I. AGENCY INFORMATION

Date: 10/31/95

Agency name: **Alameda County-HazMat** Address: **1131 Harbor Bay Pkwy**
Date:City/State/Zip: **Alameda, CA 94502** Phone: **(510) 567-6700**
Responsible staff person: **Amy Leech** Title: **Haz. Mat. Spec.**

II. CASE INFORMATION

Site facility name: **Lake Chabot Shell**
Site facility address: **2724 Castro Valley Blvd., Castro Valley, CA 94546**
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.:**686**
URF filing date: **03/13/89** SWEEPS No: N/A

Responsible Parties:	Addresses:	Phone Numbers:
Attn: Paul Haynes	PO Box 5278	(510)676-1414 X-169
Shell Oil Co.	Concord CA 94520	

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	550	waste oil	removed	11/86
2	5,000	unleaded gasoline	"	2/89
3	5,000	unleaded gasoline	"	"
4	8,000	regular/gasoline w/lead	"	"
5	8,000	unleaded gasoline	"	"
6	12,000	gasoline	"	8/91
7	12,000	gasoline	"	"
8	12,000	gasoline	"	"
9	500	waste oil	"	"

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **Unknown**
Site characterization complete? **Yes**

Date approved by oversight agency: **11/24/94**

Monitoring Wells installed? **Yes** Number: **8**

Proper screened interval? **Yes**

Highest GW depth below ground surface: **2.99** Lowest depth: **8.93 (MW-7)**

Flow direction: South to Southwest

Most sensitive current use:
Commercial (Abandoned service station/Christmas Tree Lot)

Are drinking water wells affected? **No** Aquifer name: **Not known**

Is surface water affected? **NO** Nearest affected SW name:**N/A**

Off-site beneficial use impacts (addresses/locations): **Not Known**

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (cont'd)

Report(s) on file? YES Where is report(s) filed?
Alameda County, 1131 Harbor Bay Pkwy, Alameda, CA 94502

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment of Disposal w/destination)	Date
Tank	4 USTs (~4,500 gal./each)	Erickson Richmond, CA	2/89
	1-500 gal. UST w/pipe	Erickson Richmond, CA	8/91
	3 USTs (12,000 gal./each)	Crosby & Overton, Oakland (Tanks were put into storage since they were never used.)	8/91
Soil	~1,200 c.y	Petroleum Waste Inc. Lokern Rd. Buttonwillow, CA 93206	2/89-6/89
	~ 144 c.y.	BFI Landfill, Livermore	9/93
	~ 510 c.y.	Laidlaw Environmental Services 2500 Lokern Rd. Buttonwillow, CA	9/93
	~ ~~450 c.y.~~	~~BFI Landfill, Livermore or B&J Landfill, Vacaville (No manifests for disposal provided. Reported on pg.3 Pacific Envir.Group Report dated~~	~~?/93~~
	~ 400 c.y.	BFI Landfill, Livermore or B&J Landfill, Vacaville (Disposal confirmation by Gradient	7/93
	~ 140 c.y.	Laidlaw Class I Facility Bakersfield (No manifests for disposal provided. Reported on pg.3 Pacific Envir. Group Report dated	?/?
Rinsate	150 gallons	Romic Chemical Corp. 2081 Bay Rd., E. Palo Alto, CA	8/91

*Note: The highlighted and deleted information above was revised subsequent to receiving approval on the original Case Closure Summary on November 8, 1995 by the San Francisco

Regional Water Quality Control Board.

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (cont'd)

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)				Water (ppb)	
	Before[1]	Before[2]	Before[3]	After[4]	Before	After
PH (Gasoline)	620	3,300	7.8	1,500	21,000[1]	ND
TPH (Diesel)	NA	NA	ND	190	NA	540[8]
TPH (Motor Oil)	NA	NA	1,100	NA	1,400	ND
Benzene	1.4	3.6	ND	3.3	1600[1]	ND
Toluene	7	51	ND	9.5	600[1]	ND
Ethylbenzene	.6	4.2	13	14	400[1]	ND
Xylene	13	140	30	86	3,700[1]	ND
TOG	15,000	NA	1,400	130	NA	NA
Other:						
Pesticides	NA	NA	NA	NA	ND[5]	NA
HVOC	NA	NA	NA	ND	ND[5]	NA
SVOC	NA	NA	NA	ND	NA	NA
Metals	(see note 6)				(see note 7)	
Organic Lead	ND	NA	NA	NA	NA	NA

