

ENVIRONMENTAL
PROTECTION
30 MAY 29 PM 3:14



Chevron

May 26, 1998

STID 6128

Chevron Products Company

6001 Bollinger Canyon Road
Building L
San Ramon, CA 94583
P.O. Box 6004
San Ramon, CA 94583-0904

Marketing - Sales West

Phone 510 842-9500

Ms. Madhulla Logan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

**Re: Former Chevron Service Station #9-0260
21995 Foothill Blvd., Hayward, California**

Dear Ms. Logan:

Enclosed is the January-February 1998 Operations Report for the soil and groundwater system that our consultant Terra Vac installed and placed in operation at the above noted site. The purpose of this report is to provide data on the systems operation for the months of January through February 1998.

The dual vacuum extraction (DVE) system was operational on October 13, 1997 and the data collected for the operations conducted from startup through February 27, 1998 are shown in Table 1.

As of February 27, 1998, 14,085 pounds of hydrocarbons have been removed, with mass removal rates beginning to stabilize at about 200-250 pounds per day when the winter storms of El Nino begin. The rise in the water table and continuous saturation of the soils drastically reduced efficiency of the system and the hydrocarbon removal rates, beginning in the second week of January. Refer to Chart 1, which shows the hydrocarbon removal rates with the increases and trends, corresponding both to the onset of operation on monitoring wells and the storm impact. Chart 2 shows the cumulative hydrocarbon mass removal over time.

The seventy-five percent decrease in removal rate in one week, plus an increase in water production and changes in operating parameters indicate that El Nino effects have impacted the operations of the DVE system.

/ P

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Ms. Madhulla Logan
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In the operational period of January to February, 409,710 gallons of groundwater was extracted and treated with carbon, polished with alumina and discharged to the sewer. That is over 5 times the amount treated in November and December. The analytical results for January and February were submitted to the Ora Loma Sanitary District and all constituents were in compliance. The TPH-g/BTEX concentrations in the discharge stream remain below detection limits.

Average airflow from the vapor exhaust was 388 and 322 scfm for January and February respectively. The average destruction efficiency for the abatement unit was 98.6%. Of the exhaust samples only one sample indicated benzene at 0.0014 mg/l, just above detection limits. The resulting benzene emission rate was 0.06 pounds /day, below the permit limits of 1.2 pounds/day.

The increase in water elevations and ongoing rain has acted to cap the hydrocarbon impacted sand zone as well as submerge the impacted area in the low permeability soils above it. Radius of influence is decreased, flows are lower and the low permeability soils will not dry out under these conditions to allow airflow for hydrocarbon removal. Until groundwater levels have decreased and rains subside, mass removal rates are low and the cost effectiveness of the DVE system is poor. Therefore, the operations of the DVE system has been suspended until the depth to the groundwater falls to a level that will allow the DVE system to operate efficiently to remove hydrocarbons from the impacted areas.

If you have any questions or comments on this report call Mr. Robert Dahl of Terra Vac at (510) 351-8900 or call me at (510) 842-9136.

Sincerely,
CHEVRON PRODUCTS COMPANY



Philip R. Briggs
Site Assessment and Remediation Project Manager

Enclosure

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Cc. Mr. Chuck Headlee
RWQCB-San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

Mr. Hugh Murphy
City of Hayward Fire Department
25151 Clawiter Road
Hayward, CA 94545

Ms. P. Cecilia Storr
Varni, Fraser, Hartwell & Rodgers
Attorneys at Law
PO Box 570
Hayward, CA 94543-0570

Mr. Robert A. Dahl, Project Manager
Terra Vac Corporation
1651 Alvarado Street
San Leandro, CA 94577 (Less report)

Ms. Bette Owen, Chevron

**JANUARY-FEBRUARY 1998 OPERATIONS REPORT
FORMER CHEVRON STATION 9-0260
21995 FOOTHILL BOULEVARD
HAYWARD, CALIFORNIA**

1.0 Background

At the request of Chevron Products Company, Terra Vac is operating a soil and groundwater remediation system at the subject site (Figure 1). Existing monitoring wells have been incorporated into the Dual Vacuum Extraction system design in addition to the installation of fifteen DVE wells. The purpose of this report is to provide data on system operation for the months of January through February, 1998.

2.0 Operations

Initial soil vapor extraction operations began on October 13, 199~~6~~⁷. Data collected for operations conducted from startup through February 27 of 1998 are shown in Table 1.

Up to February 27, 1998, the dual vapor extraction system has accounted for the removal of a total of approximately 14,000 pounds of hydrocarbons. Mass removal rates were beginning to stabilize at about 200-250 pounds per day when the winter storms of El Nino began. The rise in the water table and continuous saturation of the soils drastically reduced efficiency of the system and the hydrocarbon removal rates, beginning in the second week of January. Chart 1 shows hydrocarbon removal rates, with significant increases and trends corresponding both to the onset of operations on monitoring wells and the storms' impact. Chart 2 shows the cumulative hydrocarbon mass removal over time.

Vapor concentrations have dropped significantly but it is clear that the decrease is due to the loss of air flow through the hydrocarbon impacted areas. The mass removal, shown in Chart 2, has approached asymptotic but not in the usual manner of a gradual transition. The seventy-five percent decrease in removal rate in one week, plus an increase in water production and changes in operating parameters indicate that El Nino effects have impacted our operations.

3.0 Groundwater Treatment

Over this operating period of January to February, over 400,000 gallons of groundwater have been extracted with the DVE system, treated with carbon, polished with alumina and discharged to the sewer. That is over 5 times the amount treated in November and December. Sampling of the discharge as required by the Ora Loma Sanitary District, has been conducted and the results

transmitted for January and February. Appendix A contains laboratory reports for COD, Suspended Solids, pH and TPHg/BTEX, all of which were in compliance. TPHg/BTEX concentrations in the discharge stream remain below detection limits.

4.0 Air Permit Compliance

The following table shows collection dates and results of inlet and exhaust vapor samples. All samples were obtained in tedlar bags and transported to the Terra Vac office to be analyzed by GC-FID. Average destruction efficiency for the abatement unit was 98.6 percent. Average flow was 388 and 322 scfm for January and February respectively. Of the exhaust samples, only the January 14, 1998 sample indicated benzene at 0.0014 mg/l, just above detection limits. The resulting benzene emission rate was 0.06 pounds per day, far below permit limits of 1.2 pounds per day.

