**
Former Texaco Station 211285
15595 Washington Avenue
San Lorenzo, California

Dear Ms. Streich:

As requested, Cambria Environmental Technology, Inc. (Cambria) is submitting this analysis of responsible parties for the site referenced above. At issue is an earlier de-designation of Texaco (now ChevronTexaco) as a responsible party (RP) by the Alameda County Health Care Services Agency (ACHSA). The current property owner challenged the de-designation and the State Water Resources Control Board (SWRCB) remanded the case back to the ACHSA for justification. We understand that the ACHSA has changed case workers and the current case worker and ACHSA management have no intention of justifying their earlier position. Our objective is to review the site data and assess whether the ACHSA was justified in their original de-designation. The site background and our analysis are presented below.

Site Background

The site was operated as an active service station from approximately 1964 through 1983 and from 1986 through to the present. From 1974 to 1983, the site was owned by the Calleris family, who operated a service station. Texaco owned the site from 1983 through 1986, but did not operate the facility and neither stored nor dispensed gasoline during that period. During Texaco's site ownership, the underground storage tanks (USTs) were drained of all product and remained inactive. In 1986, the site was purchased by Mr. Bertram Kubo. In 1990, Mr. Mehdi Mohammadian bought the site and now operates a Shell retail service station.[1]

Three generations of USTs have been located on the site. The first generation USTs were in place from 1964 through approximately 1969 at a location south of the existing station building. The second generation of USTs was installed in 1969 at the same location as the first generation USTs. The second generation USTs were removed in approximately 1986 and the third

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[1] *Preliminary Off-Site Soil and Groundwater Assessment*, Enviro Soil Tech Consultants, May 15, 2000.

generation USTs were installed at a new location south of the product islands and east of the station building. Site maps are included in Attachment A.

At least two petroleum hydrocarbon releases have occurred at the site. The first release, identified by a 1986 subsurface investigation[2], was found to have occurred near the pump islands and is most reasonably explained by a leak in the product piping or dispensers during operation of that system. Since Texaco never operated the station, the first release must have occurred prior to 1983, at least 20 years ago.

A subsequent release(s) was found to have occurred beginning in the mid-1990's. The high concentrations and distribution of methyl tertiary butyl ether (MTBE) in groundwater indicate the third generation USTs are the source of MTBE detected in a 1998 subsurface investigation[3] and subsequent groundwater monitoring events. Groundwater monitoring data are compiled in Attachment B.

Site Geology

The subsurface soil conditions were described in reports documenting site investigations completed in 1986, 1998, and 2000. Based on boring logs presented in these technical reports, the water-bearing zone beneath the site is comprised of predominately clay and silty clay horizons from depths of approximately 8 to 20 feet below grade (fbg), the total depth explored.

Groundwater occurs in these fine-grained soils at depths ranging from approximately 8 to 10 fbg. Groundwater generally flows westward at an average gradient of 0.007 ft/ft. Based on the westerly flow of groundwater, no potential receptors have been identified downgradient of the site.

In general, the clay and silty clay horizons that comprise the water-bearing zone beneath the site have a relatively low hydraulic conductivity that will act to impede the flow of groundwater and thereby reduce the potential for significant downgradient migration of petroleum hydrocarbons. This is supported by the limited extent of MTBE from the most recent release(s).[4]

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[2] *Report of Subsurface Hydrocarbon Investigation*, Groundwater Technology, Inc., October 17, 1986
[3] *Soil and Groundwater Investigation Results*, Toxichem Management Systems, Inc., October 16, 1998
[4] *Preliminary Off-site Soil and Groundwater Assessment*, Enviro Soil Tech Consultants, May 15, 2000

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Based on the results of an off-site investigation in 2000[5], the lateral extent of petroleum hydrocarbons, including MTBE is defined south and west (downgradient) of the site.

Justification for De-Designation of Texaco and Calleris family

According to the SWRCB, Texaco and the Calleris family were RP's at the site because they owned the property and the USTs (whether in or out of service) and because there is evidence of an historic petroleum hydrocarbon release predating 1983. The SWRCB also stated that it is not appropriate for the local oversight program to remove an RP unless it finds, "...by a preponderance of the evidence that constituents from that party's release, when taken in conjunction with commingled constituents from another release(s) that have similar effects on beneficial use, do not contribute to the need for cleanup at the site."

The SWRCB also stated that if an RP has been issued a closure letter, it would ordinarily be inappropriate for that RP to be held liable for cleanup of other releases on site for which that RP had no responsibility (e.g., the RP is not the current owner and did not control the USTs from which the release occurred). As indicated by the arguments presented below, it is obvious that Texaco and the Calleris family should not only be de-designated, but should be issued closure for the release that occurred prior to 1983.

Site Conditions

The original 1986 investigation was conducted in support of a property transaction and was intended as an environmental screening of site conditions prior to Texaco's sale of the property. Groundwater Technology, Inc. (GTI) installed wells MW-1, MW-2 and MW-3, and drilled soil borings SB-1, SB-2 and SB-3. During the investigation, GTI composited three soil samples per boring into one sample for analysis, which is common practice when screening sites in support of property transactions. No total fuel hydrocarbons, benzene, toluene or xylenes were detected in soil.

Because the samples were composited from three samples, the maximum concentration of a constituent that could have been present is three times the detection limit used. Therefore, the maximum total fuel hydrocarbon concentration, if present at all, was below 30 milligrams/kilogram (mg/kg). Maximum benzene and toluene concentrations would have been 1.5 mg/kg, and the maximum xylenes concentration would have been 3 mg/kg. The fact that

[5] *Preliminary Off-site Soil and Groundwater Assessment*, Enviro Soil Tech Consultants, May 15, 2000

none of these compounds were detected in soil indicates that there was no significant impact to soil from operations prior to 1983.

This evidence for a minimal impact to the subsurface is further supported by the lack of elevated hydrocarbon concentrations in groundwater. No hydrocarbons were detected in groundwater from wells MW-2, MW-3 or borings SB-2 and SB-3, located on four sides of the USTs. Therefore, it is evident that no release occurred from the USTs.

Boring SB-1 and well MW-1 were installed approximately 25 feet apart, just north and south of the product islands, respectively. Low concentrations of hydrocarbons were detected in groundwater from well MW-1 (82 micrograms/liter [ug/l] xylenes) and boring SB-1 (220 ug/l benzene, 390 ug/l toluene and 680 ug/l xylenes). The current maximum contaminant levels for drinking water (MCLs) for these compounds are 1 ug/l benzene, 150 ug/l toluene and 1,750 ug/l xylenes. Therefore, in 1986, the benzene and toluene concentrations detected in groundwater in boring SB-1 exceeded the current MCLs. Xylenes concentrations were below MCLs.

In summary, no hydrocarbons were detected in soil near the USTs or the dispensers, and low concentrations of benzene and toluene concentrations that exceed current MCLs were detected in groundwater beneath the dispensers during the 1986 property transaction assessment. The extent of hydrocarbons detected in groundwater was limited and, because of the low concentrations detected, did not indicate a significant release from the dispensers. Based on the original sampling data, it would have been appropriate to name Texaco and the Calleris family as RPs and to require additional assessment and monitoring. However, the low concentrations detected would not have warranted any active remediation.

Attenuation of Constituents from Pre-1983 Release

The SWRCB indicated that the ACHSA must determine whether the constituents attributable to Texaco and the Calleris family, taken in conjunction with other constituents having similar effects on beneficial use (i.e., the later MTBE release), are contributing to the current need for corrective action. Based on the original sampling data, the low hydrocarbon concentrations detected would not have warranted any active remediation in 1986 or at present.

To further support that no active remediation is necessary based on the original release, we compared attenuation rates for TPHg and MTBE from the second release(s) and used these rates to estimate benzene and toluene attenuation rates. Because benzene and toluene typically attenuate at a quicker rate than TPHg or MTBE, applying the attenuation rates for TPHg and MTBE to the low concentrations of benzene and toluene that exceeded MCLs in 1986 would

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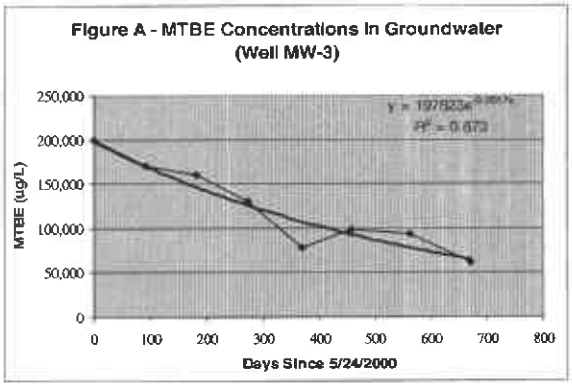
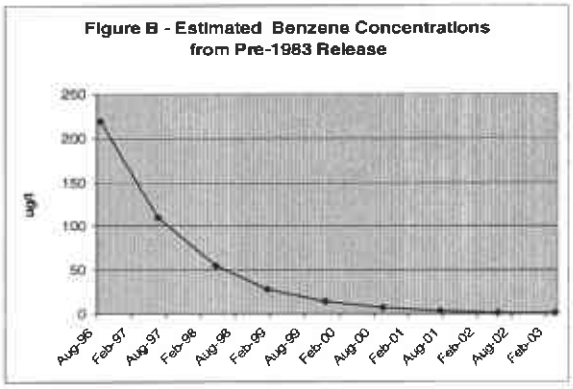
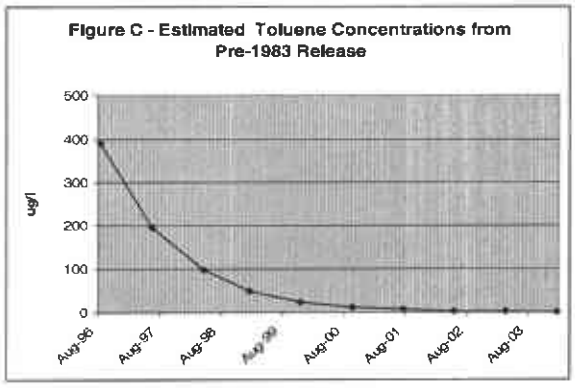
allow us to conservatively estimate current benzene and toluene concentrations that we would expect to detect in groundwater were there no second oxygenated fuels release(s).



To determine TPHg and MTBE attenuation rates, we plotted TPHg and MTBE concentrations versus time for wells MW-1, MW-2 and MW-3. The data plotted are from the time when the constituents first appeared in the wells at elevated concentrations. We then applied a first order decay rate function to model the observed concentration reductions (see Figure A for an example, and Attachment C for complete results). We then used the equation derived for the first order decay rate function to determine the half-life of TPHg and MTBE currently detected in groundwater in wells MW-1, MW-2 and MW-3. Because benzene and toluene typically attenuate faster than TPHg or MTBE, an average half-life predicted based on TPHg and MTBE attenuation should result in a conservative estimate of benzene and toluene concentration reductions over time.