[1] "Before" soil and water samples collected from the excavation created by the 1988 removal of four gasoline USTs. TOG sample GD1 collected 6' bgs along NE side of station. Results reported by Crosby and Overton, Inc. 3/6/89 and Subsurface Consultants, Inc. 3/21/89.

[2] "Before" soil sample collected at 5.5' bgs in the location of the fuel islands. Results reported by CEW on November 30, 1989.

[3] "Before" soil sample WO-1 collected in waste oil tank excavation when the second waste oil tank was removed in 8/91. Reported by CEG in 4th Quarter Monitoring Report for 1991.

[4] "After" soil samples were collected in excavation of the former waste oil tank. Reported by Pacific 3/2/94.

[5] "Before" water samples collected from MW-2 were ND for pesticides and HVOCs during the 1st and/or 2nd quarterly reports for 1990.

[6] Metals in soil samples appear to be within the range consistent with geogenic concentrations.

[7] "Before" water samples collected from MW-2 were ND for metals during 1st quarter of 1990. Water samples collected from MW-2 and MW-7 on 4/6/92 identified up to 190 ppb Zn, 60 ppb Ni, 0.9 ppb Pb, and 50 ppb Cr.

[8] Sample collected from MW-1 on 02/28/95. Laboratory notes result to have an atypical pattern for diesel.

Comments (Depth of Remediation, etc.):

See Section VII - Additional Comments.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? **Undetermined**

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? **Undetermined**

Does corrective action protect public health for current land use? **YES**

Site management requirements:**N/A**

Should corrective action be reviewed if land use changes? **YES**

Monitoring wells Decommissioned: **Yes**
Number Decommissioned: **2 (OMW-6 & OMW-8)**
Number Retained: **6** (pending case closure)

List enforcement actions taken: **None**

List enforcement actions rescinded:**N/A**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Amy Leech Title: Hazardous Materials Spec
Signature: Date:

Reviewed by
Name: Scott Seery Title: Sr. Hazardous Mat. Spec.
Signature: Date:

Name: Eva Chu Title: Hazardous Materials Spec
Signature: Date:

VI. RWQCB NOTIFICATION

ate Submitted to RB: RB Response:
RWQCB Staff Name: Kevin Graves Title: Water Resources Control Engineer
Signature: Date:

VII. ADDITIONAL COMMENTS

This site is a former gasoline station located on the northeast corner of Castro Valley Boulevard and Lake Chabot Road in Castro Valley, California. (See attachment A.) Commercial businesses exist on all corners of the intersection. Residential development is located on side streets nearby. The site was an active service station but closed in 1989 during environmental assessment and remediation activities.

In November 1986 one 550-gallon waste oil UST was replaced with a double walled tank. The soil sample collected during tank replacement identified 69 ppm TOG. Soil borings emplaced in April 1988 around the existing gasoline UST complex did not reveal contamination exceeding 0.10 ppm benzene. However in February 1989, four (4) gasoline USTs were removed

from the site and confirmatory soil samples from 12.5 feet bgs identified

VII. ADDITIONAL COMMENTS (cont'd)

up to 620 ppm TPHg and low levels of BTEX. Up to 3,300 and 3.6 ppm TPHg and benzene, respectively, were identified from a soil sample collected in the area of the former fuel island. (See attachment B and C.) Soil remediation and a groundwater investigation ensued.

Soil Investigation/Removal

In 1989, approximately 1,200 c.y. of hydrocarbon impacted soil was removed in the area of the original gasoline UST pit and the fuel islands. Confirmatory soil samples collected at 13 feet bgs from the east side of the tank pit area identified up to 400 ppm TPHg, 110 ppm TPHd, and 1.3 benzene. Confirmatory samples at 7 feet bgs in the area of the fuel island identified 13 ppm TPHg and 0.096 ppm benzene. A confirmation sample (SW-23) collected at 12 feet bgs within the capillary fringe identified up to 350 ppm TPHg and 0.950 ppm benzene. (See attachment C.)