Date	Inlet, TPH mg/l (ppmv)	Exhaust, TPH mg/l	Destruction Efficiency (%)
1/14/98	2.7mg/l(810 ppm)	0.05mg/l	98.1
2/18/98	0.4mg/l(120 ppm)	0.004mg/l	99.0

5.0 Recommendations

The increase in water elevations and ongoing rain, have acted to cap the hydrocarbon impacted sand zone as well as submerge the impacted areas in the low permeability soils above it. The depth to water as measured at MW-10 on February 28th, was only 7.82 feet, the highest level since monitoring was initiated in 1989. Radius of influence is decreased, flows are lower and the low permeability soils will not dry out under these conditions to allow air flow for hydrocarbon removal. The limited air flow supplies little additional oxygen for enhanced bioremediation. Until groundwater levels have decreased and rains subside, mass removal rates are low and the cost effectiveness of the DVE system is poor. Assuming that groundwater levels will approach their normal seasonal levels some point after the rains cease, operations will be suspended until depth to groundwater again falls to allow effective mass hydrocarbon removal, as evidenced by operational data upon restarting.

Table 1, Remediation System Operations Data
Former Chevron Service Station 9-0260
21995 Foothill Blvd.
Hayward, California

row	Date	Mode	run time (days)	bed temp.	delta temp.	flow (scfm)	LEL	#/day	total pounds
54	15 Oct 97	run	2.0	1885	145	437	6.4%	106	222
78	16 Oct 97	run	3.0	1891	136	440	6.4%	100	322
102	17 Oct 97	run	4.0	1883	192	401	10.5%	132	455
126	18 Oct 97	run	5.0	1878	210	404	11.6%	145	600
150	19 Oct 97	run	6.0	1880	205	409	11.2%	143	743
174	20 Oct 97	run	7.0	1880	193	414	10.6%	136	879
198	21 Oct 97	run	8.0	1880	267	448	14.5%	210	1,089
222	22 Oct 97	run	9.0	1888	259	460	13.6%	205	1,295
246	23 Oct 97	run	10.0	1890	227	462	12.1%	180	1,475
270	24 Oct 97	run	11.0	1889	210	464	11.3%	167	1,642
294	25 Oct 97	run	12.0	1893	195	460	9.6%	152	1,794
318	26 Oct 97	run	13.0	1895	185	463	9.3%	146	1,940
342	27 Oct 97	run	14.0	1896	176	463	9.0%	138	2,078
366	28 Oct 97	shutdown	14.5	1833	0	0		157	2,156
390	29 Oct 97	startup	15.4	1873	303	512	15.7%	249	2,374
414	30 Oct 97	down/up	16.3	1884	212	476	12.3%	209	2,566
438	31 Oct 97	run	17.3	1885	192	463	11.3%	151	2,717
462	1 Nov 97	shutdown	17.6	1803	0	0		147	2,766
486	2 Nov 97	standby	17.6	1739	0	0			2,766
510	3 Nov 97	standby	17.6	1748	0	0			2,766
534	4 Nov 97	up/down	17.9	1792	0	0		111	2,798
558	5 Nov 97	up/down	18.0	1758	0	0			2,823
582	6 Nov 97	up/down	18.5	1843	0	0		158	2,902
606	7 Nov 97	up/down	19.0	1847	0	0		190	2,997
630	8 Nov 97	startup	19.9	1879	184	502	10.4%	151	3,129
654	9 Nov 97	run	20.9	1890	171	476	9.9%	137	3,266
678	10 Nov 97	run	21.9	1896	156	472	9.5%	125	3,391
702	11 Nov 97	run	22.9	1894	156	472	9.9%	125	3,516
726	12 Nov 97	run	23.9	1894	154	476	9.5%	124	3,640
750	13 Nov 97	shutdown	24.5	1843	0	0		125	3,713
774	14 Nov 97	up/down	24.7	1779	0	0			3,728
798	15 Nov 97	startup	25.4	1863	188	492	11.8%	143	3,836
822	16 Nov 97	shutdown	26.4	1894	0	0		151	3,980
846	17 Nov 97	standby	26.4	1731	0	0			3,980
870	18 Nov 97	startup	27.2	1863	244	502	13.7%	187	4,129
894	19 Nov 97	run	28.2	1885	157	465	9.2%	121	4,249
918	20 Nov 97	run	29.2	1893	123	467	8.1%	96	4,345
942	21 Nov 97	shutdown	29.3	1726	0	0			4,353
966	22 Nov 97	startup	29.9	1863	135	481	8.2%	90	4,413
990	23 Nov 97	run	30.9	1883	131	479	8.8%	105	4,518
1014	24 Nov 97	run	31.9	1892	132	481	8.8%	106	4,624
1038	25 Nov 97	run	32.9	1883	307	429	19.7%	226	4,850
1062	26 Nov 97	run	33.9	1878	436	396	26.6%	301	5,151
1086	27 Nov 97	run	34.9	1879	452	386	27.1%	303	5,454

Table 1, Remediation System Operations Data
Former Chevron Service Station 9-0260
21995 Foothill Blvd.
Hayward, California

