

# Memorandum

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To: Doug Sibley  
Regional Planning Branch

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EA 04-44680K

From: DEPARTMENT OF TRANSPORTATION – DISTRICT 04  
Office of Environmental Engineering

(EAST)

Subject: Hazardous Waste Investigation Existing 7<sup>th</sup> and Mandela Park and Ride Lot

This memorandum is to summarize the results of the report entitled, "Draft Hazardous Waste Preliminary Site Investigation Report TO Number 04-44680K-GL Contract Number 43A0078 7<sup>th</sup> & Mandela Park & Ride Lot Oakland, California," prepared by PSI and dated February 19, 2002.

In January of 2002, 7 borings were drilled at the site. Soil samples were collected at two to three of the following depths of 2, 3, 5, 8, the groundwater interface from each boring. Groundwater samples were collected for each boring. Analytical testing included Total Petroleum Hydrocarbons as Gasoline (TPH-g), Total Petroleum Hydrocarbons as Diesel (TPH-d), Total Petroleum Hydrocarbons as motor oil (TPH-mo), metals, Volatile Organic Compounds (VOCs), and Semi-Volatile Organic Compounds (SVOCs), Poly Chlorinated Biphenols (PCBs), pesticides, hexavalent chromium, Poly Aromatic Hydrocarbons (PAHs), and fuel oxygenates. The following is a summary and discussion of analytical results from the PSI investigation: (See attached Tables 1-4).

### Soil – Metals

Lead was the only metal detected at a concentration above the screening criteria of ten times its respective Soluble Threshold Limit Concentration (STLC). It should be noted that numerous soil samples had a total chromium concentration greater than 10 times the STLC for hexavalent chromium, but less than ten times the STLC for trivalent chromium. Five samples were analyzed for hexavalent chromium and all were non detects. Because no hexavalent chromium was detected in these samples, the total chromium is assumed to be trivalent chromium, which was detected at concentrations below 10 times the STLC.

Elevated total lead concentrations were detected in all four soil samples collected at two feet below ground surface (bgs) and in the sample collected from boring B18 at 8 feet bgs. For all metals analysis, including lead, any sample with a total concentration greater than or equal to 10 times the soluble threshold limit concentration (STLC), may exceed the regulatory threshold for soluble concentration. Consequently, tests for soluble lead concentrations were performed on the 2-foot soil samples from borings B14 and B17 and the 8-foot sample at boring B18; concentrations ranged from 1.42 to 38.7 mg/l. ~~The only~~ soluble concentration in excess of the STLC limit of 5mg/L was the 2-foot sample collected from boring B17. Because the concentration of total lead in the two-foot sample from boring B19 (2,280 mg/kg) exceeded the total threshold limit concentration (1000 mg/kg), a TCLP was run to determine if the soil was a federal hazardous waste. The TCLP

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concentration was determined to be 0.44 mg/L, which is well below the regulatory threshold of 5 mg/L.

Caltrans' requested that this two foot sample at boring B19 be reanalyzed by the lab due to the fact that that aerial-deposition of lead was not a likely source (sample collected under pavement and structural section) and was a minimum of one order of magnitude higher than all other samples. The laboratory was not able to run the analysis because the sample had been discarded. Caltrans recommends further testing of the soil at two feet to better characterize soil. Based on current data soil in the vicinity of borings B19 and B17, when excavated, most likely would need to be offhauled to a class 1 landfill.

### Soil – Organics

PCBs, pesticides, PAHs, fuel oxygenates, and SVOCs were not detected in any soil sample above the laboratory detection limit.

TPH-g, TPH-d, and TPH-mo were detected at low levels in approximately half the samples and had detections at all depths. A statistical analysis was performed to determine the average TPH-g, TPH-d, and TPH-mo concentrations for site soils; the 90% UCL of the mean was determined to be 0.13 mg/kg, 19.6, mg/kg, and 22.3 mg/kg, respectively. No regulatory threshold exists for petroleum hydrocarbons. However, for Cypress Reconstruction Project, which includes the area for this project, the Department of Toxic Substances Control established a Preliminary Remediation Goal (PRG) of 100 mg/kg for TPH-d and 1000 mg/kg for total recoverable petroleum hydrocarbons, which includes the range of carbon chains found in TPH-mo. No individual sample and no 90% UCL of the mean exceeded either Cypress PRG. Because the clean up level for TPH-g is typically around 100 mg/kg and no fuel oxygenate compounds were detected in the soil samples, the TPH-g detections are also not considered significant.