The half-life for TPHg from the most recent release(s) ranged from 58 to 267 days. The half-life for MTBE ranged from 408 to 578 days. The overall average of all half-life estimates for TPHg and MTBE is 302 days. Applying this 302-day half-life to the maximum benzene and toluene concentrations detected in the 1986 investigation, toluene concentrations would have been below MCLs by early 1998, and benzene concentrations would have dropped below MCLs by early 2003 (Figure B and C). In reality, attenuation rates for benzene and toluene are likely higher than the rates estimated based on TPHg and MTBE, so it is likely that MCLs were achieved well before the dates estimated herein.





Conclusions

Based on this evidence, it is apparent that the hydrocarbons detected in 1986 would not

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contribute to the need for cleanup of the site, whether in 1986, or now. The SWRCB stated that the ACHSA may de-designate Texaco and the Calleris family if "constituents from the first release do not contribute to the need for cleanup at the site". The SWRCB further stated that the ACHSA could de-designate Texaco and the Calleris family if: (1) the site would be closed but for the MTBE from the second release(s), and (2) the BTEX constituents remaining from the first release do not have similar effects as MTBE on beneficial uses".

The evidence presented above clearly indicates that, in absence of the recent oxygenated fuels release(s), the site would not only pose no risk to beneficial uses of groundwater, but would qualify for unconditional closure. For this reason, we recommend that ChevronTexaco pursue de-designation with the ACHSA and, failing that, appeal to the SWRCB.

The current property owner has not only apparently been recalcitrant in remediating the MTBE releases, past notices of violation (NOVs) issued by the ACHSA indicate possible questionable business practices that could result in future releases. For these reasons, it is not in ChevronTexaco's best interest to be related in any manner to current or future environmental concerns at the site. Even a secondary RP status as we understand is under consideration by the ACHSA could have significant liability that is unwarranted and not in ChevronTexaco's best interest.

Please contact me at (510) 420-3301 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

N. Scott MacLeod, RG
Principal Geologist

Attachments: A – Site Maps
B – Groundwater Monitoring Data
C – Attenuation Rate Calculations