row	Date	Mode	run time (days)	bed temp.	delta temp.	flow (scfm)	LEL	#/day	total pounds
1110	28 Nov 97	run	35.9	1878	398	390	23.6%	269	5,724
1134	29 Nov 97	run	36.9	1876	364	391	21.6%	246	5,969
1158	30 Nov 97	run	37.9	1870	345	389	20.6%	233	6,202
1182	1 Dec 97	shutdown	38.6	1860	0	0		199	6,343
1206	2 Dec 97	startup	39.5	1886	55	502	4.2%	67	6,401
1230	3 Dec 97	run	40.5	1883	55	495	5.0%	41	6,443
1254	4 Dec 97	run	41.5	1883	54	488	5.1%	40	6,483
1278	5 Dec 97	shutdown	41.7	1680	0	0			6,489
1302	6 Dec 97	standby	41.7	1740	0	0			6,489
1326	7 Dec 97	standby	41.7	1688	0	0			6,489
1350	8 Dec 97	standby	41.7	1734	0	0			6,489
1374	9 Dec 97	startup	42.4	1863	118	437	9.6%	54	6,528
1398	10 Dec 97	shutdown	42.8	1824	0	0		98	6,569
1422	11 Dec 97	startup	43.5	1853	157	427	12.1%	99	6,634
1446	12 Dec 97	run	44.5	1870	215	444	14.0%	166	6,800
1470	13 Dec 97	run	45.5	1883	259	448	15.7%	200	7,001
1494	14 Dec 97	run	46.5	1884	259	446	15.8%	199	7,199
1518	15 Dec 97	run	47.5	1880	263	448	16.4%	204	7,403
1542	16 Dec 97	run	48.5	1881	253	444	15.7%	193	7,596
1566	17 Dec 97	run	49.5	1881	244	446	15.4%	187	7,783
1590	18 Dec 97	run	50.5	1878	255	450	16.0%	199	7,981
1614	19 Dec 97	run	51.5	1879	259	451	15.9%	202	8,183
1638	20 Dec 97	run	52.5	1881	264	458	15.9%	209	8,392
1662	21 Dec 97	run	53.5	1881	264	459	16.0%	209	8,601
1686	22 Dec 97	run	54.5	1881	258	456	15.8%	202	8,803
1710	23 Dec 97	run	55.5	1878	314	452	19.5%	248	9,051
1734	24 Dec 97	run	56.5	1871	367	443	22.2%	282	9,333
1758	25 Dec 97	run	57.5	1869	363	447	22.2%	281	9,614
1782	26 Dec 97	shutdown	57.9	1831	0	0		282	9,743
1806	27 Dec 97	standby	57.9	1751	0	0			9,743
1830	28 Dec 97	standby	57.9	1727	0	0			9,743
1854	29 Dec 97	standby	57.9	1747	0	0			9,743
1878	30 Dec 97	startup	58.6	1838	308	447	19.9%	194	9,880
1902	31 Dec 97	run	59.6	1854	324	441	20.2%	248	10,128
1926	1 Jan 98	run	60.6	1863	351	448	21.6%	274	10,403
1950	2 Jan 98	run	61.6	1864	359	451	22.3%	281	10,684
1974	3 Jan 98	run	62.6	1863	356	448	22.2%	277	10,961
1998	4 Jan 98	run	63.6	1861	351	449	21.9%	273	11,235
2022	5 Jan 98	run	64.6	1861	339	443	21.2%	260	11,494
2046	6 Jan 98	run	65.6	1861	309	441	19.6%	235	11,729
2070	7 Jan 98	run	66.6	1862	292	438	18.7%	220	11,950
2094	8 Jan 98	run	67.6	1863	280	445	18.2%	216	12,165
2118	9 Jan 98	run	68.6	1863	269	441	17.7%	204	12,369

Table 1, Remediation System Operations Data
Former Chevron Service Station 9-0260
21995 Foothill Blvd.
Hayward, California

row	Date	Mode	run time (days)	bed temp.	delta temp.	flow (scfm)	LEL	#/day	total pounds
2142	10 Jan 98	run	69.6	1862	264	434	17.7%	198	12,567
2166	11 Jan 98	run	70.6	1860	258	432	17.6%	192	12,759
2190	12 Jan 98	run	71.6	1870	155	471	11.9%	117	12,876
2214	13 Jan 98	run	72.6	1880	75	485	8.2%	58	12,934
2238	14 Jan 98	run	73.6	1870	59	475	7.1%	43	12,977
2262	15 Jan 98	run	74.6	1843	72	369	10.7%	41	13,018
2286	16 Jan 98	run	75.6	1838	94	324	10.8%	48	13,066
2310	17 Jan 98	run	76.6	1834	80	337	10.1%	43	13,109
2334	18 Jan 98	down/up	77.3	1817	80	324	11.3%	39	13,135
2358	19 Jan 98	shutdown	77.9	1801	60	0		30	13,153
2382	20 Jan 98	startup	78.8	1802	35	296	8.0%	18	13,168
2406	21 Jan 98	run	79.8	1809	45	324	8.6%	21	13,189
2430	22 Jan 98	run	80.8	1829	60	337	9.5%	31	13,220
2454	23 Jan 98	run	81.8	1834	67	339	9.6%	35	13,255
2478	24 Jan 98	run	82.8	1834	73	339	10.2%	38	13,293
2502	25 Jan 98	run	83.8	1835	99	339	11.4%	55	13,348
2526	26 Jan 98	down/up	84.6	1834	124	365	11.8%	68	13,405
2550	27 Jan 98	down/up	85.4	1830	124	338	12.1%	71	13,464
2574	28 Jan 98	down/up	86.3	1833	126	339	12.7%	69	13,522
2598	29 Jan 98	run	87.3	1837	122	345	12.7%	69	13,591
2622	30 Jan 98	run	88.3	1845	124	355	12.2%	72	13,663
2646	31 Jan 98	run	89.3	1847	113	348	11.7%	64	13,728
2670	1 Feb 98	run	90.3	1845	110	353	11.7%	63	13,791
2694	2 Feb 98	run	91.3	1843	107	348	11.7%	60	13,851
2718	3 Feb 98	run	92.3	1842	96	334	11.5%	51	13,903
2742	4 Feb 98	shutdown	92.4	1727	0	0			13,909
2766	5 Feb 98	standby	92.4	1689	0	0			13,909
2790	6 Feb 98	up/down	92.5	1679	0	0			13,917
2814	7 Feb 98	startup	93.3	1683	19	311	7.3%	22	13,934
2838	8 Feb 98	run	94.3	1708	17	324	7.2%	9	13,943
2862	9 Feb 98	run	95.3	1708	20	332	7.2%	15	13,958
2886	10 Feb 98	run	96.3	1709	22	343	7.0%	10	13,968
2910	11 Feb 98	shutdown	96.4	1744	0	0			13,969
2934	12 Feb 98	standby	96.4	1738	0	0			13,969
2958	13 Feb 98	standby	96.4	1679	0	0			13,969
2982	14 Feb 98	startup	97.2	1739	8	296	6.7%	13	13,979
3006	15 Feb 98	run	98.2	1709	11	299	6.8%	8	13,987
3030	16 Feb 98	run	99.2	1708	11	299	6.8%	4	13,991
3054	17 Feb 98	run	100.2	1709	10	298	6.8%	6	13,997
3078	18 Feb 98	run	101.2	1707	11	300	7.2%	6	14,003
3102	19 Feb 98	down/up	102.1	1733	25	324	9.3%	9	14,011