### Groundwater – Metals and Organics.

None of the groundwater samples had detectable concentrations of TPH-g, TPH-d, and TPH-mo. VOCs were detected only in the groundwater sample from B17. Ethylbenzene and toluene were detected at 0.001 mg/l which were significantly below their primary drinking water standards of 0.7 mg/l and 0.15 mg/l, respectively.

In conclusion, the hazardous waste issues identified for this site are limited to lead contamination in soils. It is the opinion of Caltrans, that 2-foot sample at boring B19 is an anomaly, perhaps a paint chip included in the soil sample. However, a hazardous concentration of lead was also detected in B17. The horizontal and vertical extent of lead contamination in the vicinity of B17 and B19 should be further explored. Our office will provide you two copies of the final report when it is completed. If you have any questions or need further information, please contact Jill Pollock at 286-5638.

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**TABLE 1**  
**SUMMARY OF SOIL ANALYTICAL RESULTS: METALS**  
**7TH & MANDALA PARK & RIDE LOT, OAKLAND, CALIFORNIA**

BORING	DEPTH	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN									
B14	2	n	n	n	n	n	38.3	n	50.7	98 (1.42) <n>	n	n	33.5	n	n	n	n	179									
	5	n	n	n	n	n	27.4	n	4.9																		
	8	n	n	n	n	n	44.4	n	6.0																		
B15	5	n	n	n	n	n	22.0	n	4.8	7	n	n	29.4	n	n	n	22	14									
	8	n	n	n	n	n	26.6 {n}	n	5.6	n	n	n	11.9	n	n	n	n	27	24								
B16	3	n	n	n	n	n	24.0 {n}	n	5.6	2	n	n	27.0	n	n	n	22	18									
	10	n	n	n	n	n	54.2	n	7.3	6	n	n	14.3	n	n	n	n	16									
B17	2	n	4.5	210	n	n	21.7	n	50.2	3	n	n	32.5	n	n	n	28	20									
	5	n	n	n	n	n	22.9 {n}	n	5.0	485 (38.7) [<0.1> <0.098>]	0.4	n	14.7	n	n	n	n	314									
	8	4	4.0	80	2.0	2.0	2.0	10.0	1.0										2	n	n	13.6	n	n	n	n	11
B18	5	n	n	n	n	n	20.5	n	4.7										2	0.3	5	2.0	2.0	4.0	4	20	10
	8	n	4.7	124	n	n	32.1 {n}	n	46.8	n	n	n	13.2	n	n	n	n	11									
B19	2	n	4.6	744	n	2.5	27.6	n	76.3	172 (1.48) <n>	0.9	n	20.4	n	n	n	20	237									
	5	n	n	n	n	n	20.3	n	5.1										3	n	n	22.1	n	n	n	32	995
	8	n	n	n	n	n	25.7	n	5.3										2	n	n	12.0	n	n	n	n	15
B20	5	n	n	n	n	n	22.8	n	8.3	3	n	n	25.4	n	n	n	20	17									
	12	n	n	n	n	n	31.6 {n}	n	6.2	2	n	n	12.8	n	n	n	n	14									
TTL		500	500.0	10,000	75	100	500	8,000	2,500	2	n	n	27.7	n	n	n	n	14									
STLC		15	5.0	100	0.75	1	5	80	25	1,000	20	3,500	2,000	100	500	700	2,400	5,000									
										5	0.2	350	20	1	5	7	24	250									

Notes:  
 B1 = Boring Number  
 Depth is presented in meters below ground surface  
 ND = not detected at or above the laboratory detection limits, as presented in Appendix C. Detection limits may vary by batch.  
 Metals are designated by their symbol on the periodic table of elements.  
 All samples are reported as total concentration in milligrams per kilogram (mg/kg), unless indicated.  
 [ND] = Hexavalent Chrome Concentration  
 (3.3) = Soluble concentration after a WET, presented in milligrams per liter (mg/l)  
 (3.3) = Soluble concentration after a TCLP, presented in milligrams per liter (mg/l)