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ATTACMHENT A

Site Maps

File No. 12-99-702-SI

ENVIRO SOIL TECH CONSULTANTS

Figure 1

M1

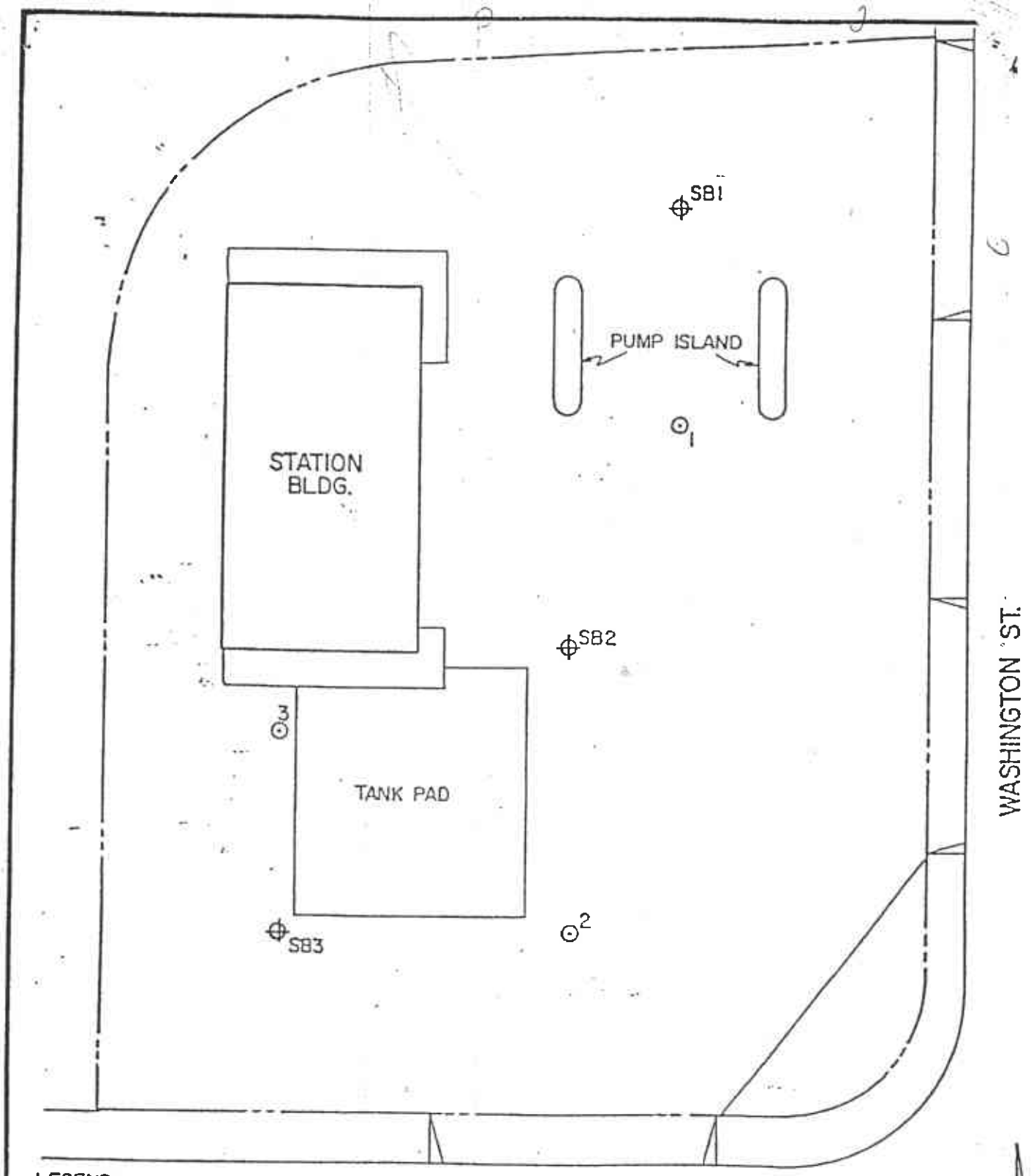


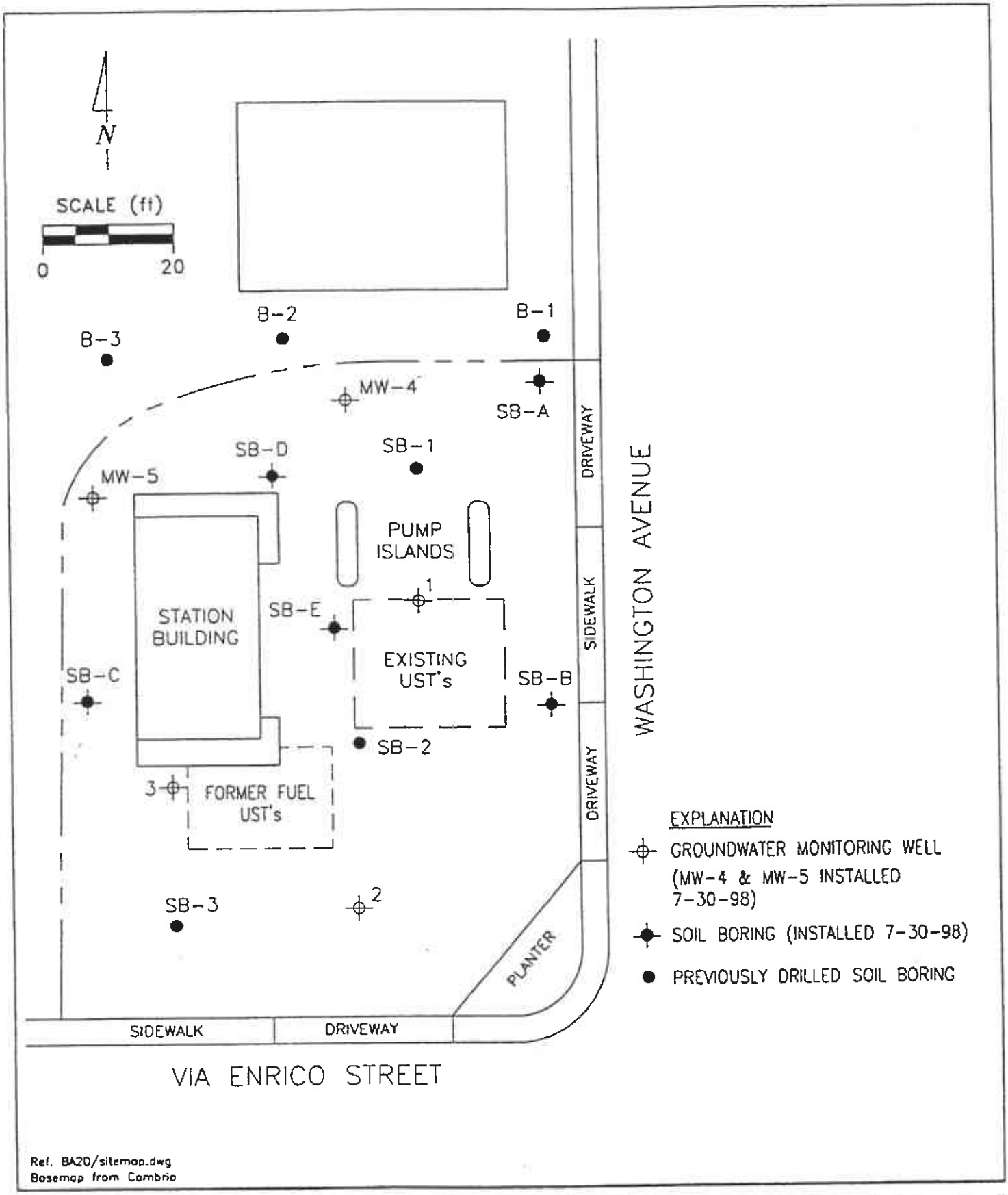
FIGURE 2
SITE PLAN

0 FEET

TEXACO USA
SAN LORENZO, CALIFORNIA

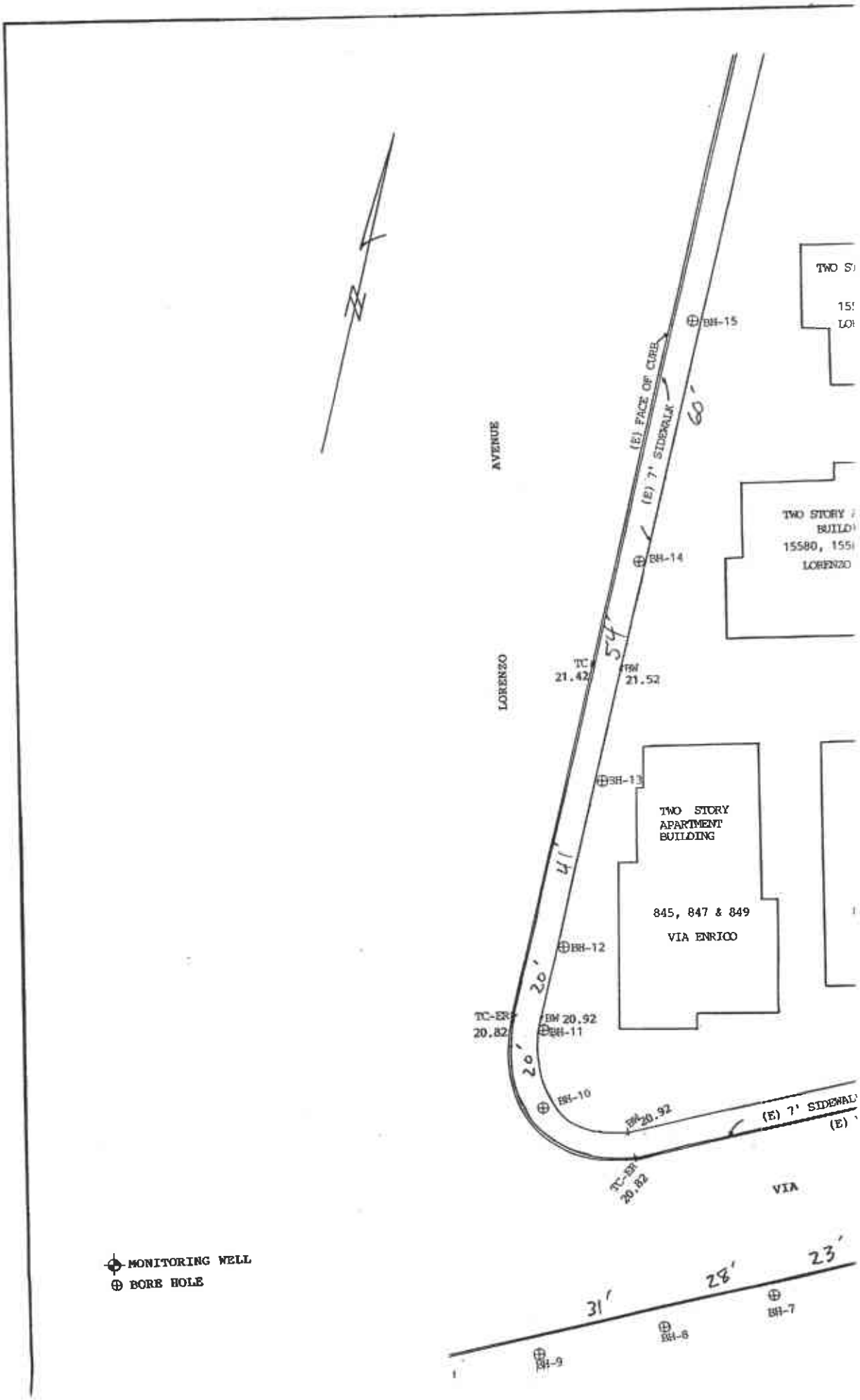
GROUNDV
TECHNOL

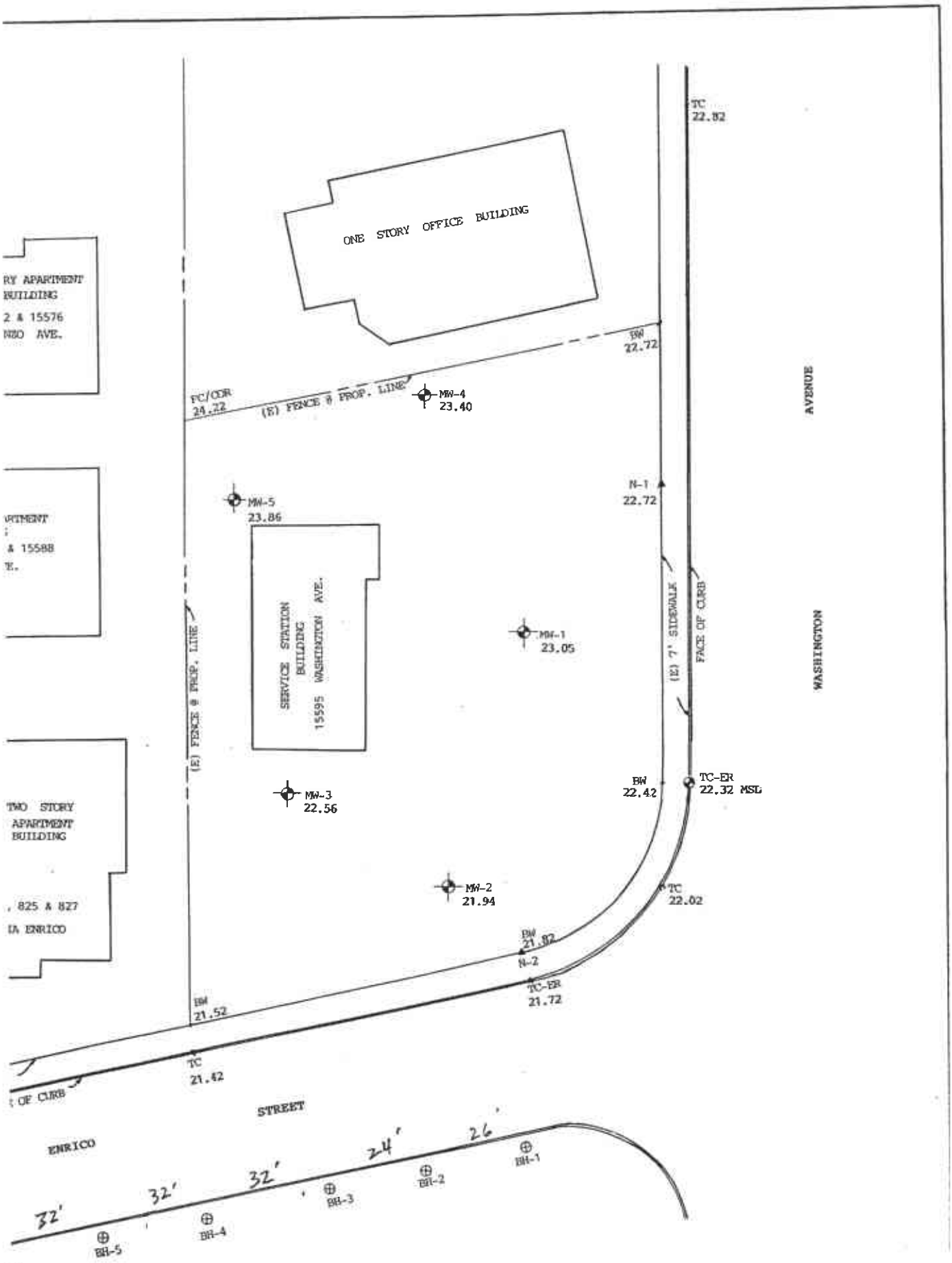
10/86



Ref. BA20/sitemap.dwg
Basemap from Cambria

PREPARED BY	SITE PLAN	FIGURE:
TOXICHEM Management Systems, Inc.	15595 Washington Avenue San Lorenzo, California	2 PROJECT: BA20


AVENUE
LORENZO
(E) FACE OF CURB
(E) 7' SIDEWALK
60'
54'
41'
20'
20'
31'
28'
23'
BH-15
BH-14
BH-13
BH-12
BH-11
BH-10
BH-9
BH-8
BH-7
TC
21.42
FW
21.52
TWO STORY
APARTMENT
BUILDING
845, 847 & 849
VIA ENRICO
TWO STORY
BUILDI
15580, 155
LORENZO
TWO ST
15
LO
FW 20.92
20.92
(E) 7' SIDEWAL
(E)
VIA
MONITORING WELL
BORE HOLE



MONITORING WELL LOCATIONS
15595 WASHINGTON AVENUE
SAN LORENZO, CALIFORNIA

SCALE: 1"=20' JUNE 19, 2000

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ATTACHMENT B

Groundwater Monitoring Data

TABLE 2 CONT'D
GROUNDWATER ANALYTICAL RESULTS FOR HYDROCARBONS FUEL OXYGENATES (EPA 8260B)

Date	Well No.	Hydrocarbons Fuel Oxygenates	Concentration (µg/L)
5/29/01	MW-5	Benzene	83
		Ethylbenzene	58
		Methyl tert-butyl Ether	860
		n-Propylbenzene	130
		Naphthalene	64
8/22/01		Benzene	150
		Methyl tert-butyl Ether	1700
		n-Propylbenzene	230
		Naphthalene	140
12/06/01		Methyl tert-butyl Ether	1900
3/25/02		Methyl tert-butyl Ether	2200
		Benzene	170
		Propylbenzene	180

TABLE 2 CONT'D
GROUNDWATER ANALYTICAL RESULTS FOR HYDROCARBONS FUEL OXYGENATES (EPA 8260B)

Date	Well No.	Hydrocarbons Fuel Oxygenates	Concentration (µg/L)
2/22/01	MW-4	Methyl tert-butyl Ether	32
5/29/01		Methyl tert-butyl Ether	31
8/22/01		Methyl tert-butyl Ether	28
12/06/01		Methyl tert-butyl Ether	25
3/25/02		Methyl tert-butyl Ether	14
5/24/00	MW-5	Benzene	180
		Ethylbenzene	140
		Isopopylbenzene	55
		Methyl tert-butyl Ether	200
		n-Butylbenzene	42
		n-Propylbenzene	200
		Naphthalene	120
8/24/00		1,2,4-Trimethylbenzene	15
		Benzene	150
		Ethylbenzene	91
		Isopopylbenzene	38
		Methyl tert-butyl Ether	300
		n-Butylbenzene	29
		n-Propylbenzene	140
		Naphthalene	87
		p-Isopropyltoluene	28
		sec-Butylbenzene	12
11/22/00		Benzene	120
		Ethylbenzene	46
		Isopropylbenzene	31
		Methyl tert-butyl Ether	510
		n-Propylbenzene	100
		Naphthalene	37
2/22/01		Benzene	100
		Ethylbenzene	94
		Methyl tert-butyl Ether	700
		n-Propylbenzene	160
		Naphthalene	90

TABLE 2
GROUNDWATER ANALYTICAL RESULTS FOR HYDROCARBONS FUEL OXYGENATES (EPA 8260B)