Table 1, Remediation System Operations Data
 Former Chevron Service Station 9-0260
 21995 Foothill Blvd.
 Hayward, California

row	Date	Mode	run time (days)	bed temp.	delta temp.	flow (scfm)	LEL	#/day	total pounds
3126	20 Feb 98	down/up	103.0	1775	28	339	8.5%	10	14,020
3150	21 Feb 98	run	104.0	1782	28	324	9.2%	11	14,031
3174	22 Feb 98	run	105.0	1788	29	323	9.2%	11	14,043
3198	23 Feb 98	run	106.0	1783	28	316	9.2%	11	14,053
3222	24 Feb 98	down/up	106.8	1759	39	333	9.5%	14	14,064
3246	25 Feb 98	down/up	107.5	1751	35	329	10.0%	15	14,074
3270	26 Feb 98	down/up	108.0	1750	38	324	9.4%	14	14,081
3294	27 Feb 98	shutdown	108.3	1719	0	0		12	14,085

Table 2
Extracted Vapor Speciation

Inlet sample date	11/18/97	12/22/97	1/14/98	1/31/98	2/18/98
Benzene and Lighter	53.1%	42.9%	31%	28.4%	44.6%
Benzene to Toluene	34.8%	41.1%	26.2%	36%	17.9%
Toluene to Xylenes	9.1%	11.1%	26.9%	32%	33.2%
Heavier than Xylenes	3%	4.9%	9.5%	3.6%	4.3%