TABLE 2

SUMMARY OF SOIL ANALYTICAL RESULTS: ORGANICS  
7TH & MANDALA PARK & RIDE LOT, OAKLAND, CALIFORNIA

BORING	DEPTH	pH	TPH-		TPH-Motor	PCBs	Organo-Pesticides	VOCs	SVOCs
			Gasoline	TPH-Diesel	Oil				
B14	2	---	0.125*	23	19	ND	---	---	---
	5	---	<0.06	11	<10	---	---	ND	ND
	8	---	0.276*	11	<10	---	---	ND	ND
B15	5	---	0.479*	15	<10	---	---	---	---
	8	7.08	<0.06	<10	<10	---	---	ND	ND
B16	2	---	<0.06	---	---	---	ND	ND	ND
	3	7.52	<0.06	<10	<10	---	---	ND	ND
	10	---	<0.06	27	<10	---	---	---	---
B17	2	---	<0.06	19	62.9	ND	ND	---	---
	5	6.98	<0.06	15	<10	---	---	ND	ND
	8	---	<0.06	23	44	---	---	ND	ND
B18	5	---	<0.06	<10	<10	---	---	---	---
	8	7.72	0.243*	51	66	---	---	0.062 p-Isopropyltoluene	ND
B19	2	---	<0.06	16	19	ND	ND	ND	---
	5	7.39	<0.06	<10	<10	---	---	ND	ND
	8	---	<0.06	<10	<10	---	---	ND	ND
B20	5	---	<0.06	29	<10	---	---	---	---
	12	6.87	<0.06	<10	<10	---	---	ND	ND

**Notes:**

B1 = Boring Number

Depth is presented in meters below ground surface

ND = Not Detected at laboratory detection limit presented in Appendix C, detection limits may vary from sample to sample

All samples are reported as total concentration in milligrams per kilogram (mg/kg), unless indicated.

Soil results do not include acetone or phenol, as they are common laboratory contaminants or naturally occurring

\*530 = TPH-G concentrations did not match the typical TPH-G profile, but were quantified using TPH-G as a standard.

PCB = Polychlorinated Bipheyls

VOC = Volatile Organic Compounds

SVOC = Semi-Volatile Organic Compounds

**TABLE 3**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS: METALS**  
**7TH & MANDALA PARK & RIDE LOT, OAKLAND, CALIFORNIA**

SAMPLE	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
B-14-W	n	n	42	n	n	n	19	n	n	n	16	17	n	n	n	n	n
B-15-W	n	n	105	n	n	n	9	n	n	n	3	42	n	n	n	n	n
B-16-W	n	n	52	n	n	n	31	n	n	n	43	37	n	n	n	n	n
B-17-W	n	n	89	n	n	n	57	n	n	n	50	58	n	n	n	n	n
B-18-W	n	n	46	n	n	n	17	n	n	n	59	21	n	n	n	n	n
B-19-W	n	n	102	n	n	n	76	n	n	n	54	66	n	n	n	n	n
B-20-W	n	n	112	n	n	n	44	n	n	n	15	35	n	n	n	n	n

Notes:

ND = not detected at or above the laboratory detection limits, as presented in Appendix C. Detection limits may vary by batch.

Metals are designated by their symbol on the periodic table of elements.

All samples are reported as total concentration in micrograms per liter (ug/l), unless indicated.

**TABLE 4**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS: ORGANICS**  
**7TH & MANDALA PARK & RIDE LOT, OAKLAND, CALIFORNIA**

SAMPLE	TPH-Gasoline	TPH-Diesel	TPH-Motor Oil	VOCs
B-14-W	<0.05	<0.05	<0.05	ND
B-15-W	<0.05	<0.05	<0.05	ND
B-16-W	<0.05	<0.05	<0.05	ND
B-17-W	<0.05	<0.05	<0.05	Ethylbenzene 0.001 mg/l, Toluene 0.001 mg/l
B-18-W	<0.05	<0.05	<0.05	ND
B-19-W	<0.05	<0.05	<0.05	ND
B-20-W	<0.05	<0.05	<0.05	ND

**Notes:**

ND = Not Detected at laboratory detection limit reported in Appendix C. Detection limits may vary from sample to sample

All samples are reported as total concentration in milligrams per liter (mg/l), unless indicated.

VOC = Volatile Organic Compounds

SVOC = Semi-Volatile Organic Compounds