Date	Well No.	Hydrocarbons Fuel Oxygenates	Concentration (µg/L)
5/24/00	MW-1	Methyl tert-butyl Ether	74000
8/24/00		Methyl tert-butyl Ether	32000
11/22/00		Methyl tert-butyl Ether	35000
2/22/01		Methyl tert-butyl Ether	51000
5/29/01		Methyl tert-butyl Ether	110000
8/22/01		Methyl tert-butyl Ether tert-Butanol	70000 11000
12/06/01		Methyl tert-butyl Ether	37000
3/25/02		Methyl tert-butyl Ether	20000
5/24/00	MW-2	Methyl tert-butyl Ether	180000
8/24/00		Methyl tert-butyl Ether	70000
11/22/00		Methyl tert-butyl Ether	43000
2/22/01		Methyl tert-butyl Ether	61000
5/29/01		Methyl tert-butyl Ether	24000
8/22/01		Methyl tert-butyl Ether	12000
12/06/01		Methyl tert-butyl Ether	22000
3/25/02		Methyl tert-butyl Ether	25000
5/24/00	MW-3	Methyl tert-butyl Ether	200000
8/24/00		Methyl tert-butyl Ether	170000
11/22/00		Methyl tert-butyl Ether	160000
2/22/01		Methyl tert-butyl Ether	130000
5/29/01		Methyl tert-butyl Ether	78000
8/22/01		Methyl tert-butyl Ether	98000
12/06/01		Methyl tert-butyl Ether	94000
3/25/02		Methyl tert-butyl Ether	62000
5/24/00	MW-4	Methyl tert-butyl Ether	40
8/24/00		Methyl tert-butyl Ether Toluene	44 7.4
11/22/00		Methyl tert-butyl Ether	25

File No. 12-99-702-SI

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth of Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE
5/29/01	MW-5 (23.86) feet MSL	19	N/A	10.08	13.78	Rainbow sheen No odor	3700	83	ND<50	58	ND<50	860
8/22/01				10.76	13.10	Light rainbow sheen No odor	5900	150	ND<10	ND<10	ND<10	1700
12/06/01				9.48	14.38	Rainbow sheen Light petroleum odor	4900	ND<50	ND<50	ND<50	ND<50	1900
3/25/02				9.08	14.78	No sheen or odor	4000	170	ND<83	ND<83	ND<83	2200

TPHg - Total Petroleum Hydrocarbons as gasoline
MTBE - Methyl Tertiary Butyl Ether
MSL - Mean Sea Level
N/A - Not Applicable
ND - Not Detected (Below Laboratory Detection Limit)
* Well screens are submerged

BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
Perf. - Perforation
GW Elev. - Groundwater Elevation
NA - Not Analyzed
† Well screens are not submerged

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth of Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE
8/26/98	MW-4 (23.51) feet MSL	19	N/A	9.87	13.64	N/A	170	2	0.74	1.3	1	150
1/26/99				8.54	14.97	N/A	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7.6
4/06/99				8.34	15.17	N/A	390	3.94	ND<0.5	1.52	0.808	15.2
5/24/00	23.40 Resurveyed			8.72	14.68	No sheen or odor	210	ND<5	ND<5	ND<5	ND<5	40
8/24/00				9.88	13.52	No Sheen or odor	160	ND<5	7.4	ND<5	ND<5	44
11/22/00				9.76	13.64	No sheen or odor	140	ND<5	ND<5	ND<5	ND<5	25
2/22/01				8.42	14.98	No sheen or odor	160	ND<5	ND<5	ND<5	ND<5	32
5/29/01				9.42	13.98	No sheen or odor	160	ND<5	ND<5	ND<5	ND<5	31
8/22/01				10.10	13.30	No sheen or odor	96	ND<5	ND<5	ND<5	ND<5	28
12/06/01				8.68	14.72	No sheen or odor	160	ND<5	ND<5	ND<5	ND<5	25
3/25/02				8.28	15.12	No sheen or odor	150	ND<5	ND<5	ND<5	ND<5	14
8/26/98	MW-5 (23.85) feet MSL	19	N/A	10.51	13.34	N/A	6600	240	ND<50	380	84	ND<250
1/26/99				10.26	13.59	N/A	371	11.7	ND<0.5	3.22	ND<0.5	36.4
4/06/99				9.32	14.53	N/A	7680	266	ND<10	280	ND<10	ND<10
5/24/00	23.86 Resurveyed			9.39	14.47	Rainbow sheen No odor	3300	180	ND<25	140	ND<25	200
8/24/00				10.54	13.32	Light rainbow sheen No odor	3200	150	ND<10	91	ND<10	300
11/22/00				10.42	13.44	No sheen Light sewerage odor	520	120	ND<25	46	ND<25	510
2/22/01				8.88	14.98	No sheen or odor	5400	100	ND<50	94	ND<50	700

File No. 12-99-702-SI

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth of Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE
11/12/92	MW-3 (N/A)	16	10	11.32†	N/A	N/A	69	ND<0.3	ND<0.3	ND<0.3	ND<0.3	NA
3/24/94	22.73 (feet MSL)			8.69*	14.04	N/A	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA
12/15/95				8.31*	14.42	No sheen or odor	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA
8/26/98	22.74 Resurveyed			9.29*	13.45	N/A	ND <500	36	ND<5	ND<5	ND<5	99000
12/16/99				8.00*	14.74	N/A	ND <500	ND<50	ND<50	ND<50	ND<50	19800
4/06/99				8.00*	14.74	N/A	ND <1000	ND<10	ND<10	ND<10	ND<10	151000
5/24/00	22.56 Resurveyed			8.08*	14.47	No sheen or odor	48000	ND <12500	ND <12500	ND <12500	ND <12500	200000
8/24/00				9.24*	13.32	No sheen or odor	52000	ND <5000	ND <5000	ND <5000	ND <5000	170000
11/22/00				9.08*	13.48	No sheen or odor	69000	ND <10000	ND <10000	ND <10000	ND <10000	160000
2/22/01				7.58*	14.98	No sheen or odor	30000	ND <5000	ND <5000	ND <5000	ND <5000	130000
5/29/01				8.76*	13.80	No sheen or odor	29000	ND <2500	ND <2500	ND <2500	ND <2500	78000
8/22/01				9.46*	13.10	No sheen or odor	37000	ND <5000	ND <5000	ND <5000	ND <5000	98000
12/06/01				8.06*	14.50	No sheen or odor	33000	ND <5000	ND <5000	ND <5000	ND <5000	94000
3/25/02				7.62*	14.94	No sheen or odor	ND<50	ND <2500	ND <2500	ND <2500	ND <2500	62000

T3

TABLE 1 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth of Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE
8/08/96	MW-2 (N/A)	15	10	N/A	N/A	N/A	NA	ND<50	ND<50	NA	ND<50	NA
11/12/92				10.55†	N/A	N/A	ND<10	ND<0.3	ND<0.3	ND<0.3	ND<0.5	NA
3/24/94	22.09 (feet MSL)			7.87*	14.22	N/A	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	N/A
12/15/95				4.62*	17.47	No sheen or odor	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NA
2/28/98	22.07 Resurveyed			8.40*	13.67	N/A	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	210000
1/26/99				7.29*	14.78	N/A	ND <2000	ND<20	ND<20	ND<20	ND<20	9450
4/06/99				7.28*	14.79	N/A	ND <1000	ND<10	ND<10	ND<10	ND<10	209000
5/24/00	21.94 Resurveyed			7.22*	14.72	No sheen or odor	46000	ND <12500	ND <12500	ND <12500	ND <12500	180000
8/24/00				8.39*	13.55	No sheen or odor	21000	ND <2500	ND <2500	ND <2500	ND <2500	70000
11/22/00				8.24*	13.70	No sheen or odor	29000	ND <2500	ND <2500	ND <2500	ND <2500	43000
2/22/01				6.52*	15.42	No sheen or odor	20000	ND <5000	ND <5000	ND <5000	ND <5000	61000
5/29/01				7.90*	14.04	No sheen or odor	9100	ND <1000	ND <1000	ND <1000	ND <1000	24000
8/22/01				8.62*	13.32	No sheen or odor	8700	ND<500	ND<500	ND<500	ND<500	12000
12/06/01				7.28*	14.66	No sheen or odor	11000	ND <1250	ND <1250	ND <1250	ND <1250	22000
3/25/02				6.86*	15.08	No sheen or odor	ND<50	ND<830	ND<830	ND<830	ND<830	25000
8/08/86	MW-3 (N/A)	16	10	N/A	N/A	N/A	NA	ND<50	ND<50	NA	ND<50	NA

TABLE 1
GROUNDWATER MONITORING DATA (feet) AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth of Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE
8/08/86	MW-1 (N/A)	15	10	N/A	N/A	N/A	N/A	ND<500	ND<500	NA	82	NA
11/12/92				11.37†	N/A	N/A	720	3	0.5	1	1	NA
3/24/94	22.93 (feet MSL)			8.71*	14.22	Odor	1300	110	ND<0.5	19	ND<0.5	NA
12/15/95				8.49*	14.44	No sheen Weakly petroleum odor	350	18	2.9	3.5	2.8	NA
8/26/98	22.96 Resurveyed			9.30*	13.66	N/A	ND <500	17	ND<5	ND<5	ND<5	340000
1/26/99				7.96*	15.00	N/A	ND <50000	ND<500	ND<500	ND<500	ND<500	269000
4/06/99				8.01*	14.95	N/A	3500	296	ND<10	43	18.6	117000
5/24/00	23.05 Resurveyed			8.24*	14.81	No sheen or odor	33000	ND <5000	ND <5000	ND <5000	ND <5000	74000
8/24/00				9.43*	13.62	No sheen or odor	11000	ND <2000	ND <2000	ND <2000	ND <2000	32000
11/22/00				9.28*	13.77	Light rainbow sheen No odor	24000	ND <2500	ND <2500	ND <2500	ND <2500	35000
2/22/01				7.86*	15.19	No sheen or odor	19000	ND <5000	ND <5000	ND <5000	ND <5000	51000
5/29/01				8.96*	14.09	No sheen or odor	30000	ND <5000	ND <5000	ND <5000	ND <5000	110000
8/22/01				9.66*	13.39	No sheen or odor	46000	ND <2500	ND <2500	ND <2500	ND <2500	70000
12/06/01				8.36*	14.69	No sheen or odor	25000	ND <2500	ND <2500	ND <2500	ND <2500	37000
3/25/02				7.84*	15.21	Light rainbow sheen No odor	770	ND<830	ND<830	ND<830	ND<830	20000

CAMBRIA

ATTACHMENT C

Attenuation Rate Calculations

MW-1

Raw Data

Date	GWE	TPH-G (ug/L)	MTBE (ug/L)
12/12/1992		720	
3/24/1994	14.22	1,300	
12/15/1995	14.44	350	
8/26/1998	13.66	<500	340,000
1/26/1999	15.00	<50000	269,000
4/6/1999	14.95	3,500	117,000
5/24/2000	14.81	33,000	74,000
8/24/2000	13.62	11,000	32,000
11/22/2000	13.77	24,000	35,000
2/22/2001	15.19	19,000	51,000
5/29/2001	14.09	30,000	110,000
8/24/2001	13.39	46,000	70,000
12/6/2001	14.69	25,000	37,000
3/25/2002	15.21	770	20,000