Chart 1, Mass Removal Rate

Chevron 0260
21995 Foothill Boulevard
Hayward

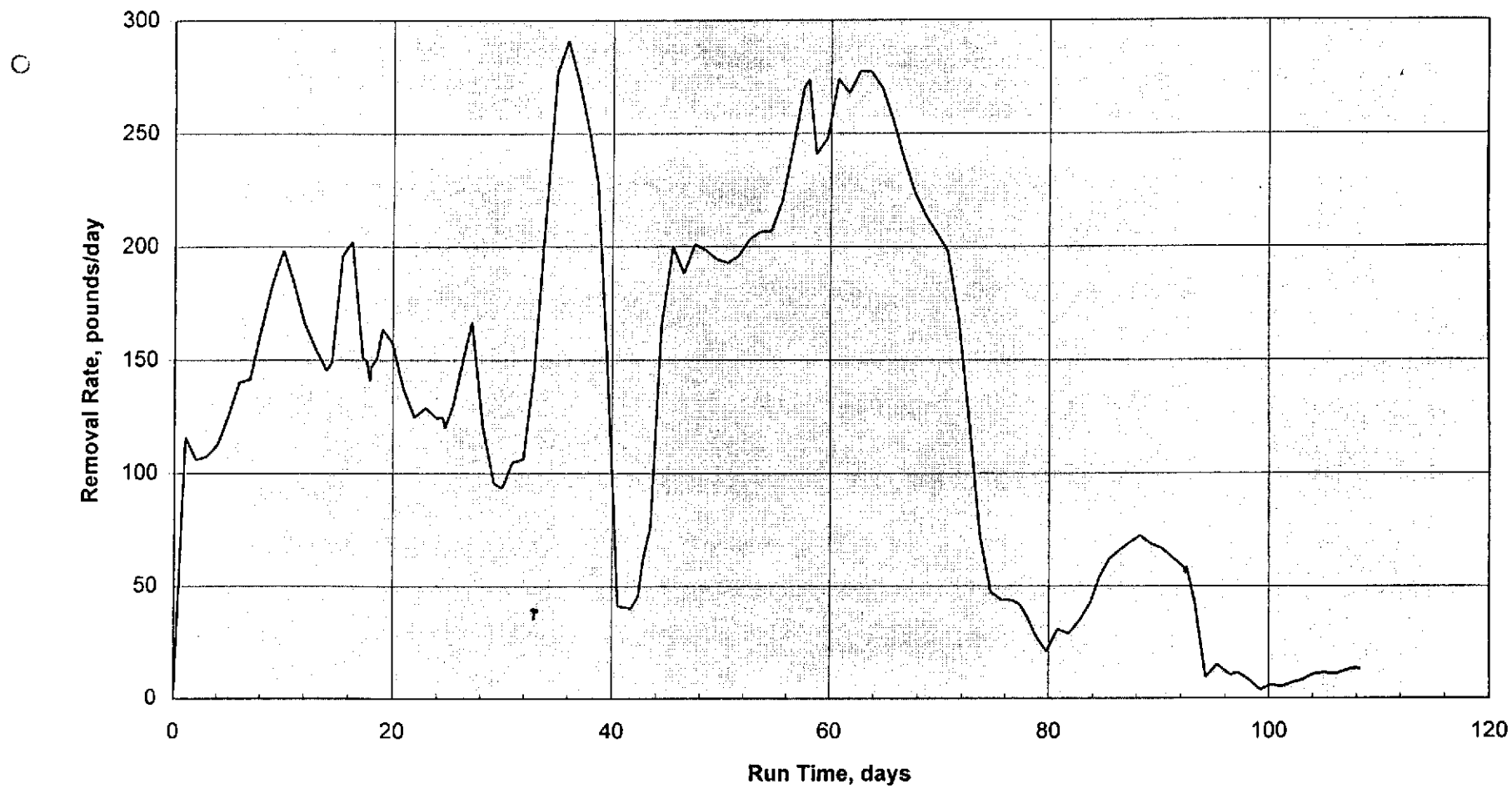
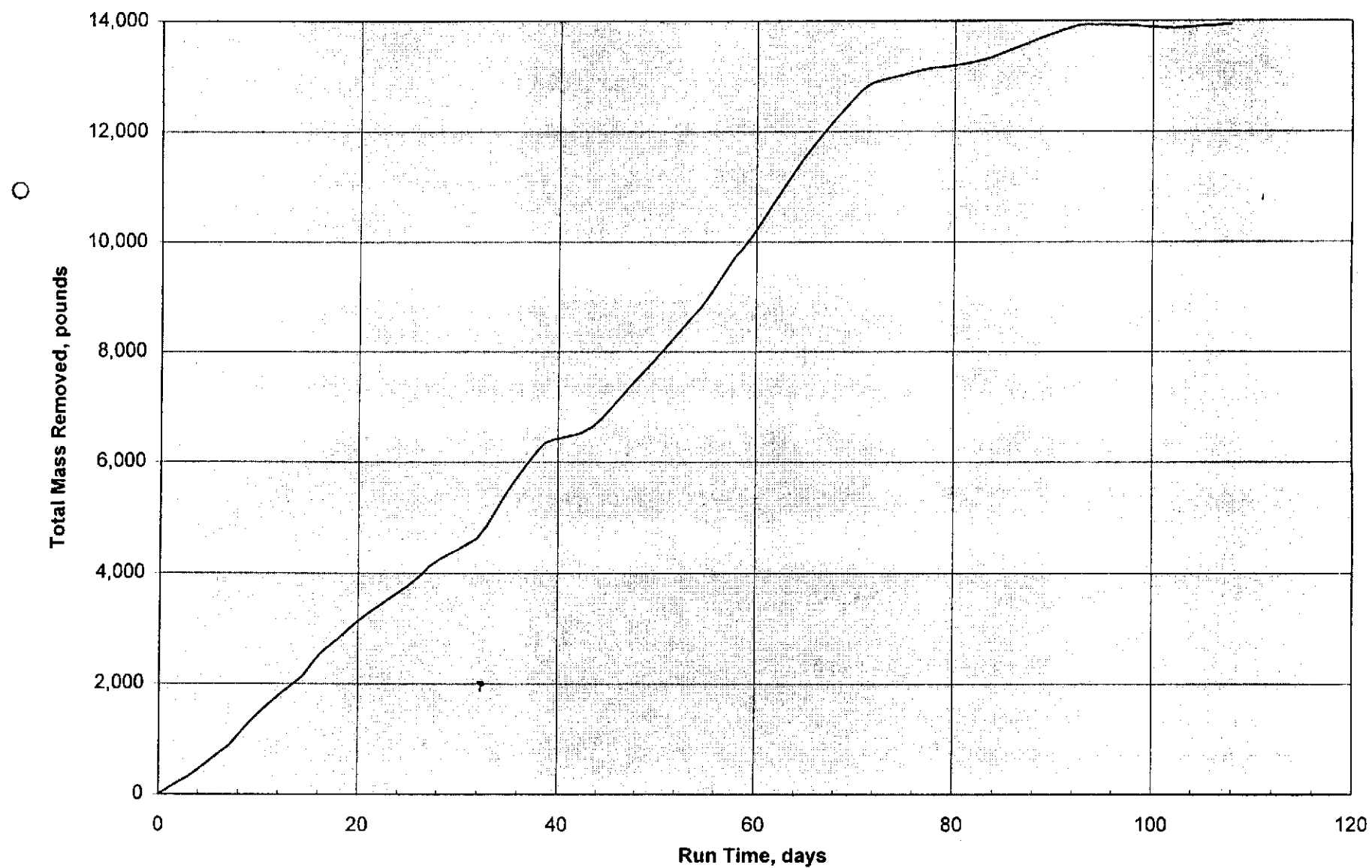
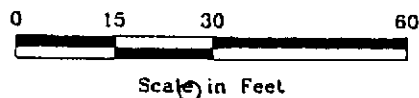
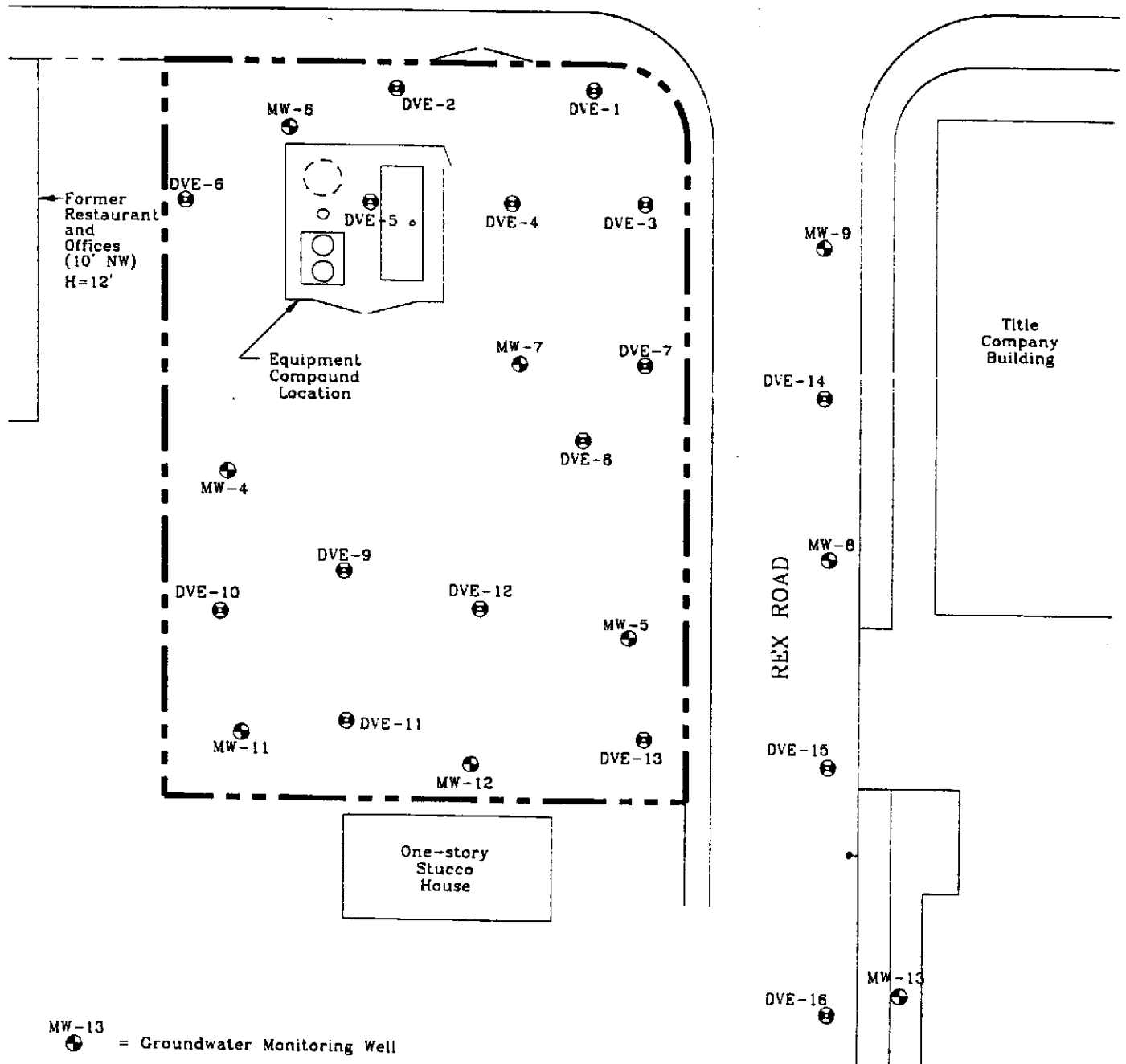