Prior to installing new USTs, a new tank pit was excavated west of the original pit and sampled on March 24, 1989. Soil samples were collected and analyzed for TPHg, TPHd, TOG, and BTEX. No contaminants were identified except for 5.3 ppm TPHg.

On June 8, 1989, three 12,000-gallon double-walled USTs were partially installed in this new location. Since the UST system was never plumbed or constructed completely, these tanks were never operated up to the time they were removed in August 1991. The double walled waste oil tank was also removed on 8/22/91. Soil samples collected in the waste oil pit identified up to 7.8 ppm TPHg, 1,100 ppm TPHmo, and 1,400 ppm TOG; no benzene was detected. (See attachment D.)

In January 1990, one soil boring (SB-1) and four monitoring wells were installed (MW-1, MW-2, MW-3, and MW-5). Groundwater was encountered at approximately 9 feet bgs. (See attachment E for boring logs.) The groundwater gradient was south to southwest across the site, at approximately 0.03 ft/ft to 0.01 ft/ft. TPHg was not detected in the soil samples analyzed. Benzene was detected at 3.0 ppm at 20 feet in boring MW-5; a maximum benzene concentration of 23 ppm was identified at 25 feet in boring MW-2. Soil samples collected at a depth of 5 feet from boring MW-1 reported maximum concentrations of 5.8 and 73 ppm TPHd and TPHmo, respectively. 370 ppm oil and grease was identified in the 5 foot sample from the boring for MW-2 located near the waste oil tank. Soil sampled from borings MW-1 and MW-2 contained detectable concentrations of TPHmo (<100 ppm) at the 5, 10, and 25 foot bgs. Soil samples collected from boring MW-2, emplaced next to the former waste oil UST, contained unremarkable concentrations of metals and certain phthalates. (See attachment F.)

In an effort to assess the presence of contaminants in soil below the

building foot print during May 1990, boring SB-2 was emplaced at an angle beneath the station building west of MW-2. Soil samples at 4.5 feet reported 1.0 and 73 ppm TPHg and TPHmo, respectively; no benzene was detected.

VII. ADDITIONAL COMMENTS (cont'd)

From July to September 1991, borings SB-4, SB-5, and three additional monitoring wells were installed (OMW-6, MW-7, OMW-8) to further delineate the extent of soil and groundwater contamination. OMW-6 and OMW-8 were located east of the site on an adjacent property: OMW-6 was located upgradient from the source of contamination, and OMW-8, cross-gradient. MW-7 was located at the southern edge of the property, emplaced just south and down gradient of the subject fuel UST complex. Boring SB-4 was located along the east edge of the former UST pit, and SB-5 was located approximately 25 feet east of MW-2 on the adjacent property. Groundwater was encountered at approximately 9 feet bgs. Maximum soil concentrations were reported at a depth of 11 feet in MW-7, at 260 and 1.3 ppm TPHg and benzene, respectively. (See attachment E and F.)

In September 1991, soil borings SB6 through SB9 were emplaced through the floor of the southeast corner of the station building near the location of the former waste oil tank. 1,800 ppm TPHg and 1,800 ppm oil and grease were identified from SB9 at 5 feet bgs. Soil samples from boring SB-6 at 5 feet identified 770 and 740 ppm TPHg and oil and grease, respectively; benzene, among other aromatic compounds, was detected at 0.11 ppm at 10 feet bgs. (See attachment G.)