Edited Data

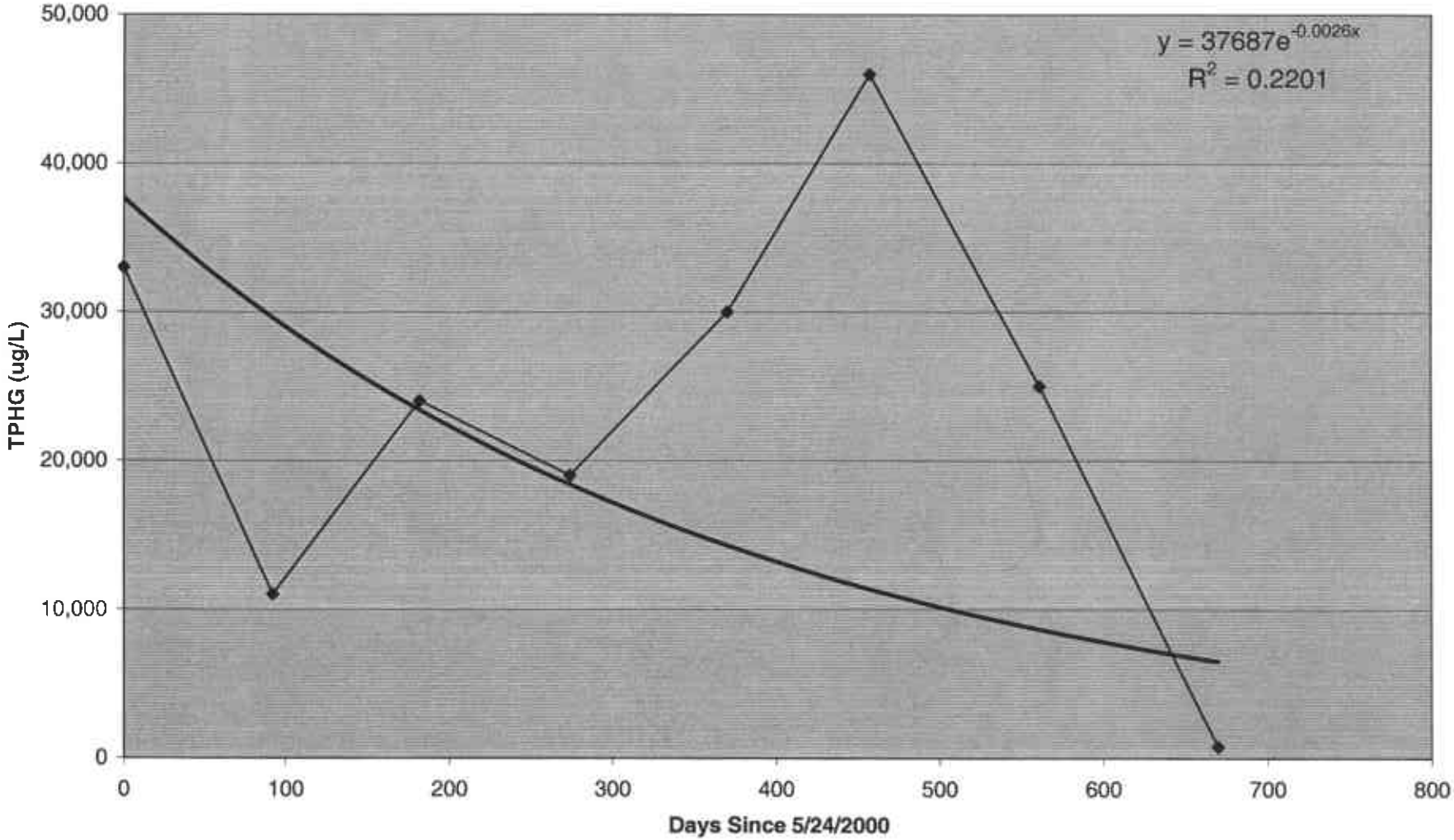
Date	GWE	TPH-G (ug/L)	MTBE (ug/L)
12/12/1992		720	
3/24/1994	14.22	1,300	
12/15/1995	14.44	350	
8/26/1998	13.66	250	340,000
1/26/1999	15.00	25,000	269,000
4/6/1999	14.95	3,500	117,000
5/24/2000	14.81	33,000	74,000
8/24/2000	13.62	11,000	32,000
11/22/2000	13.77	24,000	35,000
2/22/2001	15.19	19,000	51,000
5/29/2001	14.09	30,000	110,000
8/24/2001	13.39	46,000	70,000
12/6/2001	14.69	25,000	37,000
3/25/2002	15.21	770	20,000

Days Since 5/24/2000	TPH-G (ug/L)
0	33,000
92	11,000
182	24,000
274	19,000
370	30,000
457	46,000
561	25,000
670	770

Days Since 8/26/1998	MTBE (ug/L)
0	340,000
153	269,000
223	117,000
637	74,000
729	32,000
819	35,000
911	51,000
1,007	110,000
1,094	70,000
1,198	37,000
1,307	20,000

Assumed <x = x/2

TPHg Concentrations in Groundwater (Well MW-1)
Former Texaco Station 211285, 15595 Washington Street, San Lorenzo, CA



Predicted Time to Cleanup of TPHg in Well MW-1, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Calculate "time to cleanup" given the first-order decay equation:

$y = b e^{ax}$ ==> $x = \ln(y/b) / a$

Site:	Former Texaco Site 211258
Well:	MW-1
Constituent:	TPHg

$y = 37687 e^{-0.0026x}$ ==> $x = \ln(y/37687) / -0.0026$

Given

Water Quality Objective:	y	50	ug/L
Constant:	b	37687	
Constant:	a	-0.0026	
Date of first sample:		5/24/2000	

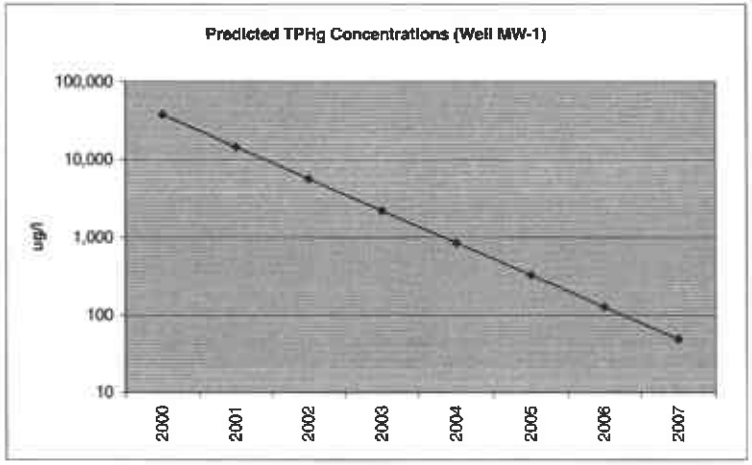
Calculate

Days from first sample:	x	2,548	Days
Years from first sample:		7.0	Years
Estimated date of cleanup:		May-2007	

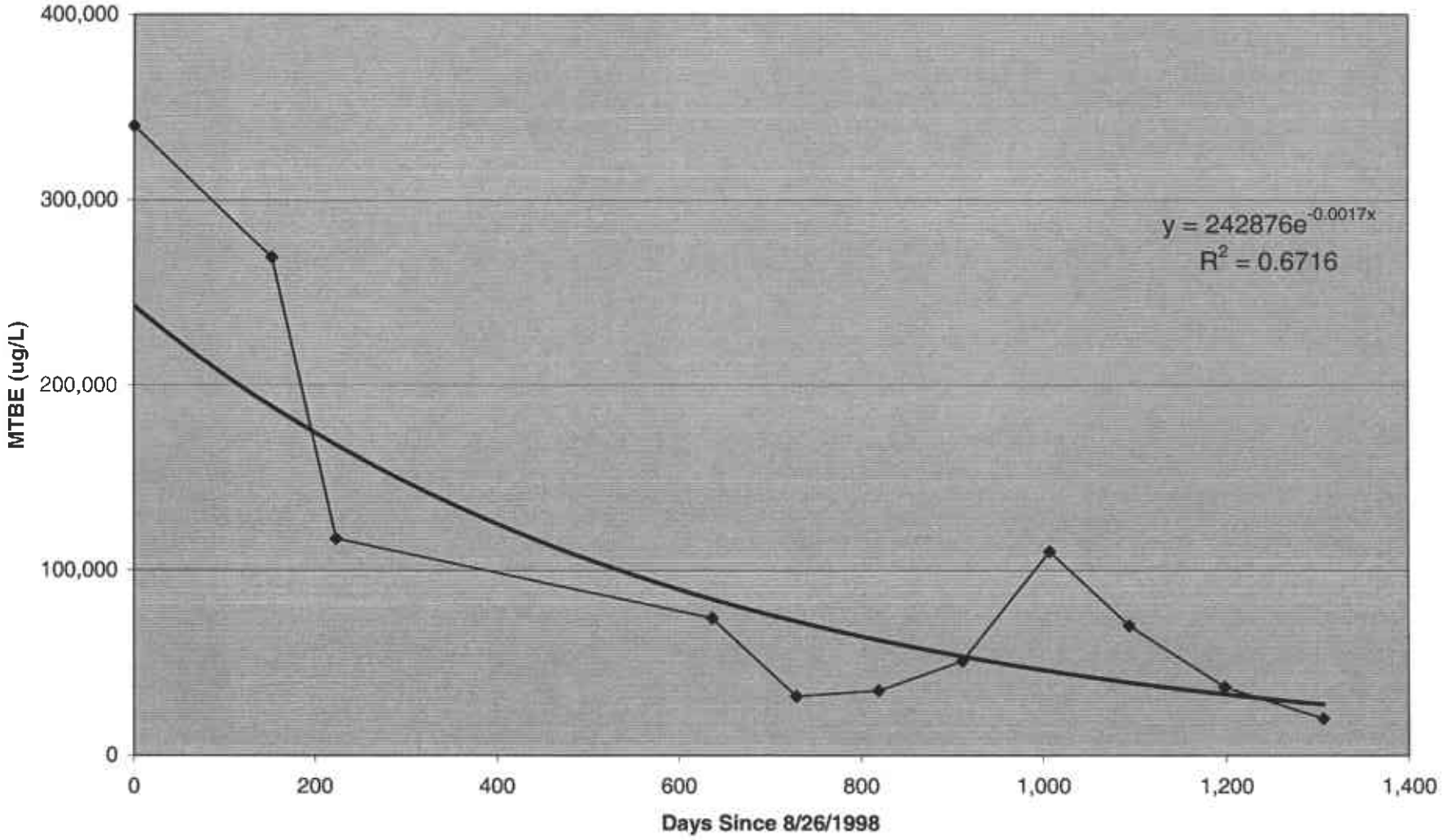
Calculated Half Life = -ln(2)/a = 267 Days

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
5/24/2000	0	37,687
5/24/2001	365	14,590
5/24/2002	730	5,648
5/24/2003	1,095	2,187
5/24/2004	1,461	844
5/24/2005	1,826	327
5/24/2006	2,191	127
5/24/2007	2,556	49



MTBE Concentrations in Groundwater (Well MW-1)
Former Texaco Station 211285, 15595 Washington Street, San Lorenzo, CA