Chart 2, Cumulative Mass Removed

Chevron 0260
21995 Foothill Boulevard
Hayward



FOOTHILL BOULEVARD



Site Map
Former Chevron Station 9-0260
21995 Foothill Boulevard
Hayward, California

Project	30-0236	Drawn	JLN
Date	5/13/97	Revision	
Scale	1"=30'	Checked	

TERRA
VAC 1651 Alvarado Street
San Leandro, CA 94577
(510) 351-8900 Fax: -0221

Figure
1



VAC

1651 Alvarado Street, San Leandro, CA 94577-2636
Tel (510) 351-8900 □ Fax (510) 351-0221

February 3, 1998

Attn: Ms. Susan Keach
Ora Loma Sanitary District
2600 Grant Avenue
San Lorenzo, CA 94580
FAX 510-276-1528

RE: Discharge flows, Permit 90-025-91
21995 Foothill Boulevard, Hayward

Dear Ms. Keach:

Please find attached a table showing total discharge flows at the above site.

Monthly samples were collected for TPHg/ BTEX, COD, SS and pH from the effluent discharge on January 22, 1998. The laboratory reports follow, indicating no detectable TPHg/BTEX, COD of 24 mg/L, TSS of 6.0 mg/L. The pH was measured in the field at 7.44.

If you have any questions, please call me at (510) 351-8900.

Sincerely,
Terra Vac

Robert A. Dahl
Project Manager

cc: file 30-0236.16.03



Table 1
Sewer Discharge Flows
Permit 90-025-91
Chevron Corporation
21995 Foothill Boulevard
Hayward, CA

Date	Totalizer Rdg.	Gallons discharged/month	Total gallons discharged
November 5, 1997	1,070,524	0	0
December 1, 1997	1,084,405	13,881	13,881
December 29, 1997	1,139,690	55,285	69,166
January 29, 1998	1,313,330	173,640	242,806



Sequoia
Analytical

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

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

(650) 364-9600
(510) 988-9600
(916) 921-9600

FAX (650) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Terra Vac
1651 Alvarado St.
San Leandro, CA 94577

Client Proj. ID: Chevron 9-0260, 30-0236

Lab Proj. ID: 9801C20

Sampled: 01/20/98
Received: 01/22/98
Analyzed: see below

Attention: Tony Dahl

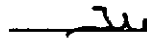
Reported: 02/03/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9801C20-01				
Sample Desc: LIQUID, 1/20 Effluent				
Chemical Oxygen Demand	mg/L	01/26/98	20	24
Total Suspended Solids	mg/L	01/26/98	1.0	6.0

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

SEQUOIA ANALYTICAL - ELAP #1210


Todd Granicher
Project Manager



Sequoia Analytical

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

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

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FAX (650) 364-9233
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FAX (916) 921-0100

Terra Vac
1651 Alvarado St.
San Leandro, CA 94577

Client Proj. ID: Chevron 9-0260, 30-0236
Sample Descript: 1/20 Effluent
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9801C20-01

Sampled: 01/20/98
Received: 01/22/98
Analyzed: 01/30/98
Reported: 02/03/98

Attention: Tony Dahl

QC Batch Number: GC013098BTEX01A

Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		N.D.
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	85

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

SEQUOIA ANALYTICAL - ELAP #1210


Tod Granicher
Project Manager

Page:

2



**Sequoia
Analytical**

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FAX (916) 921-0100

Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Chevron 9-0260, 30-0236
Matrix: Liquid

Work Order #: 9801C20 01, 02

Reported: Feb 4, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC013098BTEX01A	GC013098BTEX01A	GC013098BTEX01A	GC013098BTEX01A	GC013098BTEX01A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	GW980191606	GW980191606	GW980191606	GW980191606	GW980191606
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	1/30/98	1/30/98	1/30/98	1/30/98	1/30/98
Analyzed Date:	1/30/98	1/30/98	1/30/98	1/30/98	1/30/98
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L	60 ug/L
Result:	11	11	12	35	58
MS % Recovery:	110	110	120	117	93
Dup. Result:	12	11	12	35	58
MSD % Recov.:	120	110	120	120	97
RPD:	8.7	0.0	0.0	2.8	3.5
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	GWBLK013098BSA	GWBLK013098BSA	GWBLK013098BSA	GWBLK013098BSA	GWBLK013098BSA
Prepared Date:	1/30/98	1/30/98	1/30/98	1/30/98	1/30/98
Analyzed Date:	1/30/98	1/30/98	1/30/98	1/30/98	1/30/98
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L	60 ug/L
LCS Result:	11	11	11	35	73
LCS % Recov.:	110	110	110	117	122

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

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

Please Note:

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

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

9801C20.TTT <1>





Sequoia Analytical

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FAX (916) 921-0100

Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Chevron 9-0260, 30-0236
Matrix: Liquid