In December 1992, the station building was demolished and removed. A four stage overexcavation project of the waste oil tank area, including the "hot" zone identified below the building, occurred between 12/92 and 7/93. Soil samples collected from the excavation were analyzed for TPHg, BTEX, TPHd and TOG. Selected soil samples were additionally analyzed for HVOC, SVOC, and metals. The final depth of this excavation was approximately 5 feet with a deeper portion of the excavation nearest to the former waste oil tank at approximately 14 feet bgs. The highest concentration in final confirmatory samples were identified in a side wall sample (LEW-1) collected at 10 feet bgs immediately west of the former waste oil tank: 1,500 ppm TPHg, 3.3 ppm benzene, and 190 ppm TPHd. 130 ppm TOG was identified in sample EW2 collected at 4 feet bgs in the northeast corner of the excavation. No VOC's or SVOC's were detected in the soil samples analyzed. All metal results were at apparent geogenic concentrations. (See attachment H.)

During the tank removals and overexcavation of contaminated soil, approximately ~~2,800 c.y.~~ 2,400 c.y. of soil was reportedly excavated and removed from the site. ~~However, of that 2,800 c.y. of soil allegedly removed, there is no documentation for disposal of 1,100 c.y. of that soil.~~ Manifests could not be located for 540 c.y. of the 2,400 c.y. of soil that was allegedly removed.

Groundwater Investigation
As discussed above, wells MW-1, MW-2, MW-3 and MW-5 were installed in 2/90. Wells OMW-6, MW-7, and OMW-8 were installed in 7/91. Groundwater at the site was monitored quarterly from February 1990 through February 1995. Groundwater flow across the site is south to southwest. (See attachment K for location of wells on and off site.)
*Note: The highlighted and deleted information above was revised subsequent to receiving approval on the original Case Closure Summary on November 8, 1995 by the San Francisco Regional Water Quality Control Board.

VII. ADDITIONAL COMMENTS (cont'd)
In April 1992, four temporary wells (P1 - P4) were installed on the south side of Castro Valley Blvd., downgradient from the site. Water samples collected from P1 and P4 were ND to trace levels of TPHg, TPHd, and BTEX. Water samples collected from P2 and P3 identified up to 13,000 ppb TPHg, 3,900 ppb TPHd and 10/420/730 ppb TEX, respectively. Benzene was not detected in sampled groundwater. (See attachment I.)

In February 1993, monitoring well OMW-9 was installed on the south side of Castro Valley Blvd. in the downgradient direction from the site. Initial groundwater results were ND for TPHg and BTEX and 71 ppm TPHd.

Monitoring wells have been sampled quarterly from February 1990 to February 1995 and analyzed routinely for TPHg, TPHd, BTEX and motor oil. In addition, MW-2 was analyzed for pesticides, TOG, and HVOC during the 1st and 2nd quarter of 1990, and analytical results for these constituents were ND. Metals were sought in groundwater collected on 04/06/92 from MW-1, MW-2, MW-3, MW-5, MW-7, OMW-6, and OMW-8 with unremarkable results. (See attachment J.) With the exception of Wells MW-2 and MW-7, concentrations of TPHg and BTEX compounds have been below, at, or near non-detectable limits since the wells were installed. Since contaminated soils (~2,800 c.y.) were excavated and removed from the site, TPHg and BTEX concentrations in MW-2 and MW-7 have significantly been reduced to method detection limits.

(See attachment K for historic groundwater sampling/laboratory results.)

Summary
Based on confirmatory samples, the maximum concentration of oil and grease remaining in soil is 130 ppm. Leachability analyses (soluble threshold limit concentration (STLC) and toxicity characteristic leaching procedures (TCLP)) were performed on samples which contained concentrations of TOG ranging from 130 - 940 ppm. The STLC and TCLP tests indicate that oil and grease will not leach out of the soil into groundwater at concentrations up to 940 ppm. Therefore, the oil and grease remaining (maximum detected 130 ppm) is not likely to leach into groundwater at the site.

Although some discrete soil contamination remains (samples LEW-1 @ 10' bgs and SW-3 @ 13' bgs), approximately 2,800 c.y. of contaminated soil was reportedly excavated from the site. Historical groundwater results, which have been below method detection limits for the bulk of the target compounds over the last four quarterly sampling events, likely reflect the removal of this source material. Recently, diesel-range or heavier

petroleum hydrocarbons have been detected in wells MW-1, -2, -3, -5, -7, and OMW-8, the source of which is unknown. However, in the absence of aromatic constituents, the resulting impact to groundwater is minimal.