Predicted Time to Cleanup of MTBE in Well MW-1, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Calculate "time to cleanup" given the first-order decay equation:

$y = b\,e^{ax}$ ==> $x = \ln(y/b) / a$

Site:	Former Texaco Site 211258
Well:	MW-1
Constituent:	MTBE

$y = 242876\,e^{-0.0017x}$ ==> $x = \ln(y/242876) / -0.0017$

Given

Water Quality Objective:	y	5	ug/L
Constant:	b	242876	
Constant:	a	-0.0017	
Date of first sample:		8/26/1998	

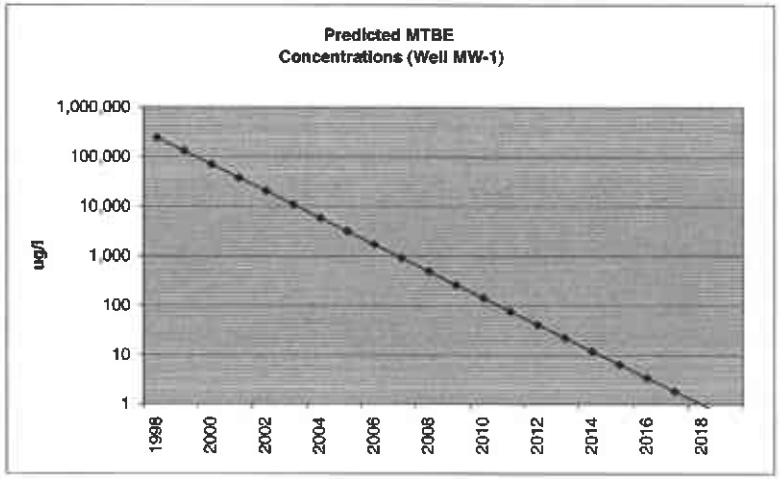
Calculate

Days from first sample:	x	6,348	Days
Years from first sample:		17.4	Years
Estimated date of cleanup:		Jan-2016	

Calculated Half Life = -ln(2)/a = 408 Days

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
8/26/1998	0	242,876
8/26/1999	365	130,588
8/26/2000	731	70,095
8/26/2001	1,096	37,688
8/26/2002	1,461	20,264
8/26/2003	1,826	10,896
8/26/2004	2,192	5,848
8/26/2005	2,557	3,144
8/26/2006	2,922	1,691
8/26/2007	3,287	909
8/26/2008	3,653	488
8/26/2009	4,018	262
8/26/2010	4,383	141
8/26/2011	4,748	76
8/26/2012	5,114	41
8/26/2013	5,479	22
8/26/2014	5,844	12
8/26/2015	6,209	6.3
8/26/2016	6,575	3.4
8/26/2017	6,940	1.8
8/26/2018	7,305	1.0
8/26/2019	7,670	0.5



MW-2

Raw Data

Date	GWE	TPH-G (ug/L)	MTBE (ug/L)
11/12/1992		<10	
3/24/1994	14.22	<50	
12/15/1995	17.47	<50	
8/26/1998	13.67	<50	210,000
1/26/1999	14.78	<2000	9,450
4/6/1999	14.79	<1000	209,000
5/24/2000	14.72	46,000	180,000
8/24/2000	13.55	21,000	70,000
11/22/2000	13.70	29,000	43,000
2/22/2001	15.42	20,000	61,000
5/29/2001	14.04	9,100	24,000
8/24/2001	13.32	8,700	12,000
12/6/2001	14.66	11,000	22,000
3/25/2002	15.08	<50	25,000

Edited Data

Date	GWE	TPH-G (ug/L)	MTBE (ug/L)
11/12/1992		5	
3/24/1994	14.22	25	
12/15/1995	17.47	25	
8/26/1998	13.67	25	210,000
1/26/1999	14.78	1,000	9,450
4/6/1999	14.79	500	209,000
5/24/2000	14.72	46,000	180,000
8/24/2000	13.55	21,000	70,000
11/22/2000	13.70	29,000	43,000
2/22/2001	15.42	20,000	61,000
5/29/2001	14.04	9,100	24,000
8/24/2001	13.32	8,700	12,000
12/6/2001	14.66	11,000	22,000
3/25/2002	15.08	25	25,000

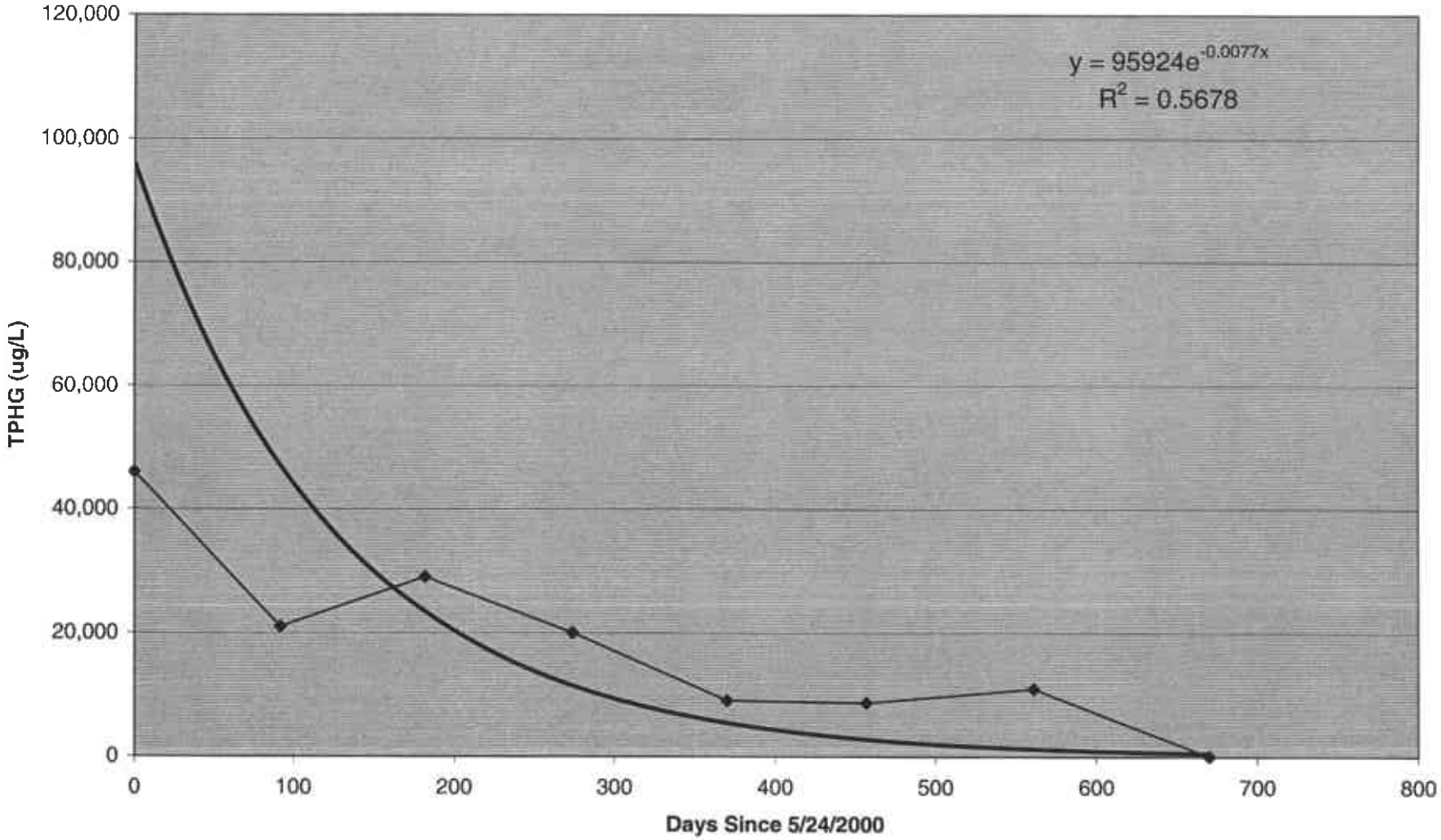
Assumed <x = x/2

Days Since 5/24/2000	TPH-G (ug/L)
0	46,000
92	21,000
182	29,000
274	20,000
370	9,100
457	8,700
561	11,000
670	25

Days Since 4/6/1999	MTBE (ug/L)
0	209,000
414	200,000
506	170,000
596	160,000
688	130,000
784	78,000
871	98,000
975	94,000
1,084	62,000

Used this data set because the 1/26/1999 data appears anomalous and disrupts the curve substantially

TPHg Concentrations in Groundwater (Well MW-2)
Former Texaco Station 211285, 15595 Washington Street, San Lorenzo, CA



Predicted Time to Cleanup of TPHg in Well MW-2, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Calculate "time to cleanup" given the first-order decay equation:

$y = b\,e^{ax}$ ====> $x = \ln(y/b) / a$

Site:	Former Texaco Site 211258
Well:	MW-2
Constituent:	TPHg

$y = 95924\,e^{-0.0077x}$ ====> $x = \ln(y/95924) / -0.0077$

Given			
Water Quality Objective:	y	50	ug/L
Constant:	b	95924	
Constant:	a	-0.0077	
Date of first sample:		5/24/2000	

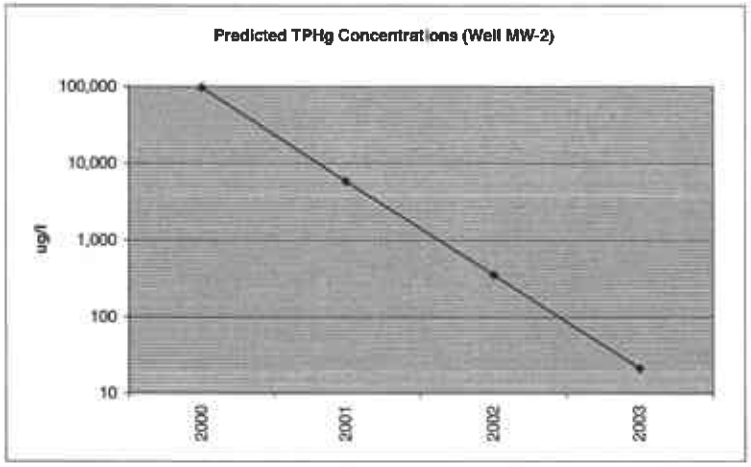
Calculate			
Days from first sample:	x	982	Days
Years from first sample:		2.7	Years
Estimated date of cleanup:		Jan-2003	