Work Order #: 9801C20 01, 02

Reported: Feb 4, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC013198BTEX06A	GC013198BTEX06A	GC013198BTEX06A	GC013198BTEX06A	GC013198BTEX06A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	GW9801A5302	GW9801A5302	GW9801A5302	GW9801A5302	GW9801A5302
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	1/31/98	1/31/98	1/31/98	1/31/98	1/31/98
Analyzed Date:	1/31/98	1/31/98	1/31/98	1/31/98	1/31/98
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L	60 ug/L
Result:	11	11	12	34	55
MS % Recovery:	110	110	120	113	92
Dup. Result:	11	12	12	35	57
MSD % Recov.:	110	120	120	117	95
RPD:	0.0	8.7	0.0	2.9	3.6
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	GWBLK013198BSA	GWBLK013198BSA	GWBLK013198BSA	GWBLK013198BSA	GWBLK013198BSA
Prepared Date:	1/31/98	1/31/98	1/31/98	1/31/98	1/31/98
Analyzed Date:	1/31/98	1/31/98	1/31/98	1/31/98	1/31/98
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L	60 ug/L
LCS Result:	12	12	12	36	58
LCS % Recov.:	120	120	120	120	97

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

SEQUOIA ANALYTICAL

Tod Granicher
Project Manager

Please Note:

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

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

9801C20.TTT <2>



Sequoia
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Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Chevron 9-0260, 30-0236
Matrix: Liquid

Work Order #: 9801C20 01, 02

Reported: Feb 4, 1998

QUALITY CONTROL DATA REPORT

Analyte: Chemical Oxygen
Demand

QC Batch#: IN012698410400A
Analy. Method: EPA 410.4
Prep. Method: N.A.

Analyst: Y. Wei
MS/MSD #: 9801D0904
Sample Conc.: N.D.
Prepared Date: 1/26/98
Analyzed Date: 1/26/98
Instrument I.D.#: MANUAL
Conc. Spiked: 100 mg/L

Result: 78
MS % Recovery: 78

Dup. Result: 81
MSD % Recov.: 81

RPD: 3.8
RPD Limit: 0-20

LCS #: LCS012698

Prepared Date: 1/26/98
Analyzed Date: 1/26/98
Instrument I.D.#: MANUAL
Conc. Spiked: 100 mg/L

LCS Result: 99
LCS % Recov.: 99

MS/MSD 75-125
LCS 80-120
Control Limits

Please Note:

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

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

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

9801C20.TTT <3>



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Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Chevron 9-0260, 30-0236
Matrix: Liquid

Work Order #: 9801C20 01, 02

Reported: Feb 4, 1998

QUALITY CONTROL DATA REPORT

Analyte: Total Suspended Solids

QC Batch: IN012698160200A
Analy. Method: EPA 160.2
Prep Method: N.A.

Analyst: Y. Wei

Duplicate
Sample #: 9801D7302

Prepared Date: 1/26/98
Analyzed Date: 1/27/98
Instrument I.D.#: MANUAL

Sample
Concentration: 670

Dup. Sample
Concentration: 620

RPD: 7.8
RPD Limit: 0-20

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

** RPD = Relative % Difference

9801C20.TTT <4>



☐ No

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number 9-0260
Facility Address 21995 Featheril Blvd.
Consultant Project Number 30-0236
Consultant Name TerraVae
Address 1651 Alvarado St, San Leandro
Project Contact (Name) Tony Dahl
(Phone) (570) 351-8900 (Fax Number) 351-0221

Chevron Contact (Name) Phil Briggs
(Phone) (510) 842-9136
Laboratory Name Sevvia
Laboratory Release Number 9706E64
Samples Collected by (Name) R.A. Dahl
Collection Date 1/20/98
Signature R. Dahl

9 22 1 23

Remarks

Relinquished By (Signature) _____

Organization

Date/Time

Received For Laboratory By (Signature)

	Date/Time
	1/22/98 1323

Date/Time

As Contrasted



**TERRA
VAC**

1651 Alvarado Street, San Leandro, CA 94577-2636
Tel (510) 351-8900 □ Fax (510) 351-0221

March 11, 1998

Attn: Ms. Susan Keach
Ora Loma Sanitary District
2600 Grant Avenue
San Lorenzo, CA 94580
FAX 510-276-1528

RE: Discharge flows, Permit 90-025-91
21995 Foothill Boulevard, Hayward

Dear Ms. Keach:

Please find attached a table showing total discharge flows at the above site.

Monthly samples were collected for TPHg/ BTEX, COD, SS and pH from the effluent discharge on February 19, 1998. The VOA vials for TPH/BTEX were broken when transferring to the laboratory, so the discharge was resampled on March 5, 1998 for TPH/BTEX only. The laboratory reports follow, indicating no detectable TPHg/BTEX, non-detectable COD, and TSS of 10 mg/L. The pH was measured in the field at 7.27.

If you have any questions, please call me at (510) 351-8900.

Sincerely,
Terra Vac

Robert A. Dahl
Project Manager

cc: file 30-0236.16.03



Table 1
Sewer Discharge Flows
Permit 90-025-91
Chevron Corporation
21995 Foothill Boulevard
Hayward, CA

Date	Totalizer Rdg.	Gallons discharged/month	Total gallons discharged
November 5, 1997	1,070,524	0	0
December 1, 1997	1,084,405	13,881	13,881
December 29, 1997	1,139,690	55,285	69,166
January 29, 1998	1,313,330	173,640	242,806
March 3, 1998	1,549,400	236,070	478,876

**Sequoia
Analytical**680 Chesapeake Drive
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(916) 921-9600FAX (650) 364-9233
FAX (510) 988-9671
FAX (916) 921-0100Terra Vac
1651 Alvarado St.
San Leandro, CA 94577Client Proj. ID: Chevron 30-0236/Foothill Blvd
Sample Descript: Discharge
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9803385-01Sampled: 03/05/98
Received: 03/06/98

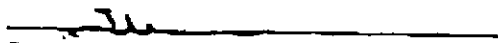
Attention: Tony Dahl

Analyzed: 03/09/98
Reported: 03/10/98QC Batch Number: GC030998BTEX03A
Instrument ID: GCHP3**Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX**

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		N.D.

Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	173 Q

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

SEQUOIA ANALYTICAL - ELAP #1210
Tod Granicher
Project Manager

**Sequoia
Analytical**680 Chesapeake Drive
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FAX (916) 921-0100Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Proj. ID: Chevron 30-0236/Foothill Blvd

Received: 03/06/98

Lab Proj. ID: 9803385

Reported: 03/10/98

LABORATORY NARRATIVE

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

TPHGBW: Sample had high surrogate recovery due to matrix effect. This result was confirmed.