Calculated Half Life = -ln(2)/a

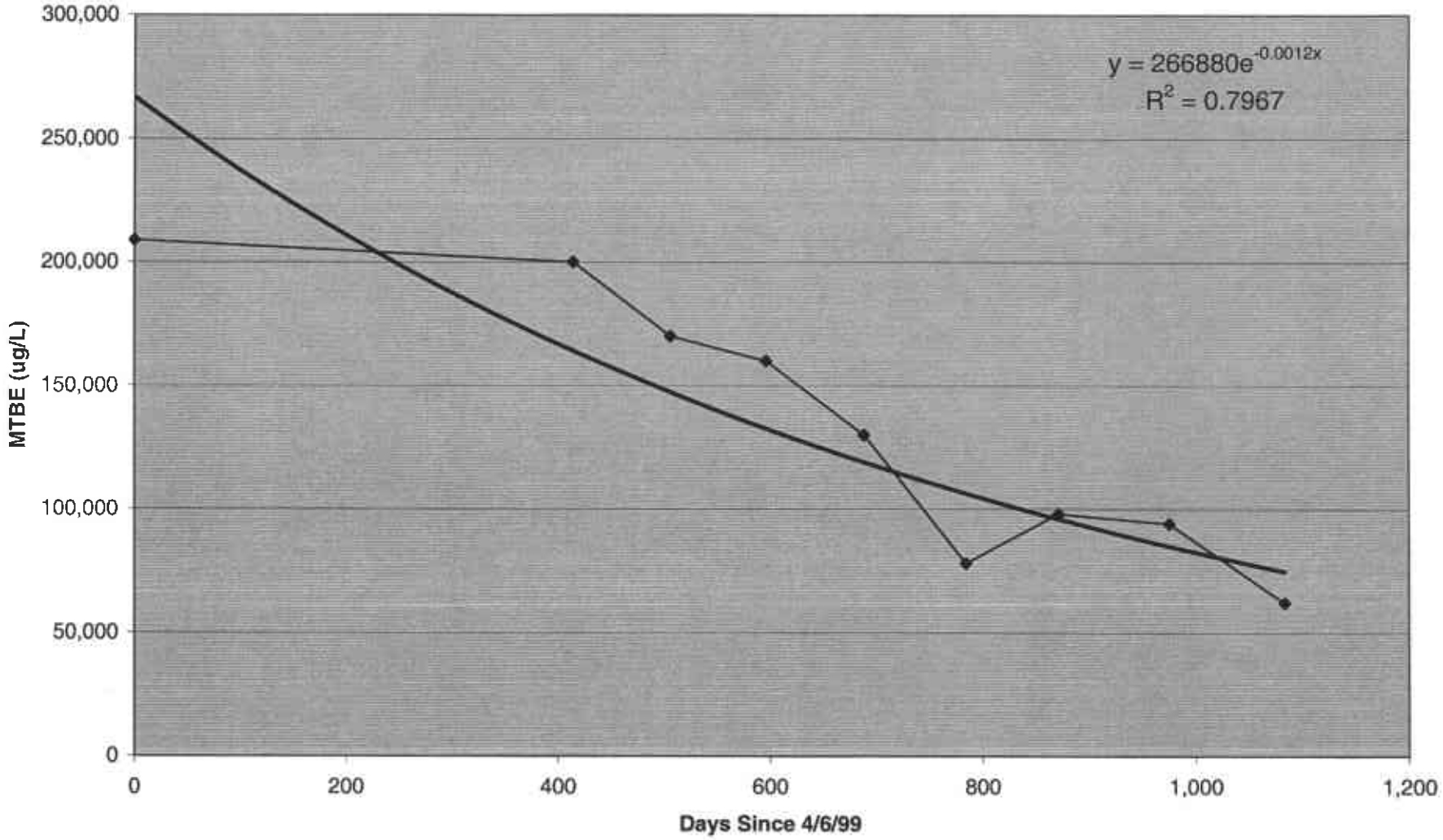
90 Days

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
5/24/2000	0	95,924
5/24/2001	365	5,772
5/24/2002	730	347
5/24/2003	1,095	21



MTBE Concentrations in Groundwater (Well MW-2)
Former Texaco Station 211285, 15595 Washington Street, San Lorenzo, CA



Predicted Time to Cleanup of MTBE in Well MW-2, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Calculate "time to cleanup" given the first-order decay equation:

$y = be^{ax}$ ==> $x = \ln(y/b) / a$

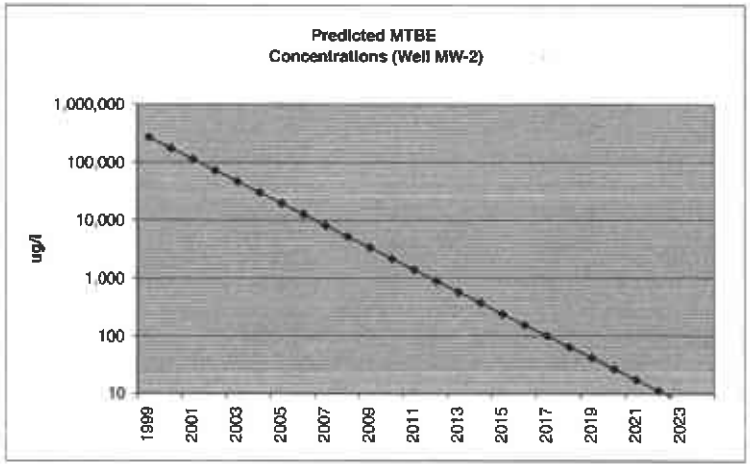
Site:	Former Texaco Site 211258
Well:	MW-2
Constituent:	MTBE

$y = 266880\, e^{-0.0012x}$ ==> $x = \ln(y/266880) / -0.0012$

Given			
Water Quality Objective:	y	5	ug/L
Constant:	b	266880	
Constant:	a	-0.0012	
Date of first sample:		4/6/1999	

Calculate			
Days from first sample:	x	9,071	Days
Years from first sample:		24.9	Years
Estimated date of cleanup:		Feb-2024	

Calculated Half Life = -ln(2)/a = 578 Days



Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
4/6/1999	0	266,880
4/6/2000	366	172,018
4/6/2001	731	111,008
4/6/2002	1,096	71,636
4/6/2003	1,461	46,229
4/6/2004	1,827	29,797
4/6/2005	2,192	19,229
4/6/2006	2,557	12,409
4/6/2007	2,922	8,008
4/6/2008	3,288	5,161
4/6/2009	3,653	3,331
4/6/2010	4,018	2,149
4/6/2011	4,383	1,387
4/6/2012	4,749	894
4/6/2013	5,114	577
4/6/2014	5,479	372
4/6/2015	5,844	240
4/6/2016	6,210	154.9
4/6/2017	6,575	99.9
4/6/2018	6,940	64.5
4/6/2019	7,305	41.6
4/6/2020	7,671	26.8
4/6/2021	8,036	17.3
4/6/2022	8,401	11.2
4/6/2023	8,766	7.2
4/6/2024	9,132	4.6

MW-3

Raw Data

Date	GWE	TPH-G (ug/L)	MTBE (ug/L)
11/12/1992		69	
3/24/1994	14.04	<50	
12/15/1995	14.42	<50	
8/26/1998	13.45	<500	99,000
1/26/1999	14.74	<500	19,800
4/6/1999	14.74	<1000	151,000
5/24/2000	14.48	48,000	200,000
8/24/2000	13.32	52,000	170,000
11/22/2000	13.48	69,000	160,000
2/22/2001	14.98	30,000	130,000
5/29/2001	13.80	29,000	78,000
8/24/2001	13.10	37,000	98,000
12/6/2001	14.50	33,000	94,000
3/25/2002	14.94	<50	62,000

Edited Data

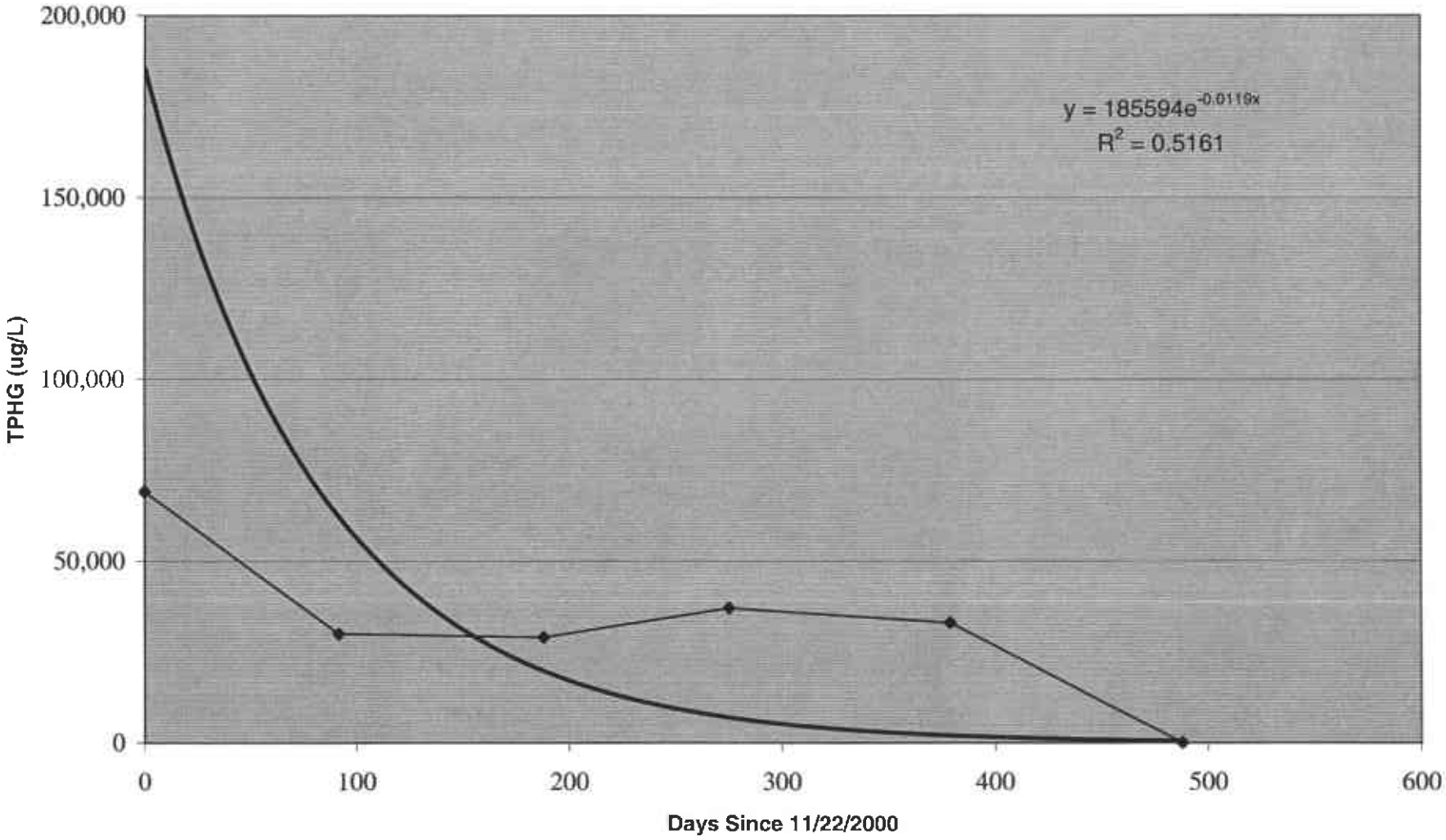
Date	GWE	TPH-G (ug/L)	MTBE (ug/L)
11/12/1992		69	
3/24/1994	14.04	25	
12/15/1995	14.42	25	
8/26/1998	13.45	250	99,000
1/26/1999	14.74	250	19,800
4/6/1999	14.74	500	151,000
5/24/2000	14.48	48,000	200,000
8/24/2000	13.32	52,000	170,000
11/22/2000	13.48	69,000	160,000
2/22/2001	14.98	30,000	130,000
5/29/2001	13.80	29,000	78,000
8/24/2001	13.10	37,000	98,000
12/6/2001	14.50	33,000	94,000
3/25/2002	14.94	25	62,000

Days Since 11/22/2000	TPH-G (ug/L)
0	69,000
92	30,000
188	29,000
275	37,000
379	33,000
488	25

Days Since 5/24/2000	MTBE (ug/L)
0	200,000
92	170,000
182	160,000
274	130,000
370	78,000
457	98,000
561	94,000
670	62,000

Assumed <x = x/2

TPHg Concentrations in Groundwater (Well MW-3)
Former Texaco Station 211285, 15595 Washington Street, San Lorenzo, CA



Predicted Time to Cleanup of TPHg in Well MW-3, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Calculate "time to cleanup" given the first-order decay equation:

$y = b e^{ax}$ ===> $x = \ln(y/b) / a$

Site:	Former Texaco Site 211258
Well:	MW-3
Constituent:	TPHg

$y = 185594\, e^{-0.0119x}$ ===> $x = \ln(y/185594) / -0.0119$

Given

Water Quality Objective:	y	50	ug/L
Constant:	b	185594	
Constant:	a	-0.0119	
Date of first sample:		5/24/2000	

Calculate

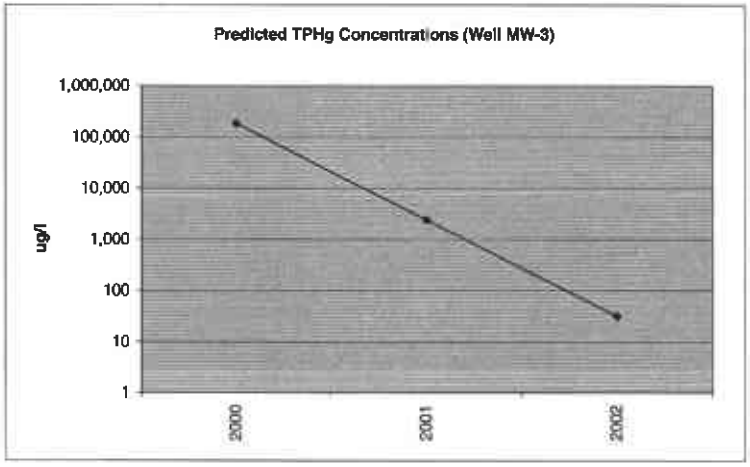
Days from first sample:	x	691	Days
Years from first sample:		1.9	Years
Estimated date of cleanup:		Apr-2002	

Calculated Half Life = -ln(2)/a

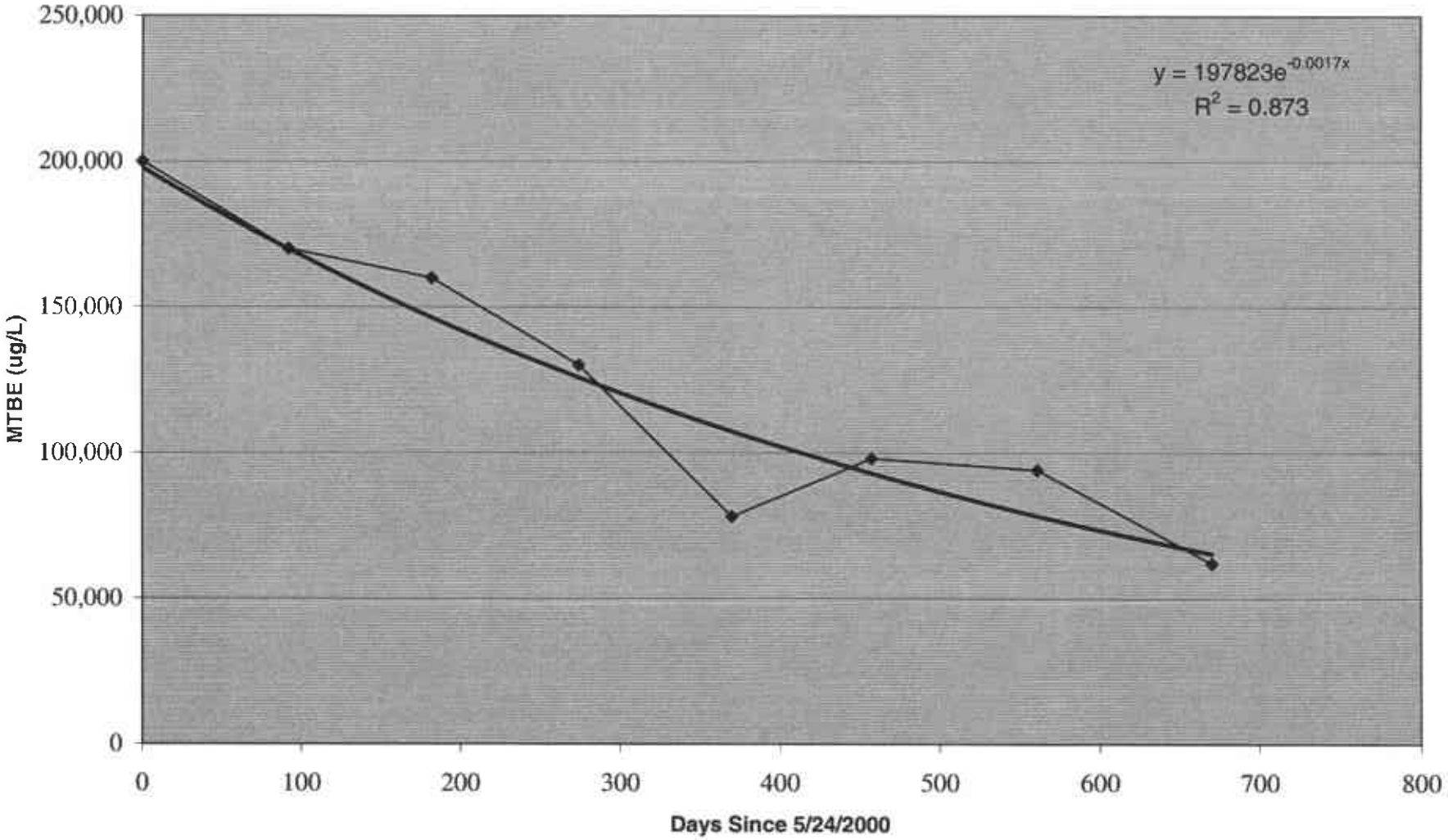
58 Days

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
5/24/2000	0	185,594
5/24/2001	365	2,411
5/24/2002	730	31



MTBE Concentrations in Groundwater (Well MW-3)
Former Texaco Station 211285, 15595 Washington Street, San Lorenzo, CA



Predicted Time to Cleanup of MTBE in Well MW-3, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Calculate "time to cleanup" given the first-order decay equation:

$y = b\,e^{ax}$ ==> $x = \ln(y/b) / a$

Site:	Former Texaco Site 211258
Well:	MW-3
Constituent:	MTBE

$y = 197823\ e^{-0.0017x}$ ==> $x = \ln(y/197823) / -0.0017$

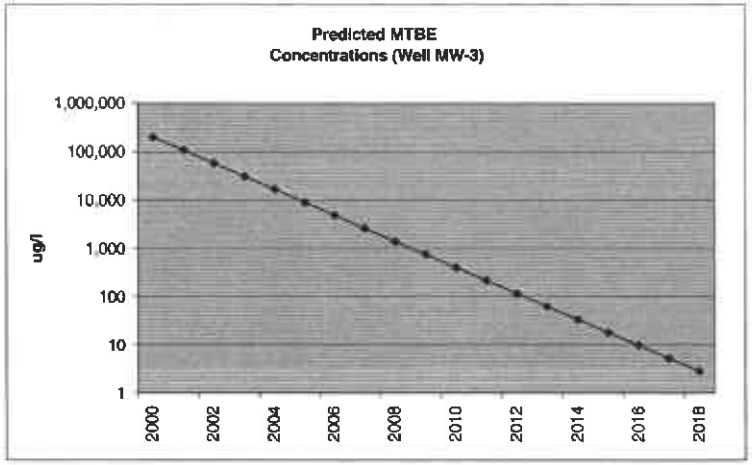
Given

Water Quality Objective:	y	5	ug/L
Constant:	b	197823	
Constant:	a	-0.0017	
Date of first sample:		5/24/2000	

Calculate

Days from first sample:	x	6,227	Days
Years from first sample:		17.1	Years
Estimated date of cleanup:		Jun-2017	

Calculated Half Life = -ln(2)/a = 408 Days



Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
5/24/2000	0	197,823
5/24/2001	365	106,365
5/24/2002	730	57,190
5/24/2003	1,095	30,749
5/24/2004	1,461	16,505
5/24/2005	1,826	8,874
5/24/2006	2,191	4,772
5/24/2007	2,556	2,566
5/24/2008	2,922	1,377
5/24/2009	3,287	740
5/24/2010	3,652	398
5/24/2011	4,017	214
5/24/2012	4,383	115
5/24/2013	4,748	62
5/24/2014	5,113	33
5/24/2015	5,478	18
5/24/2016	5,844	10
5/24/2017	6,209	5.2
5/24/2018	6,574	2.8

Predicted BTX Concentrations in SB-1, Former Texaco Site 211285, 15595 Washington Street, San Lorenzo, California

Site:	Former Texaco Site 211258
Well:	SB-1
Constituent:	Benzene, Toluene and Xylenes

	MW-1 TPHg	MW-1 MTBE	MW-2 TPHg	MW-2 MTBE	MW-3 TPHg	MW-3 MTBE
Predicted Half-Life:	267	408	90	576	58	408 (from spreadsheets)

Average half-life: 302 days

Assumed Half Life: 302 Days

	Predicted Concentration			
Date	Benzene	Toluene	Xylenes	
8/8/1996	220	390	680	(Initial Concentration)
6/6/1997	110	195	340	
4/4/1998	55	97.5	170	
1/31/1999	28	49	85	
11/29/1999	14	24	43	
9/26/2000	6.9	12	21	
7/25/2001	3.4	6.1	11	
5/23/2002	1.7	3.0	5.3	
3/21/2003	0.9	1.5	2.7	
1/17/2004		0.8	1.3	
11/14/2004			0.7