SEQUOIA ANALYTICAL_____
Tod Granicher
Project Manager

☐ Yes
☐ No

MAR. 10. 1998 3:25PM

Chevron Facility Number 0260
 Facility Address 21955 Fairhill Blvd.
 Consultant Project Number 30-0236
 Consultant Name Terra Vac
 Address 1651 Alvarado St.
 Project Contact (Name) Tom Dahl
 (Phone) 510-351-9900 (Fax Number) 510-351-0221

Chevron Contact (Name) Phil Briggs
 (Phone) (510) 842-7136
 Laboratory Name Sagudia
 Laboratory Release Number 9706E64
 Samples Collected by (Name) Mike Lynch
 Collection Date 5/5/90
 Signature [Signature]

~~6538~~

NO. 3542 P. 4/4



Sequoia
Analytical

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Terra Vac
1651 Alvarado St.
San Leandro, CA 94577

Client Proj. ID: Foothill, Hayward 30-0236

Lab Proj. ID: 9802D57

Sampled: 02/19/98

Received: 02/20/98

Analyzed: see below

Attention: Tony Dahl

Reported: 03/05/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9802D57-02				
Sample Desc: LIQUID, Discharge				
Chemical Oxygen Demand	mg/L	02/27/98	20	N.D.
Total Suspended Solids	mg/L	02/24/98	1.0	10

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

SEQUOIA ANALYTICAL - ELAP #1210


Tod Granicher
Project Manager



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

Terra Vac
1651 Alvarado St.
San Leandro, CA 94577

Client Proj. ID: Foothill, Hayward 30-0236
Sample Descript: Inlet
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9802D57-01

Sampled: 02/19/98
Received: 02/20/98
Analyzed: 03/03/98
Reported: 03/05/98

QC Batch Number: GC030398BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	1000	6400
Benzene	10	240
Toluene	10	520
Ethyl Benzene	10	61
Xylenes (Total)	10	980
Chromatogram Pattern:		Gas
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	87

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

SEQUOIA ANALYTICAL - ELAP #1210

Tod Granicher
Project Manager

Page:

2



Sequoia
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Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Foothill, Hayward 30-0236
Matrix: Liquid

Work Order #: 9802D57 02

Reported: Mar 6, 1998

QUALITY CONTROL DATA REPORT

Analyte: TSS

QC Batch: IN022498160200B

Analy. Method: EPA 160.2

Prep Method: N.A.

Analyst: P. Sandrock

Duplicate
Sample #: 9802D7901

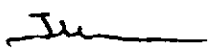
Prepared Date: 2/24/98
Analyzed Date: 2/24/98
Instrument I.D.#: MANUAL

Sample
Concentration: 26

Dup. Sample
Concentration: 24

RPD: 8.0
RPD Limit: 0-20

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

 ** RPD = Relative % Difference

9802D57.TTT <3>



Sequoia
Analytical

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Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Proj. ID: Foothill, Hayward 30-0236

Received: 02/20/98

Lab Proj. ID: 9802D57

Reported: 03/05/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 8 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

Page: 1



Sequoia Analytical

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Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Foothill, Hayward 30-0236

Matrix: Liquid

Work Order #: 9802D57 01, 02

Reported: Mar 6, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC030398BTEX02A	GC030398BTEX02A	GC030398BTEX02A	GC030398BTEX02A	GC030398BTEX02A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030

Analyst:	C. DeMartini	C. DeMartini	C. DeMartini	C. DeMartini	C. DeMartini
MS/MSD #:	9802E2505	9802E2505	9802E2505	9802E2505	9802E2505
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	3/3/98	3/3/98	3/3/98	3/3/98	3/3/98
Analyzed Date:	3/3/98	3/3/98	3/3/98	3/3/98	3/3/98
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L	60 ug/L
Result:	9.5	9.1	9.1	27	66
MS % Recovery:	95	91	91	90	110
Dup. Result:	9.4	9.0	9.1	27	66
MSD % Recov.:	94	90	91	90	110
RPD:	1.1	1.1	0.0	0.0	0.0
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK030398	BLK030398	BLK030398	BLK030398	BLK030398
Prepared Date:	3/3/98	3/3/98	3/3/98	3/3/98	3/3/98
Analyzed Date:	3/3/98	3/3/98	3/3/98	3/3/98	3/3/98
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L	60 ug/L
LCS Result:	9.6	9.2	9.3	28	66
LCS % Recov.:	96	92	93	93	110

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

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

Please Note:

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

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

9802D57.TTT <1>



Sequoia
Analytical

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

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

(650) 364-9600
(510) 988-9600
(916) 921-9600

FAX (650) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

Terra Vac
1651 Alvarado St.
San Leandro, CA 94577
Attention: Tony Dahl

Client Project ID: Foothill, Hayward 30-0236
Matrix: Liquid

Work Order #: 9802D57 01, 02

Reported: Mar 6, 1998

QUALITY CONTROL DATA REPORT

Analyte: Chemical Oxygen
Demand

QC Batch#: IN022798410400A

Analy. Method: EPA 410.4

Prep. Method: N.A.

Analyst: P. Sandrock

MS/MSD #: 9802H4408

Sample Conc.: 330

Prepared Date: 2/27/98

Analyzed Date: 2/27/98

Instrument I.D.#: MANUAL

Conc. Spiked: 100 mg/L

Result: 390

MS % Recovery: 60

Dup. Result: 390

MSD % Recov.: 60

RPD: 0.0

RPD Limit: 0-20

LCS #: LCS022798

Prepared Date: 2/27/98

Analyzed Date: 2/27/98

Instrument I.D.#: MANUAL

Conc. Spiked: 100 mg/L

LCS Result: 110

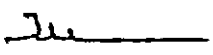
LCS % Recov.: 110

MS/MSD 75-125

LCS 80-120

Control Limits

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

Please Note:

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9802D57.TTT <2>

☐ Yes
☐ No

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P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number 9-0260
 Facility Address 21995 Foxhill Blvd.
 Consultant Project Number 30-0236
 Consultant Name TerraVer
 Address 1657 Alvarado St.
 Project Contact (Name) Tony Dahl
 (Phone) 510-351-8900 (Fax Number)

Chevron Contact (Name) Phil Briggs
(Phone) (510) 842-9186
Laboratory Name Sequim
Laboratory Release Number 9706EGY
Samples Collected by (Name) David Bardsley
Collection Date 2/19/98
Signature _____

[illegible]

COMMENTS: