Previous

N00217.003988
HUNTERS POINT
SSIC NO. 5090.3

IR-35

DRAFT FINAL
PARCEL D
RISK MANAGEMENT REVIEW PROCESS

DATED 20 JUNE 2000

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SITE IR-35: REMEDIAL AREA 35-1 (GRID CELL BA22)

Operational History and Site Characterization

IR-35 covers about 3.4 acres and consists of Buildings 274, 306, and 372. Remedial area 35-1 is located north of Building 274. Building 274 is located adjacent to IR-22; therefore, the operational history of Building 274 is also summarized under the IR-22 site summary (de minimis area 9562). Building 274 was used as a former radiation decontamination training facility. Records from the Navy Radiological Affairs Support Office (RASO) indicate that Lanathanum-140 (^{140}La), with a half-life of 1.6 days, was the only radionuclide used in training exercises conducted at the site. A survey found no elevated levels of radioactivity. The history of radioactive materials use at Building 274 is detailed in the "Phase III Radiation Investigation Draft Final Field Work Plan," dated October 15, 1996. Suspected sandblast waste was present at the surface in the area outside of Building 274. Historical use of the site is industrial, and the Navy proposes to remediate the site to industrial reuse standards. The City of San Francisco (the City) is proposing that the area be zoned for port priority use, and desires that the area be cleaned up to industrial standards. Biased sampling was conducted in the suspected source area (underlying suspected sandblast waste). Based on a review of the data, the Navy believes the area is adequately characterized for remedial investigation and feasibility study (RI/FS) purposes.

Data Evaluation and Risk Assessment

Remedial area 35-1 is a 50- by 50-foot area located in grid cell BA22. Under an industrial reuse scenario, grid cell BA22 has an estimated excess lifetime cancer risk (ELCR) of 2×10^{-5} and a hazard index (HI) of less than 1, and it has no lead concentrations above 1,000 milligrams per kilogram (mg/kg). Because the ELCR exceeded 1×10^{-6}, further evaluation was conducted. Surrounding borings and grid cells were reviewed and found not to include similar contaminants; therefore, data from adjacent grid cells were not used to evaluate grid cell BA22. The chemicals driving risk (Aroclor-1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[k]fluoranthene; and indeno[1,2,3-cd]pyrene) were detected in surface samples IR35SS14 and IR35SS15. These chemicals are bounded

Remedial Area 35-1 Industrial Scenario Risk Drivers

Area Risk Drivers	Maximum Detection (mg/kg)	Associated Risk	Associated HI
Aroclor-1260	0.51 at 0.25 foot	5×10^{-6}	<1
Benzo(a)anthracene	0.71 at 0.25 foot	6×10^{-7}	<1
Benzo(a)pyrene	1.0 at 0.25 foot	8×10^{-6}	<1
Benzo(b)fluoranthene	2.2 at 0.25 foot	2×10^{-6}	<1
Benzo(k)fluoranthene	0.70 at 0.25 foot	6×10^{-7}	<1
Indeno(1,2,3-cd)pyrene)	0.57 at 0.25 foot	5×10^{-7}	<1

spatially (with decreasing trends) by borings IR35B018, IR22B015, IR22P15A2, IR35B019, and IR35B017, as shown on Figure 1.

Risk Management Factors

With the exception of benzo(a)pyrene, the maximum concentrations of all other chemicals driving risk are below current screening criteria. The maximum concentration of Aroclor-1260 (0.51 mg/kg) is below both U.S. Environmental Protection Agency (EPA) guidance for industrial cleanup of total polychlorinated biphenyls (PCB) (10 mg/kg) and the 1998 industrial preliminary remediation goal (PRG) for total PCBs (1.3 mg/kg). The maximum concentrations of benzo(a)anthracene (0.71 mg/kg); benzo(b)fluoranthene (2.2 mg/kg); and indeno(1,2,3-cd)pyrene (0.57 mg/kg) are below both the 1995 and 1998 industrial PRGs (2.6 and 3.6 mg/kg, respectively). The maximum concentration of benzo(k)fluoranthene (0.70 mg/kg) is below both the 1995 and 1998 industrial PRGs (26 and 36 mg/kg, respectively). The maximum concentration of benzo(a)pyrene (1.0 mg/kg) exceeds the 1995 and 1998 industrial PRGs (0.26 and 0.36 mg/kg, respectively). The following compounds were detected at a depth of 0.25 foot below ground surface (bgs) and were considered to be artifacts of the overlying asphalt: benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; and indeno(1,2,3-cd)pyrene. The ELCR of grid cell BA22 is within the acceptable risk range because the planned reuse of the site is consistent with the historical industrial use of the site.

Groundwater Issues

At remedial area 35-1, groundwater is encountered at about 9 to 12 feet bgs. Samples were not collected from groundwater immediately underlying this area. The risk management review (RMR) did not include evaluation of soil as a source to groundwater. The groundwater below this area is currently being evaluated as a potential drinking water source. A complete groundwater evaluation, including an evaluation of soil as a source to groundwater contamination, will be documented in a proposed Phase I groundwater data gap evaluation.

Other Information

Total petroleum hydrocarbons (TPH) were not detected in soil at concentrations above screening criteria. No removal actions or exploratory excavations have been conducted in this area. However, spent sandblast waste from throughout Hunters Point Shipyard (HPS), including the area surrounding Building S-308, was collected and placed into piles in Parcel E for the sandblast grit fixation program.

These spent sandblast waste piles were sampled and sent off site for stabilization; however, these piles were not tested for PCBs.

During the RMR, it was noted that sediment in five floor drains, located inside of Building 274, had elevated concentrations of metals. It was recommended that these floor drains be cleaned, the drainage direction and discharge location of these floor drains should be investigated, and soil samples collected adjacent to the bottom of the floor drain's P-trap. These field activities were completed in May 2000.

Visual observation indicated that there were no sediments contained in these floor drains. A vacuum, with a hose attachment, was placed in each of these floor drains. The resulting dust in the vacuum could not be measured.

A dye test was completed after the floor drains were vacuumed. BRIGHT DYE fluorescent green liquid was the dye used to determine the drainage direction and discharge location of the floor drains. BRIGHT DYES contain no phosphate and is biodegradable. The dye was administered to all of the floor drains and was observed discharging to the sanitary sewer located to the northwest of the building.

The Navy advanced five borings (IR35B020, IR35B021, IR35B022, IR35B023, and IR35B024) adjacent to each of the floor drain's P-trap and collected soil samples. The soil analytical results did not detect metals, volatile organic compounds (VOC), semivolatile organic compounds (SVOC), or pesticides/PCBs, above a PRG screening criteria. No additional investigation of underlying soils or groundwater is recommended.

The maximum concentration of arsenic (4.3 mg/kg) is greater than the 1995 and the 1998 industrial PRG (2.0 mg/kg and 3.0 mg/kg, respectively), but is less than its HPAL (11.1 mg/kg). Barium, lead, manganese, molybdenum, selenium, and zinc did exceeded their respective HPALs but were less than their respective 1998 industrial PRGs. The maximum concentration of motor oil (2,400 mg/kg), detected in boring IR35B020, and diesel (3,200 mg/kg), detected in boring IR35B025, did exceed their screening criteria of 1,000 mg/kg, respectively. The analytical results, daily field logs, and boring logs are located in this IR section.

Conclusions:

✓ The Navy concluded that no Comprehensive Environmental Response. Compensation, and Liability Act (CERCLA) response action is recommended for remedial area 35-1.

RISK MANAGEMENT DECISION PROCESS FOR SOIL
PARCEL D, HUNTERS POINT SHIPYARD

IR Site Number	Risk Grid Cell Number and ELCR Grid Value	Remediation or De Minimis Area Number
IR-35	BA22, 2×10^{-5}	RA 35-1

Operational History	Remedial area 35-1 is north of Building 274. Building 274 was used as a former radiation decontamination training facility. RASO records indicate that ^{140}La, with a half-life of 1.6 days, was the only radionuclide used in the training exercises. A survey found no elevated levels of radioactivity. The history of radioactive materials use at Building 274 is detailed in the "Phase III Radiation Investigation Draft Final Field Work Plan," dated October 15, 1996. Suspected sandblast waste was present at the surface in the area outside of Building 274. In May 1994, a dye trace study was conducted t Building 274 to evaluate the flow direction of drainage from floor drains inside the building. The study revealed that floor drain PA35FD01 drains into an oil-water separator northeast of Building 274 and this oil-water separator subsequently drains into the sanitary sewer system. The flow direction of drainage for the set of four PA35FD02 floor drains could not be determined; there was no evidence of drainage into the sanitary sewer or storm drains outside of Building 274.
• Is the site adequately characterized?	Yes. Remedial area 35-1 is associated with borings IR35SS14, IR35SS15, and IR35SS16. Borings IR22B015, IR35B017, IR35B018, IR35B019, and IR22P15A2 spatially bound this area.
• Are the detected chemicals consistent with the operational history?	Yes. Aroclor-1260 (5×10^{-5}) was detected at 0.25 foot bgs in boring IR35SS14. Aroclor-1260 may be attributed to surface spills of petroleum products or suspected sandblast waste. No. Benzo(a)pyrene (8×10^{-6}) and benzo(b)fluoranthene (2×10^{-6}) were detected at 0.25 foot in borings IR35SS14 and IR35SS15. Benzo(a)anthracene (6×10^{-7}); benzo(k)fluoranthene (6×10^{-7}); and indeno(1,2,3-cd)pyrene (5×10^{-7}) were detected at 0.25 foot bgs in boring IR35SS14. In addition, benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; and indeno(1,2,3-cd)pyrene were considered to be artifacts of the overlying asphalt.
• Does the distribution of the detected chemicals make sense?	Yes.

Are There Hot Spots Located in This Area?	No.
• How do these hot spots compare with the ambient values (metals and PAH)?	N/A

Is Groundwater Contamination Present?	No groundwater data were collected from remedial area 35-1. However, groundwater samples collected at IR22MW15A and IR35B013, which are downgradient of this remedial area, contained manganese, lead, and TPH as motor oil (TPH-mo).
• Is the groundwater contamination similar to the detected chemicals in the surrounding soils?	Manganese was the only groundwater constituent detected in soil at IR22MW15A and IR35B013.
• Has a potential source of the groundwater contamination been identified?	No.

Has TPH been Detected over a Screening Criterion?	
• TPH as gasoline (TPH-g) > 100 parts per million (ppm)?	No.
• TPH as diesel (TPH-d) > 1,000 ppm?	Yes 3,200.
• TPH-mo > 1,000 ppm?	Yes 2,400.
• TRPH > 1,000 ppm?	No.
• Total oil and grease > 1,000 ppm?	No.

Special Factors	
• Ecological risk present (paved/unpaved)?	No. The site is covered with asphalt.
• PCBs greater than 10 ppm?	No. Aroclor-1260 had a maximum concentration of 0.51 mg/kg in IR35SS14.
• Previous removal actions?	No.
– Does this correspond with the distribution of the chemicals?	N/A
• Previous exploratory excavations?	No.
– Does this correspond with the distribution of the chemicals?	N/A

Is there a Problem with	
• Maximum concentrations?	No.
• Human health risks?	No.
– Individual risk?	No.
– Cumulative risks?	No.
– Ambient risk?	No.

Action Required	No further action is recommended for this site.
• Remedial action required?	No.
• Additional site characterization?	No.
• Use of institutional controls to mitigate risk?	No.
• No further action recommended?	Yes.

NOTES:

The Navy concluded that no CERCLA response action is recommended for remedial area 35-1.

SITE IR-35: DE MINIMIS AREA 9363 (GRID CELL BA22)

Operational History and Site Characterization

IR-35 covers about 3.4 acres and consists of Building 274, 306, and 372. De minimis area 9363 is located inside Building 306 (an active electrical substation) near where a transformer previously leaked. The transformer has been repaired and the gravel underneath the transformer has been removed to a depth of 4 feet bgs. The excavation was subsequently filled with concrete. Historical use of the site is industrial, and the Navy proposes to remediate the site to industrial reuse standards. The City is proposing that the area be zoned for port priority use, and desires that the area be cleaned up to industrial standards. Biased sampling was conducted in the suspected source area (the stained area around the transformer). Based on a review of the data, the area is adequately characterized.

Data Evaluation and Risk Assessment

De minimis area 9363 is an 8- by 8-foot area located in grid cell BA22 and associated with surface sample location PA35SS06. Under an industrial reuse scenario, grid cell BA22 has an estimated ELCR of 2×10^{-5} and an HI of less than 1, and it has no lead concentrations above 1,000 mg/kg. Because the ELCR exceeded 1×10^{-6}, further evaluation was conducted. Surrounding borings and grid cells were reviewed and found not to include similar contaminants; therefore, data from adjacent grid cells were not used to evaluate grid cell BA22. The chemical driving risk (Aroclor-1260) was detected in surface sample PA35SS06; contaminated soil in the vicinity of this location was removed to a depth of 4 feet bgs during the transformer maintenance activities. This chemical is bounded spatially; surrounding surface soil sample locations and borings include PA35SS03, IR22P15A1, IR22MW15A, IR22B015, and PA51SS21. No data were collected from the groundwater underlying this de minimis area.

De Minimis Area 9363 Industrial Scenario Risk Driver			
Area Risk Drivers	Maximum Detection (mg/kg)	Associated Risk	Associated HI
Aroclor-1260 (removed during transformer maintenance activities)	0.95 at 0.75 foot	5×10^{-6}	<1

Risk Management Factors

Contaminated soil driving risk in de minimis area 9363 was removed during the transformer maintenance activities; supporting information on the transformer maintenance activities is included in this appendix.

Based on confirmation sample results, Aroclor-1260 is not present at concentrations above the laboratory detection limit.

Groundwater Issues

At de minimis area 9363, groundwater is encountered at about 9 to 12 feet bgs. Samples were not collected from groundwater immediately underlying this area. Based on data from the surrounding area, groundwater underlying this area does not pose a risk to human or ecological receptors, and it is not considered a potential drinking water source by the Navy. Based on physical and chemical properties, the chemicals driving risk in soil are relatively immobile and are not considered a source of groundwater contamination.

Other Information

TPH as diesel (2,980 mg/kg) was detected above its screening criteria (1,000 mg/kg) in de minimis area 9363. No removal actions or exploratory excavations have been conducted in this area.

During the RMR, it was noted that this de minimis area needs further characterization regarding releases of PCBs to the environment. The Navy completed these field activities in May 2000.

The Navy advanced two borings, one in front of the transformer (IR35B025) and one behind of the transformer (IR35B026). Soil samples were collected and analyzed for PCBs and TPH constituents. One soil sample was collected in front of the transformer, at a depth of 6.5 to 7 feet bgs. The analytical results indicated that PCBs were not detected above the analytical method's detection limit (17 micrograms/kilogram [µg/kg]) and TPH did not exceed screening criteria. One soil sample was collected behind the transformer, at a depth of 7 to 7.5 feet bgs. Aroclor-1260 was detected at 180 µg/kg, which is below the 1998 industrial PRG of 1.3 mg/kg. TPH as diesel was detected at 2,980 mg/kg, which exceeds the screening criteria of 1,000 mg/kg. The analytical results, daily field logs, and the boring logs are located in this IR section.

No additional investigation of underlying soils or groundwater is recommended.

Conclusions:

✓ The Navy concluded that no CERCLA response action is recommended for de minimis area 9363.

RISK MANAGEMENT DECISION PROCESS FOR SOIL
PARCEL D, HUNTERS POINT SHIPYARD

IR Site Number	Risk Grid Cell Number and ELCR Grid Value	Remediation or De Minimis Area Number
IR-35	BA22, 2×10^{-5}	DM 9363

Operational History	De minimis area 9363 is located inside Building 306 (an active electrical substation) near where a transformer previously leaked. The transformer has been repaired and the gravel underneath the transformer has been removed to a depth of 4 feet bgs. The excavation was subsequently filled with concrete.
• Is the site adequately characterized?	Yes. De minimis area 9363 is associated with surface sample location PA35SS06. Surface soil sample locations and borings PA35SS03, IR22P15A1, IR22MW15A, IR22B015, and PA51SS21 spatially bound this area.
• Are the detected chemicals consistent with the operational history?	Yes. Aroclor-1260 (5×10^{-6}) was detected at 0.75 foot bgs in IR35SS06. Aroclor-1260 data for this de minimis area was collected from a stain surrounding an electrical transformer.
• Does the distribution of the detected chemicals make sense?	Yes.

Are There Hot Spots Located in This Area?	No. Contaminated soil at PA35SS06 was removed to a depth of 4 feet bgs during transformer maintenance activities.
• How do these hot spots compare with the ambient values (metals and PAH)?	N/A

Is Groundwater Contamination Present?	No groundwater data were collected from de minimis area 9363. However, groundwater samples collected at IR22MW15A, which is adjacent to this de minimis area, contained manganese, lead, and TPH-mo.
• Is the groundwater contamination similar to the detected chemicals in the surrounding soils?	Manganese was the only groundwater constituent detected in soil at IR22MW15A.
• Has a potential source of the groundwater contamination been identified?	No.

Has TPH been Detected over a Screening Criterion?	
• TPH-g > 100 ppm?	No.
• TPH-d > 1,000 ppm?	No.
• TPH-mo > 1,000 ppm?	No.
• TRPH > 1,000 ppm?	No.
• Total oil and grease > 1,000 ppm?	No.

Special Factors	
• Ecological risk present (paved/unpaved)?	No. The site is covered with asphalt.
• PCBs greater than 10 ppm?	No. Aroclor-1260 had a maximum concentration of 0.95 mg/kg.
• Previous removal actions?	No.
– Does this correspond with the distribution of the chemicals?	N/A
• Previous exploratory excavations?	No.
– Does this correspond with the distribution of the chemicals?	N/A

Is there a Problem with	
• Maximum concentrations?	No.
• Human health risks?	No.
– Individual risk?	No.
– Cumulative risks?	No.
– Ambient risk?	No.

Action Required	No further action is recommended for this site.
• Remedial action required?	No.
• Additional site characterization?	No.
• Use of institutional controls to mitigate risk?	No.
• No further action recommended?	Yes.

NOTES:

The Navy concluded that no CERCLA response action is recommended for de minimis area 9363.

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IR-35
DATA TABLE - SUMMARY OF HUMAN HEALTH RISK AT PARCEL D UNDER 10^{-6} FUTURE INDUSTRIAL SOIL CLEANUP SCENARIO

DRAFT FINAL
PARCEL D
RISK MANAGEMENT REVIEW PROCESS

THE ABOVE IDENTIFIED DATA TABLE IS NOT AVAILABLE.

THIS DATA TABLE IS INCLUDED IN SECTIONS IR-33S AND IR-34 OF THIS DOCUMENT.

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(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-34	AY23	2E-06	Arsenic	--	IR65B005	5.00	1.2
(IR-33S,	(087067,	(1E-07)	Arsenic	--	PA33B051	7.25	1.0
IR-65)	088066)		Arsenic	--	IR65B002	5.00	0.75
	(Continued)		Arsenic	--	IR65B005	3.00	0.68
			Arsenic	--	IR65B004	5.00	0.50
			Arsenic	--	IR65B004	3.00	0.48
			Arsenic	--	IR65B003	1.00	0.46
			Arsenic	--	IR65B005	1.00	0.45
			Chrysene (2E-08)	0.28	IR65B001	0 75	0.3
			4,4'-DDD (4E-09)	0.049	IR65B001	0.75	0.05
			4,4'-DDE (2E-09)	0.019	IR65B001	0.75	0.02
IR-34	AY24	1E-07	Aroclor-1260 (1E-07)	0.022	IR33B117	0.75	0.02
(IR-33S,	(087069)	(1E-08)					
IR-71)							
IR-35	AW20	4E-06	Benzo(a)pyrene (2E-06)	0.27	IR34B023	1.25	0.3
(IR-33N,	(080058,	(3E-07)	Benzo(a)anthracene (6E-07)	0.69	IR34B023	1.25	0.7
IR-34)	081058,		Dibenz(a,h)anthracene (4E-07)	0.084	IR34B023	1.25	0.08
	082058)		Benzo(b)fluoranthene (4E-07)	0.44	IR34B023	1.25	0.4
			Benzo(k)fluoranthene (3E-07)	0.33	IR34B023	1.25	0.3
			Indeno(1,2,3-cd)pyrene (1E-07)	0.17	IR34B023	1.25	0.2
			Chrysene (5E-08)	0.60	IR34B023	1.25	0.6
			Chrysene	--	IR34B022	1.75	0.07
			Carbazole (6E-10)	0.060	IR34B023	1.25	0.06

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35 (IR-33N, IR-34)	AW20 (080058, 081058, 082058) (Continued)	4E-06 (3E-07)	Bis(2-ethylhexyl)phthalate (3E-09)	0.40	IR34B029	6.25	0.4
			Bis(2-ethylhexyl)phthalate	--	IR34B029	1.25	0.08
IR-35 (IR-34)	AX20 (083058, 085058)	2E-08 (2E-09)	Aroclor-1254 (2E-08)	0.0037	PA35B008	1.75	0.004
			4,4'-DDD (5E-11)	0.00064	PA35B008	1.75	0.0006
			Gamma-chlordane (5E-11)	0.00010	PA35B008	1.75	0.0001
			4,4'-DDE (1E-11)	0.00012	PA35B008	1.75	0.0001
			Alpha-chlordane (1E-11)	0.000030	PA35B008	1.75	0.00003
			4,4'-DDT (1E-10)	0.0010	PA35B008	1.75	0.001
			Dieldrin (1E-10)	0.000020	PA35B008	1.75	0.00002
IR-35 (IR-34)	AX21 (083059, 084059, 084060, 084061, 085059, 085060)	8E-08 (9E-09)	Aroclor-1260 (8E-08)	0.014	PA34B011	6.75	0.01
			4,4'-DDE (2E-12)	0.000020	PA34B011	1.75	0.00002
			Gamma-chlordane (2E-11)	0.000050	PA34B011	6.75	0.00005
			Dieldrin (2E-10)	0.000040	PA34B011	6.75	0.00004
			Trichloroethene (2E-09)	0.021	PA34B011	6.75	0.02
			Trichloroethene	--	IR50B019	1.75	0.01
			4,4'-DDT (2E-11)	0.00017	PA34B011	1.75	0.0002
			1,1-Dichloroethane (2E-10)	0.0020	PA34B011	6.75	0.002
			4,4'-DDD (2E-11)	0.00018	PA34B011	1.75	0.0002
			Alpha-chlordane (1E-11)	0.000030	PA34B011	6.75	0.00003
			Beta-BHC (1E-10)	0.00019	PA34B011	1.75	0.0002

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35	AZ22	1E-08	Chromium VI (1E-08)	0.12	IR35B019	2.50	0.12
(IR-65)	(091062)	(1E-09)	Chromium VI	--	IR35B017	7.00	0.075
			Chromium VI	--	IR35B019	6.50	0.060
IR-35	BA19	4E-08	Chromium VI (3E-08)	0.33	IR22B004	1.75	0.33
(IR-22)	(092053, 093055)	(3E-09)	Chrysene (5E-09)	0.062	IR22B005	1.25	0.06
IR-35 (IR-22)	BA20 (092058)	NC	NE	NE	NE	NE	NE
IR-35	BA21	1E-06	Benzo(a)pyrene (6E-07)	0.066	IR22SS25	0.25	0.07
(IR-22)	(092059,	(1E-07)	Aroclor-1260 (3E-07)	0.065	PA35B005	1.75	0.07
	092061,		Aroclor-1260	--	IR22SS25	0.25	0.02
	093061)		Benzo(k)fluoranthene (1E-07)	0.14	IR22SS25	0.25	0.1
			Benzo(a)anthracene (6E-08)	0.071	IR22SS25	0.25	0.07
			Chromium VI (3E-08)	0.34	IR22B010	3.75	0.34
			Chromium VI	--	IR22B010	6.75	0.28
			Chrysene (9E-09)	0.11	IR22SS25	0.25	0.1
			4,4'-DDD (8E-11)	0.0010	PA35B005	1.75	0.001
			4,4'-DDD	--	PA35B005	5.75	0.0003
			Dieldrin (7E-09)	0.0013	PA35B005	1.75	0.001
			4,4'-DDT (5E-10)	0.0039	PA35B005	1.75	0.004
			4,4'-DDT	--	PA35B005	5.75	0.003
			Gamma-chlordane (2E-10)	0.00050	PA35B005	1.75	0.0005
			4,4'-DDE (1E-10)	0.0012	PA35B005	1.75	0.001

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35 (IR-22)	BA21 (092059, 092061, 093061) (Continued)	1E-06 (1E-07)	4,4'-DDE	--	PA35B005	5.75	0.0003
IR-35 (IR-22)	BA22 (092062, 092063, 093062, 093063, 094062, 095063)	2E-05 (6E-07)	Benzo(a)pyrene (8E-06)	1.0	IR35SS14	0.25	1
			Benzo(a)pyrene	--	IR35SS15	0.25	0.5
			Benzo(a)pyrene	--	IR35SS16	0.25	0.06
			Aroclor-1260 (5E-06)	0.95	PA35SS06	0.75	1
			Aroclor-1260	--	IR35SS14	0.25	0.5
			Aroclor-1260	--	IR35SS15	0.25	0.3
			Aroclor-1260	--	PA35SS03	1.25	0.04
			Benzo(b)fluoranthene (2E-06)	2.2	IR35SS14	0.25	2
			Benzo(b)fluoranthene	--	IR35SS15	0.25	1
			Benzo(b)fluoranthene	--	IR35SS16	0.25	0.09
			Benzo(a)anthracene (6E-07)	0.71	IR35SS14	0.25	0.7
			Benzo(a)anthracene	--	IR35SS15	0.25	0.4
			Benzo(a)anthracene	--	IR35SS16	0.25	0.04
			Benzo(k)fluoranthene (6E-07)	0.70	IR35SS14	0.25	0.7
			Benzo(k)fluoranthene	--	IR35SS15	0.25	0.3
			Indeno(1,2,3-cd)pyrene (5E-07)	0.57	IR35SS14	0.25	0.6
			Indeno(1,2,3-cd)pyrene	--	IR35SS15	0.25	0.3
			Chrysene (8E-08)	0.99	IR35SS14	0.25	1

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35	BA22	2E-05	Chrysene	--	IR35SS15	0.25	0.5
(IR-22)	(092062,	(6E-07)	Chrysene	--	IR35SS16	0.25	0.05
	092063,		Dieldrin (6E-08)	0.011	IR35SS14	0.25	0.01
	093062,		Dieldrin	--	IR35SS15	0.25	0.01
	093063,		Dieldrin	--	PA35SS03	1.25	0.001
	094062,		4,4'-DDT (4E-08)	0.33	IR35SS16	0.25	0.3
	095063)		4,4'-DDT	--	IR35SS15	0.25	0.06
	(Continued)		4,4'-DDT	--	IR35SS14	0.25	0.05
			4,4'-DDE (9E-09)	0.079	IR35SS16	0.25	0.08
			4,4'-DDE	--	IR35SS14	0.25	0.03
			4,4'-DDE	--	IR35SS15	0.25	0.03
			Carbazole (4E-09)	0.34	IR35SS14	0.25	0.3
			Carbazole	--	IR35SS15	0.25	0.3
			4,4'-DDD (3E-09)	0.041	IR35SS16	0.25	0.04
			4,4'-DDD	--	PA35SS03	1.25	0.0007
			Gamma-chlordane (2E-10)	0.00042	PA35SS03	1.25	0.0004
			Cadmium (2E-09)	2.2	IR35SS15	0.25	3.2 α
			Cadmium	--	IR35SS14	0.25	2.0
			Cadmium	--	PA35SS03	1.25	2.0
			Cadmium	--	IR35SS16	0.25	1.8
			Heptachlor epoxide (1E-09)	0.00031	PA35SS03	1.25	0.0003

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35	BA23	6E-08	Chromium VI (6E-08)	0.57	IR22B017	3.75	0.57
(IR-22)	(093065,	(5E-09)	Chromium VI	--	IR22B018	6.25	0.47
	093066,		Chromium VI	--	IR22B018	1.75	0.30
	094065)		Nickel (4E-09)	76	IR22B027	1.50	961
			Nickel	--	IR22B017	6.75	80.6
			Nickel	--	IR22B017	3.75	62.8
			Nickel	--	IR22B018	1.75	51.7
			Nickel	--	IR22B018	6.25	48.5
			Nickel	--	IR22B017	1.75	47.0
			Nickel	--	IR22B027	8.00	44.7
			Nickel	--	IR22B018	3.75	44.2
IR-35	BB21	9E-07	Benzo(a)pyrene (6E-07)	0.070	IR22B013	1.75	0.07
(IR-22)	(095059,	(9E-08)	Aroclor-1254 (1E-07)	0.026	IR22B012	1.75	0.03
	095060,		Aroclor-1254	--	IR22B012	6.75	0.02
	096061,		Chromium VI (8E-08)	0.83	IR22B011	3.75	0.83
	097059,		Chromium VI	--	IR22B011	1.75	0.75
	097061)		Chromium VI	--	IR22B011	6.25	0.18
			Chromium VI	--	IR22B012	3.75	0.17
			Chromium VI	--	IR22B013	1.75	0.16
			Benzo(b)fluoranthene (4E-08)	0.053	IR22B012	1.75	0.05
			Benzo(b)fluoranthene	--	IR22B012	3.75	0.04
			2,4-Dinitrotoluene (1E-08)	0.075	IR22B012	3.75	0.08
			Chloroform (6E-09)	0.0070	IR22B012	6.75	0.007

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35 (IR-22)	BB21 (095059, 095060, 096061, 097059, 097061) (Continued)	9E-07 (9E-08)	Chloroform	--	IR22B012	3.75	0.005
			Chloroform	--	IR22B012	1.75	0.002
			Chrysene (5E-09)	0.060	IR22B013	1.75	0.06
			Chrysene	--	IR22B013	6.25	0.06
			Chrysene	--	IR22B012	1.75	0.05
			Chrysene	--	IR22B012	6.75	0.04
IR-35 (IR-22)	BB22 (095062, 097064)	9E-07 (6E-08)	Beryllium (8E-07)	0.87	IR22B019	1.75	0.87 α
			Chromium VI (7E-08)	0.65	IR22B019	1.75	0.86
			Chromium VI	--	IR22B014	6.25	0.55
			Chromium VI	--	IR22B019	3.75	0.55
			Chromium VI	--	IR22B019	6.25	0.21
			Chromium VI	--	IR22B014	3.75	0.17
IR-35 (IR-22, IR-32)	BB23 (097066)	NC	NE	NE	NE	NE	NE
IR-36N	AO25 (058073)	2E-08 (9E-10)	Bis(2-ethylhexyl)phthalate (2E-08)	2.9	PA36B001	9.25	3
IR-36N	AO27 (058078)	2E-10 (2E-11)	Methylene chloride (2E-10)	0.0030	PA50B014	8.25	0.003
IR-36N	AP26 (060074)	NC	NE	NE	NE	NE	NE

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

HI	Hazard Index
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
NC	Not calculated. No noncarcinogenic COPCs were identified in this exposure area; therefore, a total HI and total segregated HI was not calculated exposure area.
NE	Not evaluated
a	The number presented in parenthesis is another IR site with which the subject industrial exposure area is associated.
b	The exposure area presented is based on a 0.5-acre exposure area.
c	The exposure area presented in parentheses is the associated exposure area for the residential scenario based on a 2500-square foot exposure area. The total residential scenario can be found in Table N.5.9.
d	The total HI and total segregated HI presented is for the RME case. The value presented in parentheses is for the average exposure case. The total segregated HI evaluates the ingestion of, dermal contact with, and inhalation of VOCs and particulate emissions from soil, and ingestion of pathway exposure.
e	Only the COPC-specific HIs for COPCs contributing about 90% of the HIs that exceed 1 or COPCs contributing a HI exceeding 1 under the RME
f	The value presented is the EPC assumed for the COPCs contributing significantly to the total HI under the RME case.
g	If the total COPC-specific total segregated HI exceeding 1 can be attributed to one or several sample locations, the sampling location, depth, and are listed.
h	Chromium VI was not speciated; therefore, for all IR-sites, a surrogate chromium VI value was calculated assuming 0.99 percent of the total chromium value (see Attachment N-C).
i	The central nervous sysstem is the primary system affected by the indicated chemical, generally at the lowest dose levels.
j	Blood, including the hematopoietic system, is the primary of critical system affected by the indicated chemical, generally at the lowest dose levels.
k	Examples of non-specific toxicity include decreased organ weights and decreased weight gain, effects not limited to a few organs or systems.
l	The kidney is the primary organ affected by the indicated chemical, generally at the lowest dose levels.
m	The gastrointestinal system is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
n	The cardiovascular system is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
o	The skin is the primary or critical organ affected by the indicated chemical, generally at the lowest dose levels.
p	The liver is the primary or critical organ affected by the indicated chemical, generally at the lowest dose levels.
q	The peripheral nervous system (PNS) is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
*	The detected concentration exceeds the residential soil U.S. EPA Region IX Preliminary Remediation Goal (PRG).
α	The detected concentration exceeds the Hunters Point Ambient Level (HPAL).

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site [a]	Industrial Exposure Area [b,c]	Total ELCR[d]	Total Segregated HI[e]	COPC Contributing Significantly to the Total ELCR, Total HI, or Lead[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
						Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-34 (IR-33S)	AX24 (084069, 085069)	4×10^{-9} (1×10^{-10})	<1	NE	NE	NE	NE	NE
IR-34 (IR-33S, IR-65)	AY23 (087067, 088066)	2×10^{-6} (1×10^{-7})	<1	Aroclor-1260 (1×10^{-6}) Arsenic (5×10^{-7})	0.25 1.2	IR65B001 IR65B004	0.75 1.00	0.25 47 α, #
IR-34 (IR-33S, IR-71)	AY24 (087069)	1×10^{-7} (1×10^{-8})	<1	NE	NE	NE	NE	NE
IR-35 (IR-33N, IR-34)	AW20 (080058, 081058, 082058)	4×10^{-6} (3×10^{-7})	<1	Benzo(a)pyrene (2×10^{-6}) Benzo(a)anthracene (6×10^{-7}) Benzo(b)fluoranthene (4×10^{-7}) Dibenzo(a,h)anthracene (4×10^{-7}) Benzo(k)fluoranthene (3×10^{-7})	0.27 0.69 0.44 0.084 0.33	IR34B023 IR34B023 IR34B023 IR34B023 IR34B023	1.25 1.25 1.25 1.25 1.25	0.27 # 0.69 0.44 0.084 0.33
IR-35 (IR-34)	AX20 (083058, 085058)	2×10^{-8} (2×10^{-9})	<1	NE	NE	NE	NE	NE
IR-35 (IR-34)	AX21 (083059, 084059, 084060, 084061, 085059, 085060)	8×10^{-8} (9×10^{-9})	<1	NE	NE	NE	NE	NE
IR-35 (IR-65)	AZ22 (091062)	1×10^{-8} (1×10^{-9})	<1	NE	NE	NE	NE	NE
IR-35 (IR-22)	BA19 (092053, 093055)	4×10^{-8} (3×10^{-9})	<1	NE	NE	NE	NE	NE
IR-35 (IR-22)	BA20 (092058)	NC	<1	NE	NE	NE	NE	NE

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site [a]	Industrial Exposure Area [b,c]	Total ELCR[d]	Total Segregated HI[e]	COPC Contributing Significantly to the Total ELCR, Total HI, or Lead[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
						Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-35 (IR-22)	BA21 (092059, 092061, 093061)	1×10^{-6} (1×10^{-7})	<1	Benzo(a)pyrene (6×10^{-7}) Aroclor-1260 (3×10^{-7})	0.066 0.065	IR22SS25 PA35B005	0.25 1.75	0.07 0.07
IR-35 (IR-22)	BA22 (092062, 092063, 093062, 093063, 094062, 095063)	2×10^{-5} (6×10^{-7})	<1	Benzo(a)pyrene (8×10^{-6}) Benzo(a)pyrene Aroclor-1260 (5×10^{-6}) Aroclor-1260 Aroclor-1260 Benzo(b)fluoranthene (2×10^{-6}) Benzo(b)fluoranthene Benzo(a)anthrancene (6×10^{-7}) Benzo(k)fluoranthene (6×10^{-7}) Indeno(1,2,3-cd)pyrene (5×10^{-7})	1.0 -- 0.95 -- -- 2.2 -- 0.71 0.7 0.57	IR35SS14 IR35SS15 PA35SS06 IR35SS14 IR35SS15 IR35SS14 IR35SS15 IR35SS14 IR22SS25 IR35SS14	0.25 0.25 0.75 0.25 0.25 0.25 0.25 0.25 0.25 0.25	1.0 # 0.49 # 0.95 # 0.51 # 0.31 # 2.2 1.2 0.71 0.70 0.57
IR-35 (IR-22)	BA23 (093065, 093067, 094065)	6×10^{-8} (5×10^{-9})	<1	NE	NE	NE	NE	NE
IR-35 (IR-22)	BB21 (095059, 095060, 096061, 097059, 097061)	9×10^{-7} (9×10^{-8})	<1	NE	NE	NE	NE	NE
IR-35 (IR-22)	BB22 (095062, 097064)	9×10^{-7} (6×10^{-8})	<1	NE	NE	NE	NE	NE
IR-35 (IR-22, IR-32)	BB23 (097066)	NC	<1	NE	NE	NE	NE	NE

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Notes:

bgs	Below ground surface
COPC	Chemical of potential concern
ELCR	Excess lifetime cancer risk
EPC	Exposure point concentration
HI	Hazard index
mg/kg	Milligram per kilogram
NC	Not calculated; no carcinogenic COPCs identified in this exposure area; therefore, total segregated HI not calculated
NE	Not evaluated
#	Detected concentration exceeds U.S. Environmental Protection Agency (EPA) Region IX preliminary remediation goal (PRG) for industrial soil
α	Detected concentration exceeds Hunters Point ambient level (HPAL)

a The number presented in parentheses is another IR site with which the subject industrial exposure area is associated.

b The exposure area presented is based on a 0.5-acre exposure area.

c The number presented in parentheses is the associated exposure area for the residential scenario based on a 2,500-square foot exposure area. The total ELCRs for the residential scenario are presented in Table N.5-9, and the total HIs for the residential scenario are presented in Table N.5-10.

d The total ELCR presented is for the RME case. The value presented in parentheses is for the average exposure case. The total ELCR evaluates the ingestion of, dermal contact with, and inhalation of volatile organic compounds (VOC) and particulate emissions from the soil exposure pathway.

e The total HIs for the industrial scenario are presented in Table N.I-1 of Attachment N-I.

f Only the COPC-specific ELCRs for COPCs contributing about 90 percent of the total ELCRs that exceed 1×10^{-4}, COPCs contributing a risk exceeding 1×10^{-6} under the RME case, or lead concentrations exceeding 1,000 mg/kg are listed.

g The value presented is the EPC assumed for the COPCs contributing significantly to the total ELCR under the RME case.

h If the COPC-specific total ELCR exceeding 1×10^{-4} can be attributed to one or several sampling locations, the sampling location, depth, and concentration are listed.

i Chromium VI was not speciated; therefore, for all IR-sites except IR-36S, a surrogate chromium VI value was calculated assuming 0.78 percent of the total chromium value (see Attachment N-C). For IR-36S, a surrogate chromium VI value was calculated assuming 3.3 percent of the total chromium value.

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TABLE N.D-1
SOIL SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/kg)	Total Chromium Detection Limit (mg/kg)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-33S	082075	PA33MW37A	9309A642	03/02/93	6.75	379	0.77	ND	0.05
		PA33MW37A	9309A643	03/02/93	11.75	357	0.79	ND	0.05
		PA33MW37A	9309A644	03/02/93	16.75	347	0.82	ND	0.05
	084071	PA33MW36A	9309A647	03/02/93	3.25	199	0.81	ND	0.05
		PA33MW36A	9309A648	03/02/93	6.25	530	0.80	ND	0.05
		PA33MW36A	9309A649	03/02/93	11.75	132	0.79	ND	0.05
		PA33MW36A	9309A650	03/02/93	16.75	333	0.81	ND	0.05
IR-34	079062	PA34B005	9308D085	02/26/93	2.25	17.1	0.62	ND	0.05
		PA34B005	9308D086	02/26/93	6.75	38.0	0.63	ND	0.05
IR-35	091062	IR35B017	9606G070	02/05/96	7.00	67.1	0.09	0.08	0.05
		IR35B017	9606G071	02/05/96	11.25	91.8	0.10	ND	0.05
		IR35B017	9606G072	02/05/96	16.25	113	0.10	ND	0.05
		IR35B017	9606G073	02/05/96	21.25	71.0	0.09	0.07	0.05
		IR35B017	9606G074	02/05/96	26.25	117	0.09	ND	0.05
		IR35B017	9606G075	02/05/96	32.25	56.3	0.10	ND	0.05
		IR35B017	9606G076	02/05/96	42.00	159	0.10	ND	0.05
		IR35B019	9606J842	02/06/96	2.50	132	0.09	0.12	0.05
		IR35B019	9606J843	02/06/96	6.50	131	0.09	0.06	0.05
	092058	IR22MW08A	9317A798	04/27/93	1.75	149	0.71	ND	0.05
		IR22MW08A	9317A799	04/27/93	3.75	197	0.73	ND	0.05
		IR22MW08A	9317A800	04/27/93	6.25	117	0.73	ND	0.05
		IR22MW08A	9317A801	04/27/93	11.75	125	0.73	ND	0.05
		IR22MW08A	9317A802	04/27/93	16.75	141	0.78	ND	0.05
		IR22MW08A	9317A803	04/27/93	21.75	153	0.80	ND	0.05
	092059	IR22B010	9320A012	05/18/93	1.75	136	0.74	ND	1.0
		IR22B010	9320A013	05/18/93	3.75	139	0.74	0.34	0.10
		IR22B010	9320A014	05/18/93	6.75	109	0.74	0.28	0.10
		IR22B010	9320A015	05/18/93	11.75	113	11.2	0.73	0.10
		IR22B010	9320A016	05/18/93	16.75	139	11.2	0.37	0.10
		IR22B010	9320A018	05/19/93	21.75	113	0.37	0.38	0.25
		IR22B010	9320A019	05/19/93	31.75	58.3	0.38	ND	6.5
	092061	IR35B018	9604J766	01/25/96	2.50	109	0.09	ND	0.10
		IR35B018	9604J767	01/25/96	5.00	111	0.09	ND	0.05
	093063	IR22MW15A	9317A808	04/29/93	1.75	111	0.71	ND	0.05
		IR22MW15A	9317A809	04/29/93	3.75	133	0.72	ND	0.05
		IR22MW15A	9317A810	04/29/93	6.25	152	0.74	ND	0.05
		IR22MW15A	9317A811	04/29/93	11.75	142	0.81	ND	0.05
		IR22MW15A	9317A812	04/29/93	16.75	159	0.79	ND	0.05
		IR22MW15A	9317A813	04/29/93	26.75	162	0.79	ND	0.05
		IR22MW15A	9317A814	04/29/93	31.75	136	0.77	ND	0.05
	093065	IR22B017	9320A020	05/19/93	1.75	98.3	0.31	ND	0.32
		IR22B017	9320A021	05/19/93	3.75	72.4	0.34	0.57	0.23
		IR22B017	9320A022	05/19/93	6.75	107	0.36	ND	3.8
		IR22B017	9320A023	05/19/93	11.75	95.2	0.35	ND	0.65
		IR22B017	9320A026	05/19/93	21.75	115	0.33	0.26	0.06

TABLE N.D-1
SOIL SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/kg)	Total Chromium Detection Limit (mg/kg)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-35	093065	IR22B017	9320A027	05/19/93	31.75	121	0.34	ND	0.23
	094065	IR22B018	9320A029	05/18/93	1.75	123	10.5	0.30	0.10
		IR22B018	9320A030	05/18/93	3.75	70.8	10.5	ND	0.20
		IR22B018	9320A031	05/18/93	6.25	82.7	10.5	0.47	0.10
		IR22B018	9320A032	05/18/93	11.75	38.9	10.4	1.0	0.10
		IR22B018	9320A033	05/18/93	16.75	39.1	10.7	0.82	0.10
		IR22B018	9320A038	05/20/93	21.75	115	0.35	ND	0.23
		IR22B018	9320A039	05/20/93	31.75	177	0.37	ND	0.44
	095062	IR22B014	9318A822	05/03/93	1.25	10.4	0.55	ND	0.29
		IR22B014	9318A823	05/03/93	3.75	112	0.32	0.17	0.17
		IR22B014	9318A824	05/03/93	6.25	131	0.34	0.55	0.13
		IR22B014	9318A825	05/03/93	11.75	244	0.55	0.88	0.20
		IR22B014	9318A826	05/03/93	16.75	97.9	0.36	0.68	0.07
		IR22B014	9318A827	05/03/93	21.75	242	0.59	0.85	0.22
		IR22B014	9318A830	05/03/93	31.75	150	0.60	0.44	0.75
IR-36N	058073	PA36B001	9305N117	02/04/93	2.25	104	0.38	ND	0.05
		PA36B001	9305N118	02/04/93	3.75	155	0.42	ND	0.05
		PA36B001	9305N119	02/04/93	6.75	716	0.49	ND	0.05
		PA36B001	9305N120	02/04/93	9.25	87.8	0.38	ND	0.05
	058078	PA50B014	9330N503	07/26/93	8.25	273	0.69	ND	0.05
	059078	PA36MW01A	9305N111	02/03/93	2.25	94.8	0.40	ND	0.05
		PA36MW01A	9305N113	02/03/93	6.25	593	0.42	ND	0.05
		PA36MW01A	9305N114	02/03/93	8.75	179	0.41	ND	0.05
		PA36MW01A	9305N115	02/03/93	11.25	505	0.42	ND	0.05
		PA36MW01A	9305N116	02/03/93	16.25	267	0.44	ND	0.05
	060074	PA36B006	9311N174	03/18/93	2.25	180	0.40	ND	0.05
		PA36B006	9311N175	03/18/93	3.75	117	0.39	ND	0.05
	060081	PA36B004	9307J255	02/16/93	2.25	267	0.39	ND	0.05
		PA36B004	9307J256	02/16/93	4.25	88.4	0.38	ND	0.05
	061078	PA36B003	9306A506	02/08/93	1.75	6.1	0.39	ND	0.05
		PA36B003	9306A507	02/08/93	3.75	234	0.46	ND	0.05
		PA36B003	9306A509	02/08/93	8.75	21.1	0.39	ND	0.05
	061083	PA36MW03A	9306A534	02/10/93	1.75	249	0.41	ND	0.05
		PA36MW03A	9306A535	02/10/93	3.75	135 a	0.43	ND	0.05
		PA36MW03A	9306A536	02/10/93	6.75	932	0.43	ND	0.05
		PA36MW03A	9306A537	02/10/93	9.25	991	0.42	ND	0.05
		PA36MW03A	9306A538	02/10/93	11.75	501	0.42	0.68	0.05
	062076	PA36MW02A	9305N108	02/03/93	2.25	85.8	0.41	ND	0.05
	063074	PA36B002	9305N122	02/04/93	2.25	118	0.37	ND	0.05
		PA36B002	9305N123	02/04/93	4.25	387	0.42	ND	0.05
		PA36B002	9305N124	02/04/93	6.75	632	0.40	ND	0.05
		PA36B002	9305N125	02/04/93	8.75	487	0.41	ND	0.05

TABLE N.D-3

DETERMINATION OF CHROMIUM VI EXPOSURE POINT CONCENTRATION AND SURROGATE CHROMIUM VI VALUES OF SOIL SAMPLES ANALYZED FOR TOTAL CHROMIUM ONLY[a]
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Analyzed for Total Chromium and Chromium VI[b]	Analyzed for Chromium VI Only[c]	Chromium VI EPC[d] (mg/kg)	Analyzed for Total Chromium Only[e]				Surrogate Chromium VI Value[g] (mg/kg)
					Sample Station	Sample Number	Sample Depth (feet bgs)	Detected Value[f] (mg/kg)	
IR-34	081059				IR50B018	9422R214	6.25	160.000	
	081064	No	No	ND	IR34B032 IR34B032	9441A135 9441A136	1.75 6.25	76.390 121.490	
	081065	No	No	ND	PA34SS14	9312A696	1.25	80.080	
	082058	No	No	ND	IR34B023 IR34B023	9414L234 9414L235	1.25 6.25	5.700 118.000	
	082059	No	No	ND	IR34B034 IR34B034 IR34B034 PA34B008 PA34B008	9551J727 9551J728 9551J729 9308D082 9308D083	0.75 6.00 9.75 2.25 6.75	104.000 92.900 129.000 82.100 122.000	
	082063	No	No	ND	IR34B031 IR34B031	9434R608 9434R609	1.75 6.25	94.470 70.080	
	083058	No	No	ND	IR34B015 IR34B015	9414L243 9414L244	1.25 6.25	72.400 53.100	
	083059	No	No	ND	IR34B016 IR34B016 PA34B011 PA34B011	9414L250 9414L251 9309A680 9309A681	1.25 6.25 1.75 6.75	127.410 72.640 113.000 76.600	
	083065	No	No	ND	PA34SS04	9310J397	1.75	98.680	
	084059	No	No	ND	IR34B025 IR34B025	9414L257 9414L258	1.25 6.25	83.930 82.310	
	084060	No	No	ND	PA34B013 PA34B013	9309A638 9309A639	1.75 6.75	107.000 120.000	
	084061	No	No	ND	IR34B030 IR34B030 IR50B019 IR50B019	9434R598 9434R599 9422R218 9422R219	1.25 6.25 1.75 6.25	147.060 136.030 83.300 119.000	
	084064	No	No	ND	PA34SS03	9310J398	2.75	116.890	
	085060	No	No	ND	IR34B027 IR34B027	9413L210 9413L211	1.25 6.25	95.350 107.630	
	087067	No	No	ND	PA33B051	9342G750	7.25	75.140	
IR-35	085058	No	No	ND	PA35B008 PA35B008	9309A671 9309A672	1.75 6.75	35.400 98.500	

TABLE N.D-3

DETERMINATION OF CHROMIUM VI EXPOSURE POINT CONCENTRATION AND SURROGATE CHROMIUM VI VALUES OF SOIL SAMPLES ANALYZED FOR TOTAL CHROMIUM ONLY[a]
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Analyzed for Total Chromium and Chromium VI[b]	Analyzed for Chromium VI Only[c]	Chromium VI EPC[d] (mg/kg)	Analyzed for Total Chromium Only[e]				Surrogate Chromium VI Value[g] (mg/kg)
					Sample Station	Sample Number	Sample Depth (feet bgs)	Detected Value[f] (mg/kg)	
IR-35	091062	Yes	No	0.120					
	092058	Yes	No	ND					
	092059	Yes	No	0.340					
	092061	Yes	No	ND					
	092062	No	No	ND	IR35SS14 IR35SS15 IR35SS16	9433C478 9433C479 9433C480	0.25 0.25 0.25	122.720 147.820 130.340	
	093061	No	No	ND	IR22SS25 IR35B013 IR35B013 PA35B005 PA35B005 PA35B005	9433C476 9423R234 9423R235 9309A667 9309A669 9309A670	0.25 1.75 6.25 1.75 5.75 9.75	104.940 104.000 73.100 91.600 102.000 128.000	
	093063	Yes	No	ND					
	093065	Yes	No	0.570					
	094062	No	No	ND	PA35SS03	9307A609	1.25	105.000	
	094065	Yes	No	0.470					
	095062	Yes	No	0.550					
IR-36N	058073	Yes	No	ND					
	058078	Yes	No	ND					
	059078	Yes	No	ND	PA36MW01A	9305N112	3.75	17.560	
	060074	Yes	No	ND					
	060081	Yes	No	ND	PA36B004 PA36B004	9307J257 9307J258	6.75 9.25	84.760 109.770	
	060083	No	No	ND	IR36B034 IR36B034	9414A752 9414A753	1.25 6.25	189.930 278.510	
	061078	Yes	No	ND	PA36B003	9306A508	6.75	19.260	
	061083	Yes	No	1.704	IR36B035 IR36B035	9414A761 9414A762	1.25 6.25	218.440 * 36.080	1.704 *
	061084	Yes	No	0.550	IR36B036	9414C100	1.25	175.290	

TABLE N.D-4
GROUNDWATER SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/L)	Total Chromium Detection Limit (mg/L)	Chromium VI Concentration (mg/L)	Chromium VI Detection Limit (mg/L)
IR-35	092058	IR22MW08A	9318X989	05/06/93	0.00	ND	0.008	ND	0.01
		IR22MW08A	9336X027	09/09/93	0.00	ND	0.002	ND	0.01
		IR22MW08A	9402X169	01/13/94	0.00	ND	0.002	ND	0.02
	093063	IR22MW15A	9318X983	05/04/93	0.00	0.009	0.003	ND	0.01
		IR22MW15A	9318X984	05/04/93	0.00	0.009	0.003	ND	0.01
		IR22MW15A	9336X028	09/09/93	0.00	ND	0.002	ND	0.05
		IR22MW15A	9402X167	01/13/94	0.00	ND	0.002	ND	0.01
IR-36N	059078	PA36MW01A	9305J230	02/04/93	0.00	ND	0.003	ND	0.01
	061083	PA36MW03A	9306J248	02/11/93	0.00	ND	0.003	ND	0.01
		PA36MW03A	9306J249	02/11/93	0.00	ND	0.003	ND	0.01
	062076	PA36MW02A	9305J232	02/04/93	0.00	ND	0.003	ND	0.01
IR-36S	067087	PA36MW07A	9308J309	02/23/93	0.00	ND	0.002	ND	0.01
	072085	PA36MW04A	9305J234	02/05/93	0.00	ND	0.003	ND	0.01
	076087	PA36MW05A	9306J244	02/10/93	0.00	0.004	0.002	ND	0.01
		PA36MW05A	9306J245	02/10/93	0.00	0.002	0.002	ND	0.01
	077092	PA50MW09A	9317X971	04/26/93	0.00	ND	0.002	ND	0.01
		PA50MW09A	9612J947	03/21/96	0.00	0.0005	0.0004	ND	0.01
		PA50MW09A	9618J077	05/02/96	0.00	ND	0.0007	ND	0.01
IR-36W	067087	PA36MW07A	9308J309	02/23/93	0.00	ND	0.002	ND	0.01
	067092	PA36MW06A	9306J252	02/11/93	0.00	ND	0.003	ND	0.01
	069093	PA36MW08A	9307A590	02/16/93	0.00	ND	0.002	ND	0.01
		PA36MW08A	9307A591	02/16/93	0.00	ND	0.002	ND	0.01
	077092	PA50MW09A	9317X971	04/26/93	0.00	ND	0.002	ND	0.01
		PA50MW09A	9612J947	03/21/96	0.00	0.0005	0.0004	ND	0.01
		PA50MW09A	9618J077	05/02/96	0.00	ND	0.0007	ND	0.01
IR-37	067065	IR09MW51F	9607W102	02/15/96	0.00	0.06	0.0004	0.06	0.01
		IR09MW51F	9612W167	03/18/96	0.00	0.05	0.0004	0.05	0.01
		IR09MW51F	9612W168	03/18/96	0.00	0.05	0.0004	0.05	0.01
		IR09MW51F	9620J114	05/14/96	0.00	0.05	0.0007	0.05	0.01
IR-38	088090	PA39MW01A	9307A611	02/18/93	0.00	ND	0.002	ND	0.01
		PA39MW01A	9307A612	02/18/93	0.00	ND	0.002	ND	0.01
IR-39	086096	PA39MW02A	9307D024	02/19/93	0.00	ND	0.002	ND	0.01
		PA39MW02A	9307D025	02/19/93	0.00	ND	0.002	ND	0.01
IR-44	086080	PA50MW06A	9317X969	04/26/93	0.00	ND	0.002	ND	0.01
IR-53	109085	PA50MW05A	9316X960	04/22/93	0.00	ND	0.002	ND	0.01
		PA50MW05A	9316X961	04/22/93	0.00	ND	0.002	ND	0.01

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SSPORTS ENVIRONMENTAL DETACHMENT

POST OFFICE BOX 2135, VALLEJO, CA 94592-0135

POLYCHLORINATED BIPHENYL (PCB) ABATEMENT REPORT

FOR

PCB ABATEMENT OF BUILDINGS 122 AND 306 TRANSFORMER LOCATIONS

HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

PREPARED FOR

ENGINEERING FIELD ACTIVITY-WEST
NAVAL FACILITIES ENGINEERING COMMAND
SAN BRUNO, CALIFORNIA

JULY 30, 1999

PREPARED BY:
PCB ASSESSMENT AND SAMPLING
SSPORTS ENVIRONMENTAL DETACHMENT

APPROVED BY:
8/30/99
Henry Scherer DATE
PROJECT REPRESENTATIVE
PCB ASSESSMENT AND SAMPLING
SSPORTS ENVIRONMENTAL DETACHMENT

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2.0 Purpose 1

3.0 Work Summary 2

REFERENCES

1.0 TWD 99-1582, PCB TRANSFORMER REPAIR TECHNICAL WORK DOCUMENT

ENCLOSURES

Enclosure (1) Drawings of Building 306 and 122 Transformer Sites

APPENDICES

Appendix A PCB Sampling Laboratory Sample Results

1.0 FACILITY IDENTIFICATION

Facility Location: Hunters Point Shipyard
San Francisco, California

2.0 PURPOSE

The Ship Superintendent Portsmouth (SSPORTS) was tasked by Engineering Field Activity-West (EFA-West) to perform the following work:

a. Building 306: Replace transformer I-1 casing drain valve and external drain plugs, clean transformer I-1 external surfaces, remove floor aggregate rock showing signs of oil, and resurface areas from which rock was removed with a new concrete surface.

b. **Building 122**: Remove and dispose of PCB contaminated oil from transformer V-2 casing, clean the external surfaces of transformer V-2, and clean the external surface of the concrete pad upon which transformer V-2 is installed.

The work was performed at these two sites in accordance with the instructions of the EFA-West Engineer-In-Charge for this project.

3.0 WORK SUMMARY

1. The PCB abatement and transformer repair work was performed in accordance with the instructions of the TWD listed in reference 1 with the following results:

   a. **Building 306**: The transformer was de-energized, drained, refilled and re-energized without incident. The lower casing drain valve and connecting piping was replaced, and no leakage was evident after the casing was refilled with oil. The upper and lower casing drain plugs were replaced, and no leakage was evident after the casing was refilled with oil. The entire exterior surface of the transformer was cleaned by wiping with kerosene moistened cloths. Upon refill of the casing with oil, several small weeping leaks were noticed at threaded connection joints between the upper and lower transformer-to-casing heat exchanger connecting joints. There are three sets of finned heat exchangers which provide cooling to the transformer. Each uses convection flow of oil through the fins and tubing, and convection flow of ambient air through the exterior surfaces of the heat exchanger tubing, to provide cooling to the transformer. Each heat exchanger is connected to the transformer casing at a low and a high location. The connections are threaded joints through an intermediate spacer block to provide separation of the heat exchanger from the transformer casing. These leaks could not be corrected. The reasons for this are as follows:

      1. The transformer had been installed completely assembled. This is typical of such a transformer installation. The transformer was completely assembled at the factory and shipped to its location, installed, and then filled with oil. The transformer had been installed on a rock base which, over time, has undoubtedly shifted. This shifting has introduced a complex strain to the transformer, causing deformation over time. Disconnection of the upper and/or lower heat exchanger to casing joints would have allowed the casing to move slightly to accommodate the strain. This movement would result in a change in the relative positions of the upper and lower connection points on the transformer casing relative to the dimensions of the connection points on the heat exchanger.

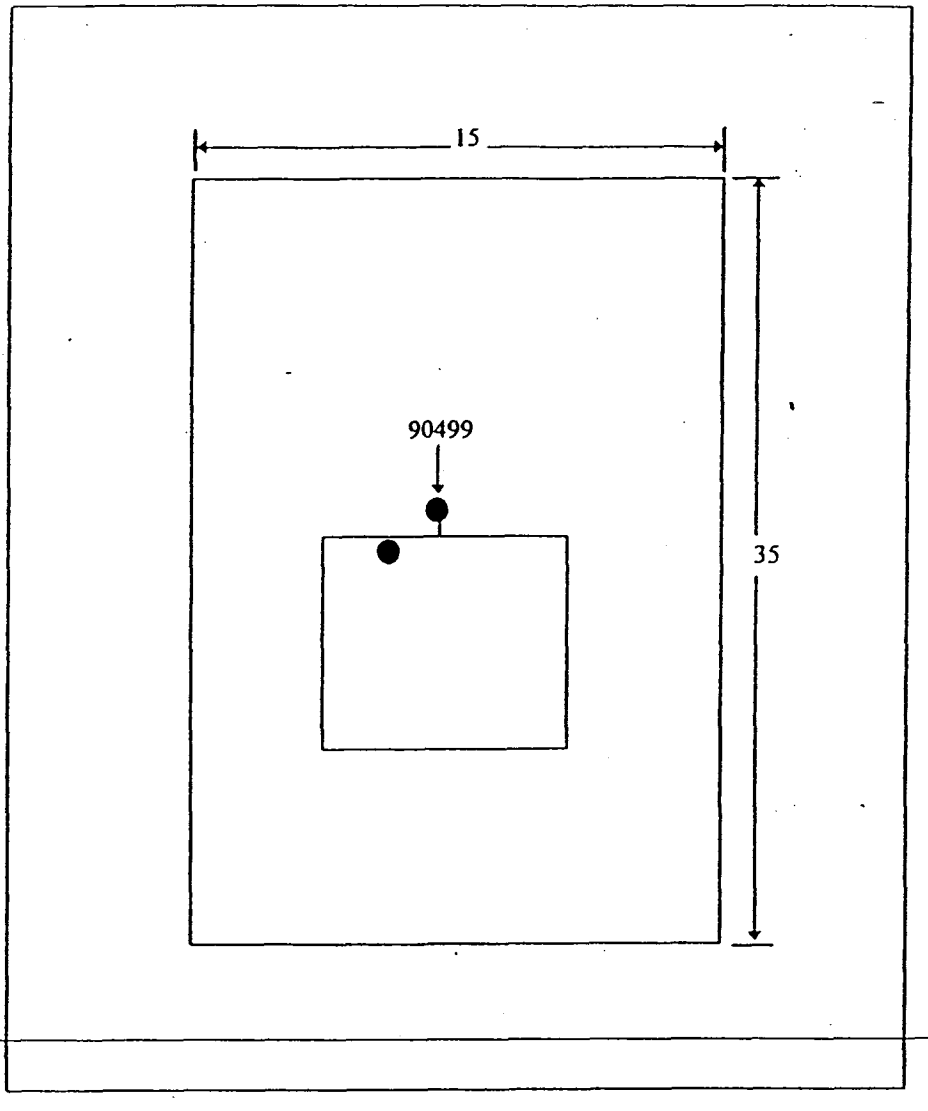
The resulting joint misalignment would be very difficult to correct. The upper and lower connection points are threaded joints. Threaded joints require very precise alignment in order for the threads to mate. It is considered highly probable that disconnection of a heat exchanger would result in the inability to reconnect it.

2. The heat exchangers are large and heavy welded assemblies. The room in which the transformer is installed was not designed to support heavy maintenance of the transformer. It contained no installed attachment points designed to allow the installation of lifting equipment necessary to move and manipulate transformer equipment and components. The room in which the transformer is installed is small and does not permit the installation of a lifting tripod of other assembly of sufficient size to allow both the lifting and movement of a single transformer heat exchanger, and the installation of the lifting equipment itself.

3. The extent of repairs to the heat exchangers necessary to correct the leaks could easily exceed the capability of portable equipment. Removal of a heat exchanger would require correction of any problem prior to reinstallation. The extent of repairs necessary cannot be known until after the heat exchanger was removed and examined. Given the size of the heat exchangers, and the difficulty of moving them, it is possible for the damage to be of a nature where specialized welding and machining equipment would be required to effect repairs. It must also be considered that the complexity of the movements necessary to accomplish the lifting of a heat exchanger out of the small confines of the room, through the substation, positioning and laydown, repairs, followed by return and re-assembly have of themselves a very high probability of damaging the heat exchanger beyond repair.

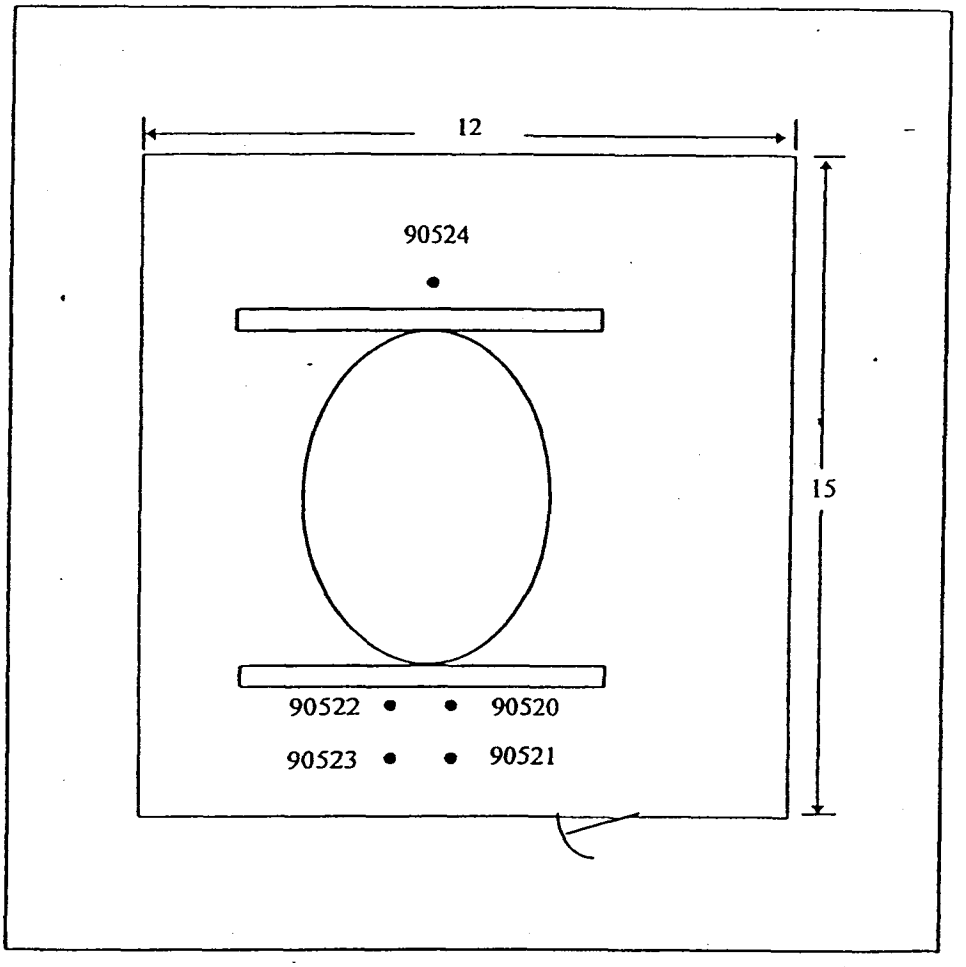
Removal of oil stained rock underneath the transformer was accomplished to a depth of four feet directly beneath the casing drain valve. The deeper excavation proceeded, the more dark and more oil stained the rock became. It was not possible to remove all of the oil stained rock because this would have resulted in a complete undermining of the transformer support. Excavation did not reach the level of the soil because excavation had to stop before the stability of the transformer was threatened. Approximately 11 55-gallon barrels of rock was removed. Following excavation, a concrete surface was poured to fill-in the excavated area. Three samples of the rock were obtained prior to the start of excavation, and three samples were collected from the bottom of the excavation. All six samples were analyzed with the reported result "ND". This was expected since the samples collected on and around the transformer during the initial survey were all "ND".

BUILDING 122 PARCEL A TRANSFORMER V-2 SAMPLE LOCATION DIAGRAM



REPORT
HPS PCB TRANSFORMER REPAIR
BLDG. 122 SITE SAMPLING DIAGRAM
Enclosure (1)

BUILDING 306 SUBSTATION I PARCEL D SAMPLE LOCATION DIAGRAM



REPORT
HPS PCB TRANSFORMER REPAIR
BLDG. 306 SITE SAMPLING DIAGRAM
Enclosure (1)

PCB SURVEY AND SAMPLE DATA SHEET (ADD-ON SHEET)

Building: ~~UNIT58~~ 306 Hunters Point Location: Substation

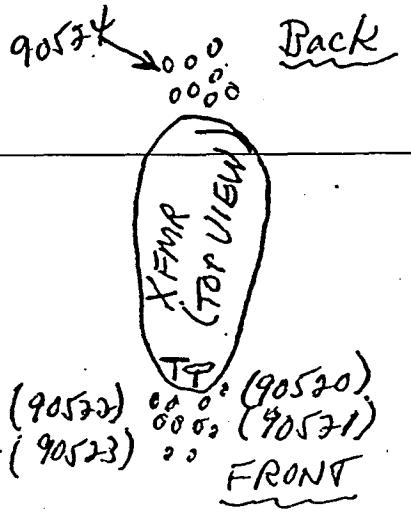
Equipment: TRANSFORMER Remarks: TWD 99-158

Sample ID	Date	Time	Type*	Size*	Location at Site
90520	8/9/99	1330	4		OIL-SOAKED Rock/gravel
90521	8/9/99	1332	4		" " " "
90522	8/9/99	1340	4		Rock/gravel
90523	8/9/99	1348	4		" "
90524	8/9/99	1357	4		OIL-Soaked Rock/Gravel
90525					
90526					
90527					
90528					
90529					
90530					
90531		NOT			USED
90532					
90533					
90534					
90535					
90536					
90537					
90538					
90539					
90540	8/9/99	1410	Blank		

Size: Leave blank unless other than 40 ml except 1000 ml for water "grab" samples. (in ml.)

Type: [1] external surface swipe, [2] spill swipe, [3] internal reservior swipe, [4] Solid spill sample, [5] oil resevoir sample, [6] water "grab" sample, [7] Blank

SKETCH BLOCK



Samples were taken, labeled, sealed, recorded and secured from tampering by authorized personnel as required by Section of "Master Work Plan for PCB Decontamination of Spill Sites and Machinery".

Name R. Ingham Badge Number 578222 Date 8/9/99

Name _____ Badge Number _____ Date _____

Name _____ Badge Number _____ Date _____

APPENDIX A

PCB SAMPLING LABORATORY RESULTS

Calscience Environmental Laboratories, Inc.

ANALYTICAL REPORT

Mare Island Naval Shipyard
Building 229, P.O. Box 2135
Vallejo, CA 94592-0135

Date Received: 08/13/99
Work Order No: 99-08-0379
Preparation: EPA 3550A
Method: EPA 8082

Project: Contract No. N00244-96-D-2009

Client Sample Number:	Lab Sample Number:	Date Collected:	Matrix	Date Prepared:	Date Analyzed:	QC Batch ID:
9-0520 (306/Hunters Point)	99-08-0379-1	08/09/99	Solid	08/13/99	08/13/99	9908132

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Aroclor-1016	ND	1000	20		ug/kg	Aroclor-1248	ND	1000	20		ug/kg
Aroclor-1221	ND	1000	20		ug/kg	Aroclor-1254	ND	1000	20		ug/kg
Aroclor-1232	ND	1000	20		ug/kg	Aroclor-1260	ND	1000	20		ug/kg
Aroclor-1242	ND	1000	20		ug/kg	Aroclor-1262	ND	1000	20		ug/kg

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	90	50-130		2,4,5,6-Tetrachloro-m-Xylene	60	50-130	

9-0521 (306/Hunters Point)	99-08-0379-2	08/09/99	Solid	08/13/99	08/13/99	9908132

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Aroclor-1016	ND	1000	20		ug/kg	Aroclor-1248	ND	1000	20		ug/kg
Aroclor-1221	ND	1000	20		ug/kg	Aroclor-1254	ND	1000	20		ug/kg
Aroclor-1232	ND	1000	20		ug/kg	Aroclor-1260	ND	1000	20		ug/kg
Aroclor-1242	ND	1000	20		ug/kg	Aroclor-1262	ND	1000	20		ug/kg

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	91	50-130		2,4,5,6-Tetrachloro-m-Xylene	61	50-130	

9-0522 (306/Hunters Point)	99-08-0379-3	08/09/99	Solid	08/13/99	08/14/99	9908132

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Aroclor-1016	ND	1000	20		ug/kg	Aroclor-1248	ND	1000	20		ug/kg
Aroclor-1221	ND	1000	20		ug/kg	Aroclor-1254	ND	1000	20		ug/kg
Aroclor-1232	ND	1000	20		ug/kg	Aroclor-1260	ND	1000	20		ug/kg
Aroclor-1242	ND	1000	20		ug/kg	Aroclor-1262	ND	1000	20		ug/kg

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	94	50-130		2,4,5,6-Tetrachloro-m-Xylene	69	50-130	

RL - Reporting Limit . DF - Dilution Factor . Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN CUSTODY RECORD dtd 08/11/199 Doc Num 90474C Page 1

(0 ~~XX~~) '19 (6)

ADDRESS BLOCK

From: Bob Turpin
SSPORTS Environmental Detachment, Bldg 213
Vallejo, CA 94592-2135
Tel (707) 662-3495 Fax (707) 662-3497

To: Cal Science Environmental Laboratories, Inc.
11531 Seaboard Circle
Stanton, CA 90680
Tel (714) 895-5494 Fax (714) 894-7501 Attn: W. H. Christensen

INSTRUCTION BLOCK

Turnaround Time: Rush
Written QC Report Required? Routine QC

Sample #	Bldg / Parcel-Site	Location		TWD	Date	Time	Type	Size	Analysis
9-0520	306 / Hunters Point	Oil-soaked Rock/Gravel	ND	1542	08/09/1999	13:20	Solid Spill	40 ml	0031AC 0034
9-0521	306 / Hunters Point	Oil-soaked Rock/Gravel	ND	1542	08/09/1999	13:32	Solid Spill	40 ml	0031AC 0034
9-0522	306 / Hunters Point	Rock/Gravel	ND	1542	08/09/1999	13:40	Solid Spill	40 ml	0031AC 0034
9-0523	306 / Hunters Point	Rock/Gravel	ND	1542	08/09/1999	13:48	Solid Spill	40 ml	0031AC 0034
9-0524	306 / Hunters Point	Oil-soaked Rock/Gravel	ND	1542	08/09/1999	13:57	Solid Spill	40 ml	0031AC 0034
~~9-0540~~	~~306 / Hunters Point~~	~~NA~~		~~1542~~	~~08/09/1999~~	~~14:10~~	~~Blank~~	~~40 ml~~	~~0031AC 0034~~

BJ 8/12/99
(PER TELECON W/W. FINKINSON @ 1337)

CHAIN OF CUSTODY RECORD

Data Transferred by: (Signature)	B. Jacobs	Date: 8/11/99	Time: 1520
Relinquished by: (Signature)	Received by: (Signature) B. Jacobs	Date: 8/11/99	Time: 1541
Relinquished by: (Signature) B. Jacobs	Received by: (Signature) M.D. Martin	Date: 8/12/99	Time: 1400
Relinquished by: (Signature) M.D. Martin	Received by: (Signature) 1602	Date: 8-12-99	Time: 1502
Relinquished by: (Signature)	Received for Laboratory: (Signature)	Date:	Time:

CALSCIENCE PROJ MGMT 714 898 2036 P.06/06

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Mare Island Naval Shipyard
Building 229, P.O. Box 2135
Vallejo, CA 94592-0135

Project: Contract No. N00244-96-D-2009

Date Received: 08/13/99
Work Order No: 99-08-0379
Preparation: EPA 3550A
Method: EPA 8082

LCS Sample Number	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-014-1,340	Solid	GC 10	08/11/99	08/13/99	9908132

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aroclor-1260	114	122	50-135	6	0-25	

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

ANALYTICAL REPORT

Mare Island Naval Shipyard
Building 229, P.O. Box 2135
Vallejo, CA 94592-0135

Date Received: 08/13/99
Work Order No: 99-08-0379
Preparation: EPA 3550A
Method: EPA 8082

Project: Contract No. N00244-96-D-2009

Client Sample Number:	Lab Sample Number:	Date Collected:	Matrix	Date Prepared:	Date Analyzed:	QC Batch ID:
9-0523 (306/Hunters Point)	99-08-0379-4	08/09/99	Solid	08/13/99	08/14/99	9908132

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Aroclor-1016	ND	1000	20		ug/kg	Aroclor-1248	ND	1000	20		ug/kg
Aroclor-1221	ND	1000	20		ug/kg	Aroclor-1254	ND	1000	20		ug/kg
Aroclor-1232	ND	1000	20		ug/kg	Aroclor-1260	ND	1000	20		ug/kg
Aroclor-1242	ND	1000	20		ug/kg	Aroclor-1262	ND	1000	20		ug/kg

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	99	50-130		2,4,5,6-Tetrachloro-m-Xylene	61	50-130	

9-0524 (306/Hunters Point)	99-08-0379-6	08/09/99	Solid	08/13/99	08/14/99	9908132

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
roclor-1016	ND	1000	20		ug/kg	Aroclor-1248	ND	1000	20		ug/kg
roclor-1221	ND	1000	20		ug/kg	Aroclor-1254	ND	1000	20		ug/kg
Aroclor-1232	ND	1000	20		ug/kg	Aroclor-1260	ND	1000	20		ug/kg
Aroclor-1242	ND	1000	20		ug/kg	Aroclor-1262	ND	1000	20		ug/kg

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	89	50-130		2,4,5,6-Tetrachloro-m-Xylene	76	50-130	

Method Blank	096-01-014-1,340	N/A	Solid	08/13/99	08/13/99	9908132

Parameter	Result	RL	DF	Qual	Units	Parameter	Result	RL	DF	Qual	Units
Aroclor-1016	ND	1000	20		ug/kg	Aroclor-1248	ND	1000	20		ug/kg
Aroclor-1221	ND	1000	20		ug/kg	Aroclor-1254	ND	1000	20		ug/kg
Aroclor-1232	ND	1000	20		ug/kg	Aroclor-1260	ND	1000	20		ug/kg
Aroclor-1242	ND	1000	20		ug/kg	Aroclor-1262	ND	1000	20		ug/kg

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	83	50-130		2,4,5,6-Tetrachloro-m-Xylene	95	50-130	

RL - Reporting Limit . DF - Dilution Factor . Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

August 16, 1999

Russ Finlinson
Mare Island Naval Shipyard
Building 229, P.O. Box 2135
Vallejo, CA 94592-0135

Subject: **Calscience Work Order No.: 99-08-0379**
Client Reference: Contract No. N00244-96-D-2009

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 08/13/99 and analyzed in accordance with the attached chain-of-custody.

The results in this analytical report are limited to the samples tested and any reproduction of this report must be made in its entirety.

If you have any questions regarding this report, require sampling supplies or field services, or information on our analytical services, please feel free to call me at (714) 895-5494.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Larry Lem
Project Manager

William H. Christensen
Quality Assurance Manager

Calscience Environmental Laboratories, Inc.

GLOSSARY OF TERMS AND QUALIFIERS

Work Order Number: 99-08-0379

Qualifier	Definition
ND	Not detected at indicated reporting limit.

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501

PCB SURVEY AND SAMPLE DATA SHEET (ADD-ON SHEET)

Building: ~~Bldg 671~~ Bld 122 Hunters Point Location:

Equipment: V2 XFMR Remarks:

Sample ID	Date	Time	Type*	Size*	Location at Site
90499	7/1/99	11:10	5		XFMR DES. DRAIN PLUG
90500					
90501					
90502					
90503					
90504					
90505					
90506					
90507					
90508					
90509					
90510					
90511					
90512					
90513					
90514					
90515					
90516					
90517					
90518					
90519	7/2/99	14:20	Blank		

Size: Leave blank unless other than 40 ml except 1000 ml for water "grab" samples. (in ml.)
Type: [1] external surface swipe, [2] spill swipe, [3] internal reservior swipe, [4] Solid spill sample, [5] oil resevoir sample, [6] water "grab" sample, [7] Blank

SKETCH BLOCK

mples were taken, labeled, sealed, recorded and secured from tampering by authorized personnel as required by Section of "Master Work Plan for PCB Decontamination of Spill Sites and Machinery".

Name R. Johnson Badge Number 578122 Date 7/1/99

Name Badge Number Date

Name Badge Number Date

CHAIN O Y RECORD dtd 07/07/199 $. 0849 Doc Num 90464M (2) age 1

ADDRESS BLOCK

From: Michael DeBattista
SSPORTS Environmental Detachment, Bldg 229
Vallejo, CA 94592-2135
Tel (707) 562-3326 Fax (707) 562-3275

To: Mare Island Environmental Laboratory
SSPORTS Environmental Detachment, Bldg 746
Vallejo, CA 94592
Tel (707) 562-3350 Fax (707) 562-7501 Attn: David Umino

INSTRUCTION BLOCK

Turnaround Time: Rush F3 24

Written QC Report Required? RWQCB

Sample #	Bldg / Parcel-Site	Location	TWD	Date	Time	Type	Size	Analysis
9-0499	122 / Hunters Point	XFMR Reservoir Drain Plug 2 ppm	1526	07/01/1999	11:10	Oil Resv. mm	40 ml	
9-0519	122 / Hunters Point	NA NA	1526	07/02/1999	14:20	Blank	40 ml	

CHAIN OF CUSTODY RECORD

Data Transferred by: (Signature)	B. Joralm	Date: 7/7/99	Time: 1216
Relinquished by: (Signature)	Received by: (Signature) B. Joralm	Date: 7/7/99	Time: 1217
Relinquished by: (Signature) B. Joralm	Received by: (Signature) D. Pruitt	Date: 7/7/99	Time: 1526
Relinquished by: (Signature)	Received by: (Signature) D. Pruitt for D. Umino	Date: 7/14/99	Time: 0941
Relinquished by: (Signature)	Received for Laboratory: (Signature)	Date:	Time:

.27C

MARE ISLAND NAVAL SHIPYARD
ENVIRONMENTAL LABORATORY
CODE 120 LAB
Calif. DHS Certificate No. 2249

7/13/99

LAB NO: 99MI00349
DOC. NO: 90464
SAMPLE NO: 9-0499
DESCRIPTION: Hunters Point, Bldg. 122
EXTRACTION NO: E4038

DATE SAMPLED: 7/01/99
DATE REC'D : 7/07/99
DATE EXTRACTED: 7/09/99
DATE REPORTED: 7/13/99

TRANSF. V-2

ANALYSIS: POLYCHLORINATED BIPHENYLS
METHOD: Modified EPA 8081

Arochlor	PCB's	Report Limit
A1260	2 ppm	1 ppm

QA/QC Data is available from the Laboratory upon request.

7.27C

MARE ISLAND NAVAL SHIPYARD
ENVIRONMENTAL LABORATORY
CODE 120 LAB
Calif. DHS Certificate No. 2249

7/13/99

LAB NO: 99MI00349
DOC. NO: 90464
ANALYSIS: POLYCHLORINATED BIPHENYLS
METHOD: Modified EPA 8081

BLDG 122, TRANSF. V-2

Sample No.	Sample Type	Results	Arochlor	Report Limit
9-0499	Oil	2 ppm	A1260	1 ppm
9-0519	Swipe	ND		5 ug/swipe

ND = None Detected at or above reporting limit.

Analyst: P. Long for D. Pruitt Reviewed by: D. Pruitt for D. Umino Date: 7/13/99

Parcel	Building Number	Drawing Number	Substation Number or Location	Sample Location	Sample Number	Sample Results (Before Decon.) (µg/100cm²)	Sample Number	Sample Results (After Decon.) (µg/100cm²)	Sample Number	Sample Results (After Decon.) (µg/100cm²)	Sample Number	Sample Results (After Decon.) (µg/100cm²)	Sample Number	Sample Results (After Decon.) (µg/100cm²)
D	306	17	I	1	82130	5.7								
				2	82131	22.6	90737	ND						
				3	82132	5.5								
				4	82133	5.0								
				5	82134	ND								
				6	82135	ND								
				7	82136	ND								
D	311	18	O	1	82300	10.2	90708	ND						
				2	82301	29.7	90709	ND						
				3	82302	ND								
				4	82303	ND								
				5	82304	ND								
E	523	19		1	82183	5.6								
				2	82184	39.9	91400	ND						
				3	82185	16.0	91401	ND						
				4	82186	20.0	91402	ND						
E	527	20		1	82284	29.6	90998	7.0						
				2	82285	45.9	90999	13.0						
				3	82286	30.1	91000	10.0						
				4	82287	6593.4	91001	1386.0						
				5	82288	5.1								

Note: Sample points whose final results exceed 10 µg/100cm² have been marked with a two foot diameter circle of orange paint.

MARE ISLAND NAVAL SHIPYARD
ENVIRONMENTAL LABORATORY
CODE 120 LAB
Calif. DHS Certificate No. 2249

7/13/9

LAB NO: 99MI00349
DOC. NO: 90464
SAMPLE NO: 9-0519
DESCRIPTION: Hunters Point, Bldg. 122
EXTRACTION NO: SW9288

DATE SAMPLED: 7/02/9
DATE REC'D : 7/07/9
DATE EXTRACTED: 7/09/9
DATE REPORTED: 7/13/9

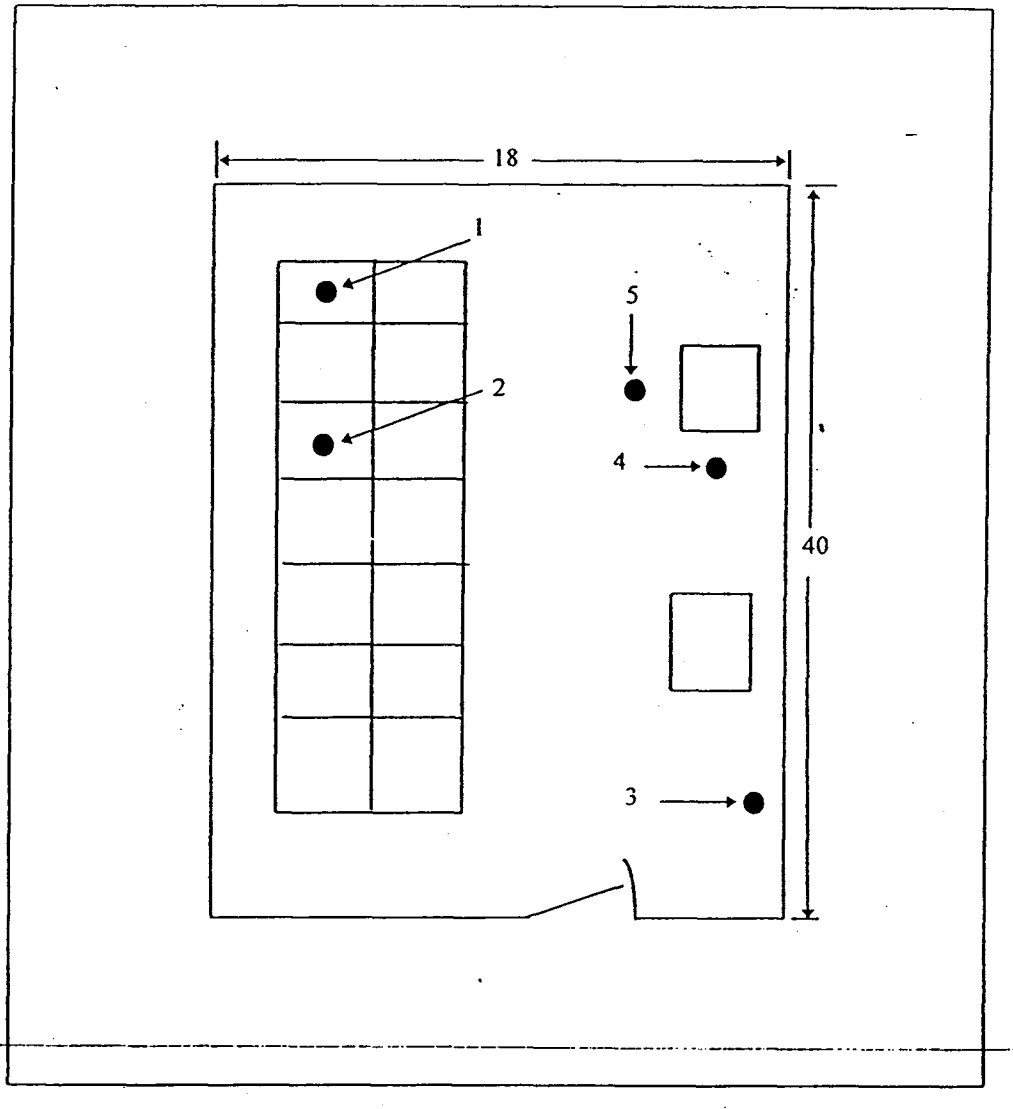
Transf. V-2-

ANALYSIS: POLYCHLORINATED BIPHENYLS
METHOD: Modified EPA 8081

Arochlor	PCB's	Report Limit
	ND	5 ug/swipe

QA/QC Data is available from the Laboratory upon request.

BUILDING 311 SUBSTATION O PARCEL D SAMPLE LOCATION DIAGRAM



FINAL REPORT
HPS PCB ABATEMENT PHASE II
INDIVIDUAL SITE SAMPLING DIAGRAMS
Enclosure (1)
Drawing 18

DEPARTMENT OF THE NAVY

Engineering Field Activity - West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 94066-5006

BASE CONVERSION OFFICE
CODE 62A & CODE 62B
REAL ESTATE SUPPORT and ENVIRONMENTAL BUSINESS LINE TEAM
Facsimile Transmission Cover Sheet

Date: 5/6/99

Total Number of Sheets: 3
-including cover sheet-

TO:

Activity/Company:

Telephone:

FAX Number:

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ►

To Scott Wald	From Jan-Nan Tuan
Dept./Agency T&EMI	Phone # 650-244-2595
Fax # 415-543-5480	Fax # 650-244-2654

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

FROM:

Telephone: (650) 244-_____ (DSN Prefix: 494-XXXX)
FAX Number: ☐ (650) 244-3128
☐ (650) 244-2654

COMMENTS:

Attached are the swipe sample results for PCB on gravel surface in front of the transformer I-1 in B306 & a sketch for the sample locations for your reference.

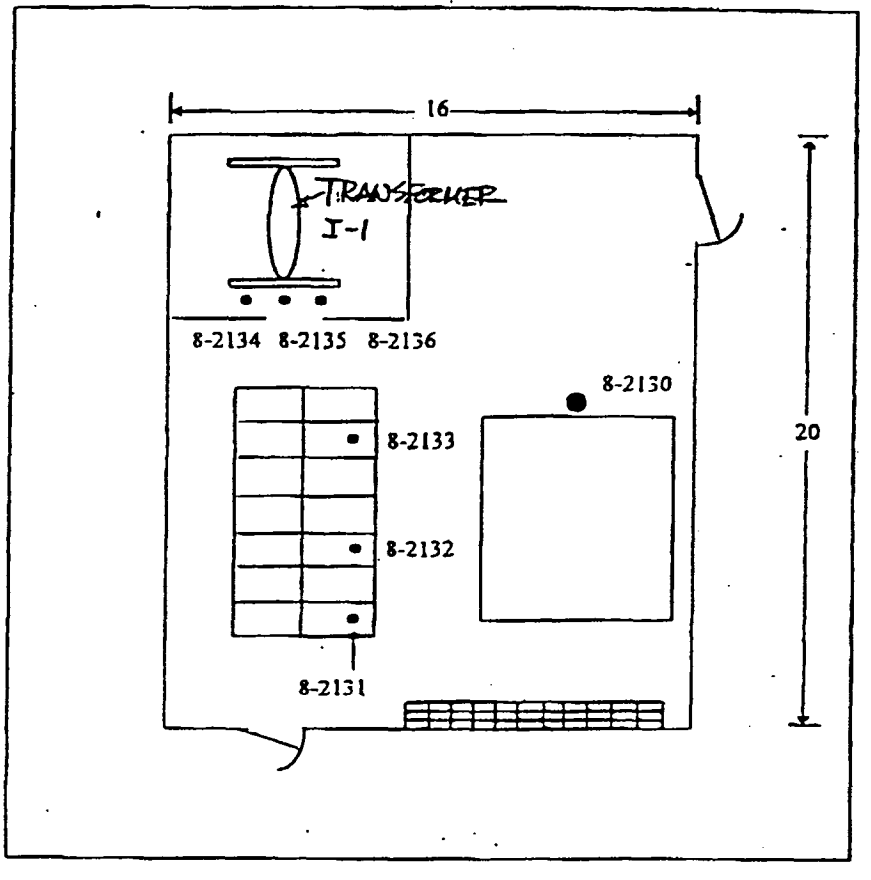
If there are problems with this transmission, please notify us by calling (650) 244-3055

MAY 06 '99 09:31AM WESTDIV CODE 18

Parcel	Building Number	Drawing Number	Substation Number or Location	Sample Type	Sample Number	Sample Results (µg/cm²)	Arochlor	Remarks
D	306	26	I	Swipe	82130	5.7	1254	Removed Transformer
				Swipe	82131	22.6	1254	Removed OCB "A"
				Swipe	82132	5.5	1254	Removed OCB "C"
				Swipe	82133	5.0	1254	Removed OCB "F"
				Swipe	82134	ND		Active Transformer I-1
				Swipe	82135	ND		Back Side of I-1
				Swipe	82136	ND		Duplicate 82135
					82140	ND		Trip Blank
D	307	27		Swipe	82295	ND		Transformer 16764-1 Sierra
				Swipe	82296	ND		Pad
				Swipe	82297	ND		Pad
				Swipe	82298	ND		Pad
					82299	ND		Trip Blank
D	311	28	O	Swipe	82300	10.2	1254	Outside Pad
				Swipe	82301	29.7	1254	Outside Pad
				Swipe	82302	ND		Outside Pad
				Swipe	82303	ND		Outside Pad
				Swipe	82304	ND		Outside Pad
					82320	ND		Trip Blank

P.2/3

BUILDING 306 SUBSTATION I PARCEL D SAMPLE LOCATION DIAGRAM



FINAL REPORT
HPS PCB ABATEMENT PHASE I
INDIVIDUAL SITE SAMPLING DIAGRAMS
Drawing 26

TABLE 5-4A (Continued)

EXISTING AND FORMER HIGH VOLTAGE ELECTRICAL EQUIPMENT*
ENVIRONMENTAL BASELINE SURVEY, HUNTERS POINT SHIPYARD

Building No.	Substation or Pole	Equipment Type	Type (S/L)	Gallons	KVA	Unit No.	PCB Content (ppm)	Date Removed	Status
300	Substation N	Xfmr	L	156	333	H-709	9	N/A	Scheduled to be disposed.
306	Substation 1	Xfmr	L	1,406	5,000	I-1	48	N/A	Scheduled to be disposed.
306	Substation I	OCB	L	Unknown	N/A	I-105	53	Unknown	Disposed
306	Substation 1	OCB	L	Unknown	N/A	I-106	10	N/A	Active
306	Substation 1	OCB	L	Unknown	N/A	I-107	<1	N/A	Out of service
306	Substation I	OCB	L	Unknown	N/A	I-108	57	Unknown	Disposed
306	Substation 1	OCB	L	Unknown	N/A	I-109	20	N/A	Active
306	Substation I	OCB	L	Unknown	N/A	I-110	183	1993	Disposed
306	Substation I	OCB	L	Unknown	N/A	I-113	57	Unknown	Disposed
307	N/A	Xfmr	L	Unknown	112.5	None	<1	N/A	Out of service
311	Substation O-1	O Sw	L	Unknown	N/A	O-1	<1	Unknown	Unknown
311	Substation O	Xfmr	L	282	500	O-101	114	Unknown	Disposed
311	Substation O	Xfmr	L	282	500	O-102	75	Unknown	Disposed
311	Substation O	Xfmr	L	592	1000	O-103	25	Unknown	Disposed
311	Substation O	Xfmr	L	58	100	O-104	6	Unknown	Disposed
311	Substation O	Xfmr	L	58	100	O-105	4	N/A	Out of service
311	Substation O	Xfmr	L	58	100	O-106	4	N/A	Out of service
311	Substation O	OCB	L	Unknown	N/A	O-107	10	N/A	Active
311	Substation O	OCB	L	Unknown	N/A	O-108	243	1993	Disposed

TABLE 5-4A (Continued)

EXISTING AND FORMER HIGH VOLTAGE ELECTRICAL EQUIPMENT*
ENVIRONMENTAL BASELINE SURVEY, HUNTERS POINT SHIPYARD

Building No.	Substation or Pole	Equipment Type	Type (S/L)	Gallons	KVA	Unit No.	PCB Content (ppm)	Date Removed	Status
311	Substation O	OCB	L	Unknown	N/A	O-109	173	1993	Disposed
311	Substation O	OCB	L	Unknown	N/A	O-110	169	1993	Disposed
311	Substation O	O Sw	L	Unknown	N/A	O-2	<1	Unknown	Unknown
324	N/A	Xfmr	L	Unknown	100	None	<1	N/A	Abandoned
351	Substation I-7	Xfmr	L	Unknown	750	23	Unknown	Unknown	Disposed
351A	Substation I-7	Xfmr	L	132	200	I-114	4	N/A	Abandoned
368	Substation O-I	Xfmr	L	Unknown	300	31	Unknown	Unknown	Disposed
368	Substation O-I	Xfmr	L	Unknown	25	32	Unknown	Unknown	Disposed
368	Substation O-I	Xfmr	L	Unknown	25	33	Unknown	Unknown	Disposed
368	Substation O-I	Xfmr	L	Unknown	25	34	Unknown	Unknown	Disposed
400	Substation I-2	Xfmr	L	75	100	I-122	2	N/A	Abandoned
402	Substation I-1	Xfmr	L	67	100	I-115	3	N/A	Abandoned
402	Substation I-1	Xfmr	L	235	300	I-116	244	1992	Disposed
411	Substation Y	Xfmr	L	Unknown	750	8	Unknown	Unknown	Disposed
411	Substation Y	Xfmr	L	Unknown	750	9	Unknown	Unknown	Disposed
411	Substation Y	OCB	L	Unknown	N/A	Y-101	19	1998	Disposed
411	Substation Y	OCB	L	Unknown	N/A	Y-102	8	1998	Disposed
411	Substation Y	OCB	L	Unknown	N/A	Y-103	9	1998	Disposed
411	Substation Y	OCB	L	Unknown	N/A	Y-104	10	1998	Disposed
411	N/A	Capacitor	L	Unknown	N/A	Unknown	Unknown	1998	Disposed
413	Substation I-6	O Sw	L	Unknown	N/A	FY-1	<1	N/A	Abandoned

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ADDED IR35B0E0 THRU IR35B0E5	6-19-00	

SYM NO.	SYM	DESCRIPTION
1		A-AQUIFER MONITORING WELL
2		B-AQUIFER MONITORING WELL
3		BEDROCK MONITORING WELL
4		PIEZOMETER
5		DAMES & MOORE BORING
6		SOIL BORING
7		SOIL BORING/GRAB GROUNDWATER/HYDROPUNCH
8		EMCON A-AQUIFER MONITORING WELL
9		EMCON BEDROCK MONITORING WELL
10	A	AIR SAMPLE
11		SUMP SAMPLE
12		SURFACE SOIL SAMPLE
13		SANDBLAST MATERIAL
14	W	STORM DRAIN
15	A	ASBESTOS SAMPLE
16	W	WIPE SAMPLE
17	D	FLOOR DRAIN
18		FLOOR VAULT
19		SANITARY SEWER
20		TRENCH/TEST PIT
21		REMOVAL OR EXPLORATORY EXCAVATION STATION
22		EMCON SOIL BORING
23	ooo	GROUND PENETRATING RADAR PROFILE
24		TIDAL STATION
25	C	CATCH BASIN
26		FLOOD CONTROL GATE
27		STEAMLINE INSPECTION AND/OR BORESCOPE
28		DRY HOLE
29		PROPOSED SOIL BORING
30		PROPOSED SOIL BORING/HYDROPUNCH/GRAB GROUNDWATER
31		INTERTIDAL SEDIMENT SAMPLE
32		RAINFALL STATION
33	S	FLOOR SCRAPINGS
34		UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
35	CC	CONCRETE CORE
36	SG	SOIL GAS
37		DRUM
38		TANK
39		BULK SAMPLE
40		HAND-AUGER
41	R	REFUSAL WITH NO SAMPLE
42		WEEP HOLE
43		DRILL RIG FLUID
44		SURFACE WATER SAMPLE
45		QUALITY CONTROL
46		CORE SEDIMENT SAMPLE FOR ERA
47		OTHER
48		PUMPING STATION
49		REFERENCE STATION FOR ERA
50		TISSUE STATION FOR ERA
51		UNKNOWN TYPE
52	RT	RADIATION TEST STATION
53		STORM DRAIN MANHOLE
54		CONE PENETROMETER
55		AIR SPARGING WELL
56	SBG	SOIL BORING/SOIL GAS
57		TREATMENT SYSTEM
58		VAPOR EXTRACTION WELL
59		STORM DRAIN REACH
60		PROPOSED SURFACE SOIL SAMPLE
61		PROPOSED A-AQUIFER MONITORING WELL
62	T	TISSUE OR TISSUE AND SOIL FOR ECO VALIDATION
63		PROPOSED SOIL GAS
64		SOIL BORING/GRAB GROUNDWATER
65		SOIL BORING/HYDROPUNCH

DWG NO. 352112 SH 1 REV A

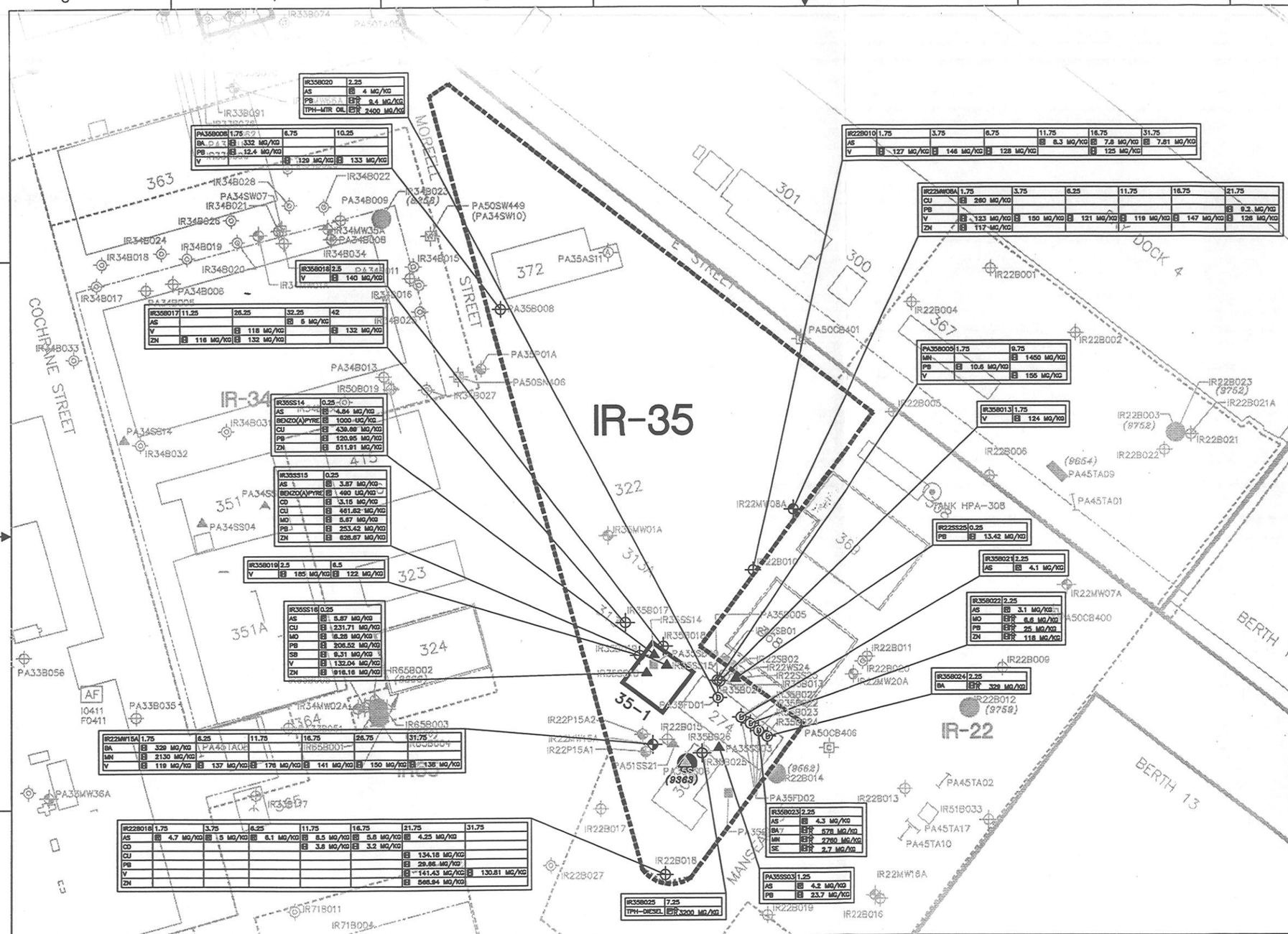
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.11-2 SHT 1 of 2
PARCEL D
IR-35 SOIL RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

FILE NAME: 3521121A.DWG



SYMBOL	DESCRIPTION
PA24MW03A	A-AQUIFER MONITORING WELL
IR26MW42B	B-AQUIFER MONITORING WELL
IR06MW49F	BEDROCK MONITORING WELL
IR07P20A	PIEZOMETER
PA24B005	SOIL BORING
PA51SS03	SURFACE SOIL SAMPLE
PA46TA03	TRENCH/TEST PIT
IR46B036	SOIL BORING/GRAB GROUNDWATER
IR46B036	SOIL BORING/HYPROPUNCH
	EXPLORATORY EXCAVATION
159	EXISTING BUILDING
155	LOCATION OF FORMER BUILDING
	UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
	EXTENDED IR SITE BOUNDRY
	IR SITE BOUNDARY
	PARCEL BOUNDARY
	CRANE OR RAILROAD TRACKS
	FENCE
	ROADWAY
	LEAD EPC FOR EXPOSURE AREA EXCEEDS 1,000 mg/kg
(9999)	DE MINIMIS CLEANUP AREA EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD TOTAL SEGREGATED HI IS GREATER THAN OR EQUAL TO 1.0). ITALICIZED NUMBERS IN PARENTHESIS DESIGNATE THE DE MINIMUS CLEANUP AREA
	ESTIMATED BOUNDARIES OF SOIL REMEDIATION AREAS EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0)

NOTES:

1. POSTED DATA ARE CHEMICALS THAT EXCEED 1998 INDUSTRIAL PRG, HPAL OR PETROLEUM SCREENING CRITERIA.
2. STATION LABELS WITHOUT DATA BOXES INDICATE EITHER THAT NO CHEMICALS WERE DETECTED OR THAT DETECTED CHEMICALS WERE BELOW 1998 PRG, HPAL OR PETROLEUM SCREENING CRITERIA.

SAMPLE LOCATION — IR076045 | 2.75 | TOC 30 mg/kg | As 0.0088 mg/kg — SOIL SAMPLE DEPTH (feet bgs)

ANALYTE

CONCENTRATIONS FOR INORGANICS AND TPH-g, TPH-d, TPH-mo, TOG, AND TRPH ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
CONCENTRATIONS FOR ORGANICS ARE REPORTED IN MICROGRAMS PER KILOGRAM (µg/kg).

- EXCEEDS CARCINOGENIC INDUSTRIAL PRG
- EXCEEDS NON-CARCINOGENIC INDUSTRIAL PRG
- EXCEEDS HPAL
- EXCEEDS PETROLEUM SCREENING CRITERIA

SCALE IN FEET

PARCEL D KEY MAP

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.11-2 SHT 2 of 2
PARCEL D
IR-35 SOIL RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 352112 — SH 2 — REV A

FILE NAME: 3521122A.DWG

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

SYM NO.	SYM	DESCRIPTION	SYM NO.	SYM	DESCRIPTION
1		A-AQUIFER MONITORING WELL	34		UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
2		B-AQUIFER MONITORING WELL	35	CC	CONCRETE CORE
3		BEDROCK MONITORING WELL	36	SG	SOIL GAS
4		PIEZOMETER	37		DRUM
5		DAMES & MOORE BORING	38		TANK
6		SOIL BORING	39		BULK SAMPLE
7		SOIL BORING/GRAB GROUNDWATER/HYDROPUNCH	40		HAND-AUGER
8		EMCON A-AQUIFER MONITORING WELL	41	®	REFUSAL WITH NO SAMPLE
9		EMCON BEDROCK MONITORING WELL	42		WEEP HOLE
10	A	AIR SAMPLE	43		DRILL RIG FLUID
11		SUMP SAMPLE	44		SURFACE WATER SAMPLE
12		SURFACE SOIL SAMPLE	45		QUALITY CONTROL
13		SANDBLAST MATERIAL	46		CORE SEDIMENT SAMPLE FOR ERA
14	W	STORM DRAIN	47		OTHER
15	A	ASBESTOS SAMPLE	48		PUMPING STATION
16	W	WIPE SAMPLE	49		REFERENCE STATION FOR ERA
17	D	FLOOR DRAIN	50		TISSUE STATION FOR ERA
18		FLOOR VAULT	51		UNKNOWN TYPE
19		SANITARY SEWER	52	RT	RADIATION TEST STATION
20		TRENCH/TEST PIT	53		STORM DRAIN MANHOLE
21		REMOVAL OR EXPLORATORY EXCAVATION STATION	54		CONE PENETROMETER
22		EMCON SOIL BORING	55		AIR SPARGING WELL
23	ooo	GROUND PENETRATING RADAR PROFILE	56	SBG	SOIL BORING/SOIL GAS
24		TIDAL STATION	57		TREATMENT SYSTEM
25	C	CATCH BASIN	58		VAPOR EXTRACTION WELL
26		FLOOD CONTROL GATE	59		STORM DRAIN REACH
27		STEAMLINE INSPECTION AND/OR BORESCOPE	60		PROPOSED SURFACE SOIL SAMPLE
28		DRY HOLE	61		PROPOSED A-AQUIFER MONITORING WELL
29		PROPOSED SOIL BORING	62	T	TISSUE OR TISSUE AND SOIL FOR ECO VALIDATION
30		PROPOSED SOIL BORING/HYDROPUNCH/GRAB GROUNDWATER	63		PROPOSED SOIL GAS
31		INTERTIDAL SEDIMENT SAMPLE	64		SOIL BORING/GRAB GROUNDWATER
32		RAINFALL STATION	65		SOIL BORING/HYDROPUNCH
33	S	FLOOR SCRAPINGS			

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

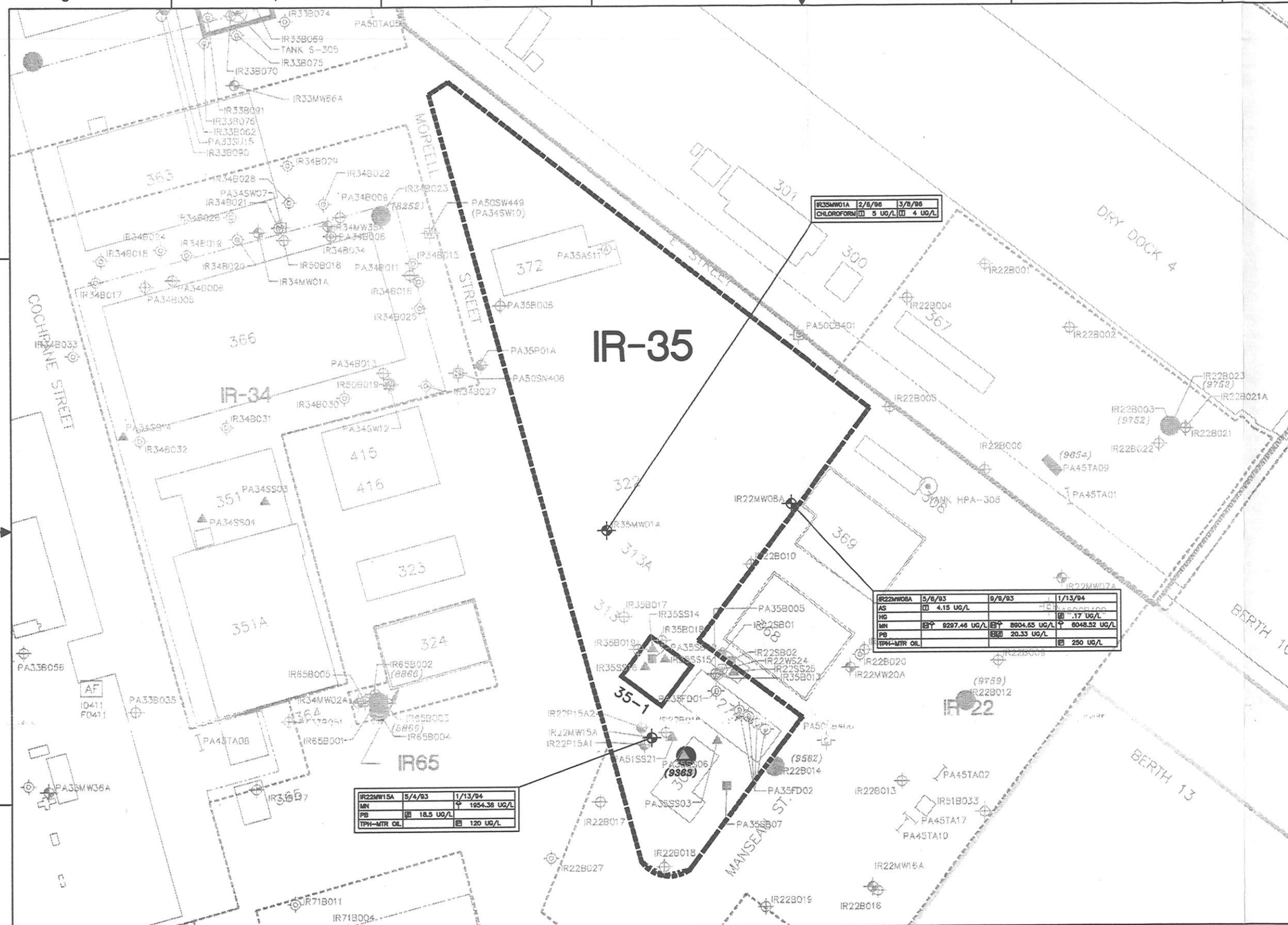
SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.11-3 SHT 1 of 2
PARCEL D
IR-35 GROUNDWATER RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 352113 SH 1 REV _

FILE NAME: 3521131_.DWG



SYMBOL	DESCRIPTION
PA24MW03A	A-AQUIFER MONITORING WELL
IR26MW42B	B-AQUIFER MONITORING WELL
IR06MW49F	BEDROCK MONITORING WELL
IR07P20A	PIEZOMETER
PA24B005	SOIL BORING
PA51SS03	SURFACE SOIL SAMPLE
PA46TA03	TRENCH/TEST PIT
IR46B036	SOIL BORING/GRAB GROUNDWATER
IR46B036	SOIL BORING/HYPROPUNCH
	EXPLORATORY EXCAVATION
159	EXISTING BUILDING
155	LOCATION OF FORMER BUILDING
UST3(5-130)	UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
	EXTENDED IR SITE BOUNDRY
	IR SITE BOUNDARY
	PARCEL BOUNDARY
	CRANE OR RAILROAD TRACKS
	FENCE
	ROADWAY
	LEAD EPC FOR EXPOSURE AREA EXCEEDS 1,000 mg/kg
	DE MINIMIS CLEANUP AREA EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD TOTAL SEGREGATED HI IS GREATER THAN OR EQUAL TO 1.0). ITALICIZED NUMBERS IN PARENTHESIS DESIGNATE THE DE MINIMUS CLEANUP AREA
	ESTIMATED BOUNDARIES OF SOIL REMEDIATION AREAS EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ECLR>10^{-6} AND OR THE CHILD SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0)

NOTES:

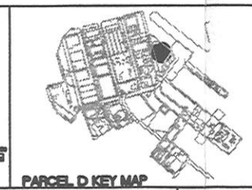
1. POSTED DATA ARE CHEMICALS THAT EXCEED 1998 TAP WATER PRG, NAWQC, MCL OR PETROLEUM SCREENING CRITERIA.
2. STATION LABELS WITHOUT DATA BOXES INDICATE THAT EITHER NO CHEMICALS WERE DETECTED OR THAT DETECTED CHEMICALS WERE BELOW 1998 TAP WATER PRG, NAWQC, MCL OR PETROLEUM SCREENING CRITERIA.

SAMPLE LOCATION — IR10MW08A 6/15/92 — DATE OF GROUNDWATER SAMPLE, G=GRAB, OR HYDROPUNCH SAMPLE DEPTH.

ANALYTE — TCE 38 ug/kg; As 0.0028 ug/kg

CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
- EXCEEDS CARCINOGENIC TAP WATER PRG
- EXCEEDS NON-CARCINOGENIC TAP WATER PRG
- EXCEEDS NAWQC
- EXCEEDS MCL
- EXCEEDS PETROLEUM SCREENING CRITERIA
- EXCEEDS HGAL

SCALE IN FEET



PARCEL D KEY MAP

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.11-3 SHT 2 of 2

PARCEL D
IR-35 GROUNDWATER RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 352113 — SH 2 — REV -

1 FILE NAME: 3521132_.DWG

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

File: IR35.xls
Date: 6/19/2000

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
METAL (MG/KG)	ALUMINUM	NA	NA	25,000	NA	NA	NA	24,300
METAL (MG/KG)	ANTIMONY	NA	NA	ND (0.48)	NA	NA	NA	ND (0.48)
METAL (MG/KG)	ARSENIC	NA	NA	4 #	NA	NA	NA	4.1 #
METAL (MG/KG)	BARIUM	NA	NA	224	NA	NA	NA	156
METAL (MG/KG)	BERYLLIUM	NA	NA	ND (0.027)	NA	NA	NA	ND (0.027)
METAL (MG/KG)	CADMIUM	NA	NA	ND (0.046)	NA	NA	NA	ND (0.057)
METAL (MG/KG)	CALCIUM	NA	NA	26,700	NA	NA	NA	34,900
METAL (MG/KG)	CHROMIUM	NA	NA	89.7	NA	NA	NA	78.1
METAL (MG/KG)	COBALT	NA	NA	32.7	NA	NA	NA	26.8
METAL (MG/KG)	COPPER	NA	NA	35.2	NA	NA	NA	25.1
METAL (MG/KG)	IRON	NA	NA	36,300	NA	NA	NA	40,300
METAL (MG/KG)	LEAD	NA	NA	9.4 ~	NA	NA	NA	6.5
METAL (MG/KG)	MAGNESIUM	NA	NA	18,800	NA	NA	NA	16,100
METAL (MG/KG)	MANGANESE	NA	NA	774	NA	NA	NA	999
METAL (MG/KG)	MERCURY	NA	NA	0.22	NA	NA	NA	0.23
METAL (MG/KG)	MOLYBDENUM	NA	NA	ND (0.93)	NA	NA	NA	ND (0.78)
METAL (MG/KG)	NICKEL	NA	NA	150	NA	NA	NA	102
METAL (MG/KG)	POTASSIUM	NA	NA	918	NA	NA	NA	893
METAL (MG/KG)	SELENIUM	NA	NA	ND (0.42)	NA	NA	NA	0.7
METAL (MG/KG)	SILVER	NA	NA	ND (0.1)	NA	NA	NA	ND (0.11)
METAL (MG/KG)	SODIUM	NA	NA	ND (50.7)	NA	NA	NA	125
METAL (MG/KG)	VANADIUM	NA	NA	91.5	NA	NA	NA	82.5
METAL (MG/KG)	ZINC	NA	NA	69.7	NA	NA	NA	67.2
HEXAVALENT CHROMIUM (MG/KG)	CHROMIUM VI	NA	NA	ND (0.052)	NA	NA	NA	ND (0.053)
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,1-TRICHLOROETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2,2-TETRACHLOROETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2-TRICHLOROETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHENE (TOTAL)	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROPROPANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-BUTANONE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-HEXANONE	0.001	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYL-2-PENTANONE	0.001	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ACETONE	ND (0.063)	NA	NA	NA	ND (0.03)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BENZENE	0.0006	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMODICHLOROMETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOFORM	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOMETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON DISULFIDE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON TETRACHLORIDE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROBENZENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROFORM	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROMETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CIS-1,3-DICHLOROPROPENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	DIBROMOCHLOROMETHANE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ETHYLBENZENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	METHYLENE CHLORIDE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	STYRENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TETRACHLOROETHENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	TOLUENE	0.003	NA	NA	NA	0.001	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRANS-1,3-DICHLOROPROPENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRICHLOROETHENE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	VINYL CHLORIDE	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	XYLENE (TOTAL)	0.001	NA	NA	NA	0.0008	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2,4-TRICHLOROBENZENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROBENZENE	NA	NA	NA	ND (1.8)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,3-DICHLOROBENZENE	NA	NA	NA	ND (1.8)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,4-DICHLOROBENZENE	NA	NA	NA	ND (1.8)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,5-TRICHLOROPHENOL	NA	NA	NA	ND (9.1)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,6-TRICHLOROPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DICHLOROPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DIMETHYLPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROTOLUENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,6-DINITROTOLUENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLORONAPHTHALENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLOROPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLNAPHTHALENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROANILINE	NA	NA	NA	ND (9.1)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3,3'-DICHLOROBENZIDINE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3-NITROANILINE	NA	NA	NA	ND (9.1)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	ND (9.1)	NA	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLORO-3-METHYLPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROANILINE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYLPHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROANILINE	NA	NA	NA	ND (9.1)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROPHENOL	NA	NA	NA	ND (9.1)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHYLENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ANTHRACENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)ANTHRACENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)PYRENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(B)FLUORANTHENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(G,H,I)PERYLENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(K)FLUORANTHENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	ND (1.4)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BUTYLBENZYLPHTHALATE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CARBAZOLE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CHRYSENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZ(A,H)ANTHRACENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZOFURAN	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIETHYLPHTHALATE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIMETHYLPHTHALATE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-BUTYLPHTHALATE	NA	NA	NA	ND (3.6)	NA	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-OCTYLPHTHALATE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORANTHENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBENZENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBUTADIENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROETHANE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	INDENO(1,2,3-CD)PYRENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ISOPHORONE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NAPHTHALENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NITROBENZENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSODIPHENYLAMINE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PENTACHLOROPHENOL	NA	NA	NA	ND (9.1)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENANTHRENE	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENOL	NA	NA	NA	ND (3.6)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PYRENE	NA	NA	NA	ND (3.6)	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA
PESTICIDE (MG/KG)	4,4'-DDD	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	4,4'-DDE	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
PESTICIDE (MG/KG)	4,4'-DDT	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	ALDRIN	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	ALPHA-BHC	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	ALPHA-CHLORDANE	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	AROCLOR-1016	NA	NA	ND (0.18)	NA	NA	NA	ND (0.18)
PESTICIDE (MG/KG)	AROCLOR-1221	NA	NA	ND (0.17)	NA	NA	NA	ND (0.17)
PESTICIDE (MG/KG)	AROCLOR-1232	NA	NA	ND (0.17)	NA	NA	NA	ND (0.17)
PESTICIDE (MG/KG)	AROCLOR-1242	NA	NA	ND (0.17)	NA	NA	NA	ND (0.17)
PESTICIDE (MG/KG)	AROCLOR-1248	NA	NA	ND (0.17)	NA	NA	NA	ND (0.17)
PESTICIDE (MG/KG)	AROCLOR-1254	NA	NA	ND (0.17)	NA	NA	NA	ND (0.17)
PESTICIDE (MG/KG)	AROCLOR-1260	NA	NA	ND (0.17)	NA	NA	NA	ND (0.17)
PESTICIDE (MG/KG)	BETA-BHC	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	DELTA-BHC	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	DIELDRIN	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	ENDOSULFAN I	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	ENDOSULFAN II	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	ENDOSULFAN SULFATE	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	ENDRIN	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	ENDRIN ALDEHYDE	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	ENDRIN KETONE	NA	NA	ND (0.034)	NA	NA	NA	ND (0.035)
PESTICIDE (MG/KG)	GAMMA-BHC (LINDANE)	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	GAMMA-CHLORDANE	NA	NA	ND (0.018)	NA	NA	NA	ND (0.018)
PESTICIDE (MG/KG)	HEPTACHLOR	NA	NA	ND (0.003)	NA	NA	NA	ND (0.003)
PESTICIDE (MG/KG)	HEPTACHLOR EPOXIDE	NA	NA	ND (0.003)	NA	NA	NA	ND (0.003)
PESTICIDE (MG/KG)	METHOXYCHLOR	NA	NA	ND (0.18)	NA	NA	NA	ND (0.18)
PESTICIDE (MG/KG)	TOXAPHENE	NA	NA	ND (0.89)	NA	NA	NA	ND (0.89)

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B020**	**IR35B020**	**IR35B020**	**IR35B020**	**IR35B021**	**IR35B021**	**IR35B021**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D026**	**0018D027**	**0018D028**	**0018D029**	**0018D010**	**0018D011**	**0018D012**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
PETROLEUM HYDROCARBON (MG/KG)	DIESEL RANGE ORGANICS	NA	NA	NA	ND (220.)	NA	NA	NA
PETROLEUM HYDROCARBON (MG/KG)	GASOLINE RANGE ORGANICS	NA	ND (0.92)	NA	NA	NA	ND (0.65)	NA
PETROLEUM HYDROCARBON (MG/KG)	MOTOR OIL RANGE ORGANICS	NA	NA	NA	2,400 +	NA	NA	NA
MISCELLANEOUS	PERCENT MOISTURE	16.8	10	4.2	8.8	10.1	8.9	4.9
MISCELLANEOUS	PH	NA	NA	NA	8.85	NA	NA	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
METAL (MG/KG)	ALUMINUM	NA	NA	NA	NA	23,100	NA	NA
METAL (MG/KG)	ANTIMONY	NA	NA	NA	NA	ND (0.49)	NA	NA
METAL (MG/KG)	ARSENIC	NA	NA	NA	NA	3.1 #	NA	NA
METAL (MG/KG)	BARIUM	NA	NA	NA	NA	170	NA	NA
METAL (MG/KG)	BERYLLIUM	NA	NA	NA	NA	ND (0.028)	NA	NA
METAL (MG/KG)	CADMIUM	NA	NA	NA	NA	ND (0.35)	NA	NA
METAL (MG/KG)	CALCIUM	NA	NA	NA	NA	44,200	NA	NA
METAL (MG/KG)	CHROMIUM	NA	NA	NA	NA	95.6	NA	NA
METAL (MG/KG)	COBALT	NA	NA	NA	NA	23.8	NA	NA
METAL (MG/KG)	COPPER	NA	NA	NA	NA	40.2	NA	NA
METAL (MG/KG)	IRON	NA	NA	NA	NA	38,400	NA	NA
METAL (MG/KG)	LEAD	NA	NA	NA	NA	25 ~	NA	NA
METAL (MG/KG)	MAGNESIUM	NA	NA	NA	NA	17,000	NA	NA
METAL (MG/KG)	MANGANESE	NA	NA	NA	NA	899	NA	NA
METAL (MG/KG)	MERCURY	NA	NA	NA	NA	1.7	NA	NA
METAL (MG/KG)	MOLYBDENUM	NA	NA	NA	NA	6.6 ~	NA	NA
METAL (MG/KG)	NICKEL	NA	NA	NA	NA	134	NA	NA
METAL (MG/KG)	POTASSIUM	NA	NA	NA	NA	954	NA	NA
METAL (MG/KG)	SELENIUM	NA	NA	NA	NA	1.3	NA	NA
METAL (MG/KG)	SILVER	NA	NA	NA	NA	ND (0.11)	NA	NA
METAL (MG/KG)	SODIUM	NA	NA	NA	NA	134	NA	NA
METAL (MG/KG)	VANADIUM	NA	NA	NA	NA	85.1	NA	NA
METAL (MG/KG)	ZINC	NA	NA	NA	NA	118 ~	NA	NA
HEXAVALENT CHROMIUM (MG/KG)	CHROMIUM VI	NA	NA	NA	NA	ND (0.053)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,1-TRICHLOROETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2,2-TETRACHLOROETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2-TRICHLOROETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHENE (TOTAL)	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROPROPANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-BUTANONE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-HEXANONE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYL-2-PENTANONE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ACETONE	NA	ND (0.024)	NA	NA	NA	ND (0.017)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BENZENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMODICHLOROMETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOFORM	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOMETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON DISULFIDE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON TETRACHLORIDE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROBENZENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROFORM	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROMETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CIS-1,3-DICHLOROPROPENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	DIBROMOCHLOROMETHANE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ETHYLBENZENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	METHYLENE CHLORIDE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	STYRENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TETRACHLOROETHENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA

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= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	TOLUENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRANS-1,3-DICHLOROPROPENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRICHLOROETHENE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	VINYL CHLORIDE	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	XYLENE (TOTAL)	NA	ND (0.024)	NA	NA	NA	ND (0.012)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2,4-TRICHLOROBENZENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROBENZENE	ND (0.17)	NA	NA	ND (0.17)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,3-DICHLOROBENZENE	ND (0.17)	NA	NA	ND (0.17)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,4-DICHLOROBENZENE	ND (0.17)	NA	NA	ND (0.17)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,2'-OXYBIS(1-CHLOROPROPANE)	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,5-TRICHLOROPHENOL	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,6-TRICHLOROPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DICHLOROPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DIMETHYLPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROTOLUENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,6-DINITROTOLUENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLORONAPHTHALENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLOROPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLNAPHTHALENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROANILINE	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3,3'-DICHLOROBENZIDINE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3-NITROANILINE	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4,6-DINITRO-2-METHYLPHENOL	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-BROMOPHENYL-PHENYLETHER	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLORO-3-METHYLPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROANILINE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROPHENYL-PHENYLETHER	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYLPHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROANILINE	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROPHENOL	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHYLENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ANTHRACENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)ANTHRACENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)PYRENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(B)FLUORANTHENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(G,H,I)PERYLENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(K)FLUORANTHENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHOXY)METHANE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHYL)ETHER	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-ETHYLHEXYL)PHTHALATE	ND (0.14)	NA	NA	ND (0.14)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BUTYLBENZYLPHTHALATE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CARBAZOLE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CHRYSENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZ(A,H)ANTHRACENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZOFURAN	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIETHYLPHTHALATE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIMETHYLPHTHALATE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-BUTYLPHTHALATE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-OCTYLPHTHALATE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORANTHENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBENZENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBUTADIENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROCYCLOPENTADIENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROETHANE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	INDENO(1,2,3-CD)PYRENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ISOPHORONE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NAPHTHALENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NITROBENZENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSO-DI-N-PROPYLAMINE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSODIPHENYLAMINE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PENTACHLOROPHENOL	ND (0.88)	NA	NA	ND (0.87)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENANTHRENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENOL	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PYRENE	ND (0.35)	NA	NA	ND (0.35)	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA
PESTICIDE (MG/KG)	4,4'-DDD	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	4,4'-DDE	NA	NA	NA	NA	ND (0.035)	NA	NA

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= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
PESTICIDE (MG/KG)	4,4'-DDT	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ALDRIN	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	ALPHA-BHC	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	ALPHA-CHLORDANE	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1016	NA	NA	NA	NA	ND (0.18)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1221	NA	NA	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1232	NA	NA	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1242	NA	NA	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1248	NA	NA	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1254	NA	NA	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1260	NA	NA	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	BETA-BHC	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	DELTA-BHC	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	DIELDRIN	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDOSULFAN I	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	ENDOSULFAN II	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDOSULFAN SULFATE	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDRIN	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDRIN ALDEHYDE	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDRIN KETONE	NA	NA	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	GAMMA-BHC (LINDANE)	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	GAMMA-CHLORDANE	NA	NA	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	HEPTACHLOR	NA	NA	NA	NA	ND (0.003)	NA	NA
PESTICIDE (MG/KG)	HEPTACHLOR EPOXIDE	NA	NA	NA	NA	ND (0.003)	NA	NA
PESTICIDE (MG/KG)	METHOXYCHLOR	NA	NA	NA	NA	ND (0.18)	NA	NA
PESTICIDE (MG/KG)	TOXAPHENE	NA	NA	NA	NA	ND (0.9)	NA	NA

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= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B021**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B022**	**IR35B023**	**IR35B023**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Sample Number		**0018D013**	**0018D014**	**0018D015**	**0018D016**	**0018D017**	**0018D018**	**0018D019**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**
PETROLEUM HYDROCARBON (MG/KG)	DIESEL RANGE ORGANICS	ND (11.)	NA	NA	ND (53.)	NA	NA	NA
PETROLEUM HYDROCARBON (MG/KG)	GASOLINE RANGE ORGANICS	NA	NA	ND (0.7)	NA	NA	NA	ND (0.57)
PETROLEUM HYDROCARBON (MG/KG)	MOTOR OIL RANGE ORGANICS	180	NA	NA	340	NA	NA	NA
MISCELLANEOUS	PERCENT MOISTURE	5.6	4.1	19.5	4.8	5.7	9.9	8.1
MISCELLANEOUS	PH	8.69	NA	NA	8.52	NA	NA	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
METAL (MG/KG)	ALUMINUM	NA	22,900	NA	NA	20,300	NA	NA
METAL (MG/KG)	ANTIMONY	NA	ND (0.48)	NA	NA	ND (0.48)	NA	NA
METAL (MG/KG)	ARSENIC	NA	4.3 #	NA	NA	2.8	NA	NA
METAL (MG/KG)	BARIUM	NA	578 ~	NA	NA	329 ~	NA	NA
METAL (MG/KG)	BERYLLIUM	NA	ND (0.027)	NA	NA	ND (0.027)	NA	NA
METAL (MG/KG)	CADMIUM	NA	ND (0.046)	NA	NA	ND (0.046)	NA	NA
METAL (MG/KG)	CALCIUM	NA	14,000	NA	NA	23,700	NA	NA
METAL (MG/KG)	CHROMIUM	NA	77.5	NA	NA	64.4	NA	NA
METAL (MG/KG)	COBALT	NA	28.4	NA	NA	24.8	NA	NA
METAL (MG/KG)	COPPER	NA	57.6	NA	NA	25.4	NA	NA
METAL (MG/KG)	IRON	NA	39,900	NA	NA	38,900	NA	NA
METAL (MG/KG)	LEAD	NA	6.7	NA	NA	7.8	NA	NA
METAL (MG/KG)	MAGNESIUM	NA	16,300	NA	NA	14,200	NA	NA
METAL (MG/KG)	MANGANESE	NA	2,760 ~	NA	NA	939	NA	NA
METAL (MG/KG)	MERCURY	NA	0.21	NA	NA	0.18	NA	NA
METAL (MG/KG)	MOLYBDENUM	NA	ND (0.15)	NA	NA	ND (2.1)	NA	NA
METAL (MG/KG)	NICKEL	NA	105	NA	NA	55.7	NA	NA
METAL (MG/KG)	POTASSIUM	NA	732	NA	NA	675	NA	NA
METAL (MG/KG)	SELENIUM	NA	2.7 ~	NA	NA	0.48	NA	NA
METAL (MG/KG)	SILVER	NA	ND (0.11)	NA	NA	ND (0.1)	NA	NA
METAL (MG/KG)	SODIUM	NA	ND (51.2)	NA	NA	506	NA	NA
METAL (MG/KG)	VANADIUM	NA	85.4	NA	NA	71.2	NA	NA
METAL (MG/KG)	ZINC	NA	76.6	NA	NA	61.9	NA	NA
HEXAVALENT CHROMIUM (MG/KG)	CHROMIUM VI	NA	ND (0.053)	NA	NA	ND (0.052)	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,1-TRICHLOROETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2,2-TETRACHLOROETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2-TRICHLOROETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROPROPANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-BUTANONE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-HEXANONE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYL-2-PENTANONE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ACETONE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BENZENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMODICHLOROMETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOFORM	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOMETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON DISULFIDE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON TETRACHLORIDE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROBENZENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROFORM	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROMETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CIS-1,3-DICHLOROPROPENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	DIBROMOCHLOROMETHANE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ETHYLBENZENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	METHYLENE CHLORIDE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	STYRENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TETRACHLOROETHENE	NA	NA	ND (0.013)	NA	NA	NA	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	TOLUENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRANS-1,3-DICHLOROPROPENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRICHLOROETHENE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	VINYL CHLORIDE	NA	NA	ND (0.013)	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	XYLENE (TOTAL)	NA	NA	ND (0.013)	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2,4-TRICHLOROBENZENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROBENZENE	ND (0.67)	NA	NA	NA	NA	ND (0.17)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,3-DICHLOROBENZENE	ND (0.67)	NA	NA	NA	NA	ND (0.17)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,4-DICHLOROBENZENE	ND (0.67)	NA	NA	NA	NA	ND (0.17)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,2'-OXYBIS(1-CHLOROPROPANE)	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,5-TRICHLOROPHENOL	ND (3.5)	NA	NA	NA	NA	ND (0.86)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,6-TRICHLOROPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DICHLOROPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DIMETHYLPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROPHENOL	NA	NA	NA	NA	NA	ND (0.86)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROTOLUENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,6-DINITROTOLUENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLORONAPHTHALENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLOROPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLNAPHTHALENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROANILINE	ND (3.5)	NA	NA	NA	NA	ND (0.86)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3,3'-DICHLOROBENZIDINE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3-NITROANILINE	ND (3.5)	NA	NA	NA	NA	ND (0.86)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4,6-DINITRO-2-METHYLPHENOL	ND (3.5)	NA	NA	NA	NA	ND (0.86)	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-BROMOPHENYL-PHENYLETHER	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLORO-3-METHYLPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROANILINE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROPHENYL-PHENYLETHER	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYLPHENOL	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROANILINE	ND (3.5)	NA	NA	NA	NA	ND (0.86)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROPHENOL	ND (3.5)	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHYLENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ANTHRACENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)ANTHRACENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)PYRENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(B)FLUORANTHENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(G,H,I)PERYLENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(K)FLUORANTHENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHOXY)METHANE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHYL)ETHER	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-ETHYLHEXYL)PHTHALATE	ND (0.55)	NA	NA	NA	NA	ND (0.14)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BUTYLBENZYLPHTHALATE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CARBAZOLE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CHRYSENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZ(A,H)ANTHRACENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZOFURAN	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIETHYLPHTHALATE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIMETHYLPHTHALATE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-BUTYLPHTHALATE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA

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= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-OCTYLPHTHALATE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORANTHENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBENZENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBUTADIENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROCYCLOPENTADIENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROETHANE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	INDENO(1,2,3-CD)PYRENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ISOPHORONE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NAPHTHALENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NITROBENZENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSO-DI-N-PROPYLAMINE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSODIPHENYLAMINE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PENTACHLOROPHENOL	ND (3.5)	NA	NA	NA	NA	ND (0.86)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENANTHRENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENOL	ND (1.4)	NA	NA	NA	NA	0.035	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PYRENE	ND (1.4)	NA	NA	NA	NA	ND (0.34)	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1016	NA	NA	NA	NA	NA	NA	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1221	NA	NA	NA	NA	NA	NA	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1232	NA	NA	NA	NA	NA	NA	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1242	NA	NA	NA	NA	NA	NA	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1248	NA	NA	NA	NA	NA	NA	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1254	NA	NA	NA	NA	NA	NA	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1260	NA	NA	NA	NA	NA	NA	0.18
PESTICIDE (MG/KG)	4,4'-DDD	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	4,4'-DDE	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA

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= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
PESTICIDE (MG/KG)	4,4'-DDT	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ALDRIN	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	ALPHA-BHC	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	ALPHA-CHLORDANE	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1016	NA	ND (0.18)	NA	NA	ND (0.18)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1221	NA	ND (0.17)	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1232	NA	ND (0.17)	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1242	NA	ND (0.17)	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1248	NA	ND (0.17)	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1254	NA	ND (0.17)	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	AROCLOR-1260	NA	ND (0.17)	NA	NA	ND (0.17)	NA	NA
PESTICIDE (MG/KG)	BETA-BHC	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	DELTA-BHC	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	DIELDRIN	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDOSULFAN I	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	ENDOSULFAN II	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDOSULFAN SULFATE	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDRIN	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDRIN ALDEHYDE	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	ENDRIN KETONE	NA	ND (0.035)	NA	NA	ND (0.035)	NA	NA
PESTICIDE (MG/KG)	GAMMA-BHC (LINDANE)	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	GAMMA-CHLORDANE	NA	ND (0.018)	NA	NA	ND (0.018)	NA	NA
PESTICIDE (MG/KG)	HEPTACHLOR	NA	ND (0.003)	NA	NA	ND (0.003)	NA	NA
PESTICIDE (MG/KG)	HEPTACHLOR EPOXIDE	NA	ND (0.003)	NA	NA	ND (0.003)	NA	NA
PESTICIDE (MG/KG)	METHOXYCHLOR	NA	ND (0.18)	NA	NA	ND (0.18)	NA	NA
PESTICIDE (MG/KG)	TOXAPHENE	NA	ND (0.9)	NA	NA	ND (0.89)	NA	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B023**	**IR35B023**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B024**	**IR35B025**
Sampling Depth:(feet bgs)		**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**7.25**
Sample Number		**0018D020**	**0018D021**	**0018D022**	**0018D023**	**0018D024**	**0018D025**	**0020G001**
Sample Date		**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/9/2000**	**5/20/2000**
PETROLEUM HYDROCARBON (MG/KG)	DIESEL RANGE ORGANICS	ND (110.)	NA	NA	NA	NA	ND (21.)	3,200 +
PETROLEUM HYDROCARBON (MG/KG)	GASOLINE RANGE ORGANICS	NA	NA	NA	ND (0.71)	NA	NA	NA
PETROLEUM HYDROCARBON (MG/KG)	MOTOR OIL RANGE ORGANICS	820	NA	NA	NA	NA	410	ND (110.)
MISCELLANEOUS	PERCENT MOISTURE	4.9	5.1	9.6	8.5	4.8	3.8	7.5
MISCELLANEOUS	PH	8.51	NA	NA	NA	NA	8.71	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
METAL (MG/KG)	ALUMINUM	NA
METAL (MG/KG)	ANTIMONY	NA
METAL (MG/KG)	ARSENIC	NA
METAL (MG/KG)	BARIUM	NA
METAL (MG/KG)	BERYLLIUM	NA
METAL (MG/KG)	CADMIUM	NA
METAL (MG/KG)	CALCIUM	NA
METAL (MG/KG)	CHROMIUM	NA
METAL (MG/KG)	COBALT	NA
METAL (MG/KG)	COPPER	NA
METAL (MG/KG)	IRON	NA
METAL (MG/KG)	LEAD	NA
METAL (MG/KG)	MAGNESIUM	NA
METAL (MG/KG)	MANGANESE	NA
METAL (MG/KG)	MERCURY	NA
METAL (MG/KG)	MOLYBDENUM	NA
METAL (MG/KG)	NICKEL	NA
METAL (MG/KG)	POTASSIUM	NA
METAL (MG/KG)	SELENIUM	NA
METAL (MG/KG)	SILVER	NA
METAL (MG/KG)	SODIUM	NA
METAL (MG/KG)	VANADIUM	NA
METAL (MG/KG)	ZINC	NA
HEXAVALENT CHROMIUM (MG/KG)	CHROMIUM VI	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,1-TRICHLOROETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2,2-TETRACHLOROETHANE	NA

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1,2-TRICHLOROETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,1-DICHLOROETHENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROETHENE (TOTAL)	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROPROPANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-BUTANONE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	2-HEXANONE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYL-2-PENTANONE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ACETONE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BENZENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMODICHLOROMETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOFORM	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	BROMOMETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON DISULFIDE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CARBON TETRACHLORIDE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROBENZENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROFORM	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CHLOROMETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	CIS-1,3-DICHLOROPROPENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	DIBROMOCHLOROMETHANE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	ETHYLBENZENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	METHYLENE CHLORIDE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	STYRENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TETRACHLOROETHENE	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
VOLATILE ORGANIC COMPOUND (MG/KG)	TOLUENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRANS-1,3-DICHLOROPROPENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	TRICHLOROETHENE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	VINYL CHLORIDE	NA
VOLATILE ORGANIC COMPOUND (MG/KG)	XYLENE (TOTAL)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2,4-TRICHLOROBENZENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,2-DICHLOROBENZENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,3-DICHLOROBENZENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	1,4-DICHLOROBENZENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,2'-OXYBIS(1-CHLOROPROPANE)	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,5-TRICHLOROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4,6-TRICHLOROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DICHLOROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DIMETHYLPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,4-DINITROTOLUENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2,6-DINITROTOLUENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLORONAPHTHALENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-CHLOROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLNAPHTHALENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-METHYLPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROANILINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	2-NITROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3,3'-DICHLOROBENZIDINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	3-NITROANILINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4,6-DINITRO-2-METHYLPHENOL	NA

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= greater than 1998 Industrial PRG, ~ greater than Hunters Point ambient level, + greater than HPS Fuel Screening Level

SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-BROMOPHENYL-PHENYLETHER	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLORO-3-METHYLPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROANILINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-CHLOROPHENYL-PHENYLETHER	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-METHYLPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROANILINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	4-NITROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ACENAPHTHYLENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ANTHRACENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)ANTHRACENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(A)PYRENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(B)FLUORANTHENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(G,H,I)PERYLENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BENZO(K)FLUORANTHENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHOXY)METHANE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-CHLOROETHYL)ETHER	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BIS(2-ETHYLHEXYL)PHTHALATE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	BUTYLBENZYLPHTHALATE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CARBAZOLE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	CHRYSENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZ(A,H)ANTHRACENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIBENZOFURAN	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIETHYLPHTHALATE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DIMETHYLPHTHALATE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-BUTYLPHTHALATE	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	DI-N-OCTYLPHTHALATE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORANTHENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	FLUORENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBENZENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROBUTADIENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROCYCLOPENTADIENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	HEXACHLOROETHANE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	INDENO(1,2,3-CD)PYRENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	ISOPHORONE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NAPHTHALENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	NITROBENZENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSO-DI-N-PROPYLAMINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	N-NITROSODIPHENYLAMINE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PENTACHLOROPHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENANTHRENE	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PHENOL	NA
SEMIVOLATILE ORGANIC COMPOUND (MG/KG)	PYRENE	NA
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1016	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1221	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1232	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1242	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1248	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1254	ND (0.017)
POLYCHLORINATED BIPHENYL (MG/KG)	AROCLOR-1260	ND (0.017)
PESTICIDE (MG/KG)	4,4'-DDD	NA
PESTICIDE (MG/KG)	4,4'-DDE	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
PESTICIDE (MG/KG)	4,4'-DDT	NA
PESTICIDE (MG/KG)	ALDRIN	NA
PESTICIDE (MG/KG)	ALPHA-BHC	NA
PESTICIDE (MG/KG)	ALPHA-CHLORDANE	NA
PESTICIDE (MG/KG)	AROCLOR-1016	NA
PESTICIDE (MG/KG)	AROCLOR-1221	NA
PESTICIDE (MG/KG)	AROCLOR-1232	NA
PESTICIDE (MG/KG)	AROCLOR-1242	NA
PESTICIDE (MG/KG)	AROCLOR-1248	NA
PESTICIDE (MG/KG)	AROCLOR-1254	NA
PESTICIDE (MG/KG)	AROCLOR-1260	NA
PESTICIDE (MG/KG)	BETA-BHC	NA
PESTICIDE (MG/KG)	DELTA-BHC	NA
PESTICIDE (MG/KG)	DIELDRIN	NA
PESTICIDE (MG/KG)	ENDOSULFAN I	NA
PESTICIDE (MG/KG)	ENDOSULFAN II	NA
PESTICIDE (MG/KG)	ENDOSULFAN SULFATE	NA
PESTICIDE (MG/KG)	ENDRIN	NA
PESTICIDE (MG/KG)	ENDRIN ALDEHYDE	NA
PESTICIDE (MG/KG)	ENDRIN KETONE	NA
PESTICIDE (MG/KG)	GAMMA-BHC (LINDANE)	NA
PESTICIDE (MG/KG)	GAMMA-CHLORDANE	NA
PESTICIDE (MG/KG)	HEPTACHLOR	NA
PESTICIDE (MG/KG)	HEPTACHLOR EPOXIDE	NA
PESTICIDE (MG/KG)	METHOXYCHLOR	NA
PESTICIDE (MG/KG)	TOXAPHENE	NA

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SOIL ANALYTICAL RESULTS, IR35
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

Station Number:		**IR35B026**
Sampling Depth:(feet bgs)		**6.75**
Sample Number		**0020G002**
Sample Date		**5/20/2000**
PETROLEUM HYDROCARBON (MG/KG)	DIESEL RANGE ORGANICS	56
PETROLEUM HYDROCARBON (MG/KG)	GASOLINE RANGE ORGANICS	NA
PETROLEUM HYDROCARBON (MG/KG)	MOTOR OIL RANGE ORGANICS	ND (11.)
MISCELLANEOUS	PERCENT MOISTURE	7.7
MISCELLANEOUS	PH	NA

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R&M Daily Oversight Report
CTO 005: Oversight of Sump, Floor Drain, Floor Vaults, and False Floor Cleanout
Hunters Point

Date: 4/25/00
Weather/Temp: Sunny, Warm, 75^0
Client: TtEMI/Navy
R&M Personnel Onsite: D. Harp
Other Personnel Onsite: TtEMI, Chow Engineering, Navy personnel
Oversight time: 0800-1500

Equipment used: Shovels, 55-gallon drums

R&M Equipment used: Digital camera

Location of Field Activities: Sump located outside of Building 302A

Summary of Field Activities: R&M arrived onsite and met with personnel from TtEMI, Chow Engineering, and the Navy in the parking lot of Dago Mary's restaurant. All parties made brief visits to Building 302A and 274 to discuss the logistics involved during clean up and oversight activities.

Chow Engineering began cleanup work at Building 302A. Soil, water and debris, located in the sump outside of Building 302A, was removed by shovel and containerized within 55-gallon drums. Approximately 4-5 drums were filled with solids removed from the sump. Minor visual signs of contamination (staining and sheen) were observed in the material containerized within the 55-gallon drums. While setting up for the pressure wash and rinse of the sump, Chow Engineering realized that the hose bib attachment to the fire hydrant, which is the only water source in the area, was custom built, as are all of the fire hydrants at Hunters Point. The standard size for a fire hydrant hose bib is 2 ½". Apparently all of the hydrants on Hunters Point are 3.0". Chow Engineering attempted to locate a 3.0" attachment at several nearby stores but could not do so. Cleanup activities at Building 302 A were halted at 1500 and will resume at 0600 tomorrow.

Field Activities Performed by R&M: Oversight of Chow Engineering activities. During cleanup activities at Building 302 A, a large 2" thick steel insert, approximately 4.0' X 4.0' X 3.0' was discovered inside the concrete sump vault. This steel insert is suspended in water and/or product located between the insert and the bottom of the concrete vault. R&M could not determine the distance between the bottom of the insert and the bottom of the vault. However, the nature of the suspended steel insert suggests that there is a minimum of 1.0 foot between the two.

A total of 20 photographs were taken of site conditions, cleanup activities, the steel insert, containerized solids generated, and site safety measures. Six of these photographs are attached.

Observations: The aforementioned steel insert located inside the concrete vault is essentially floating on water and what can be assumed to be product. In order to allow proper cleanup of the

vault and inspection of the concrete surface for evidence of deterioration (cracks, holes, etc.), it is necessary to remove the steel insert beneath the sump at Building 302A. Removal of the insert also eliminates the need to drill through the insert to collect soil samples from beneath the concrete vault floor. With contaminated liquid present in the vault beneath the steel insert, such drilling can potentially cause release of liquid from the sump into the subsurface and possible contamination of the soil samples. The following steps are recommended:

- Remove the steel insert from the sump vault and clean thoroughly by pressure washing and rinsing
- Remove the water and sludge that is currently contained within the sump vault beneath the steel insert
- Thoroughly clean the concrete sump vault by pressure wash and rinse
- Inspect the concrete vault for holes and/or cracks
- Core through the concrete sump vault and collect the soil sample at the desired interval.
- Grout the borehole
- Place the steel insert back in the vault, if required

Employee's Signature:_____ David Harp **Date:** _____

R&M Oversight Report No. 2
CTO 005: Oversight of Sump, Floor Drain, Floor Vaults, and False Floor Cleanout
Hunters Point

Date: 4/26/00
Weather/Temp: Sunny, Warm, 75^0
Client: TtEMI/Navy
R&M Personnel Onsite: D. Harp
Other Personnel Onsite: TtEMI (Scott Wald), Chow Engineering (Lance Naterman, Bruce Calrk, Tony ...)
Oversight time: 0600-2100
Equipment used: Pressure washer, MILWAUKEE 8912 wet/dry vacuum, GENERAL FP-1 pipe fodder and 55-gallon drums
R&M Equipment used: Digital camera
Location of Field Activities: Sump located outside of Building 302A and 5 floor drains located inside Building 274.

Summary of Field Activities: R&M arrived onsite and met Chow Engineering at the sump location at Building 302A. Chow Engineering held a tailgate health and safety meeting in which site hazards were discussed. The oversight of field activities began at 6:00 a.m. and was completed at 9:00 p.m. (a 15-hour workday).

Completing Cleanup Work at Building 302A

At approximately 0700 cleanup work at Building 302A (see R&M Oversight Report for 04/25/00) was resumed. The steel insert and the concrete vault were pressure washed and rinsed "Simple Green" cleaning solution (Photo 1) and a long-handle whiskbroom were used to scrub the sides and bottom of the sump. A high-powered pressure washer (Photo 2) was used to remove all of the loosened debris, soil and any other material clinging to the walls of the sump (Photo 3). Once the bottom of the steel insert inside the sump contained enough rinse water, a MILWAUKEE 8912 wet/dry vacuum was used to remove the rinse water from the sump (Photo 4). This process was repeated a total of 4 times. All wash and rinse water generated during cleanout activities was contained within one 55-gallon, labeled drum (Photo 5). No cracks or holes were observed within the steel insert. After cleanout activities were completed, Chow Engineering properly labeled the (6) 55-gallon drums and secured the site with caution tape and orange safety cones.

Floor Drain Cleanout at Building 274

At approximately 0900 hours Chow Engineering moved and setup equipment at Building 274 to perform cleanout of the 5 floor drains (FD) and to determine the drainage direction and discharge location of these drains. The lids that covered the floor drains were removed and each drain hole was sucked with the wet/dry vacuum to remove any loose or free-floating particulates that might have been inside the floor drains. At approximately 1100, Chow Engineering received word that the pipe-rodder had arrived at their main office in Oakland. Chow left the site and returned with the rodder at 1230. Upon opening the pipe rodder box, Chow noticed that two pipe rodder fittings essential to cleanup activities were missing. Chow left the site at 1330 to locate the

missing fittings. At approximately 1500 hours Chow returned without the proper fittings but had located them. Again, Chow left the site to retrieve the missing part. At approximately 1630 Chow returned with the proper fittings and began setup for pipe flushing. The water source used for the floor drain flushing was an old fire hydrant located southwest of Building 274. Upon inspection it was discovered that this fire hydrant was a 2 ½" standard fire hydrant and not a custom 3.0 " hydrant like the one encountered the day before. It was then discovered that this particular hydrant was no longer functional. At approximately 1800 hour, Chow Engineering located pressurized flowing water outside of a nearby building and began the floor drain cleanout.

FD-01, located in the northwest section of Building 274 was cleaned first (Photo 6). A GENERAL FP-1 pressurized Pipe Rodder was used to flush water and debris from the drain line. It was discovered that this floor drain line fed a perpendicular drain line that ran northwest to southeast along the north side of the building. This line feeds a north trending drain line that empties into the Oil Water Separator located near the northwest corner of Building 274 (Photo 7). Waters entering the Oil Water Seperator are then diverted to a drain line that feeds the main sewer drain located north and slightly west of the northwest corner of Building 274 (Photo 8). R&M visually and photographically verified this drainage direction and discharge location.

At approximately 1930, the cleanout of FD-02 was initiated. There are 4 parallel floor drains located at FD –02 which are oriented northwest to southeast. R&M designated location numbers for each individual floor drain as follows:

NW ← ▣ ▣ ▣ ▣ → SW
A B C D

FD-02C was the first floor drain that was flushed and cleaned with the pipe rodder (Photo 9). With considerable effort the pipe rodder was advanced deep into the drain line and flushed with water. FD-02A, FD-02B, and FD-02D were flushed with the pipe rodder and achieved moderate penetration, until an unknown obstruction was encountered. Water was free flowing down each of the aforementioned floor drains indicating that the obstruction was not blocking water flow. Chow Engineering and R&M concluded that the floor drains at FD-02 were constructed with a "P Trap" beneath the drain or a safety screen, which was causing the pipe rodder obstruction. Water was flushed down the floor drains at FD-02 and was observed entering the same main sewer drain as FD-01. This observation suggests the following:

1) The (4) floor drains at FD-02 feed a single drain line that terminates near the southeast corner of Building 274
2) From this terminus, all waters are directed to the northwest and discharge directly into the main sewer drain (same as FD-01) located north and slightly west of the northwest corner of Building 274
3) FD-01 and FD-02 have the same drainage direction and discharge location.

At approximately 2010, a dye test was performed on the drain lines at Building 274 (Photo 10). BRIGHT DYES fluorescent green liquid concentrate was administered to the floor drains. The assumptions made regarding the drainage pattern were proven correct. R&M visually and photographically witnessed this drainage direction and discharge location (Photo 11 and 12).

Field Activities Performed by R&M: Oversight of all field activities.

A total of 34 photographs were taken of site conditions, pressure washing, cleanout, and pipe-flushing activities, dye testing, properly labeled containerized solids generated during cleanup activities, and site safety measures.

Summary of Observations at Building 274

The dye test results confirm the drainage direction and discharge location for all (5) floor drains at Building 274. However, some minor residual debris may still be present within the floor drain lines, particularly in FD-02A, FD-02B, and FD-02D. The obstruction encountered within these lines is still undetermined, but obviously does not hinder the flow of water. Commonly, floor drains as well as toilets and sinks are constructed with "P traps" in the piping. This serves as a safety mechanism to collect or trap debris that makes its way into the lines before reaching an inaccessible area. The other possibility is that the floor drains could have a wire mesh or screen below the drain to serve the same purpose. In any case, R&M is confident that the objective of the task has been satisfied. The drainage direction and discharge location have been delineated. The (4) drain lines at FD-02 all share the same drain line. Additionally, all (5) drain lines discharge into the same main sewer line.

Employee's Signature:_____ David Harp **Date:** _____

R&M Oversight Report No. 3
CTO 005: Oversight of Sump, Floor Drain, Floor Vaults, and False Floor Cleanout
Hunters Point

Date: 4/27/00
Weather/Temp: Morning fog, warm, 65^0
Client: TtEMI/Navy
R&M Personnel Onsite: D. Harp
Other Personnel Onsite: Chow Engineering (Lance Naterman)
Oversight time: 0700-0900
Equipment used: Drum dolly, safety cones, and caution tape
R&M Equipment used: Digital camera
Location of Field Activities: Sump located outside of Building 302A

Summary of Field Activities: R&M oversight representative met Chow Engineering field staff at the sump location at Building 302A. Following a tailgate health and safety meeting, at approximately 0700 Chow Engineering began loading the 55-gallon drums generated from cleanup activities during the previous two days onto their flatbed truck. Chow requested R&M to contact TtEMI and request permission to stage the 55-gallon drums at the Building 302A sump work site until the steel insert is removed and cleaned and additional drums are filled. R&M contacted Scott Wald of TtEMI by telephone and was granted approval for this. Chow Engineering proceeded to stage the drums inside the building directly north of the sump (Photo 1) until cleanout activities are completed next week. The sump was properly barricaded with traffic cones and lined with caution tape (Photo 2).

Field Activities Performed by R&M: Oversight of field activities.

A total of 2 photographs were taken of staged drums and site safety measures.

Observations: None

Employee's Signature:_____ David Harp **Date:** _____

R&M Environmental and Infrastructure Engineering, Inc.

Memo

To: Mike Wanta, Scott Wald (TtEMI)

From: Gavan Heinrich

CC: Ron Matsui (AMC), Thomas McArdle (AMC), Jody (Owens Concrete Saw and Company), Paul Jones (Fast-Tek), Masood Ghassemi (R&M)

Date: 5/19/00

Re: Soil borings and sampling adjacent to the transformer in Bldg 306

Following is a summary of the planned activities, schedule, and assigned responsibilities for soil sampling adjacent to the transformer in Building 306 at Hunters Point Naval Shipyard. I will be onsite for all concrete coring and soil boring activities and will be collecting and shipping the samples.

1. Subtronic Corporation, an underground utility locator, cleared the primary and alternate soil boring locations on Wednesday, May 17. Photos 1 and 2 show the locations of the proposed coreholes and soil borings

2. Owens Concrete Saw & Co., Inc. will perform the concrete coring at building 306. The concrete corer will arrive onsite at 9:30 p.m. on Friday, May 19.

3. Thomas McArdle of Astoria Metal Co. (AMC) will arrive at Building 306 at 10:00 p.m., May 19 and will de-energize the transformer from inside the building. Once the transformer is shut down, concrete coring will begin. Coring of the concrete pad is expected to take from two to three hours per core hole, depending on the thickness of the pad and the presence or absence of steel reinforcement.

4. Fas-Tek will be on site at about 4:00 a.m. on Saturday, May 20 to advance the soil borings. The boreholes will be advanced through the concrete coreholes unless the concrete corer has encountered refusal. If the concrete corer is unable to penetrate the concrete pad, the boreholes will be advanced at the alternate locations approximately five feet southwest of the desired locations. Photos 3 and 4 show the alternate borehole locations.

5. Soil boring and sample collection should be completed by 7.00 a.m. Saturday morning, at which time Mr. Thomas McArdle of AMC will return to Building 306 and re-energize the transformer.

6. Samples will be shipped to APCL Saturday morning immediately following soil boring and sample collection activities.

Photo 1. View of IR35B026 soil boring location looking northwest

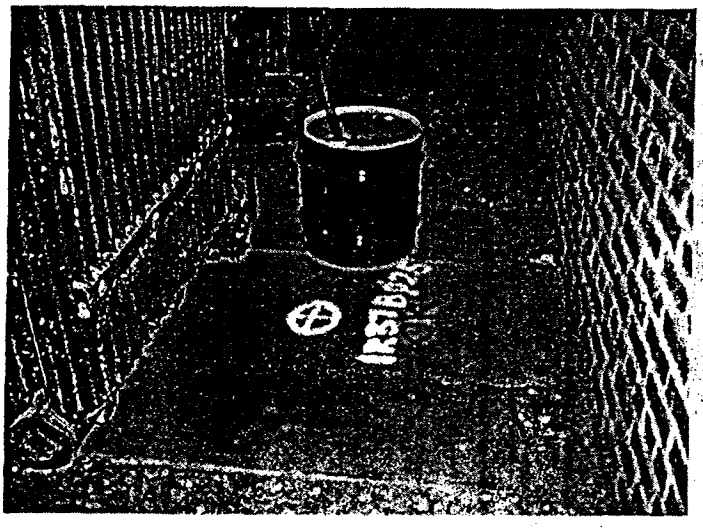

Photo 2. View of IR35B025 soil boring location looking northwest

Photo 3. Alternate location for soil boring IR35B025 looking northeast

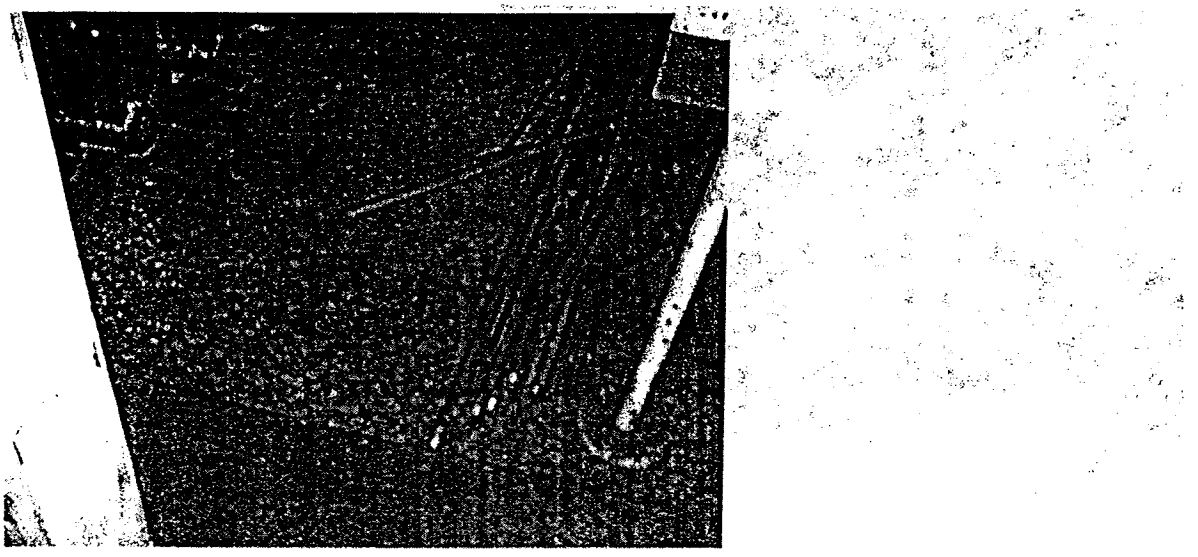

Photo 4. Alternate location for soil boring IR35B026 looking northwest

CTO-005A
Report on
Soil Sampling at Buildings 306, 274, and 302 and IR37
Hunters Point Naval Shipyard

Date: 5/22/00
Client: TtEMI/Navy
Report Prepared by: David Harp and Gavan Heinrich (R&M Environemntal)

Building 306

Soil sampling at Building 306 is now complete. R&M met with Owens Concrete Saw &Co (Owens CSC) and Mr. Thomas McArdle of Astoria Metal Co. (AMC) at approximately 10:00 p.m. on 5/19/00 at building 306. Mr. McArdle disconnected the power to the transformer and Owens CSC began work immediately on the concrete coring. It was believed that the concrete under the transformer could be up to 4 feet thick so Owen CSC intended to run two corers simultaneously so that the work would be completed by the time the Geoprobe contractor arrived at abut 4:00 a.m. on 5/20/00). After setting both corers in position (Photo 1), the concrete coring crew started the corer setup on the IR35B026 borehole location and within the five minutes penetrated the concrete slab, which turned out to be only 7" thick (Photo 1). The slab at the opposite end of the transformer (IR35BO25) was only 5" thick and was rapidly penetrated as well. It appears that the actual footings for the transformer are only 18" wide, and that a thinner slab of concrete had been poured in the area between the footings, where the boreholes are located, sometime after the transformer was already in place.

Fast-Tek, the Geoprobe/soil-boring subcontractor arrived at 4:00 a.m. on 5/20/00 and set up a limited access Geoprobe rig to advance the soil borings. The IR35B025 borehole was advanced first (Photo 2). Based on the rate of penetration the gravel was estimated to be approximately 6.5 feet thick. The Geoprobe encountered difficulty, however, when trying to collect a soil sample below the gravel/soil interface. During a number of sample collection attempts, the narrow sample collection sleeve (1") of the limited access Geoprobe rig became jammed with the coarse gravel before sufficient soil had entered the tube. R&M and Fast-Tek resolved this by advancing the boring as near to the gravel/soil interface as possible before opening the sample collection tube. A sample (0020G001) was collected from 6" to 12" below the gravel/soil interface, placed in an 8-oz. glass jar, and then placed on ice. Borehole IR35B026 also presented difficulties. The soil gravel interface in IR35B026 was at approximately 6 feet bgs, but the Geoprobe encountered refusal repeatedly at 6.75-ft bgs. The obstruction was concrete and was most likely over pour from the nearby transformer footing. In order collect enough sample, R&M advanced the Geoprobe twice, collected two samples from 6" to 9" below the gravel-soil interface, and then composited the two samples. The sample was placed in an 8-oz. glass jar, and then placed on ice. The grouting of the boreholes has been placed on hold, pending availability of the soil sampling results, which may indicate a need for additional sampling at the same or nearby locations. As a temporary measure, the concrete cores were wrapped in the plastic sheeting and placed back in the core holes. Mr. McArdle returned to the site at approximately 8:00 a. m. on 5/20/00 and restored power to the transformer. The were samples packed in an ice cooler with 18 pounds of double-bagged ice and shipped to APCL laboratories on Saturday morning (5/20/00).

Building 274

R&M met with Osborne Concrete Coring on 5/02/00 where five 6" cores were cut through the concrete flooring located adjacent to the floor drains within the building (Photo 4) before any borings were advanced. Samples were collected on 5/09/00 when Fast-Tek Drilling Company advanced borings (IR35B020-IR35B024) through these cored areas to an approximate depth of 3.0 feet bgs. Samples were collected in glass jars and 5-gram Encore samplers and core holes were then grouted with Portland Type II cement. Recovery was relatively poor during sample collection as the ground beneath the foundation was extremely hard. No other complications were encountered.

Building 302

Soil sampling was completed adjacent to the sump vault at Building 302 on May 9, 2000. One boring (IR33B109) was advanced with a Geoprobe to a depth of approximately 7.0 feet below ground surface. Samples were collected in glass jars and Encore samplers to encapsulate the volatiles. After sample collection the boring was grouted with Portland Type II cement.

IR 37

On May 09, 2000, R&M met with Fast-Tek and proceeded to advance two borings (IR37B026 and IR37B027) beneath an old exploratory excavation at IR 37 (Photo 5) to a depth of approximately 6.0 to 6.5 feet bgs. No problems were encountered. Samples were collected in glass jars and 5-gram Encore samplers. The borings were then grouted with Portland Type II cement.

Photos:

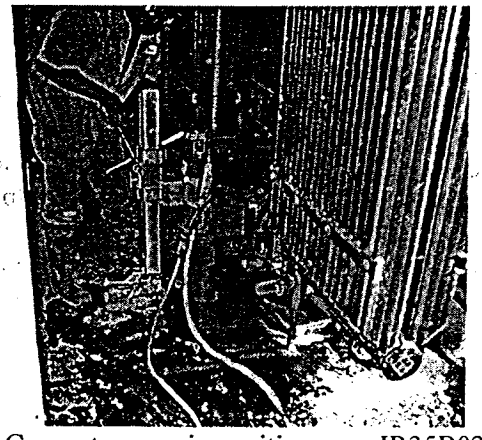

Photo 1. Concrete corer in position over IR35B026 location

Photo 2. Completion of IR35B026 corehole

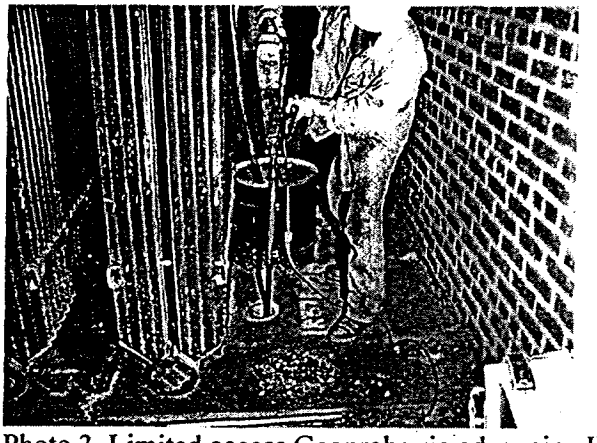

Photo 3. Limited access Geoprobe rig advancing IR35B025

Photo 4. Boring locations and concrete cores inside Building 274

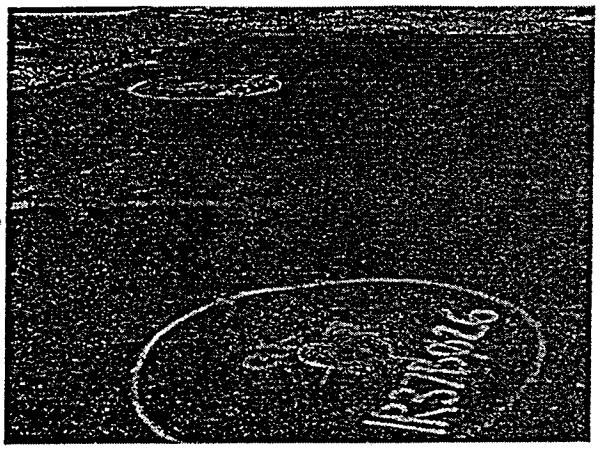

Photo 5. Boring location at IR-37 in an old exploratory excavation

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B020

Time	Rec. Int. (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
							AC	CONCRETE
	37		0	1			GP	GRAVEL: Greater than 2 inches in diameter; base rock mixed in; minor sand; no staining/odor
		18	0	2			GP	GRAVEL-SAND MIXTURE: Gravel less than 2 inches in diameter; angular; base rock mixed in; no staining/odor
			0	3			SC	GRAVEL-SAND-CLAY MIXTURE: Olive-brown (2.5Y 4/3); well graded; no staining/odor
				4				Total depth of boring due to refusal = 3.8 feet
				5				
				6				
				7				
				8				
				9				
				10				

▼ Water Table

☒ Lab Sample

PROJECT	Hunter's Point	SAMPLING METHOD	Limited access geoprobe
LOCATION	IR-35 Building #274	GROUND ELEVATION	NA
JOB NUMBER	CTO-005A	TOC ELEVATION	NA
LOGGED BY	D. Harp	BORING DIAMETER	1.5 inches
DATE DRILLED	5/9/00	TOTAL DEPTH OF HOLE	3.8 Feet bgs
DRILLER	Fast-Tek	WATER LEVEL	None Encountered
DRILL METHOD	Limited access geoprobe	WELL INSTALLED? (Y/N)	n

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B021

Time	Rec. Interval (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
12:12							AC	CONCRETE
	30		0	1			GP	GRAVEL: Base rock mixed in; no odor/staining
		18						
			0	2				
							GC	GRAVEL-SAND-CLAYEY SAND MIXTURE: Olive-brown (2.5Y 4/3); dry; loose; well graded; no odor/staining
			0	3				
				4				
				5				
				6				
				7				
				8				
				9				
				10				

Total depth of boring due to refusal = 3.5

▼ Water Table

☒ Lab Sample

PROJECT	Hunter's Point	SAMPLING METHOD	Geoprobe
LOCATION	IR-35 Building #274	GROUND ELEVATION	NA
JOB NUMBER	CTO-005A	TOC ELEVATION	NA
LOGGED BY	D. Harp	BORING DIAMETER	1.5 Inches
DATE DRILLED	5/9/00	TOTAL DEPTH OF HOLE	3.5 Feet bgs
DRILLER	Fast-Tek	WATER LEVEL	None Encountered
DRILL METHOD	Limited access geoprobe	WELL INSTALLED? (Y/N)	n

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B022

Time	Rec. Int. (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
13:08							AC	CONCRETE
	28		0	1			GP	BASE ROCK MIXTURE: No odor/staining
		18						
			0	2			GW	GRAVEL-SAND-SILT MIXTURE: Well graded; no odor/staining
				3				Total depth of boring due to refusal = 3.0 feet
				4				
				5				
				6				
				7				
				8				
				9				
				10				

▼ Water Table

☒ Lab Sample

PROJECT	Hunter's Point	SAMPLING METHOD	Limited access geoprobe
LOCATION	IR-35 Building #274	GROUND ELEVATION	NA
JOB NUMBER	CTO-005A	TOC ELEVATION	NA
LOGGED BY	D. Harp	BORING DIAMETER	1.5 Inches
DATE DRILLED	5/9/00	TOTAL DEPTH OF HOLE	3.0 Feet bgs
DRILLER	Fast-Tek	WATER LEVEL	None Encountered
DRILL METHOD	Limited access geoprobe	WELL INSTALLED? (Y/N)	n

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B023

Time	Rec. Int. (in.)	Drive Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
13:20							AC	CONCRETE
	36						GW	SAND-BASE ROCK MIXTURE: No odor/staining
			0	1				
		18						
			0	2				
							SC	GRAVEL-SAND-CLAYEY SAND MIXTURE: Olive-brown (2.5Y 4/3); moist; well graded; no odor/staining
			0	3				
								Total depth of boring = 3.5 feet
				4				
				5				
				6				
				7				
				8				
				9				
				10				

▼ Water Table

☒ Lab Sample

PROJECT Hunter's Point
LOCATION IR-35 Building #274
JOB NUMBER CTO-005A
LOGGED BY D. Harp
DATE DRILLED 5/9/00
DRILLER Fast-Tek
DRILL METHOD Limited access geoprobe

SAMPLING METHOD Limited access geoprobe
GROUND ELEVATION NA
TOC ELEVATION NA
BORING DIAMETER 1.5 Inches
TOTAL DEPTH OF HOLE 3.5 Feet bgs
WATER LEVEL None Encountered
WELL INSTALLED? (Y/N) n

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B024

Time	Rec. Int. (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
14:40							AC	CONCRETE
	30		0	1			GW	GRAVEL-BASE ROCK MIXTURE: No staining/odor; gravel greater than 2 inches in diameter
		18						
			0	2				As above with gravel less than 2 inches in diameter
							SC	CLAYEY SAND: Olive-brown (2.5Y 4/3); moist; moderately loose; well graded; gravel mixed in; no odor/staining
			0	3				
								Total depth of boring = 3.5 feet
				4				
				5				
				6				
				7				
				8				
				9				
				10				

▼ Water Table

☒ Lab Sample

PROJECT Hunter's Point
LOCATION IR-35 Building #274
JOB NUMBER CTO-005A
LOGGED BY D. Harp
DATE DRILLED 5/9/00
DRILLER Fast-Tek
DRILL METHOD Limited access geoprobe

SAMPLING METHOD Limited access geoprobe
GROUND ELEVATION NA
TOC ELEVATION NA
BORING DIAMETER 15 Inches
TOTAL DEPTH OF HOLE 3.5 Feet bgs
WATER LEVEL None Encountered
WELL INSTALLED? (Y/N) n

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B025

Time	Rec. Int. (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
07:45	48						AC	CONCRETE
							GW	GRAVEL
			0	1				
			0	2				
			0	3				
	41		0	4				
			0	5				
			0	6				
			0	7			SM	SOIL
				8				
				9				
				10				

Total depth of boring = 7.5

▼ Water Table

☒ Lab Sample

PROJECT	Hunter's Point	SAMPLING METHOD	Geoprobe
LOCATION	Building 306	GROUND ELEVATION	NA
JOB NUMBER	CTO-005A	TOC ELEVATION	NA
LOGGED BY	G. Heinrich	BORING DIAMETER	1.5 Inches
DATE DRILLED	5/9/00	TOTAL DEPTH OF HOLE	7.5 Feet bgs
DRILLER	Fast-Tek	WATER LEVEL	None Encountered
DRILL METHOD	Geoprobe	WELL INSTALLED? (Y/N)	n

Tt Tetra Tech EM Inc.

LOG OF BORING IR35B026

Time	Rec. Int. (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
08:00	48						AC	CONCRETE
							GW	GRAVEL
			0	1				
			0	2				
			0	3				
	34		0	4				
			0	5				
			0	6				
		3					GM	SOIL
				7			AC	CONCRETE: Possible overpour
								Total depth of boring = 7.0 feet
				8				
				9				
				10				

Water Table

Lab Sample

PROJECT Hunter's Point
LOCATION Building 306
JOB NUMBER CTO-005A
LOGGED BY G. Heinrich
DATE DRILLED 5/9/00
DRILLER Fast-Tek
DRILL METHOD Geoprobe

SAMPLING METHOD Geoprobe
GROUND ELEVATION NA
TOC ELEVATION NA
BORING DIAMETER 1.5 Inches
TOTAL DEPTH OF HOLE 7.0 Feet bgs
WATER LEVEL None Encountered
WELL INSTALLED? (Y/N) n

Contract # N62474-94-D-7609 · Contract Task Order 0128

Parcel D
Risk Management Review Process

Hunters Point Shipyard
San Francisco, California

DRAFT FINAL

Volume II

Prepared by:

Tetra Tech EM Inc.

June 20, 2000

N00217.003988
HUNTERS POINT
SSIC NO. 5090.3

IR-37

DRAFT FINAL
PARCEL D
RISK MANAGEMENT REVIEW PROCESS

DATED 20 JUNE 2000

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REMEDIAL AREA 37-2 (RESIDENTIAL)

DE MINIMUS AREA 6771

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N.5-18	FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
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Supporting Documentation

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USTs S-435 (1) AND S-435 (2) (FIGURE A-4)

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2.15-3 IR-37 GROUNDWATER RESULTS (SHEETS 1,2)

Data Gap Documentation

SOIL ANALYTICAL RESULTS

R & M DAILY LOGS

BORE LOGS - IR37B026, IR37B027

SITE IR-37: REMEDIAL AREA 37-1 (GRID CELL 066071)

Operational History and Site Characterization

Remedial area 37-1 is located between Buildings 436 and 437 and about 100 feet south of Building 401. Building 436, a wood-framed building with a concrete floor, was used by the Navy as a painting and paint storage facility. Building 437 was used as a pipe storage facility; it consists of a wood and tin shed with an exposed soil floor. As part of the 1996 interim action, an exploratory excavation (EE-14) was completed at remedial area 37-1. Historical use of the site is industrial, and the Navy proposes to remediate the site to residential reuse standards. The City of San Francisco (the City) is proposing that the area be zoned for mixed use. Biased sampling was conducted in the suspected source area. Based on a review of the data, the Navy believes the area is adequately characterized for remedial investigation and feasibility study (RI/FS) purposes.

Data Evaluation and Risk Assessment

Remedial area 37-1 is a 30- by 60-foot area located in grid cell 066071. Prior to exploratory excavation EE-14, exposure to subsurface soils in grid cell 066071 presented an estimated excess lifetime cancer risk (ELCR) of 1×10^{-4}, a segregated hazard index (HI) of 2.3 for a child receptor, and a segregated HI of less than 1 for an adult receptor (under a residential reuse scenario). The site has no lead concentrations above 1,000 milligrams per kilogram (mg/kg). Because the ELCR exceeded 1×10^{-6}, further evaluation was conducted. Surrounding borings and grid cells were reviewed and found not to include similar contaminants; therefore, data from adjacent grid cells were not used to evaluate grid cell 066071.

Remedial Area 37-1 Residential Scenario Risk Drivers

Area Risk Drivers	Maximum Detection (mg/kg)	Associated Risk	Associated Child HI
Aldrin (removed by EE-14)	0.004 at 0.75 foot	3×10^{-6}	0.025
Aroclor-1260 (removed by EE-14)	0.46 at 0.75 foot	1×10^{-4}	Not evaluated
Benzo(a)anthracene (removed by EE-14)	0.15 at 1.25 feet	1×10^{-6}	Not evaluated
Benzo(a)pyrene (removed by EE-14)	0.12 at 1.25 feet	7×10^{-6}	Not evaluated
Benzo(b)fluoranthene (removed by EE-14)	0.25 at 1.25 feet	8×10^{-6}	Not evaluated
Benzo(k)fluoranthene (removed by EE-14)	0.07 at 1.25 feet	2×10^{-6}	Not evaluated
Chrysene (removed by EE-14)	0.3 at 0.75 foot	1×10^{-6}	Not evaluated
Heptachlor epoxide	0.003 at 0.75 foot	7×10^{-6}	0.21
Manganese (partially removed by EE-14)	2,530 at 1.25 feet	Not evaluated	2.1
4,4'-DDD (removed by EE-14)	0.2 at 0 foot	1×10^{-6}	Not evaluated

Chemicals driving risk (Aroclor-1260, benzo[a]anthracene, benzo[a]pyrene, and benzo[b]fluoranthene) were detected in borings IR37B014, IR37B015, and IR37B017 and surface sample location PA37SS09. Contaminated soil near these locations was removed to a depth of 3 feet below ground surface (bgs) as part of a exploratory excavation (EE-14). In addition, the exploratory excavation (EE-14) was expanded to remove contamination found in confirmation samples. These chemicals are bounded spatially (with decreasing trends) by borings and a surface sample IR37B018, IR37B020, IR37B021, IR37SS24, and PA37SS08, as shown of Figure 1.

Risk Management Factors

Contaminated soil driving ELCR in remedial area 37-1 was removed during a exploratory excavation (EE-14); supporting information on EE-14 is included in this appendix. The remaining chemical concentrations are below current screening criteria. Contaminated soil driving the segregated HI for a child was removed from borings IR37B014 and IR37B015 during the exploratory excavation (EE-14). However, soil contaminates driving the segregated HI for a child remains in surface soil sample PA37SS08 at a depth of 1.25 feet bgs.

Groundwater Issues

At remedial area 37-1, groundwater is encountered at about 8 to 10 feet bgs. Samples were not collected from groundwater immediately underlying this area. The risk management review (RMR) did not include evaluation of soil as a source to groundwater. The groundwater below this area is currently being evaluated as a potential drinking water source. A complete groundwater evaluation, including an evaluation of soil as a source to groundwater contamination, will be documented in a proposed Phase I groundwater data gap evaluation.

Other Information

Total petroleum hydrocarbons (TPH) as diesel (TPH-d) and TPH as motor oil (TPH-mo) were detected at maximum concentrations of 950 mg/kg, 130 mg/kg, and 2,700 mg/kg, respectively, at surface sample location IR37SS23. Total recoverable petroleum hydrocarbons (TRPH) were detected at a maximum concentration of 6,400 mg/kg at surface sample location IR37SS22. Total oil and grease was detected at a maximum concentration of 29,000 mg/kg at surface sample location PA37SS09; contaminated soil was removed to a depth of 3 feet bgs as part of EE-14, which include soil associated with the following soil

boring and surface samples locations; IR37SS22, IR37B014, IR37B016, IR37B015, IR37B018, IR37SS09, IR37SS23, and IR37B017.

During the RMR, it was recommended that the Navy advance additional borings at EE-14 to ensure that the chemicals driving risk at the site have been removed to a depth of 3 feet bgs. The Navy advanced two soil borings (IR37B026 and IR37B027) within the EE-14 location in May 2000. Two soil samples were collected from each of these borings at depths ranging from 3.5 to 4 feet bgs and 5.5 to 6 feet bgs. The samples were analyzed for U.S. Environmental Protection Agency (EPA) contract laboratory program metals and hexavalent chromium. The maximum concentration of arsenic (7.3 mg/kg) exceeded the 1999 residential preliminary remediation goal (PRG) (0.39 mg/kg) but is below its Hunters Point ambient level (HPAL) (11.1 mg/kg). The maximum concentration of barium (626 mg/kg) did not exceed the 1999 residential PRG (5,370 mg/kg) but did exceed its HPAL (314 mg/kg). The maximum concentration of chromium (765 mg/kg) did exceed the 1999 residential PRG (210 mg/kg) but did exceed its sample specific HPAL (1,530 mg/kg). The maximum concentration of iron (54,900 mg/kg) did exceed the 1999 residential PRG (23,500 mg/kg) however; there is no calculated HPAL for iron. The maximum concentration of manganese (33,200 mg/kg) did exceed the 1999 residential PRG (1,800 mg/kg) and exceeded its HPAL (1,431 mg/kg). The maximum concentration of nickel (2,150 mg/kg) did exceed the 1999 residential PRG (150 mg/kg) but did not exceed its sample-specific HPAL (3,905 mg/kg). The maximum concentration of selenium (2.7 mg/kg) did not exceed the 1999 residential PRG (390 mg/kg) but did exceed its HPAL (1.95 mg/kg). The maximum concentration of thallium (1.2mg/kg) did not exceed the 1999 residential PRG of thallium oxide (5.5 mg/kg) but did exceed its HPAL (0.81 mg/kg). The analytical results, daily field logs, and boring logs are located in this IR section.

Conclusions:

✓ The Navy concluded that a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response action is required for this remedial area 37-1 and for surface soil sample location IR37SS08, de minimis area 6671, to reduce the segregated child HI from exposure to manganese to less than 1. The Navy will define the aerial extent of manganese PRG exceedances in the FS.

SITE IR-37: REMEDIAL AREA 37-2 (GRID CELL 068067)

Operational History and Site Characterization

Remedial area 37-2 is located east of Building 435 and about 50 feet south of Building 401. Remedial area 37-2 includes the former locations of two underground storage tanks (UST). Building 435 was used to store equipment, and it housed a paint booth and workshop area; it consists of a wood frame building with a concrete floor. Various paints and paint thinners were discharged to drains within the building. Former USTs S-435(1) and S-435(2) were 750-gallon, steel tanks containing paint solvents; the USTs were removed in August 1991. Soils excavated from around the USTs were disposed of at a Class I landfill. Historical use of the site is industrial, and the Navy proposes to remediate the site to residential reuse standards. The City is proposing that the area be zoned for mixed use. Biased sampling was conducted in the suspected source area (the former UST locations). Based on a review of the data, the Navy believes the area is adequately characterized for RI/FS purposes.

Data Evaluation and Risk Assessment

Remedial area 37-2 is a 30- by 60-foot area located primarily in grid cell 068067. Under a residential reuse scenario, exposure to subsurface soils in grid cell 068067 presented an estimated ELCR of 4×10^{-5}, a segregated HI of 8.3 for a child receptor and a segregated HI of 2.1 for an adult receptor. The site has no lead concentrations above 1,000 mg/kg. Because the ELCR exceeded 1×10^{-6}, further evaluation was conducted. Surrounding borings and grid cells were reviewed and found not to include similar contaminants; therefore, data from adjacent grid cells were not used to evaluate grid cell 068067. Chemicals driving risk (antimony, Aroclor-1242, Aroclor-1260, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, heptachlor epoxide, and indeno[1,2,3-cd]pyrene) were detected in borings

Remedial Area 37-2 Residential Scenario Risk Drivers

Area Risk Drivers	Maximum Detection (mg/kg)	Associated Risk	Associated Child HI
Antimony	82.2 at 5.25 feet	Not evaluated	8.1
Aroclor-1242	0.02 at 1.25 feet	1×10^{-5}	Not evaluated
Aroclor-1260	0.04 at 5.25 feet	9×10^{-6}	Not evaluated
Benzo(a)anthracene	0.2 at 1.25 feet	1×10^{-6}	Not evaluated
Benzo(a)pyrene	0.1 at 1.25 feet	6×10^{-6}	Not evaluated
Benzo(b)fluoranthene	0.1 at 1.25 feet	3×10^{-6}	Not evaluated
Benzo(k)fluoranthene	0.1 at 1.25 feet	3×10^{-6}	Not evaluated
Heptachlor epoxide	0.001 at 1.25 feet	3×10^{-6}	0.1
Indeno (1,2,3-cd)pyrene	0.05 at 1.25 feet	1×10^{-6}	Not evaluated

IR37B010 and IR37B013. These chemicals are bounded spatially (with decreasing trends) by remedial area 9-1 and surrounding borings IR09MW51F, IR37B011, and IR37B012, as shown on Figure 1.

Risk Management Factors

Some of the chemicals driving risk may be the result of spills from the former USTs. Only antimony and benzo(a)pyrene were detected at concentrations above either the 1995 and the 1999 residential PRGs. The maximum concentration of antimony (82.2 mg/kg) is above both the 1995 and 1999 residential PRG (31 mg/kg and 31 mg/kg, respectively). The maximum concentrations of Aroclor-1242 (0.02 mg/kg) and Aroclor-1260 (0.04 mg/kg) are below both EPA guidance for residential cleanup of total polychlorinated biphenyls (PCB) (1 mg/kg) and the 1999 residential PRG for total PCBs (0.066 mg/kg). The maximum concentration of benzo(a)anthracene (0.2 mg/kg), benzo(b)fluoranthene (0.1 mg/kg), benzo(k)fluoranthene (0.1 mg/kg), and indeno(1,2,3-cd)pyrene (0.05 mg/kg), are below the 1995 and 1999 residential PRGs (0.61mg/kg and 0.62 mg/kg, respectively). The maximum concentration of benzo(a)pyrene (0.1 mg/kg) is above the 1995 and 1999 residential PRGs (0.061 mg/kg and 0.062 mg/kg, respectively). The maximum concentration of heptachlor epoxide (0.001 mg/kg) is below the 1995 and 1999 residential PRGs (0.049 mg/kg and 0.053 mg/kg, respectively).

Groundwater Issues

At remedial area 37-2, groundwater is encountered at about 8 to 10 feet bgs; however, no groundwater data were collected from this remedial area. The RMR did not include evaluation of soil as a source to groundwater. The groundwater below this area is currently being evaluated as a potential drinking water source. A complete groundwater evaluation, including an evaluation of soil as a source to groundwater contamination, will be documented in a proposed Phase I groundwater data gap evaluation.

Other Information

TRPH was detected at a maximum concentration of 1,930 mg/kg. No removal actions or exploratory excavations have been conducted in this area.

Conclusions:

✓ The Navy concluded that a CERCLA response action is required for remedial area 37-2 to reduce the segregated child HI from exposure to antimony to less than 1 and the PRG exceedance from benzo(a)pyrene to an acceptable risk level.

SITE IR-37: DE MINIMIS AREA 6771 (GRID CELL 067071)

Operational History and Site Characterization

De minimis area 7071 is located east of Building 437. Building 437 was used as a pipe storage facility; it consists of a wood and tin shed with an exposed soil floor. Historical use of the site is industrial, and the Navy proposes to remediate the site to residential reuse standards. The City is proposing that the area be zoned for mixed use. Biased sampling was conducted in the suspected source area (the former UST locations). Based on a review of the data, the Navy believes the area is adequately characterized for RI/FS purposes.

Data Evaluation and Risk Assessment

De minimis area 6771 is an 8- by 8-foot area located primarily in grid cell 067071. Under a residential reuse scenario, exposure to subsurface soils in grid cell 067071 presented an estimated ELCR less than 1×10^{-6}, a segregated HI of 2.3 for a child receptor and a segregated HI of less than 1 for an adult receptor. The site has no lead concentrations above 1,000 mg/kg. Because the child total segregated HI is greater than 1, further evaluation was conducted. Surrounding borings and grid cells were reviewed and found not to include similar contaminants; therefore, data from adjacent grid cells were not used to evaluate grid cell 067071. The chemical driving the HI, manganese, was detected in boring IR37B021. This chemical is bounded spatially (with decreasing trends) by borings IR37B018, IR37B020, and IR37B019, as shown on Figure 1.

De Minimis Area 7071 Residential Scenario Risk Drivers			
Area Risk Drivers	**Maximum Detection (mg/kg)**	**Associated Risk**	**Associated Child HI**
Manganese	2,640 at 0.75 foot	Not evaluated	2.1

Risk Management Factors

The maximum concentration of manganese (2,640 mg/kg) is above both the 1995 and 1999 residential PRG (380 and 1,800 mg/kg, respectively).

Groundwater Issues

At de minimis area 6771, groundwater is encountered at about 8 to 10 feet bgs; however, no groundwater data were collected from this de minimis area. The RMR did not include evaluation of soil as a source to groundwater. The groundwater below this area is currently being evaluated as a potential drinking water

source. A complete groundwater evaluation, including an evaluation of soil as a source to groundwater contamination, will be documented in a proposed Phase I groundwater data gap evaluation.

Other Information

TPH-d, TPH-mo, and TRPH were detected at maximum concentrations of 25 mg/kg, 82 mg/kg, and 17 mg/kg, respectively. No removal actions or exploratory excavations have been conducted in this area.

Conclusions:

✓ The Navy concluded that a CERCLA response action is required for soil boring IR37B021, de minimis area 6771, to reduce the segregated child HI from exposure to manganese to less than 1.

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HUNTERS POINT
SSIC NO. 5090.3

IR-37
DATA TABLE - SUMMARY OF HUMAN HEALTH RISK AT PARCEL D UNDER 10^{-6} FUTURE INDUSTRIAL SOIL CLEANUP SCENARIO

DRAFT FINAL
PARCEL D
RISK MANAGEMENT REVIEW PROCESS

THE ABOVE IDENTIFIED DATA TABLE IS NOT AVAILABLE.

THIS DATA TABLE IS INCLUDED IN SECTIONS IR-34 AND IR-38 OF THIS DOCUMENT.

QUESTIONS MAY BE DIRECTED TO:

DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
SOUTHWEST
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-36W (IR-39)	AV33 (077095, 077096, 078095, 078097) (Continued)	1E-05 (6E-07)	Aldrin (4E-08)	0.0059	IR39B024A	1.75	0.006
			Gamma-chlordane (8E-10)	0.0017	IR39B024A	1.75	0.002
			Bis(2-ethylhexyl)phthalate (6E-10)	0.083	IR13MW10A	2.75	0.08
			Bis(2-ethylhexyl)phthalate	--	IR13MW10A	4.25	0.08
			Bis(2-ethylhexyl)phthalate	--	IR13MW10A	6.25	0.06
			Bis(2-ethylhexyl)phthalate	--	IR13MW10A	8.75	0.06
			Carbazole (3E-09)	0.25	IR39B024A	1.75	0.3
			4,4'-DDE (2E-09)	0.017	IR39B024A	1.75	0.02
IR-37 (IR-09)	AR23 (067065)	1E-08 (2E-09)	Chromium VI (1E-08)	0.10	IR09MW51F	1.88	0.10
IR-37	AR24 (066068, 066069, 066070, 067068, 067070)	2E-07 (1E-08)	Aroclor-1260 (2E-07)	0.042	IR50B016	6.25	0.04
			Chrysene (5E-09)	0.055	IR50B016	6.25	0.06
			Tetrachloroethene (3E-10)	0.0020	IR50B016	1.75	0.002
			Tetrachloroethene	--	IR50B016	6.25	0.002
IR-37	AR25 (066071, 067071)	4E-06 (2E-07)	Aroclor-1260 (2E-06)	0.46	IR37B017	0.75	0.5
			Aroclor-1260	--	PA37SS09	0.75	0.3
			Benzo(a)pyrene (1E-06)	0.12	IR37B015	1.25	0.1
			Benzo(b)fluoranthene (2E-07)	0.25	IR37B015	1.25	0.3
			Benzo(b)fluoranthene	--	IR37B014	2.75	0.08
			Benzo(a)anthracene (1E-07)	0.15	IR37B015	1.25	0.2
			Benzo(a)anthracene	--	IR37B014	2.75	0.07

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37	AR25	4E-06	Benzo(k)fluoranthene (6E-08)	0.070	IR37B015	1.25	0.07
	(066071,	(2E-07)	Benzo(k)fluoranthene	--	IR37B014	2.75	0.03
	067071)		Chrysene (3E-08)	0.34	IR37B015	1.25	0.3
	(Continued)		Chrysene	--	IR37B017	0.75	0.3
			Chrysene	--	IR37B014	2.75	0.07
			Aldrin (2E-08)	0.0037	IR37B017	0.75	0.004
			4,4'-DDD (2E-08)	0.18	IR37SS23	0.00	0.2
			4,4'-DDD	--	IR37B017	0.75	0.02
			Heptachlor epoxide (1E-08)	0.0027	IR37B017	0.75	0.003
			4,4'-DDE (9E-10)	0.0077	IR37B017	0.75	0.008
			Gamma-chlordane (9E-10)	0.0020	IR37B017	0.75	0.002
			Carbazole (4E-09)	0.34	IR37B015	1.25	0.3
			Alpha-chlordane (1E-09)	0.0030	IR37B017	0.75	0.003
			Bis(2-ethylhexyl)phthalate (1E-09)	0.15	PA37SS08	1.25	0.1
IR-37	AS23	4E-06	Arsenic (2E-06)	4.3	IR09B007	1.25	12.7 •α
(IR-09)	(068065,	(5E-07)	Arsenic	--	IR37B013	1.25	6.6 •
	068067,		Arsenic	--	IR09B006	3.25	4.7 •
	069065,		Arsenic	--	IR09B025	3.75	4.7 •
	069066,		Arsenic	--	IR09B005	2.75	3.4 •
	069067,		Arsenic	--	IR09B004	3.25	3.2 •
	070066,		Arsenic	--	IR09B007	5.25	3.2 •
	070067)		Arsenic	--	IR09B005	0.75	2.7 •
			Arsenic	--	IR09B006	5.75	2.7 •

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37	AS23	4E-06	Arsenic	--	IR09B005	5.75	2.5 •
(IR-09)	(068065,	(5E-07)	Arsenic	--	IR09B007	3.25	2.5 •
	068067,		Arsenic	--	IR09B009	3.25	2.2 •
	069065,		Arsenic	--	IR09B009	1.25	2.1 •
	069066,		Arsenic	--	IR09B002	0.75	2.0
	069067,		Arsenic	--	IR09B004	5.25	1.9
	070066,		Arsenic	--	IR09B008	2.75	1.8
	070067)		Arsenic	--	IR09B006	0.75	1.7
	(Continued)		Arsenic	--	IR37B013	5.25	1.7
			Arsenic	--	IR09B009	5.75	1.4
			Arsenic	--	IR09B008	1.25	1.0
			Arsenic	--	IR09B008	5.25	0.70
			Arsenic	--	IR09B004	1.25	0.40
			Arsenic	--	IR09B002	3.25	0.34
			Benzo(a)pyrene (8E-07)	0.10	IR37B013	1.25	0.1
			Benzo(a)pyrene	--	IR37B013	5.25	0.06
			Beryllium (3E-07)	0.34	IR09B007	1.25	1.2 α
			Beryllium	--	IR09B005	2.75	0.74 α
			Beryllium	--	IR09B008	1.25	0.69
			Beryllium	--	IR09B025	3.75	0.43
			Beryllium	--	IR09B004	3.25	0.37
			Beryllium	--	IR09B025	5.75	0.35
			Beryllium	--	IR09B010	5.75	0.34

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37	AS23	4E-06	Beryllium	--	IR09B025	1.25	0.26
(IR-09)	(068065,	(5E-07)	Beryllium	--	IR09B004	5.25	0.19
	068067,		Beryllium	--	IR09B004	1.25	0.18
	069065,		Beryllium	--	IR09B010	3.25	0.18
	069066,		Beryllium	--	IR09B010	1.25	0.15
	069067,		Aroclor-1260 (2E-07)	0.040	IR37B010	5.25	0.04
	070066,		Aroclor-1260	--	IR37B013	1.25	0.02
	070067)		Aroclor-1260	--	IR37B013	5.25	0.02
	(Continued)		Nickel (1E-07)	3,000	IR09B006	5.75	6340
			Nickel	--	IR09B010	3.25	2160
			Nickel	--	IR37B011	5.75	2000
			Nickel	--	IR09B025	1.25	1780
			Nickel	--	IR09B002	0.75	1660
			Nickel	--	IR37B010	5.25	1600
			Nickel	--	IR37B013	5.25	1420
			Nickel	--	IR09B006	3.25	1240
			Nickel	--	IR09B025	5.75	1010
			Nickel	--	IR09B009	1.25	554
			Nickel	--	IR09B005	2.75	494
			Nickel	--	IR09B005	5.75	479
			Nickel	--	IR09B025	3.75	437
			Nickel	--	IR09B010	5.75	434
			Nickel	--	IR09B004	5.25	407

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37	AS23	4E-06	Nickel	--	IR09B002	3.25	290
(IR-09)	(068065,	(5E-07)	Nickel	--	IR09B008	5.25	264
	068067,		Nickel	--	IR09B005	0.75	194
	069065,		Nickel	--	IR09B007	5.25	147
	069066,		Nickel	--	IR09B008	1.25	146
	069067,		Nickel	--	IR09B007	3.25	141
	070066,		Nickel	--	IR09B004	3.25	140
	070067)		Nickel	--	IR09B009	3.25	103
	(Continued)		Nickel	--	IR09B009	5.75	85.5
			Nickel	--	IR09B008	2.75	79.4
			Nickel	--	IR09B006	0.75	72.7
			Nickel	--	IR37B013	1.25	71.5
			Nickel	--	IR09B007	1.25	44.8
			Nickel	--	IR09B004	1.25	12.6
			Benzo(a)anthracene (1E-07)	0.15	IR37B013	1.25	0.2
			Benzo(a)anthracene	--	IR37B013	5.25	0.09
			Aroclor-1242 (1E-07)	0.022	IR37B013	1.25	0.02
			Benzo(k)fluoranthene (8E-08)	0.10	IR37B013	1.25	0.1
			Benzo(k)fluoranthene	--	IR37B013	5.25	0.06
			Benzo(b)fluoranthene (8E-08)	0.096	IR37B013	1.25	0.1
			Benzo(b)fluoranthene	--	IR37B013	5.25	0.06
			Indeno(1,2,3-cd)pyrene (4E-08)	0.046	IR37B013	1.25	0.05
			Indeno(1,2,3-cd)pyrene	--	IR37B013	5.25	0.04

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37	AS23	4E-06	Chrysene (2E-08)	0.19	IR09B004	3.25	0.2
(IR-09)	(068065,	(5E-07)	Chrysene	--	IR37B013	1.25	0.2
	068067,		Chrysene	--	IR37B013	5.25	0.1
	069065,		Chrysene	--	IR09B010	1.25	0.05
	069066,		Alpha-chlordane (7E-10)	0.0016	IR37B013	1.25	0.002
	069067,		Alpha-chlordane	--	IR37B013	5.25	0.001
	070066,		4,4'-DDE (6E-10)	0.0051	IR37B013	1.25	0.005
	070067)		4,4'-DDE	--	IR37B013	5.25	0.003
	(Continued)		Heptachlor epoxide (6E-09)	0.0013	IR37B013	1.25	0.001
			Gamma-chlordane (6E-10)	0.0013	IR37B013	5.25	0.001
			Chromium VI (6E-09)	0.055	IR09B005	5.75	1.4
			Chromium VI	--	IR09B007	5.25	0.62
			Chromium VI	--	IR09B005	2.75	0.57
			Chromium VI	--	IR09B008	1.25	0.44
			Chromium VI	--	IR09B007	3.25	0.25
			Chromium VI	--	IR09B010	1.25	0.14
			Chromium VI	--	IR09B010	3.25	0.10
			1,1,2,2-Tetrachloroethane (4E-09)	0.0074	IR09B025	5.75	0.007
			Carbazole (2E-10)	0.022	IR37B013	1.25	0.02
IR-37	AS24	NC	NE	NE	NE	NE	NE
(IR-09)	(070068,						
	070070)						

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37 (IR-09, IR-36N)	AS25 (069072)	NC	NE	NE	NE	NE	NE
IR-37 (IR-09, IR-36N, IR-66)	AS26 (069076)	1E-10 (2E-11)	4,4'-DDT (8E-11)	0.00066	PA36B029	6.75	0.0007
			4,4'-DDD (2E-11)	0.00029	PA36B029	6.75	0.0003
			4,4'-DDE (1E-11)	0.00012	PA36B029	6.75	0.0001
IR-38 (IR-36S, IR-36W)	AV32 (077092, 077093, 077094, 078093, 078094, 079092, 079094)	7E-06 (4E-07)	Benzo(a)pyrene (3E-06)	0.41	IR39B030	2.25	0.4
			Benzene (3E-06)	2.5	IR39B013	6.25	3
			Benzo(a)anthracene (3E-07)	0.39	IR39B013	6.25	0.4
			Chrysene (4E-08)	0.51	IR39B013	6.25	0.5
			Chrysene	--	IR39B030	2.25	0.4
			Pentachlorophenol (9E-09)	0.068	IR39B012A	8.25	0.07
			4,4'-DDT (5E-10)	0.0039	IR39B013	6.25	0.004
			Beta-BHC (2E-09)	0.0037	IR39B013	6.25	0.004
IR-38 (IR-36S)	AW31 (080090, 081089, 082089, 082090, 082091)	5E-06 (7E-07)	Arsenic (5E-06)	12	PA38SS01	0.00	12.3
			Arsenic	--	IR38B006	6.25	6.5
			Arsenic	--	IR38B007	6.25	5.9
			Arsenic	--	IR38B002	6.25	1.9
			Benzene (2E-08)	0.015	IR38B002	6.25	0.02
			Benzene	--	IR38B006	6.25	0.006
			4,4'-DDD (5E-10)	0.0062	IR38B002	6.25	0.006
			4,4'-DDE (4E-10)	0.0036	IR38B002	6.25	0.004

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

HI	Hazard Index
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
NC	Not calculated. No noncarcinogenic COPCs were identified in this exposure area; therefore, a total HI and total segregated HI was not calculated exposure area.
NE	Not evaluated
a	The number presented in parenthesis is another IR site with which the subject industrial exposure area is associated.
b	The exposure area presented is based on a 0.5-acre exposure area.
c	The exposure area presented in parentheses is the associated exposure area for the residential scenario based on a 2500-square foot exposure area. The total residential scenario can be found in Table N.5.9.
d	The total HI and total segregated HI presented is for the RME case. The value presented in parentheses is for the average exposure case. The total segregated HI evaluates the ingestion of, dermal contact with, and inhalation of VOCs and particulate emissions from soil, and ingestion of pathway exposure.
e	Only the COPC-specific HIs for COPCs contributing about 90% of the HIs that exceed 1 or COPCs contributing a HI exceeding 1 under the RME.
f	The value presented is the EPC assumed for the COPCs contributing significantly to the total HI under the RME case.
g	If the total COPC-specific total segregated HI exceeding 1 can be attributed to one or several sample locations, the sampling location, depth, and are listed.
h	Chromium VI was not speciated; therefore, for all IR-sites, a surrogate chromium VI value was calculated assuming 0.99 percent of the total chromium value (see Attachment N-C).
i	The central nervous sysstem is the primary system affected by the indicated chemical, generally at the lowest dose levels.
j	Blood, including the hematopoietic system, is the primary of critical system affected by the indicated chemical, generally at the lowest dose levels.
k	Examples of non-specific toxicity include decreased organ weights and decreased weight gain, effects not limited to a few organs or systems.
l	The kidney is the primary organ affected by the indicated chemical, generally at the lowest dose levels.
m	The gastrointestinal system is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
n	The cardiovascular system is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
o	The skin is the primary or critical organ affected by the indicated chemical, generally at the lowest dose levels.
p	The liver is the primary or critical organ affected by the indicated chemical, generally at the lowest dose levels.
q	The peripheral nervous system (PNS) is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
*	The detected concentration exceeds the residential soil U.S. EPA Region IX Preliminary Remediation Goal (PRG).
α	The detected concentration exceeds the Hunters Point Ambient Level (HPAL).

TABLE N.5-9 (Continued)

SOIL SUMMARY TABLE
FUTURE RESIDENTIAL CARCINOGENIC RISK
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site[a]	Residential Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[e]	EPC[f] (mg/kg)	Significant Sampling Location Information[g]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-36W	077096	2E-04	Indeno(1,2,3-cd)pyrene (1E-05)	0.39	IR39B024A	1.75	0.4
		(3E05)	Benzo(a)anthracene (8E-06)	0.96	IR39B024A	1.75	1 *
	(Continued)		Aldrin (4E-06)	0.0059	IR39B024A	1.75	0.006
IR-36W	078093	3E-05	Benzo(a)pyrene (3E-05)	0.41	IR39B030	2.25	0.4 *
		(5E-06)	Chrysene (2E-06)	0.37	IR39B030	2.25	0.4
IR-36W	078094	NC	NE	NE	NE	NE	NE
IR-36W	078095	5E-06	Aroclor-1260 (5E-06)	0.024	IR39B031	2.25	0.02
		(9E-07)					
IR-36W	079096	7E-08	NE	NE	NE	NE	NE
		(1E-08)					
IR-37	066068	NC	NE	NE	NE	NE	NE
IR-37	066069	9E-06	Aroclor-1260 (9E-06)	0.042	IR50B016	6.25	0.04
		(1E-06)					
IR-37	066070	NC	NE	NE	NE	NE	NE
IR-37	066071	1E-04	Aroclor-1260 (1E-04)	0.46	IR37B017	0.75	0.5
		(1E-05)	Aroclor-1260	--	PA37SS09	0.75	0.3
			Benzo(b)fluoranthene (8E-06)	0.25	IR37B015	1.25	0.3
			Benzo(b)fluoranthene	--	IR37B014	2.75	0.08
			Benzo(a)pyrene (7E-06)	0.12	IR37B015	1.25	0.1 *
			Heptachlor epoxide (7E-06)	0.0027	IR37B017	0.75	0.003
			Aldrin (3E-06)	0.0037	IR37B017	0.75	0.004
			Benzo(k)fluoranthene (2E-06)	0.070	IR37B015	1.25	0.07
			Benzo(k)fluoranthene	--	IR37B014	2.75	0.03

TABLE N.5-9 (Continued)

SOIL SUMMARY TABLE
FUTURE RESIDENTIAL CARCINOGENIC RISK
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site[a]	Residential Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[e]	EPC[f] (mg/kg)	Significant Sampling Location Information[g]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37	066071	1E-04	Chrysene (1E-06)	0.34	IR37B017	0.75	0.3
		(1E-05)	Chrysene	--	IR37B015	1.25	0.3
	(Continued)		Benzo(a)anthracene (1E-06)	0.15	IR37B015	1.25	0.2
			4,4'-DDD (1E-06)	0.18	IR37SS23	0.00	0.2
IR-37 (IR-09)	067065	1E-07 (2E-08)	NE	NE	NE	NE	NE
IR-37	067068	NC	NE	NE	NE	NE	NE
IR-37	067070	NC	NE	NE	NE	NE	NE
IR-37	067071	NC	NE	NE	NE	NE	NE
IR-37	068067	4E-05	Aroclor-1242 (1E-05)	0.022	IR37B013	1.25	0.02
		(6E-06)	Aroclor-1260 (9E-06)	0.040	IR37B010	5.25	0.04
			Aroclor-1260	--	IR37B013	1.25	0.02
			Aroclor-1260	--	IR37B013	5.25	0.02
			Benzo(a)pyrene (6E-06)	0.10	IR37B013	1.25	0.1 *
			Benzo(a)pyrene	--	IR37B013	5.25	0.06 *
			Heptachlor epoxide (3E-06)	0.0013	IR37B013	1.25	0.001
			Benzo(k)fluoranthene (3E-06)	0.10	IR37B013	1.25	0.1
			Benzo(k)fluoranthene	--	IR37B013	5.25	0.06
			Benzo(b)fluoranthene (3E-06)	0.096	IR37B013	1.25	0.1
			Benzo(b)fluoranthene	--	IR37B013	5.25	0.06
			Benzo(a)anthracene (1E-06)	0.15	IR37B013	1.25	0.2
			Indeno(1,2,3-cd)pyrene (1E-06)	0.046	IR37B013	1.25	0.05

TABLE N.5-9 (Continued)

SOIL SUMMARY TABLE
FUTURE RESIDENTIAL CARCINOGENIC RISK
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site[a]	Residential Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[e]	EPC[f] (mg/kg)	Significant Sampling Location Information[g]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37 (IR-09)	069067	6E-05 (6E-06)	Arsenic (5E-05)	13	IR09B007	1.25	12.7 *,α
			Beryllium (1E-05)	1.2	IR09B007	1.25	1.2 *,α
IR-37 (IR-09)	070067	3E-07 (6E-08)	NE	NE	NE	NE	NE
IR-38	080090	5E-05 (9E-06)	Arsenic (5E-05)	12	PA38SS01	0.00	12.3 *,α
IR-38	082089	7E-07 (1E-07)	NE	NE	NE	NE	NE
IR-38	082090	2E-07 (3E-08)	NE	NE	NE	NE	NE
IR-38	082091	NC	NE	NE	NE	NE	NE
IR-38	083087	7E-05 (1E-05)	Benzo(a)pyrene (2E-05)	0.33	PA45TA06	5.25	0.3 *
			Aroclor-1260 (2E-05)	0.094	PA45TA06	5.25	0.09
			Benzo(b)fluoranthene (1E-05)	0.33	PA45TA06	5.25	0.3
			Benzo(k)fluoranthene (9E-06)	0.26	PA45TA06	5.25	0.3
			Indeno(1,2,3-cd)pyrene (8E-06)	0.31	PA45TA06	5.25	0.3
			Benzo(a)anthracene (3E-06)	0.31	PA45TA06	5.25	0.3
			Chrysene (2E-06)	0.37	PA45TA06	5.25	0.4
IR-38	083090	2E-07 (3E-08)	NE	NE	NE	NE	NE
IR-38	088090	NC	NE	NE	NE	NE	NE
IR-38 (IR-08)	094090	NC	NE	NE	NE	NE	NE

TABLE N.5-10 (Continued)

SOIL SUMMARY TABLE
FUTURE RESIDENTIAL NONCARCINOGENIC HAZARD AND LEAD LEVEL OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site[a]	Residential Exposure Area[b,c]	Child Total Segregated HI[d]	Adult Total Segregated HI[d]	Child Total HI[e]	COPC Contributing Significantly to the Total Segregated HI[f]		EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
								Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-36W	078093	<1	<1	<1	NE		NE	NE	NE	NE
IR-36W	078094	<1	<1	<1	NE		NE	NE	NE	NE
IR-36W	078095	1.2	<1	2.0	Copper (1.2)	m	200	IR39B031	2.25	195 α
		(<1)		(<1)						
					Copper	m	--	IR39B031	5.25	33.1
IR-36W	079096	<1	<1	<1	NE		NE	NE	NE	NE
IR-37	066068	2.2	<1	2.2	Manganese (1.9)	i	1,500	PA37SS04	1.25	1,520 *,α
		(1.3)		(1.3)	Aluminum (0.28)	i	20,000	PA37SS04	1.25	20,300
IR-37	066069	2.0	<1	2.0	Manganese (1.8)	i	1,400	IR50B016	1.75	1,440 *,α
		(1.0)		(1.0)	Aluminum (0.19)	i	14,000	IR50B016	1.75	13,800
IR-37	066070	<1	<1	<1	NE		NE	NE	NE	NE
IR-37	066071	2.3	<1	3.6	Manganese (2.1)	i	1,700	IR37B015	1.25	2,530 *,α
		(1.4)		(1.9)	Manganese	i	--	PA37SS08	1.25	2,440 *,α
					Manganese	i	--	IR37B014	2.75	1,840 *,α
IR-37 (IR-09)	067065	2.0	<1	2.0	Manganese (2.0)	i	1,600	IR09MW51F	1.88	1,580 *,α
		(1.3)		(1.3)						
IR-37	067068	<1	<1	<1	NE		NE	NE	NE	NE
IR-37	067070	<1	<1	<1	NE		NE	NE	NE	NE
IR-37	067071	2.3	<1	2.7	Manganese (2.1)	i	1,600	IR37B021	0.75	2,640 *,α
		(1.4)		(1.6)						
IR-37	068067	8.3	2.1	8.4	Antimony (8.1)	j,k	82	IR37B010	5.25	82.2 *,α
		(1.4)	(<1)	(1.5)						

TABLE N.5-10 (Continued)

SOIL SUMMARY TABLE
FUTURE RESIDENTIAL NONCARCINOGENIC HAZARD AND LEAD LEVEL OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site[a]	Residential Exposure Area[b,c]	Child Total Segregated HI[d]	Adult Total Segregated HI[d]	Child Total HI[e]	COPC Contributing Significantly to the Total Segregated HI[f]		EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
								Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37 (IR-09)	069067	<1	<1	1.1 (<1)	NE		NE	NE	NE	NE
IR-37 (IR-09)	070067	<1	<1	<1	NE		NE	NE	NE	NE
IR-38	080090	6.4 (4.1)	2.0 (1.3)	11.7 (7.4)	Copper (6.4)	m	1,000	PA38SS01	0.00	1,020 α
					Zinc (4.1)	j	1,500	PA38SS01	0.00	1,540 α
					Lead		590	PA38SS01	0.00	590 *,α
IR-38	082089	<1	<1	<1	NE		NE	NE	NE	NE
IR-38	082090	<1	<1	<1	NE		NE	NE	NE	NE
IR-38	082091	<1	<1	<1	NE		NE	NE	NE	NE
IR-38	083087	2.5 (1.6)	<1	3.5 (2.2)	Copper (2.5)	m	400	PA45TA06	5.25	403 α
IR-38	083090	<1	<1	<1	NE		NE	NE	NE	NE
IR-38	088090	<1	<1	<1	NE		NE	NE	NE	NE
IR-38 (IR-08)	094090	<1	<1	<1	NE		NE	NE	NE	NE
IR-39	068098	<1	<1	<1	NE		NE	NE	NE	NE
IR-39	072099	<1	<1	<1	NE		NE	NE	NE	NE
IR-39 (IR-36W)	073097	<1	<1	1.4 (<1)	NE		NE	NE	NE	NE
IR-39	074098	<1	<1	<1	NE		NE	NE	NE	NE
IR-39	076098	2.3 (1.0)	<1	3.8 (1.7)	Copper (2.3)	m	370	IR39B010	1.25	365 α
					Copper	m	--	IR39B010	6.25	145 α

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site [a]	Industrial Exposure Area [b,c]	Total ELCR[d]	Total Segregated HI[e]	COPC Contributing Significantly to the Total ELCR, Total HI, or Lead[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
						Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-36W (IR-36S, IR-38)	AV32 (077092, 077093, 077094, 078093, 078094, 79092, 079094)	7×10^{-6} (4×10^{-7})	<1	Benzo(a)pyrene (3×10^{-6}) Benzene (3×10^{-6}) Benzo(a)anthracene (3×10^{-7})	0.41 2.5 0.39	IR39B030 IR39B013 IR39B013	2.25 6.25 6.25	0.41 # 2.5 0.39
IR-36W (IR-39)	AV33 (077095, 077096, 078095, 078097)	1×10^{-5} (6×10^{-7})	<1	Benzo(a)pyrene (6×10^{-6}) Aroclor-1260 (1×10^{-6}) Dibenzo(a,h)anthracene (1×10^{-6}) Benzo(b)fluoranthene (1×10^{-6})	0.69 0.27 0.22 1.3	IR39B024A IR39B024A IR39B024A IR39B024A	1.75 1.75 1.75 1.75	0.69 # 0.27 0.22 1.3
IR-37 (IR-09)	AR23 (067065)	1×10^{-8} (2×10^{-9})	<1	NE	NE	NE	NE	NE
IR-37	AR24 (066068, 066069, 066070, 067068, 067070)	2×10^{-7} (1×10^{-8})	<1	NE	NE	NE	NE	NE
IR-37	AR25 (066071, 067071)	4×10^{-6} (2×10^{-7})	<1	Aroclor-1260 (2×10^{-6}) Aroclor-1260 Benzo(a)pyrene (1×10^{-6}) Benzo(b)fluoranthene (2×10^{-7}) Benzo(a)anthracene (1×10^{-7})	0.46 -- 0.12 0.25 0.15	PA37SS09 IR37B017 IR37B015 IR37B015 IR37B015	0.75 0.75 1.25 1.25 1.25	0.26 0.46 # 0.12 0.25 0.15

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site [a]	Industrial Exposure Area [b,c]	Total ELCR[d]	Total Segregated HI[e]	COPC Contributing Significantly to the Total ELCR, Total HI, or Lead[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
						Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37 (IR-09)	AS23 (068065, 068067, 069065, 069066, 069067, 070066, 070067)	4×10^{-6} (5×10^{-7})	<1	Arsenic (2×10^{-6}) Benzo(a)pyrene (8×10^{-7}) Beryllium (3×10^{-7}) Aroclor-1260 (2×10^{-7}) Aroclor-1260 Aroclor-1242 (1×10^{-7}) Benzo(a)anthracene (1×10^{-7}) Nickel (1×10^{-7})	4.3 0.1 0.34 0.04 -- 0.022 0.15 3,000	IR09B007 IR37B013 IR09B007 IR37B010 IR37B013 IR37B013 IR37B013 IR09B006	1.25 1.25 1.25 5.25 5.25 1.25 1.25 5.75	13 α, # 0.10 1.2 α, # 0.04 0.02 0.02 0.15 6,300
IR-37 (IR-09)	AS24 (070068, 070070)	NC	<1	NE	NE	NE	NE	NE
IR-37 (IR-09, IR-36N)	AS25 (070073)	NC	<1	NE	NE	NE	NE	NE
IR-37 (IR-09, IR-36N, IR-66)	AS26 (069076)	1×10^{-10} (2×10^{-11})	<1	NE	NE	NE	NE	NE
IR-38 (IR-36S, IR-36W)	AV32 (077092, 077093, 077094, 078093, 078094, 79092, 079094)	7×10^{-6} (4×10^{-7})	<1	Benzo(a)pyrene (3×10^{-6}) Benzene (3×10^{-6}) Benzo(a)anthracene (3×10^{-7})	0.41 2.5 0.39	IR39B030 IR39B013 IR39B013	2.25 6.25 6.25	0.41 # 2.5 0.39
IR-38 (IR-36S)	AW31 (080090, 081089, 082089, 082090, 82091)	5×10^{-6} (7×10^{-7})	<1	Arsenic (5×10^{-6})	12	PA38SS01	0.00	12 α, #

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Notes:

bgs	Below ground surface
COPC	Chemical of potential concern
ELCR	Excess lifetime cancer risk
EPC	Exposure point concentration
HI	Hazard index
mg/kg	Milligram per kilogram
NC	Not calculated; no carcinogenic COPCs identified in this exposure area; therefore, total segregated HI not calculated
NE	Not evaluated
#	Detected concentration exceeds U.S. Environmental Protection Agency (EPA) Region IX preliminary remediation goal (PRG) for industrial soil
α	Detected concentration exceeds Hunters Point ambient level (HPAL)
a	The number presented in parentheses is another IR site with which the subject industrial exposure area is associated.
b	The exposure area presented is based on a 0.5-acre exposure area.
c	The number presented in parentheses is the associated exposure area for the residential scenario based on a 2,500-square foot exposure area. The total ELCRs for the residential scenario are presented in Table N.5-9, and the total HIs for the residential scenario are presented in Table N.5-10.
d	The total ELCR presented is for the RME case. The value presented in parentheses is for the average exposure case. The total ELCR evaluates the ingestion of, dermal contact with, and inhalation of volatile organic compounds (VOC) and particulate emissions from the soil exposure pathway.
e	The total HIs for the industrial scenario are presented in Table N.I-1 of Attachment N-I.
f	Only the COPC-specific ELCRs for COPCs contributing about 90 percent of the total ELCRs that exceed 1×10^{-6}, COPCs contributing a risk exceeding 1×10^{-6} under the RME case, or lead concentrations exceeding 1,000 mg/kg are listed.
g	The value presented is the EPC assumed for the COPCs contributing significantly to the total ELCR under the RME case.
h	If the COPC-specific total ELCR exceeding 1×10^{-6} can be attributed to one or several sampling locations, the sampling location, depth, and concentration are listed.
i	Chromium VI was not speciated; therefore, for all IR-sites except IR-36S, a surrogate chromium VI value was calculated assuming 0.78 percent of the total chromium value (see Attachment N-C). For IR-36S, a surrogate chromium VI value was calculated assuming 3.3 percent of the total chromium value.

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TABLE N.D-1
SOIL SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/kg)	Total Chromium Detection Limit (mg/kg)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-36W	067087	PA36MW07A	9306A499	02/08/93	1.75	368	0.40	ND	0.05
		PA36MW07A	9306A500	02/08/93	3.75	116	0.41	ND	0.05
		PA36MW07A	9306A501	02/08/93	5.75	144	0.41	ND	0.05
		PA36MW07A	9306A502	02/08/93	8.25	359	0.43	ND	0.05
		PA36MW07A	9306A503	02/08/93	11.75	165	0.41	ND	0.05
	067090	PA36B027	9307J262	02/16/93	2.25	250	0.41	ND	0.05
		PA36B027	9307J263	02/16/93	4.25	627	0.42	ND	0.05
		PA36B027	9307J264	02/16/93	6.75	612	0.43	ND	0.05
		PA36B027	9307J265	02/16/93	9.25	685	0.42	ND	0.05
	067092	PA36MW06A	9306A543	02/10/93	2.25	431	0.42	ND	0.05
		PA36MW06A	9306A544	02/10/93	4.25	42.5	0.41	ND	0.05
		PA36MW06A	9306A545	02/10/93	6.25	68.0	0.43	ND	0.05
		PA36MW06A	9306A546	02/10/93	9.25	528	0.42	ND	0.05
		PA36MW06A	9306A547	02/10/93	11.75	60.3	0.44	ND	0.05
	069093	PA36MW08A	9306A576	02/11/93	1.75	55.4	0.62	ND	0.05
		PA36MW08A	9306A577	02/11/93	3.75	556	0.67	ND	0.05
		PA36MW08A	9306A579	02/11/93	9.25	407	0.72	ND	0.05
		PA36MW08A	9306A580	02/11/93	11.75	993	0.74	ND	0.05
	069094	PA36B021	9306A586	02/12/93	1.75	539	0.69	ND	0.05
		PA36B021	9306A587	02/12/93	3.75	92.4	0.68	ND	0.05
		PA36B021	9306A588	02/12/93	6.75	413	0.69	ND	0.05
		PA36B023	9309A654	03/03/93	1.75	34.4	0.39	ND	0.05
		PA36B023	9309A655	03/03/93	6.75	112	0.39	ND	0.05
		PA36B023	9309A656	03/03/93	11.75	394	0.43	ND	0.05
	069096	PA36B024	9307J259	02/16/93	2.25	607	0.40	ND	0.05
		PA36B024	9307J260	02/16/93	4.25	745	0.40	ND	0.05
		PA36B024	9307J261	02/16/93	6.75	458	0.42	ND	0.05
	070093	PA36B022	9309A657	03/03/93	1.75	48.8	0.39	ND	0.05
		PA36B022	9309A658	03/03/93	4.25	33.2	0.40	ND	0.05
		PA36B022	9309A659	03/03/93	6.25	732	0.41	ND	0.05
		PA36B022	9309A660	03/03/93	9.25	371	0.42	ND	0.05
		PA36B022	9309A661	03/03/93	11.75	323	0.42	ND	0.05
		PA36B022	9309A662	03/03/93	16.75	172 a	0.44	ND	0.05
	073093	PA36B019	9306A559	02/11/93	1.75	142	0.65	ND	0.05
		PA36B019	9306A560	02/11/93	3.75	125	0.67	ND	0.05
		PA36B019	9306A561	02/11/93	6.75	154	0.66	ND	0.05
	076091	PA36B018	9306A517	02/09/93	2.25	13.0	0.39	ND	0.05
		PA36B018	9306A518	02/09/93	4.25	722	0.41	ND	0.05
		PA36B018	9306A519	02/09/93	6.25	481	0.37	ND	0.05
		PA36B018	9306A520	02/09/93	9.25	92.3	0.40	ND	0.05
IR-37	066068	PA37SS04	9312A697	03/24/93	1.25	149	0.39	ND	0.05
	066071	PA37SS08	9310J389	03/11/93	1.25	42.5	0.40	ND	0.05
		PA37SS09	9310J369	03/08/93	0.75	74.2	0.41	ND	0.05

TABLE N.D-1
SOIL SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/kg)	Total Chromium Detection Limit (mg/kg)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-37	067065	IR09MW51F	9605G061	01/31/96	1.88	392	0.08	0.10	0.05
	069067	IR09B007	8939E011	09/26/89	3.25	142 α	0.63	0.25	0.11
		IR09B007	8939E012	09/26/89	1.25	54.9	0.56	ND	0.10
		IR09B007	8939E013	09/26/89	5.25	783 α	0.66	0.62	0.12
		IR09B007	8939E014	09/26/89	10.25	872	0.72	0.12	0.05
	070067	IR09B010	8941F011	10/11/89	1.25	8.6	0.64	0.14	0.05
		IR09B010	8941F012	10/11/89	3.25	814	0.75	0.10	0.06
		IR09B010	8941F013	10/11/89	5.75	282	0.72	ND	0.06
		IR09B010	8941F014	10/11/89	10.75	56.5 α	0.70	ND	0.05
IR-38	080090	PA38SS01	9309J354	03/02/93	0.00	148	0.80	ND	0.05
	088090	PA39MW01A	9307J270	02/16/93	2.25	10.9	0.38	ND	0.05
		PA39MW01A	9307J271	02/16/93	4.25	75.9	0.42	ND	0.05
		PA39MW01A	9307J272	02/16/93	9.25	55.0	0.42	ND	0.05
IR-39	077098	PA39B003	9308D040	02/22/93	2.25	784	0.40	ND	0.05
		PA39B003	9308D041	02/22/93	4.25	56.3	0.40	ND	0.05
		PA39B003	9308D042	02/22/93	6.75	59.0	0.42	ND	0.05
		PA39B003	9308D043	02/22/93	9.25	131	0.42	ND	0.05
	084095	PA39B004	9309A663	03/03/93	1.75	59.6	0.44	ND	0.05
		PA39B004	9309A664	03/03/93	4.25	303	0.42	ND	0.05
		PA39B004	9309A665	03/03/93	6.25	304	0.41	ND	0.05
	086096	PA39MW02A	9307J273	02/17/93	2.25	448	0.43	ND	0.05
		PA39MW02A	9307J274	02/17/93	4.25	222	0.43	ND	0.05
		PA39MW02A	9307J275	02/17/93	6.25	38.9	0.40	ND	0.05
		PA39MW02A	9307J276	02/17/93	9.25	150	0.41	ND	0.05
	088097	PA39B005	9309A675	03/04/93	1.75	17.8	0.42	ND	0.05
		PA39B005	9309A676	03/04/93	4.25	533	0.40	ND	0.05
		PA39B005	9309A677	03/04/93	6.75	54.3	0.40	ND	0.05
		PA39B005	9309A678	03/04/93	9.75	50.2	0.41	ND	0.05
	089092	PA39B007	9308D027	02/22/93	2.25	240	0.42	ND	0.05
		PA39B007	9308D028	02/22/93	4.25	119	0.42	ND	0.05
		PA39B007	9308D029	02/22/93	6.75	37.7	0.41	ND	0.05
IR-44	089072	PA50TA09	9327P235	07/08/93	9.75	56.0	0.41	ND	0.05
IR-53	112089	PA53SS03	9309J350	03/02/93	0.00	172	0.77	ND	0.05
	112090	PA53SS04	9309J351	03/02/93	0.00	145	0.75	ND	0.05
IR-66	071074	PA36B030	9307J266	02/16/93	2.25	109	0.43	ND	0.05
		PA36B030	9307J267	02/16/93	4.25	421	0.41	ND	0.05
		PA36B030	9307J268	02/16/93	6.75	334	0.42	ND	0.05
		PA36B030	9307J269	02/16/93	9.25	166	0.43	ND	0.05
	073072	IR09MW36A	9015G170	04/09/90	0.75	70.4	0.37	ND	0.06

TABLE N.D-2
SOIL SAMPLES ANALYZED FOR CHROMIUM VI ONLY
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-08	093086	IR08B001	8940E066	10/02/89	3.25	ND	0.06
	094084	IR08B005	8940G038	10/06/89	2.75	ND	0.05
		IR08B012	8940G028	10/05/89	3.25	ND	0.05
		IR08B012	8940G029	10/05/89	5.75	ND	0.05
	094085	IR08B003	8940E084	10/03/89	3.75	ND	0.05
		IR08B011	8940E093	10/03/89	3.25	ND	0.05
	094086	IR08B002	8940E074	10/02/89	3.25	ND	0.05
IR-09	069064	IR09B050	9431R489	08/03/94	1.75	ND	0.05
		IR09B050	9431R490	08/03/94	3.75	ND	0.50
		IR09B050	9431R491	08/03/94	6.25	ND	0.05
		IR09B050	9431R492	08/03/94	11.25	ND	0.05
	070062	IR09B047	9415C138	04/14/94	6.25	ND	0.05
		IR09B047	9415C139	04/14/94	11.25	ND	0.05
		IR09B047	9415C140	04/14/94	16.25	ND	0.07
	070068	IR09B045	9415C141	04/14/94	6.25	ND	0.05
		IR09B045	9415C142	04/14/94	11.25	ND	0.08
		IR09B045	9415C144	04/14/94	16.25	ND	0.05
	072065	IR09B046	9415C134	04/13/94	6.25	ND	0.10
		IR09B046	9415C135	04/13/94	11.25	ND	0.05
		IR09B046	9415C137	04/13/94	21.25	ND	0.05
	072069	IR09B016	8939E054	09/29/89	1.25	ND	0.05
IR-16	110090	PA16B002	9106H589	02/04/91	3.75	ND	0.05
		PA16B002	9106H590	02/04/91	8.25	ND	0.05
		PA16MW16A	9106G601	02/05/91	2.25	ND	0.05
		PA16MW16A	9106G602	02/05/91	4.75	ND	0.05
	110091	PA16B003	9106H587	02/04/91	5.75	ND	0.05
		PA16B003	9106H588	02/04/91	10.25	ND	0.05
	111090	PA16B006	9106H593	02/06/91	1.25	ND	0.05
		PA16B006	9106H594	02/06/91	5.75	ND	0.05
	111091	PA16B004	9106H595	02/06/91	1.75	ND	0.05
		PA16B004	9106H596	02/06/91	5.75	ND	0.05
	112089	PA16B018A	9106H591	02/06/91	1.25	ND	0.05
		PA16MW18A	9106H592	02/06/91	8.75	ND	0.05
	112090	PA16B005	9105G599	02/01/91	1.25	ND	0.05
		PA16B005	9105G600	02/01/91	4.25	ND	0.05
	112091	PA16B017B	9106G603	02/05/91	1.00	ND	0.05
		PA16B017B	9106G604	02/05/91	5.25	ND	0.05
IR-37	070068	IR09B045	9415C141	04/14/94	6.25	ND	0.05

TABLE N.D-2
SOIL SAMPLES ANALYZED FOR CHROMIUM VI ONLY
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-37	070068	IR09B045	9415C142	04/14/94	11.25	ND	0.08
		IR09B045	9415C144	04/14/94	16.25	ND	0.05
IR-53	110090	PA16B002	9106H589	02/04/91	3.75	ND	0.05
		PA16B002	9106H590	02/04/91	8.25	ND	0.05
		PA16MW16A	9106G601	02/05/91	2.25	ND	0.05
		PA16MW16A	9106G602	02/05/91	4.75	ND	0.05
	110091	PA16B003	9106H587	02/04/91	5.75	ND	0.05
		PA16B003	9106H588	02/04/91	10.25	ND	0.05
	111090	PA16B006	9106H593	02/06/91	1.25	ND	0.05
		PA16B006	9106H594	02/06/91	5.75	ND	0.05
	111091	PA16B004	9106H595	02/06/91	1.75	ND	0.05
		PA16B004	9106H596	02/06/91	5.75	ND	0.05
	112084	PA16B001	9106G605	02/07/91	1.25	ND	0.05
		PA16B001	9106G606	02/07/91	4.25	ND	0.05
	112089	PA16B018A	9106H591	02/06/91	1.25	ND	0.05
		PA16MW18A	9106H592	02/06/91	8.75	ND	0.05
	112090	PA16B005	9105G599	02/01/91	1.25	ND	0.05
		PA16B005	9105G600	02/01/91	4.25	ND	0.05
	112091	PA16B017B	9106G603	02/05/91	1.00	ND	0.05
		PA16B017B	9106G604	02/05/91	5.25	ND	0.05

Notes:

bgs Below ground surface
mg/kg Milligram per kilogram
ND Not detected

TABLE N.D-3

DETERMINATION OF CHROMIUM VI EXPOSURE POINT CONCENTRATION AND SURROGATE CHROMIUM VI VALUES OF SOIL SAMPLES ANALYZED FOR TOTAL CHROMIUM ONLY[a]
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Analyzed for Total Chromium and Chromium VI[b]	Analyzed for Chromium VI Only[c]	Chromium VI EPC[d] (mg/kg)	Analyzed for Total Chromium Only[e]				Surrogate Chromium VI Value[g] (mg/kg)
					Sample Station	Sample Number	Sample Depth (feet bgs)	Detected Value[f] (mg/kg)	
IR-36W	073093	Yes	No	ND					
	073097	No	No	ND	IR36B112 IR36B112	9426A959 9426A960	0.75 5.25	128.590 445.890	
	074090	No	No	ND	IR36B057 IR36B057	9423T211 9423T212	1.75 6.25	357.000 256.000	
	074094	No	No	ND	IR39B032 IR39B032	9601G027 9601G028	1.75 5.25	233.000 127.000	
	075095	No	No	ND	IR39MW35A IR39MW35A	9550J669 9550J670	0.75 6.25	144.000 107.000	
	076091	Yes	No	ND					
	076092	No	No	ND	IR39B029 IR39B029	9601G032 9601G033	1.50 5.75	13.300 452.000	
	076094	No	No	ND	IR39B017 IR39B018	9420R138 9420R134	6.25 6.25	117.000 230.000	
	076095	No	No	ND	IR39B020 IR39B021 IR39B021	9421T142 9422R196 9422R197	6.25 1.75 6.25	223.000 243.710 135.130	
	076096	No	No	ND	IR39B022 IR39B022	9422R202 9422R203	1.75 6.25	194.220 114.200	
	077093	No	No	ND	IR39B012A IR39B013 IR39MW36A IR39MW36A	9420R145 9420R142 9550J665 9550J666	8.25 6.25 0.75 6.25	185.000 112.000 11.100 8.400	
	077096	No	No	1.178	IR39B024A IR39B024A	9426R335 9426R336	1.75 6.25	151.000 * 210.000	1.178 *
	078093	No	No	ND	IR39B030 IR39B030	9601G019 9601G020	2.25 5.75	10.700 292.000	
	078094	No	No	ND	IR39B025 IR39B025	9426R340 9426R341	1.75 6.25	13.720 276.740	
	078095	No	No	ND	IR39B031 IR39B031	9601G024 9601G025	2.25 5.25	228.000 133.000	
	079096	Yes	No	ND					
IR-37	066068	Yes	No	ND					

TABLE N.D-3

DETERMINATION OF CHROMIUM VI EXPOSURE POINT CONCENTRATION AND SURROGATE CHROMIUM VI VALUES OF SOIL SAMPLES ANALYZED FOR TOTAL CHROMIUM ONLY[a]
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Analyzed for Total Chromium and Chromium VI[b]	Analyzed for Chromium VI Only[c]	Chromium VI EPC[d] (mg/kg)	Analyzed for Total Chromium Only[e]				Surrogate Chromium VI Value[g] (mg/kg)
					Sample Station	Sample Number	Sample Depth (feet bgs)	Detected Value[f] (mg/kg)	
IR-37	066069	No	No	ND	IR50B016	9422R210	1.75	413.000	
					IR50B016	9422R211	6.25	612.000	
	066070	No	No	ND	IR37B016	9423C260	2.75	328.880	
					IR37B016	9423C261	5.75	711.750	
	066071	Yes	No	ND	IR37B014	9423C266	2.75	18.650	
					IR37B014	9423C267	5.75	472.500	
					IR37B015	9423C263	1.25	218.720	
					IR37B015	9423C264	6.25	601.520	
					IR37B017	9424C268	0.75	83.200	
					IR37B017	9424C269	3.25	370.000	
					IR37B017	9424C270	5.75	431.000	
					IR37SS22	9605J797	0.00	105.000	
					IR37SS23	9605J798	0.00	63.800	
					IR37SS24	9605J796	0.00	31.100	
	067065	Yes	No	0.100					
	067068	No	No	ND	IR37B012	9422C250	5.25	74.610	
	067070	No	No	ND	IR37B018	9537J241	0.75	93.900	
					IR37B018	9537J242	2.25	835.000	
					IR37B018	9537J243	6.25	492.000	
	067071	No	No	ND	IR37B019	9537J245	0.75	107.000	
					IR37B019	9537J246	2.75	101.000	
					IR37B019	9537J247	5.75	348.000	
					IR37B020	9538J289	0.75	54.000	
					IR37B020	9538J290	2.75	390.000	
					IR37B020	9538J291	6.25	481.000	
					IR37B021	9545J582	0.75	113.000	
					IR37B021	9545J583	3.00	421.000	
					IR37B021	9545J584	5.50	562.000	
	068067	No	No	ND	IR37B010	9421C246	5.25	600.000	
					IR37B011	9415C147	5.75	510.740	
					IR37B013	9421R180	1.25	60.700	
					IR37B013	9421R181	5.25	363.000	
	069067	Yes	No	0.620					
	070067	Yes	No	0.140					
	070068	No	Yes	ND					
IR-38	080090	Yes	No	ND					
	082089	No	No	ND	IR38B002	9414A766	6.25	124.540	

TABLE N.D-4
GROUNDWATER SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/L)	Total Chromium Detection Limit (mg/L)	Chromium VI Concentration (mg/L)	Chromium VI Detection Limit (mg/L)
IR-35	092058	IR22MW08A	9318X989	05/06/93	0.00	ND	0.008	ND	0.01
		IR22MW08A	9336X027	09/09/93	0.00	ND	0.002	ND	0.01
		IR22MW08A	9402X169	01/13/94	0.00	ND	0.002	ND	0.02
	093063	IR22MW15A	9318X983	05/04/93	0.00	0.009	0.003	ND	0.01
		IR22MW15A	9318X984	05/04/93	0.00	0.009	0.003	ND	0.01
		IR22MW15A	9336X028	09/09/93	0.00	ND	0.002	ND	0.05
		IR22MW15A	9402X167	01/13/94	0.00	ND	0.002	ND	0.01
IR-36N	059078	PA36MW01A	9305J230	02/04/93	0.00	ND	0.003	ND	0.01
	061083	PA36MW03A	9306J248	02/11/93	0.00	ND	0.003	ND	0.01
		PA36MW03A	9306J249	02/11/93	0.00	ND	0.003	ND	0.01
	062076	PA36MW02A	9305J232	02/04/93	0.00	ND	0.003	ND	0.01
IR-36S	067087	PA36MW07A	9308J309	02/23/93	0.00	ND	0.002	ND	0.01
	072085	PA36MW04A	9305J234	02/05/93	0.00	ND	0.003	ND	0.01
	076087	PA36MW05A	9306J244	02/10/93	0.00	0.004	0.002	ND	0.01
		PA36MW05A	9306J245	02/10/93	0.00	0.002	0.002	ND	0.01
	077092	PA50MW09A	9317X971	04/26/93	0.00	ND	0.002	ND	0.01
		PA50MW09A	9612J947	03/21/96	0.00	0.0005	0.0004	ND	0.01
		PA50MW09A	9618J077	05/02/96	0.00	ND	0.0007	ND	0.01
IR-36W	067087	PA36MW07A	9308J309	02/23/93	0.00	ND	0.002	ND	0.01
	067092	PA36MW06A	9306J252	02/11/93	0.00	ND	0.003	ND	0.01
	069093	PA36MW08A	9307A590	02/16/93	0.00	ND	0.002	ND	0.01
		PA36MW08A	9307A591	02/16/93	0.00	ND	0.002	ND	0.01
	077092	PA50MW09A	9317X971	04/26/93	0.00	ND	0.002	ND	0.01
		PA50MW09A	9612J947	03/21/96	0.00	0.0005	0.0004	ND	0.01
		PA50MW09A	9618J077	05/02/96	0.00	ND	0.0007	ND	0.01
IR-37	067065	IR09MW51F	9607W102	02/15/96	0.00	0.06	0.0004	0.06	0.01
		IR09MW51F	9612W167	03/18/96	0.00	0.05	0.0004	0.05	0.01
		IR09MW51F	9612W168	03/18/96	0.00	0.05	0.0004	0.05	0.01
		IR09MW51F	9620J114	05/14/96	0.00	0.05	0.0007	0.05	0.01
IR-38	088090	PA39MW01A	9307A611	02/18/93	0.00	ND	0.002	ND	0.01
		PA39MW01A	9307A612	02/18/93	0.00	ND	0.002	ND	0.01
IR-39	086096	PA39MW02A	9307D024	02/19/93	0.00	ND	0.002	ND	0.01
		PA39MW02A	9307D025	02/19/93	0.00	ND	0.002	ND	0.01
IR-44	086080	PA50MW06A	9317X969	04/26/93	0.00	ND	0.002	ND	0.01
IR-53	109085	PA50MW05A	9316X960	04/22/93	0.00	ND	0.002	ND	0.01
		PA50MW05A	9316X961	04/22/93	0.00	ND	0.002	ND	0.01

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TABLE N.D-5
GROUNDWATER SAMPLES ANALYZED FOR CHROMIUM VI ONLY
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Chromium VI Concentration (mg/L)	Chromium VI Detection Limit (mg/L)
IR-09	067065	IR09MW51F	96152043	04/09/96	0.00	0.05	0.01
	069072	IR09MW52A	96152042	04/09/96	0.00	ND	0.01
	075070	IR09MW35A	9530X901	07/28/95	0.00	0.12	0.01
IR-16	110090	PA16MW16A PA16MW16A	9107X054 9107X055	02/12/91 02/12/91	0.00 0.00	ND ND	0.01 0.01
	112089	PA16MW18A PA16MW18A	9107X059 9107X060	02/14/91 02/14/91	0.00 0.00	ND ND	0.01 0.01
	112091	PA16MW17A	9107X057	02/12/91	0.00	ND	0.01
IR-32	099069	PA50MW07A	9618J072	05/01/96	0.00	ND	0.01
IR-33S	075070	IR09MW35A	9530X901	07/28/95	0.00	0.12	0.01
IR-37	067065	IR09MW51F	96152043	04/09/96	0.00	0.05	0.01
IR-53	110090	PA16MW16A PA16MW16A	9107X054 9107X055	02/12/91 02/12/91	0.00 0.00	ND ND	0.01 0.01
	112089	PA16MW18A PA16MW18A	9107X059 9107X060	02/14/91 02/14/91	0.00 0.00	ND ND	0.01 0.01
	112091	PA16MW17A	9107X057	02/12/91	0.00	ND	0.01

Notes:

bgs Below ground surface
mg/L Microgram per liter
ND Not detected

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TABLE N.11-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 066068, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	1/1	2.0E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	1/1	2.9E+01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	1/1	1.5E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
XYLENE (TOTAL)	1/1	2.2E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.11-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 066068, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	1/1	2.0E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	1/1	2.9E+01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	1/1	1.5E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
XYLENE (TOTAL)	1/1	2.2E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE [illegible]-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 066069, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	2/2	9.6E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	2/2	8.6E+00	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	2/2	1.2E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
TETRACHLOROETHENE	2/2	2.0E-03	1.9E-11	8.6E-12	3E-11	3.8E-12	7.1E-12	1E-11	5.6E-11	6.4E-11	1E-10	1.0E-09	1.2E-09	2E-09	2E-09
TOLUENE	1/2	2.0E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			2E-11	9E-12	3E-11	4E-12	7E-12	1E-11	6E-11	6E-11	1E-10	1E-09	1E-09	2E-09	2E-09
Semivolatile Organic Compound															
CHRYSENE	1/2	5.5E-02	1.2E-09	5.5E-10	2E-09	3.6E-10	6.8E-10	1E-09	9.2E-13	1.1E-12	2E-12	1.9E-08	2.2E-08	4E-08	4E-08
Subtotal of SVOC			1E-09	5E-10	2E-09	4E-10	7E-10	1E-09	9E-13	1E-12	2E-12	2E-08	2E-08	4E-08	4E-08
Pesticide/Polychlorinated Biphenyl															
AROCLOR-1260	1/2	3.1E-02	4.3E-08	2.0E-08	6E-08	1.3E-08	2.4E-08	4E-08	2.9E-12	3.3E-12	6E-12	5.6E-07	6.4E-07	1E-06	1E-06
Subtotal of PEST/PCB			4E-08	2E-08	6E-08	1E-08	2E-08	4E-08	3E-12	3E-12	6E-12	6E-07	6E-07	1E-06	1E-06
TOTAL			4E-08	2E-08	6E-08	1E-08	3E-08	4E-08	6E-11	7E-11	1E-10	6E-07	7E-07	1E-06	1E-06

TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 066069, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	2/2	1.4E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	2/2	1.4E+01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	2/2	1.4E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
TETRACHLOROETHENE	2/2	2.0E-03	1.1E-10	4.9E-11	2E-10	2.3E-11	4.9E-11	7E-11	1.9E-10	3.3E-10	5E-10	4.7E-09	6.3E-09	1E-08	1E-08
TOLUENE	1/2	2.0E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			1E-10	5E-11	2E-10	2E-11	5E-11	7E-11	2E-10	3E-10	5E-10	5E-09	6E-09	1E-08	1E-08
Semivolatile Organic Compound															
CHRYSENE	1/2	5.5E-02	7.2E-09	3.1E-09	1E-08	2.2E-09	4.6E-09	7E-09	3.2E-12	5.5E-12	9E-12	9.0E-08	1.2E-07	2E-07	2E-07
Subtotal of SVOC			7E-09	3E-09	1E-08	2E-09	5E-09	7E-09	3E-12	5E-12	9E-12	9E-08	1E-07	2E-07	2E-07
Pesticide/Polychlorinated Biphenyl															
AROCLOR-1260	1/2	4.2E-02	3.5E-07	1.5E-07	5E-07	1.1E-07	2.3E-07	3E-07	1.3E-11	2.3E-11	4E-11	3.6E-06	4.7E-06	8E-06	9E-06
Subtotal of PEST/PCB			4E-07	2E-07	5E-07	1E-07	2E-07	3E-07	1E-11	2E-11	4E-11	4E-06	5E-06	8E-06	9E-06
TOTAL			4E-07	2E-07	5E-07	1E-07	2E-07	3E-07	2E-10	4E-10	6E-10	4E-06	5E-06	8E-06	9E-06

TABLE 1 -2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 066070, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	2/2	4.0E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
ACETONE	1/2	6.6E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 066070, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	2/2	6.0E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
ACETONE	1/2	1.2E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.xx-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 066071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	12/12	1.5E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
BARIUM	12/12	2.3E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	10/12	1.2E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	12/12	1.7E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
THALLIUM	2/12	3.6E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ZINC	12/12	1.6E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
ACETONE	2/9	2.0E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ETHYLBENZENE	1/9	5.8E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOLUENE	1/9	3.8E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Semivolatile Organic Compound															
2-METHYLNAPHTHALENE	3/12	4.0E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ANTHRACENE	1/12	5.1E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
BENZO(A)ANTHRACENE	2/12	1.4E-01	3.1E-08	1.4E-08	5E-08	9.4E-09	1.8E-08	3E-08	1.3E-12	1.4E-12	3E-12	7.1E-08	8.2E-08	2E-07	2E-07
BENZO(A)PYRENE	1/11	1.2E-01	2.6E-07	1.2E-07	4E-07	7.9E-08	1.5E-07	2E-07	1.1E-11	1.2E-11	2E-11	3.4E-07	3.9E-07	7E-07	1E-06
BENZO(B)FLUORANTHENE	2/11	2.1E-01	4.5E-08	2.1E-08	7E-08	1.4E-08	2.6E-08	4E-08	1.8E-12	2.1E-12	4E-12	5.9E-07	6.7E-07	1E-06	1E-06

TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 066071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
BENZO(K)FLUORANTHENE	2/11	6.6E-02	1.5E-08	6.6E-09	2E-08	4.4E-09	8.2E-09	1E-08	3.1E-13	3.6E-13	7E-13	1.9E-07	2.2E-07	4E-07	4E-07
BIS(2-ETHYLHEXYL)PHTHALATE	1/12	1.2E-01	3.2E-10	1.4E-10	5E-10	6.4E-11	1.2E-10	2E-10	2.1E-14	2.4E-14	5E-14	9.8E-09	1.1E-08	2E-08	2E-08
CARBAZOLE	1/12	2.6E-01	9.6E-10	4.4E-10	1E-09	1.9E-10	3.6E-10	6E-10	6.4E-14	7.3E-14	1E-13	3.7E-08	4.3E-08	8E-08	8E-08
CHRYSENE	3/12	2.6E-01	5.6E-09	2.5E-09	8E-09	1.7E-09	3.1E-09	5E-09	4.3E-12	4.9E-12	9E-12	8.9E-08	1.0E-07	2E-07	2E-07
FLUORANTHENE	2/12	3.7E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NAPHTHALENE	2/12	1.9E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
PHENANTHRENE	2/12	3.2E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
PYRENE	2/12	4.9E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of SVOC			4E-07	2E-07	5E-07	1E-07	2E-07	3E-07	2E-11	2E-11	4E-11	1E-06	2E-06	3E-06	4E-06
Pesticide/Polychlorinated Biphenyl															
4,4'-DDD	2/12	2.3E-02	1.0E-09	4.6E-10	1E-09	1.0E-10	1.9E-10	3E-10	6.7E-14	7.7E-14	1E-13	1.2E-08	1.4E-08	3E-08	3E-08
4,4'-DDE	1/12	4.3E-03	2.7E-10	1.2E-10	4E-10	2.7E-11	5.0E-11	8E-11	1.8E-14	2.0E-14	4E-14	2.3E-09	2.6E-09	5E-09	5E-09
ALDRIN	1/12	2.1E-03	6.5E-09	2.9E-09	9E-09	6.5E-10	1.2E-09	2E-09	4.3E-13	4.9E-13	9E-13	1.2E-07	1.4E-07	3E-07	3E-07
ALPHA-CHLORDANE	1/12	1.8E-03	4.3E-10	1.9E-10	6E-10	4.3E-11	8.0E-11	1E-10	2.8E-14	3.2E-14	6E-14	1.8E-10	2.1E-10	4E-10	1E-09
AROCLOR-1260	2/12	1.4E-01	1.9E-07	8.8E-08	3E-07	5.8E-08	1.1E-07	2E-07	1.3E-11	1.5E-11	3E-11	2.5E-06	2.9E-06	5E-06	6E-06
ENDRIN	1/12	3.1E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ENDRIN KETONE	1/12	4.3E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GAMMA-CHLORDANE	1/12	1.4E-03	3.3E-10	1.5E-10	5E-10	3.3E-11	6.1E-11	9E-11	2.2E-14	2.5E-14	5E-14	1.8E-08	2.1E-08	4E-08	4E-08
HEPTACHLOR EPOXIDE	1/12	1.7E-03	4.0E-09	1.8E-09	6E-09	4.0E-10	7.4E-10	1E-09	2.6E-13	3.0E-13	6E-13	4.1E-07	4.7E-07	9E-07	9E-07
Subtotal of PEST/PCB			2E-07	9E-08	3E-07	6E-08	1E-07	2E-07	1E-11	2E-11	3E-11	3E-06	4E-06	7E-06	7E-06

TABLE N..1-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 066071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
TOTAL			6E-07	3E-07	8E-07	2E-07	3E-07	5E-07	3E-11	4E-11	7E-11	4E-06	5E-06	9E-06	1E-05

TABLE N.n-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 066071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	12/12	1.5E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
BARIUM	12/12	5.0E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	10/12	1.3E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	12/12	1.7E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
THALLIUM	2/12	1.8E+00	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ZINC	12/12	1.6E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Volatile Organic Compound															
ACETONE	2/9	1.1E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ETHYLBENZENE	1/9	7.6E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOLUENE	1/9	3.8E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Semivolatile Organic Compound															
2-METHYLNAPHTHALENE	3/12	8.6E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ANTHRACENE	1/12	5.1E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
BENZO(A)ANTHRACENE	2/12	1.5E-01	2.0E-07	8.5E-08	3E-07	5.9E-08	1.3E-07	2E-07	4.6E-12	7.8E-12	1E-11	3.5E-07	4.6E-07	8E-07	1E-06
BENZO(A)PYRENE	1/11	1.2E-01	1.6E-06	6.8E-07	2E-06	4.7E-07	1.0E-06	1E-06	3.6E-11	6.3E-11	1E-10	1.6E-06	2.1E-06	4E-06	7E-06
BENZO(B)FLUORANTHENE	2/11	2.5E-01	3.3E-07	1.4E-07	5E-07	9.9E-08	2.1E-07	3E-07	7.6E-12	1.3E-11	2E-11	3.3E-06	4.4E-06	8E-06	8E-06

TABLE N...-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 066071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
BENZO(K)FLUORANTHENE	2/11	7.0E-02	9.2E-08	3.9E-08	1E-07	2.8E-08	5.9E-08	9E-08	1.1E-12	1.9E-12	3E-12	9.2E-07	1.2E-06	2E-06	2E-06
BIS(2-ETHYLHEXYL)PHTHALATE	1/12	1.5E-01	2.2E-09	9.6E-10	3E-09	4.5E-10	9.6E-10	1E-09	8.5E-14	1.5E-13	2E-13	5.3E-08	7.1E-08	1E-07	1E-07
CARBAZOLE	1/12	3.4E-01	7.5E-09	3.2E-09	1E-08	1.5E-09	3.2E-09	5E-09	2.8E-13	4.9E-13	8E-13	2.2E-07	3.0E-07	5E-07	5E-07
CHRYSENE	3/12	3.4E-01	4.5E-08	1.9E-08	6E-08	1.3E-08	2.9E-08	4E-08	2.0E-11	3.4E-11	5E-11	5.5E-07	7.3E-07	1E-06	1E-06
FLUORANTHENE	2/12	6.8E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NAPHTHALENE	2/12	2.0E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
PHENANTHRENE	2/12	5.2E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
PYRENE	2/12	8.0E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of SVOC			2E-06	1E-06	3E-06	7E-07	1E-06	2E-06	7E-11	1E-10	2E-10	7E-06	9E-06	2E-05	2E-05
Pesticide/Polychlorinated Biphenyl															
4,4'-DDD	2/12	1.8E-01	4.7E-08	2.0E-08	7E-08	4.7E-09	1.0E-08	1E-08	1.8E-12	3.1E-12	5E-12	4.3E-07	5.7E-07	1E-06	1E-06
4,4'-DDE	1/12	7.7E-03	2.9E-09	1.2E-09	4E-09	2.9E-10	6.1E-10	9E-10	1.1E-13	1.9E-13	3E-13	1.9E-08	2.5E-08	4E-08	5E-08
ALDRIN	1/12	3.7E-03	6.9E-08	3.0E-08	1E-07	6.9E-09	1.5E-08	2E-08	2.6E-12	4.5E-12	7E-12	1.0E-06	1.4E-06	2E-06	3E-06
ALPHA-CHLORDANE	1/12	3.0E-03	4.3E-09	1.8E-09	6E-09	4.3E-10	9.2E-10	1E-09	1.6E-13	2.8E-13	4E-13	1.4E-09	1.9E-09	3E-09	1E-08
AROCLOR-1260	2/12	4.6E-01	3.9E-06	1.7E-06	6E-06	1.2E-06	2.5E-06	4E-06	1.5E-10	2.5E-10	4E-10	3.9E-05	5.2E-05	9E-05	1E-04
ENDRIN	1/12	4.7E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ENDRIN KETONE	1/12	7.7E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GAMMA-CHLORDANE	1/12	2.0E-03	2.8E-09	1.2E-09	4E-09	2.8E-10	6.1E-10	9E-10	1.1E-13	1.9E-13	3E-13	1.2E-07	1.6E-07	3E-07	3E-07
HEPTACHLOR EPOXIDE	1/12	2.7E-03	3.8E-08	1.6E-08	5E-08	3.8E-09	8.2E-09	1E-08	1.5E-12	2.5E-12	4E-12	3.1E-06	4.0E-06	7E-06	7E-06
Subtotal of PEST/PCB			4E-06	2E-06	6E-06	1E-06	3E-06	4E-06	2E-10	3E-10	4E-10	4E-05	6E-05	1E-04	1E-04

TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 066071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
TOTAL			6E-06	3E-06	9E-06	2E-06	4E-06	6E-06	2E-10	4E-10	6E-10	5E-05	7E-05	1E-04	1E-04

TABLE N 2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 067065, Associated Site(s) IR-09, IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	1/1	2.8E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHROMIUM VI	1/1	1.0E-01	7.7E-09	3.5E-09	1E-08	NE	NE	NE	6.2E-10	7.1E-10	1E-09	3.1E-09	3.5E-09	7E-09	2E-08
MANGANESE	1/1	1.6E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			8E-09	3E-09	1E-08	NE	NE	NE	6E-10	7E-10	1E-09	3E-09	4E-09	7E-09	2E-08
TOTAL			8E-09	3E-09	1E-08	NE	NE	NE	6E-10	7E-10	1E-09	3E-09	4E-09	7E-09	2E-08

TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 067065, Associated Site(s) IR-09, IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	1/1	2.8E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHROMIUM VI	1/1	1.0E-01	4.6E-08	2.0E-08	7E-08	NE	NE	NE	2.1E-09	3.6E-09	6E-09	1.4E-08	1.9E-08	3E-08	1E-07
MANGANESE	1/1	1.6E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			5E-08	2E-08	7E-08	NE	NE	NE	2E-09	4E-09	6E-09	1E-08	2E-08	3E-08	1E-07
TOTAL			5E-08	2E-08	7E-08	NE	NE	NE	2E-09	4E-09	6E-09	1E-08	2E-08	3E-08	1E-07

TABLE N...-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 067068, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	1/1	2.9E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 067068, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	1/1	2.9E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE . ..-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 067070, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	3/3	1.1E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.n-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 067070, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	3/3	2.3E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.. _ (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 067071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	9/9	1.8E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
BARIUM	9/9	1.5E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	9/9	9.3E+00	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	9/9	1.6E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ZINC	9/9	9.5E+01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE N.h-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 067071, Associated Site(s) IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	9/9	1.8E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
BARIUM	9/9	3.7E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LEAD	9/9	9.3E+00	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MANGANESE	9/9	1.6E+03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ZINC	9/9	9.5E+01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOTAL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

TABLE [illegible]-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 069067, Associated Site(s) IR-09, IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	3/3	1.6E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ARSENIC	3/3	6.1E+00	1.7E-06	7.6E-07	2E-06	1.0E-07	1.9E-07	3E-07	1.1E-09	1.3E-09	2E-09	8.9E-07	1.0E-06	2E-06	5E-06
BERYLLIUM	1/3	6.2E-01	4.9E-07	2.2E-07	7E-07	9.8E-09	1.8E-08	3E-08	6.3E-11	7.2E-11	1E-10	6.5E-08	7.5E-08	1E-07	9E-07
CHROMIUM	3/3	3.3E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHROMIUM VI	2/3	3.1E-01	2.4E-08	1.1E-08	3E-08	NE	NE	NE	1.9E-09	2.2E-09	4E-09	9.4E-09	1.1E-08	2E-08	6E-08
LEAD	3/3	5.4E+00	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			2E-06	1E-06	3E-06	1E-07	2E-07	3E-07	3E-09	4E-09	7E-09	1E-06	1E-06	2E-06	6E-06
TOTAL			2E-06	1E-06	3E-06	1E-07	2E-07	3E-07	3E-09	4E-09	7E-09	1E-06	1E-06	2E-06	6E-06

TABLE N.11-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: RME
Area/Site: Exposure Area 069067, Associated Site(s) IR-09, IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	3/3	1.8E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ARSENIC	3/3	1.3E+01	2.1E-05	8.9E-06	3E-05	1.3E-06	2.7E-06	4E-06	7.9E-09	1.4E-08	2E-08	8.6E-06	1.1E-05	2E-05	5E-05
BERYLLIUM	1/3	1.2E+00	5.7E-06	2.4E-06	8E-06	1.1E-07	2.4E-07	4E-07	4.2E-10	7.2E-10	1E-09	5.8E-07	7.7E-07	1E-06	1E-05
CHROMIUM	3/3	7.8E+02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHROMIUM VI	2/3	6.2E-01	2.9E-07	1.2E-07	4E-07	NE	NE	NE	1.3E-08	2.3E-08	4E-08	8.8E-08	1.2E-07	2E-07	6E-07
LEAD	3/3	9.2E+00	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of Metal			3E-05	1E-05	4E-05	1E-06	3E-06	4E-06	2E-08	4E-08	6E-08	9E-06	1E-05	2E-05	6E-05
TOTAL			3E-05	1E-05	4E-05	1E-06	3E-06	4E-06	2E-08	4E-08	6E-08	9E-06	1E-05	2E-05	6E-05

TABLE .1-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Case: Average
Area/Site: Exposure Area 070067, Associated Site(s) IR-09, IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	3/3	1.5E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHROMIUM VI	2/3	9.0E-02	6.9E-09	3.1E-09	1E-08	NE	NE	NE	5.5E-10	6.3E-10	1E-09	2.8E-09	3.2E-09	6E-09	2E-08
Subtotal of Metal			7E-09	3E-09	1E-08	NE	NE	NE	6E-10	6E-10	1E-09	3E-09	3E-09	6E-09	2E-08
Volatile Organic Compound															
2-BUTANONE	2/3	1.4E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ETHYLBENZENE	1/3	1.2E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOLUENE	3/3	5.2E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
XYLENE (TOTAL)	1/3	6.3E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Semivolatile Organic Compound															
2-METHYLNAPHTHALENE	1/3	5.6E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHRYSENE	1/3	4.9E-02	1.1E-09	4.9E-10	2E-09	3.2E-10	6.0E-10	9E-10	8.2E-13	9.4E-13	2E-12	1.7E-08	2.0E-08	4E-08	4E-08
Subtotal of SVOC			1E-09	5E-10	2E-09	3E-10	6E-10	9E-10	8E-13	9E-13	2E-12	2E-08	2E-08	4E-08	4E-08
TOTAL			8E-09	4E-09	1E-08	3E-10	6E-10	9E-10	6E-10	6E-10	1E-09	2E-08	2E-08	4E-08	6E-08

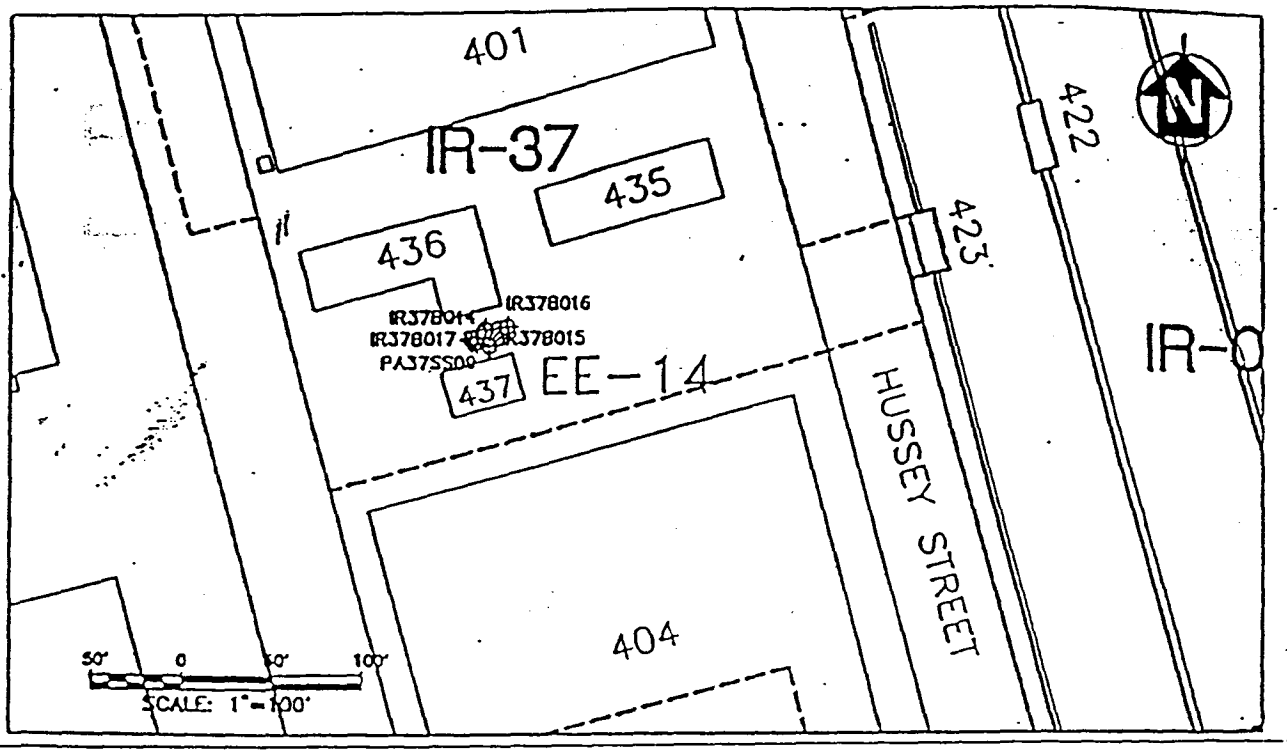
TABLE N.H-2 (Continued)

CANCER RISK SUMMARY FOR SOIL COPCs
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

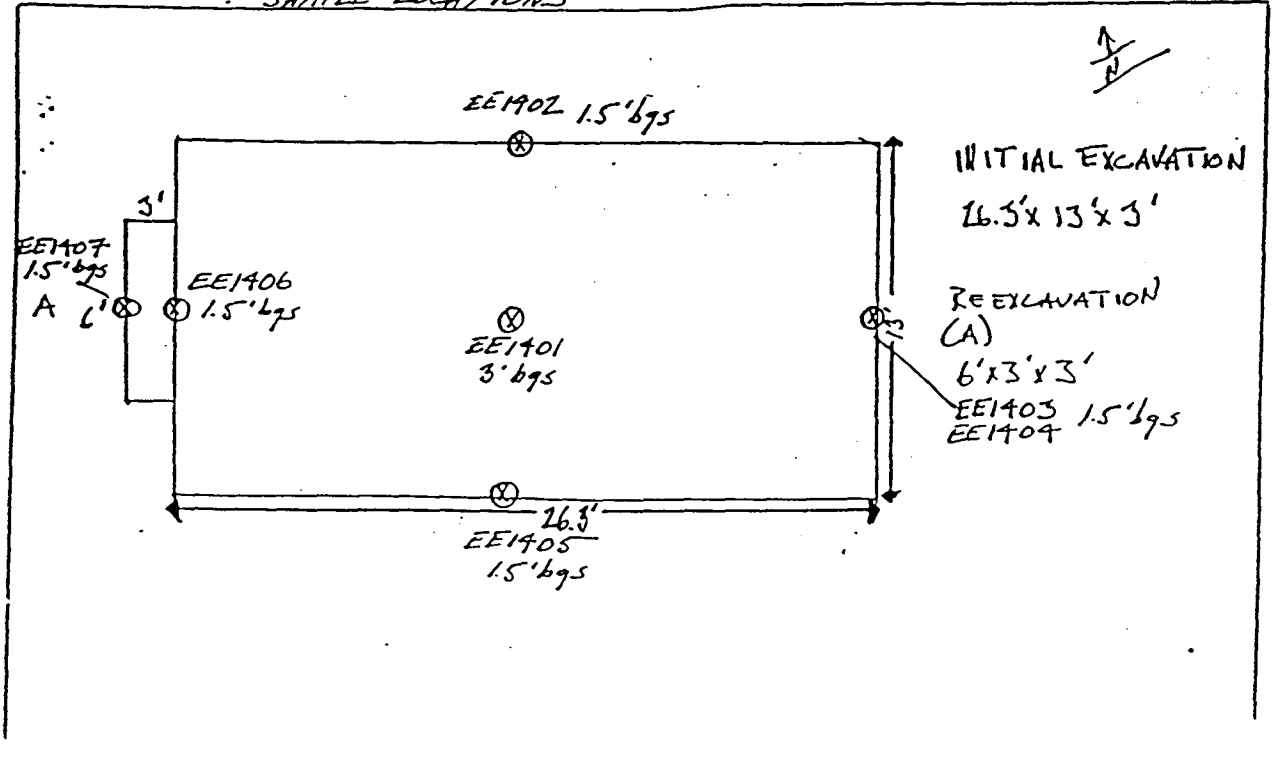
Case: RME
Area/Site: Exposure Area 070067, Associated Site(s) IR-09, IR-37
Receptor: Child and Adult Resident
Depth Interval: 0 to 10 Feet Below Ground Surface

Chemical of Potential Concern	Detection Frequency	Soil Conc (mg/kg)	Ingestion			Dermal			Inhalation			Produce			Cancer Risk
			Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult	Total	
Metal															
ALUMINUM	3/3	2.3E+04	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHROMIUM VI	2/3	1.4E-01	6.4E-08	2.8E-08	9E-08	NE	NE	NE	3.0E-09	5.1E-09	8E-09	2.0E-08	2.6E-08	5E-08	1E-07
Subtotal of Metal			6E-08	3E-08	9E-08	NE	NE	NE	3E-09	5E-09	8E-09	2E-08	3E-08	5E-08	1E-07
Volatile Organic Compound															
2-BUTANONE	2/3	2.1E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
ETHYLBENZENE	1/3	1.2E-03	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
TOLUENE	3/3	1.5E-01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
XYLENE (TOTAL)	1/3	1.3E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Subtotal of VOC			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Semivolatile Organic Compound															
2-METHYLNAPHTHALENE	1/3	5.6E-02	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CHRYSENE	1/3	4.9E-02	6.4E-09	2.8E-09	9E-09	1.9E-09	4.1E-09	6E-09	2.8E-12	4.9E-12	8E-12	8.0E-08	1.1E-07	2E-07	2E-07
Subtotal of SVOC			6E-09	3E-09	9E-09	2E-09	4E-09	6E-09	3E-12	5E-12	8E-12	8E-08	1E-07	2E-07	2E-07
TOTAL			7E-08	3E-08	1E-07	2E-09	4E-09	6E-09	3E-09	5E-09	8E-09	1E-07	1E-07	2E-07	3E-07

EE-14 (Former EE-10)



SAMPLE I.D.: AS BUILT. EE14 SAMPLE LOCATIONS TIME: _____



EE-14

Site: EE-14, located in Parcel D and IR-37, Hunters Point Annex

First Round
Analytical Data:

Analyte	Screening Level (mg/Kg)	Bottom Sample Depth (feet bgs)	Sidewall Sample Depth (feet bgs)				
		EE1401	EE1402	EE1403	EE1404	EE1405	EE1406
		3	1.5	1.5	1.5	1.5	1.5
Thallium	0.81	<0.44	<0.44	<0.45	<0.43	<0.43	<0.43
Aroclor-1260	0.34	0.019	<0.36	<0.037	<0.035	<0.035	**0.49**
TPH-motor oil	1,000	570	310	<0.0036	29	11	**3,000**

Notes:
Table lists analytical results for contaminants of concern previously identified and any analyte which exceeds screening levels.
Bold typeface indicates result above screening level.

Action: A 3 ft x 6 ft area centered along the western sidewall of the excavation was excavated to a depth of 3 ft bgs.

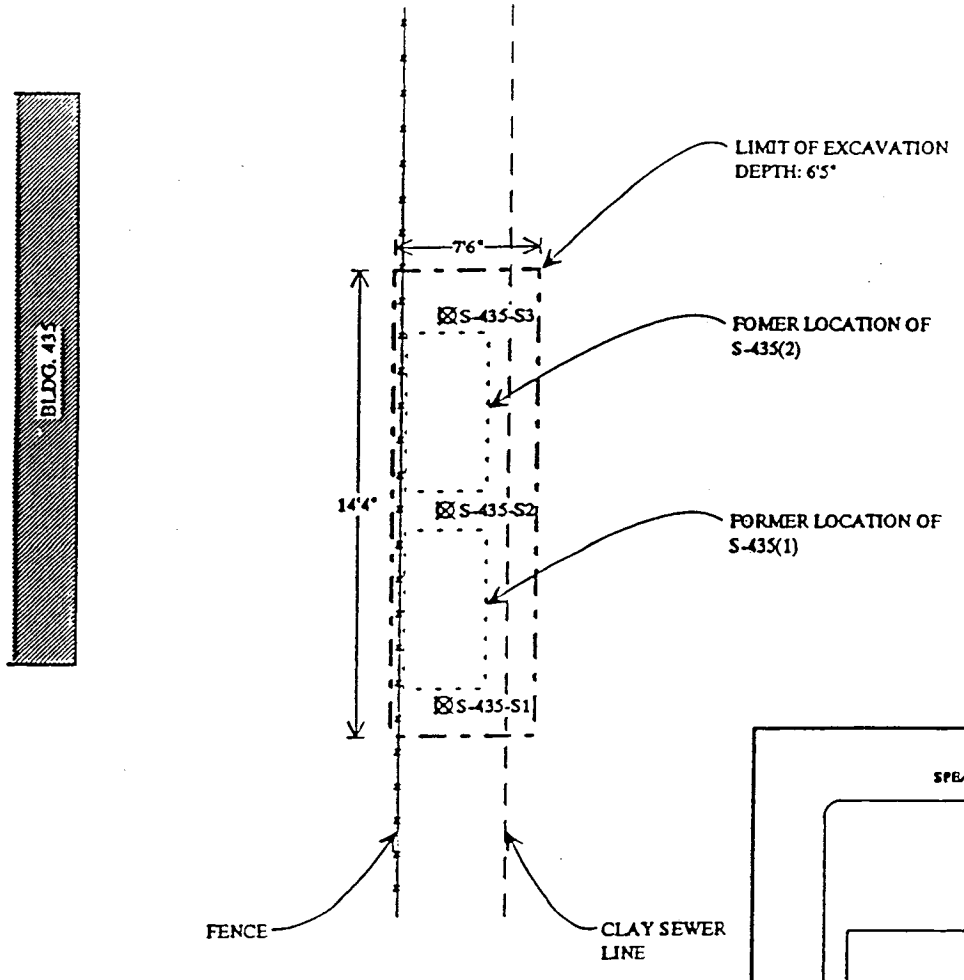
One sidewall sample collected directly across from sample point EE1406 in the newly excavated area was analyzed for CLP pest/PCBs and TPH-motor oil.

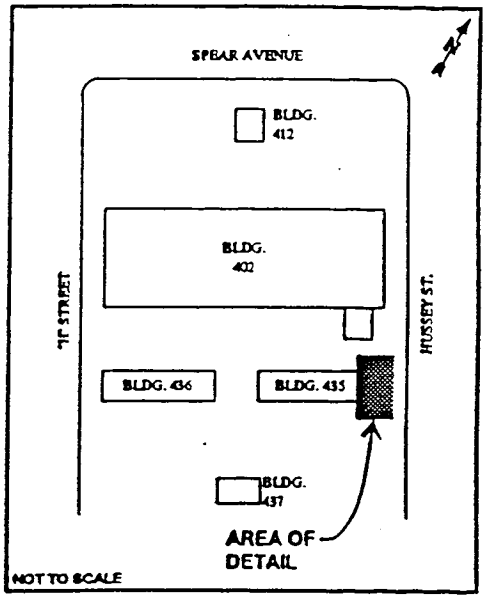
Second Round
Analytical Data:

Analyte	Screening Level (mg/Kg)	Sidewall Sample Depth (feet bgs)
		EE1407
		1.5
Aroclor-1260	0.34	<0.037
TPH-motor oil	1,000	23

Notes:
Table lists analytical results for contaminants of concern previously identified and any analyte which exceeds screening levels.
Bold typeface indicates result above screening level.

Action: No further action will be taken.





NOTE: NOT TO SCALE

LEGEND

- SOIL SAMPLE LOCATION
- FORMER LOCATION OF UST
- LIMIT OF EXCAVATION
- FENCE
- CLAY SEWER LINE

FIGURE A-4
TANKS S-435(1)
AND S-435(2)

Log of Boring: IR09B006
Equipment: MOBILE B-53 (HSA), 6 in diam.
Date: 09/26/1989
Elevation: GS 8.25 feet
Total Depth: 16 ft

Blows / 6"	OVA (ppm)	Sample Number	Depth (ft)	Description
7 7 9	0	8939E016	0	DARK BROWN SANDY LEAN CLAY (CL) 7.5YR3/2, medium stiff, moist, 20-30% very fine-grained sand, abundant shell fragments, fill
8 7 11	0	8939E017		STRONG BROWN POORLY GRADED SAND WITH GRAVEL (SP) 7.5YR5/6, medium dense, moist, fine- to medium-grained sand, 20-30% angular gravel, fill
8 16 24	0	8939E018	5	Increasing clay at 4 ft. OLIVE YELLOW SERPENTINITE 2.5Y6/8, moist, intensely fractured, deeply weathered, low hardness, weak
35 50	0	8939E019	10	Color change to greenish gray (5GY6/1), oxide staining along fractures at 10 ft.
30 50	0	8939E020	15	Wet at 16 ft. Bottom of boring at 16 ft. Boring backfilled with bentonite cement grout (9/26/89)

Harding Lawson Associates
Engineering and Environmental Services

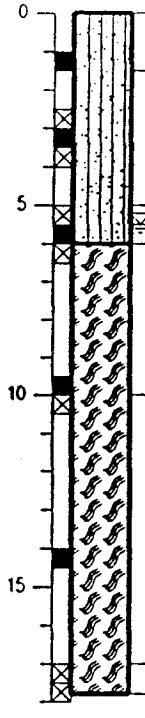
Log of Boring: IR09B006
OU II RI Report
Hunters Point Annex
San Francisco, California

PLATE
D64

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PCB	02176,266.02	BPF	5/92	

Log of Boring IR09B007
Equipment: MOBILE B-53 (HSA), 6 in. diam.
Date: 09/26/1989
Elevation: GS 8.93 feet
Total Depth: 17.8 ft

Blows / 6"	OVA (ppm)	Sample Number	Depth (ft)	Sample
50	0	8939E012	0	
4 5 6	0	8939E011		
8 11 20	0	8939E013	5	
20 50	0	8939E014	10	
50	0		15	
35 50				



STRONG BROWN SILTY SAND (SM)
7.5YR4/6, medium dense, moist,
very fine- to fine-grained sand, 30-40% silt,
fill

Two inch asphalt layer at 1.5 ft.

Little gravel at 5 ft.

DARK GREENISH GRAY SERPENTINITE
5GY4/1,
highly fractured, weak, low hardness, deeply weathered

Trace black organics (wood) at 10 ft.

Intensely fractured, wet at 17 ft.

Bottom of boring at 17.8 ft.
Boring backfilled with bentonite cement grout (9/26/89)

Harding Lawson Associates
Engineering and Environmental Services

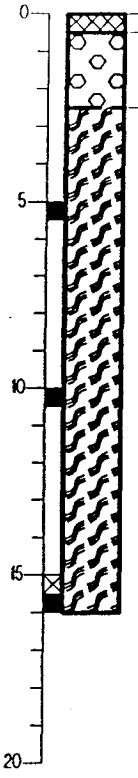
Log of Boring: IR09B007
OU II RI Report
Hunters Point Annex
San Francisco, California

PLATE
D65

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PCB	02176,266.02	BPF	5/92	

Log of Boring: IR37B010
Equipment: Mobile Drill B-53 (HSA), 8 in. diam.
Elevation: GS 9.32 ft.
Date: 5/27/1994
Total Depth: 16 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)
100	0	9421C246	5
75	0	9421C247	10
45 50	0	9421C248	15



ASPHALT

VERY DARK GRAYISH BROWN POORLY GRADED GRAVEL WITH SAND (GP)
10YR3/2, loose, moist,
60% fine gravel, 40% fine to coarse sand, fill

GREENISH GRAY SERPENTINITE (sp)
5GY6/1, closely fractured, moderately hard, weak, moderately weathered

Bottom of boring at 16 feet. Boring backfilled with bentonite cement grout (5/27/94).

PLATE

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Engineering and Environmental Services

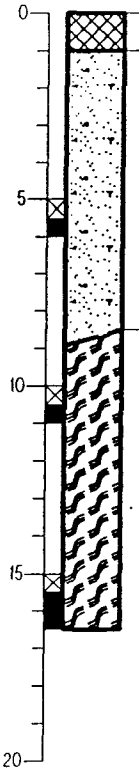
Log of Boring IR37B010

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		05/95	

Log of Boring: IR37B011
Equipment: Drill Tech DK-40 (ACH), 10 in. diam.
Elevation: GS 9.05 ft.
Date: 4/14/1994
Total Depth: 16.5 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Description
			0	ASPHALT
				PALE OLIVE WELL-GRADED SAND WITH GRAVEL (SW) 5Y6/4, dense, dry, 85% very fine to very coarse serpentinite sand, 15% very fine serpentinite gravel, fill
30 50	0	9415C147	5	
				DARK GREENISH GRAY SERPENTINITE (sp) 5G4/1, moderately hard, moderately strong, moderately weathered
37 50	0	9415C148	10	
27 47 40	0	9415C149	15	
			20	Bottom of boring at 16.5 feet. Boring backfilled with bentonite cement grout (4/14/94).



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Log of Boring IR37B011

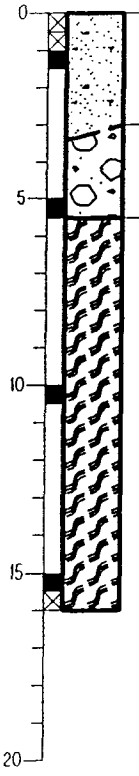
Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		05/95	

Log of Boring: IR37B013
Equipment: Mobile Drill B-59 (HSA), 10 in. diam.
Elevation: GS 9.64 ft.
Date: 5/25/1994
Total Depth: 16 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Description
28 16 10	0	9421R180	0	DARK YELLOWISH BROWN WELL-GRADED SAND WITH GRAVEL (SW) dense, moist, 70% fine to coarse sand, 25% fine gravel, 5% silt, trace brick fragments, fill
60	0	9421R181	5	DARK GREENISH GRAY WELL-GRADED GRAVEL WITH SAND (GW) 5GY4/1, very dense, dry, 60% fine to coarse serpentinite gravel, 40% fine to coarse sand, fill
				DARK GREENISH GRAY SERPENTINITE (sp) 5GY4/1, dry, low to moderate hardness, weak, deep weathering
33	0	9421R182	10	
28 50	0	9421R183	15	
			20	Bottom of boring at 16 feet. Boring backfilled with bentonite cement grout (5/25/94).



PLATE

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Engineering and Environmental Services

Log of Boring IR37B013

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		05/95	

Log of Boring: IR37B013A
Equipment: Mobile Drill B-59 (HSA), 10 in. diam.
Elevation: GS 9.00 ft.
Date: 5/16/1994
Total Depth: 5 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Sample	
			0		CONCRETE
4 6 12	0				VERY DARK BROWN SANDY FAT CLAY WITH GRAVEL (CH) 7.5YR2.5/3, very hard, wet, 60% clay, 25% fine to medium sand, 15% gravel, fill
			5		DARK GREENISH GRAY SERPENTINITE (sp) 5G4/1, dry, low hardness, moderately strong, deep weathering
			10		Bottom of boring at 5 feet. Boring backfilled with bentonite cement grout (5/25/94).

PLATE

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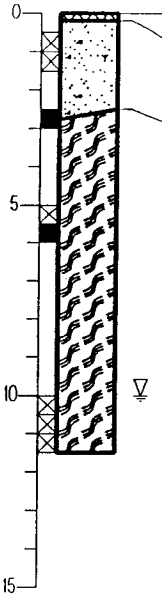
Log of Boring IR37B013A

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		05/95	

Log of Boring: IR37B014
Equipment: Mobile Drill B-53 (HSA), 8 in. diam.
Elevation: GS 9.26 ft.
Date: 6/10/1994
Total Depth: 11.5 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Description
			0	ASPHALT
45 50	0			DARK REDDISH BROWN WELL-GRADED SAND WITH GRAVEL (SW) dense, moist, 60% fine to coarse sand, 30% fine to coarse gravel, 10% lean clay,
55	0	9423C266		GREENISH GRAY SERPENTINITE (sp) 5GY6/1, dry, moderately hard, weak, moderately weathered
			5	Crushed to intensely fractured at 5 ft.
22 51	0	9423C267		
			10	Moderately strong, wet at 10 ft.
12 12 13	0			Bottom of boring at 11.5 feet. Boring backfilled with bentonite cement grout (6/10/94).
			15	



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Log of Boring IR37B014

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		08/95	

Log of Boring: IR37B015
Equipment: Mobile Drill B-53 (HSA), 8 in. diam.
Elevation: GS 9.16 ft.
Date: 6/10/1994
Total Depth: 11.5 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Sample	Description
			0		ASPHALT
32 50	0	9423C263			LIGHT BROWNISH GRAY WELL-GRADED GRAVEL WITH SAND (GW) 10YR6/2, dense, dry, 60% fine to coarse gravel, 40% fine to coarse sand, fill
100	0				Color change to dusky red (2.5YR3/4), moist, 60% fine chert gravel, 30% fine to coarse sand, 10% lean clay at 1.5 ft.
			5		
24 38 38	0	9423C264			DARK GREENISH GRAY WELL-GRADED SAND WITH GRAVEL (SW) 5GY4/1, very dense, dry, 60% fine to coarse sand, 30% fine to coarse serpentinite gravel, 10% lean clay, fill
			10		Wet at 10 ft.
5 5 5					Bottom of boring at 11.5 feet. Boring backfilled with bentonite cement grout (6/10/94).
			15		

PLATE

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Environmental Services

Log of Boring IR37B015

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
kli	11400 1418		05/95	

Log of Boring: IR37B016
Equipment: Mobile Drill B-53 (HSA), 8 in. diam.
Elevation: GS 9.09 ft.
Date: 6/10/1994
Total Depth: 11.5 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Description
			0	ASPHALT
40 50	0			BROWN WELL-GRADED GRAVEL WITH SAND (GW) 10YR5/3, very dense, dry, 80% fine to coarse gravel, 15% fine to coarse sand, 5% clay, fill
60	0	9423C260		Serpentinite boulder fill at 3 ft.
			5	GRAYISH BROWN WELL-GRADED SAND WITH GRAVEL (SW) 10YR5/2, very dense, dry, 70% fine to coarse sand, 25% fine gravel, 5% clay
7 70 48	0 0.6	9423C261		Color change to greenish gray (5GY6/1), moist, 80% serpentinite sand, 20% serpentinite gravel
				Softer drilling at 7.5 - 8.0 ft.
			10	VERY DARK GRAY GRAVELLY LEAN CLAY WITH SAND (CL) N3/, soft, wet, 50% clay, 30% coarse gravel, 20% fine to coarse sand
5 7 12	5.0			Bottom of boring at 11.5 feet. Boring backfilled with bentonite cement grout (6/10/94).
			15	

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Log of Boring IR37B016

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		05/95	

Log of Boring: IR37B017
Equipment: Mobile Drill B-53 (HSA), 8 in. diam.
Elevation: GS 9.09 ft.
Date: 6/13/1994
Total Depth: 11.5 ft.

Blows/6"	OVA (ppm)	Sample Number	Depth (ft.)	Sample	Description
			0		ASPHALT
75	0.8	9424C268			BROWNISH YELLOW WELL-GRADED GRAVEL WITH SAND (GW) 10YR6/8, dense, moist, 50% fine to coarse sandstone gravel, 40% fine to coarse sand, 10% lean clay, fill
42 50	0.5	9424C269			OLIVE GRAY CLAYEY GRAVEL WITH SAND (GC) 5Y4/2, dense, moist, 50% coarse quartzite gravel, 30% fine to coarse serpentinite sand, 20% lean clay, fill
30 56	0	9424C270	5		
			10		VERY DARK GRAY CLAYEY SAND WITH GRAVEL (SC) N3/, loose, wet, 40% fine to coarse sand, 35% fat clay, 25% fine to coarse serpentinite and sandstone gravel, fill
7 12 24					Bottom of boring at 11.5 feet. Boring backfilled with bentonite cement grout (6/13/94).
			15		

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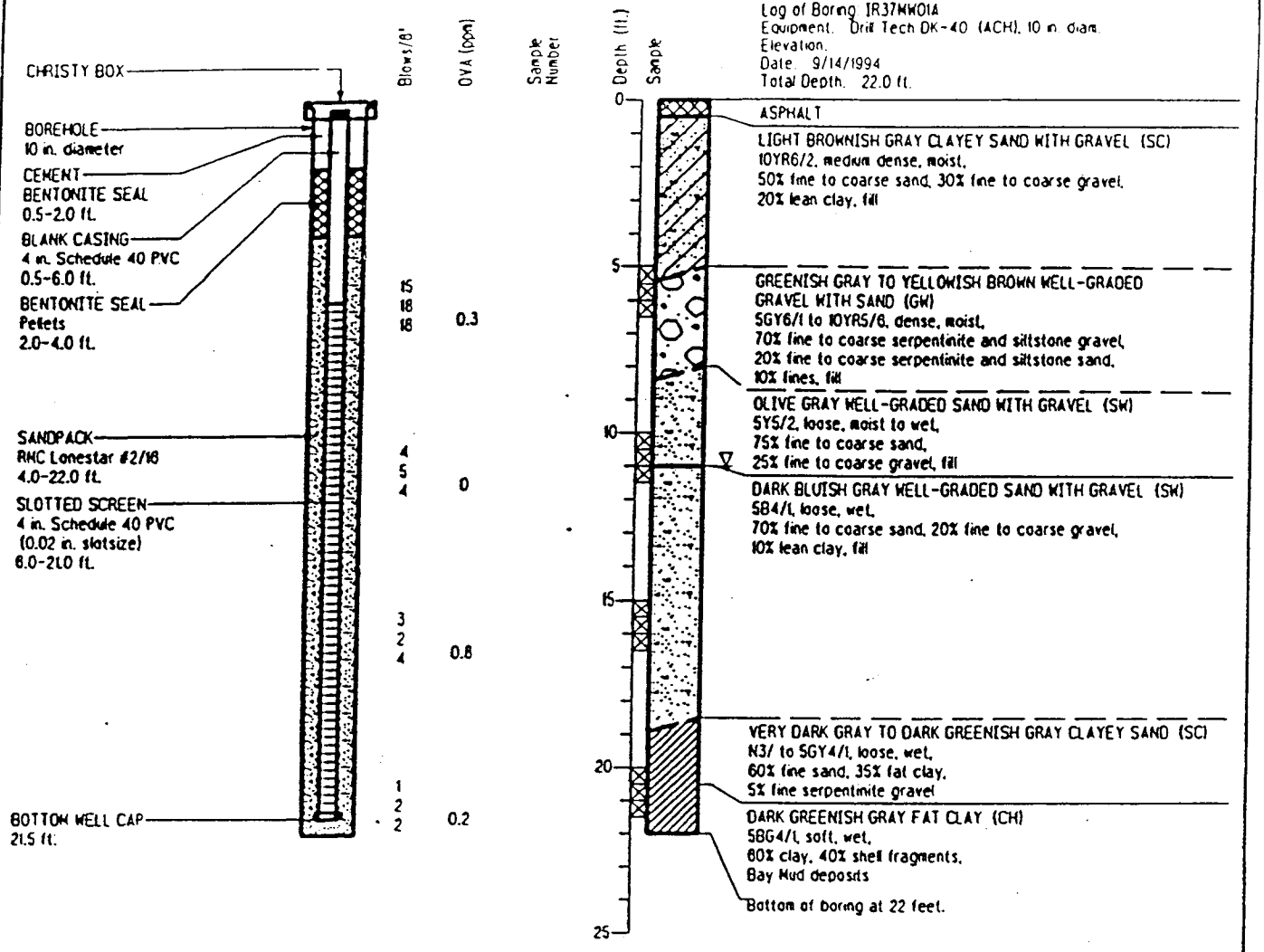
Log of Boring IR37B017

Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
klr	11400 1418		05/95	

Log of Boring IR37MW01A
Equipment: Drill Tech DK-40 (ACH), 10 in. diam.
Elevation:
Date: 9/14/1994
Total Depth: 22.0 ft.



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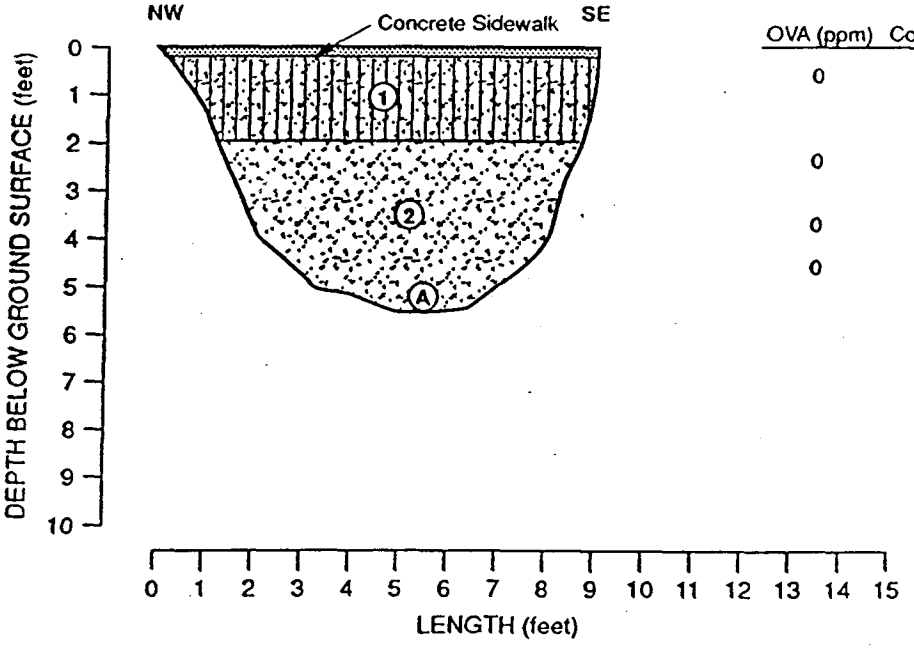
Log of Boring and Well Completion IR37MW01A

PLATE

Engineering Field Activity West
Hunters Point Annex
San Francisco, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
ktr	11400 1418		12/94	

Test Pit #: PA45TA06
Date Started: 6-2-93
Date Completed: 6-2-93
Orientation: N85W
Elevation: 8.21



EXPLANATION:

(1) VERY DARK GRAYISH BROWN SILTY SAND WITH GRAVEL (SM) 5Y 3/2, medium dense, moist, 55 to 60% medium- to coarse-grained sand, 25 to 30% fine to coarse gravel, 15% silt, fill

(2) VERY DARK GRAYISH BROWN POORLY GRADED SAND (SP) 5Y 3/2 medium dense, moist to wet, 75 to 80% medium- to coarse-grained sand, 10% fine to coarse gravel, 5 to 10% silt, some wood, rebar, and metal wire debris, fill

(A) SAMPLE: 9322G733

012794LZ

Harding Lawson Associates
Engineering and Environmental Services

Log of Test Pit PA45TA06
Parcel D Site Inspection Report
Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE E5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PMc	11400 090504	MTE	1/94	

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ADDED IR37B026 AND IR37B027	8-19-00	

SYM NO.	SYM	DESCRIPTION
1		A-AQUIFER MONITORING WELL
2		B-AQUIFER MONITORING WELL
3		BEDROCK MONITORING WELL
4		PIEZOMETER
5		DAMES & MOORE BORING
6		SOIL BORING
7		SOIL BORING/GRAB GROUNDWATER/HYDROPUNCH
8		EMCON A-AQUIFER MONITORING WELL
9		EMCON BEDROCK MONITORING WELL
10	A	AIR SAMPLE
11		SUMP SAMPLE
12		SURFACE SOIL SAMPLE
13		SANDBLAST MATERIAL
14	W	STORM DRAIN
15	A	ASBESTOS SAMPLE
16	W	WIPE SAMPLE
17	D	FLOOR DRAIN
18		FLOOR VAULT
19		SANITARY SEWER
20		TRENCH/TEST PIT
21		REMOVAL OR EXPLORATORY EXCAVATION STATION
22		EMCON SOIL BORING
23	ooo	GROUND PENETRATING RADAR PROFILE
24		TIDAL STATION
25	C	CATCH BASIN
26		FLOOD CONTROL GATE
27		STEAMLINE INSPECTION AND/OR BORESCOPE
28		DRY HOLE
29		PROPOSED SOIL BORING
30		PROPOSED SOIL BORING/HYDROPUNCH/GRAB GROUNDWATER
31		INTERTIDAL SEDIMENT SAMPLE
32		RAINFALL STATION
33	S	FLOOR SCRAPINGS
34		UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
35	CC	CONCRETE CORE
36	SG	SOIL GAS
37		DRUM
38		TANK
39		BULK SAMPLE
40		HAND-AUGER
41	R	REFUSAL WITH NO SAMPLE
42		WEEP HOLE
43		DRILL RIG FLUID
44		SURFACE WATER SAMPLE
45		QUALITY CONTROL
46		CORE SEDIMENT SAMPLE FOR ERA
47		OTHER
48		PUMPING STATION
49		REFERENCE STATION FOR ERA
50		TISSUE STATION FOR ERA
51		UNKNOWN TYPE
52	RT	RADIATION TEST STATION
53		STORM DRAIN MANHOLE
54		CONE PENETROMETER
55		AIR SPARGING WELL
56	SBG	SOIL BORING/SOIL GAS
57		TREATMENT SYSTEM
58		VAPOR EXTRACTION WELL
59		STORM DRAIN REACH
60		PROPOSED SURFACE SOIL SAMPLE
61		PROPOSED A-AQUIFER MONITORING WELL
62	T	TISSUE OR TISSUE AND SOIL FOR ECO VALIDATION
63		PROPOSED SOIL GAS
64		SOIL BORING/GRAB GROUNDWATER
65		SOIL BORING/HYDROPUNCH

DWG NO. 3711152 SH 1 REV A

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

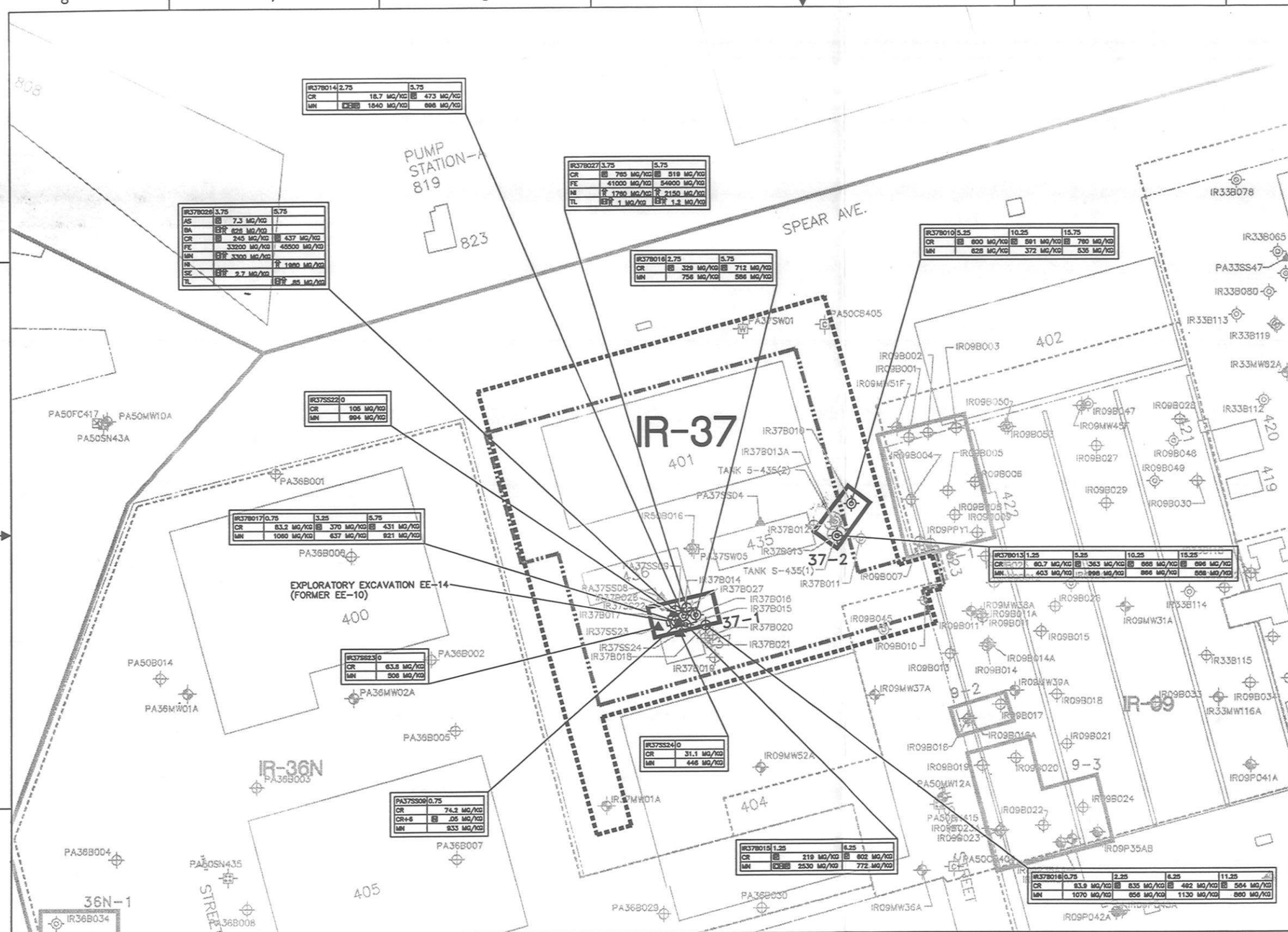
SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 3.1.15-2 SHT 1 of 3

PARCEL D / SITE IR-37
END DATA GAP RESULTS
EXCEEDING RESIDENTIAL SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

FILE NAME: 3711521A.DWG



NOTES:
1. ALL ANALYTICAL DATA ARE POSTED FOR CHROMIUM, CHROMIUM+6 and MANGANESE.

SAMPLE LOCATION — SOIL SAMPLE DEPTH (feet bgs)
ANALYTE — CONCENTRATIONS FOR CR, CRVI & MN ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

- EXCEEDS RESIDENTIAL 1999 EPA PRG
- EXCEEDS HPAL
- EXCEEDS CALIFORNIA MODIFIED PRG
- NON-DETECT

PARCEL D KEY MAP

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

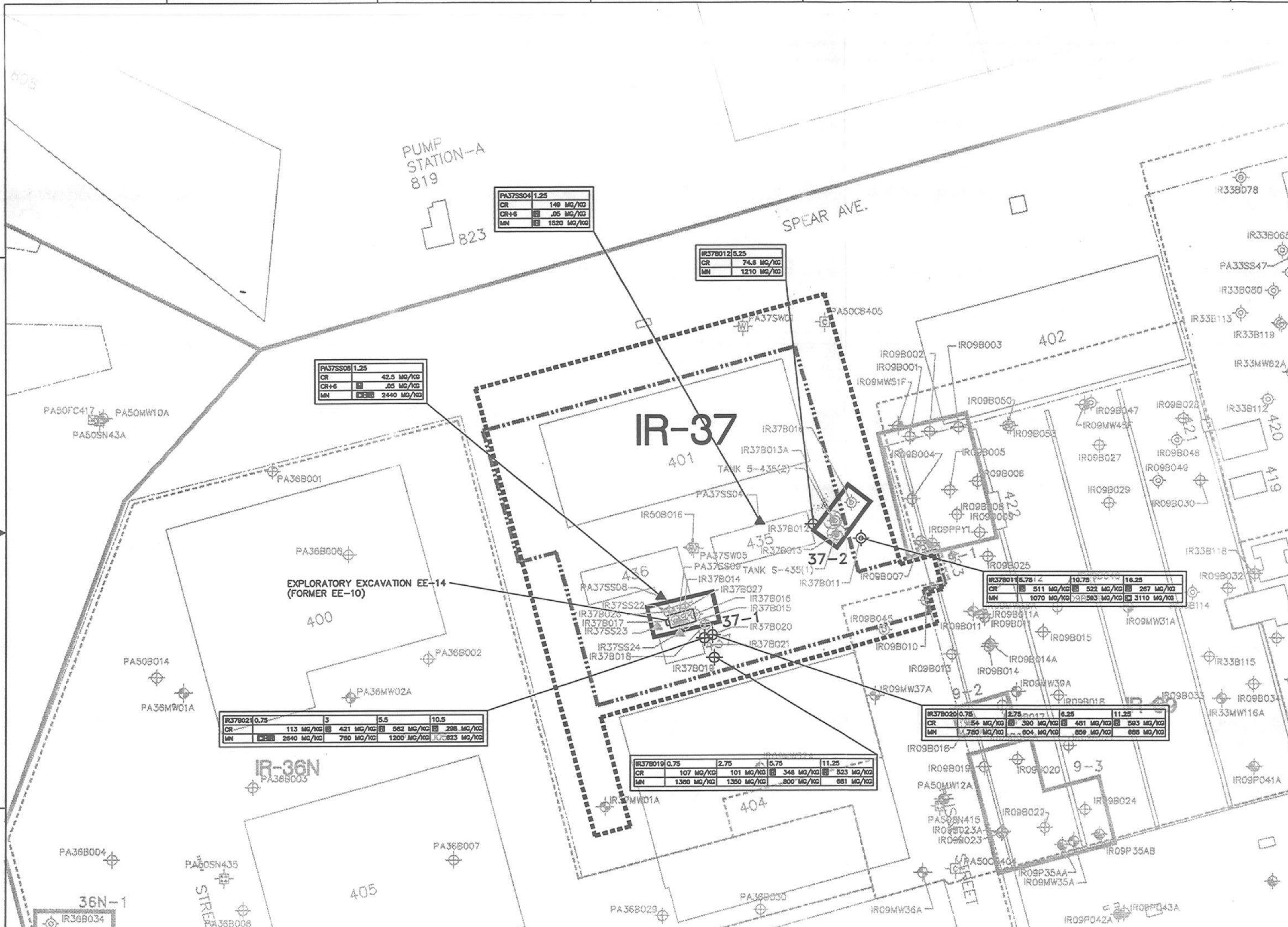
SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 3.15-2 SHT 2 of 3
PARCEL D / SITE IR-37
END DATA GAP RESULTS
EXCEEDING RESIDENTIAL SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

REV A | SH 2 | DWG NO. 371152

FILE NAME: 3711522A.DWG



SYMBOL	DESCRIPTION
PA24MW03A	A-AQUIFER MONITORING WELL
IR26MW42B	B-AQUIFER MONITORING WELL
IR06MW46F	BEDROCK MONITORING WELL
IR07P20A	PIEZOMETER
PA24B005	SOIL BORING
PA51SS03	SURFACE SOIL SAMPLE
PA46TA03	TRENCH/TEST PIT
IR46B036	SOIL BORING/GRAB GROUNDWATER
IR46B036	SOIL BORING/HYPROPUNCH
	EXPLORATORY EXCAVATION
159	EXISTING BUILDING
156	LOCATION OF FORMER BUILDING
	UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
	EXTENDED IR SITE BOUNDRY
	IR SITE BOUNDARY
	PARCEL BOUNDARY
	CRANE OR RAILROAD TRACKS
	FENCE
	ROADWAY
	LEAD EPC FOR EXPOSURE AREA EXCEEDS 1,000 mg/kg
	DE MINIMIS CLEANUP AREA EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD TOTAL SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0). ITALICIZED NUMBERS IN PARENTHESIS DESIGNATE THE DE MINIMUS CLEANUP AREA
	ESTIMATED BOUNDARIES OF SOIL REMEDIATION AREAS EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0)

NOTES:
1. ALL ANALYTICAL DATA ARE POSTED FOR CHROMIUM, CHROMIUM+6 and MANGANESE.

SAMPLE LOCATION — SOIL SAMPLE DEPTH (feet bgs)
ANALYTE — CONCENTRATIONS FOR CR, CRVI & MN ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
- EXCEEDS RESIDENTIAL 1999 EPA PRG
- EXCEEDS HPAL
- EXCEEDS CALIFORNIA MODIFIED PRG
- NON-DETECT

PARCEL D KEY MAP

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 1.15-2 SHT 3 of 3
PARCEL D / SITE IR-37
END DATA GAP RESULTS
EXCEEDING RESIDENTIAL SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 371152 SH 3 REV A

1 FILE NAME: 3711523A.DWG

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

SYM NO.	SYM	DESCRIPTION	SYM NO.	SYM	DESCRIPTION
1		A-AQUIFER MONITORING WELL	34		UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
2		B-AQUIFER MONITORING WELL	35	CC	CONCRETE CORE
3		BEDROCK MONITORING WELL	36	SG	SOIL GAS
4		PIEZOMETER	37		DRUM
5		DAMES & MOORE BORING	38		TANK
6		SOIL BORING	39		BULK SAMPLE
7		SOIL BORING/GRAB GROUNDWATER/HYDROPUNCH	40		HAND-AUGER
8		EMCON A-AQUIFER MONITORING WELL	41	R	REFUSAL WITH NO SAMPLE
9		EMCON BEDROCK MONITORING WELL	42		WEEP HOLE
10	A	AIR SAMPLE	43		DRILL RIG FLUID
11		SUMP SAMPLE	44		SURFACE WATER SAMPLE
12		SURFACE SOIL SAMPLE	45		QUALITY CONTROL
13		SANDBLAST MATERIAL	46		CORE SEDIMENT SAMPLE FOR ERA
14	W	STORM DRAIN	47		OTHER
15	A	ASBESTOS SAMPLE	48		PUMPING STATION
16	W	WIPE SAMPLE	49		REFERENCE STATION FOR ERA
17	D	FLOOR DRAIN	50		TISSUE STATION FOR ERA
18		FLOOR VAULT	51		UNKNOWN TYPE
19		SANITARY SEWER	52	RT	RADIATION TEST STATION
20		TRENCH/TEST PIT	53		STORM DRAIN MANHOLE
21		REMOVAL OR EXPLORATORY EXCAVATION STATION	54		CONE PENETROMETER
22		EMCON SOIL BORING	55		AIR SPARGING WELL
23	ooo	GROUND PENETRATING RADAR PROFILE	56	SBG	SOIL BORING/SOIL GAS
24		TIDAL STATION	57		TREATMENT SYSTEM
25	C	CATCH BASIN	58		VAPOR EXTRACTION WELL
26		FLOOD CONTROL GATE	59		STORM DRAIN REACH
27		STEAMLINE INSPECTION AND/OR BORESCOPE	60		PROPOSED SURFACE SOIL SAMPLE
28		DRY HOLE	61		PROPOSED A-AQUIFER MONITORING WELL
29		PROPOSED SOIL BORING	62	T	TISSUE OR TISSUE AND SOIL FOR ECO VALIDATION
30		PROPOSED SOIL BORING/HYDROPUNCH/GRAB GROUNDWATER	63		PROPOSED SOIL GAS
31		INTERTIDAL SEDIMENT SAMPLE	64		SOIL BORING/GRAB GROUNDWATER
32		RAINFALL STATION	65		SOIL BORING/HYDROPUNCH
33	S	FLOOR SCRAPINGS			

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

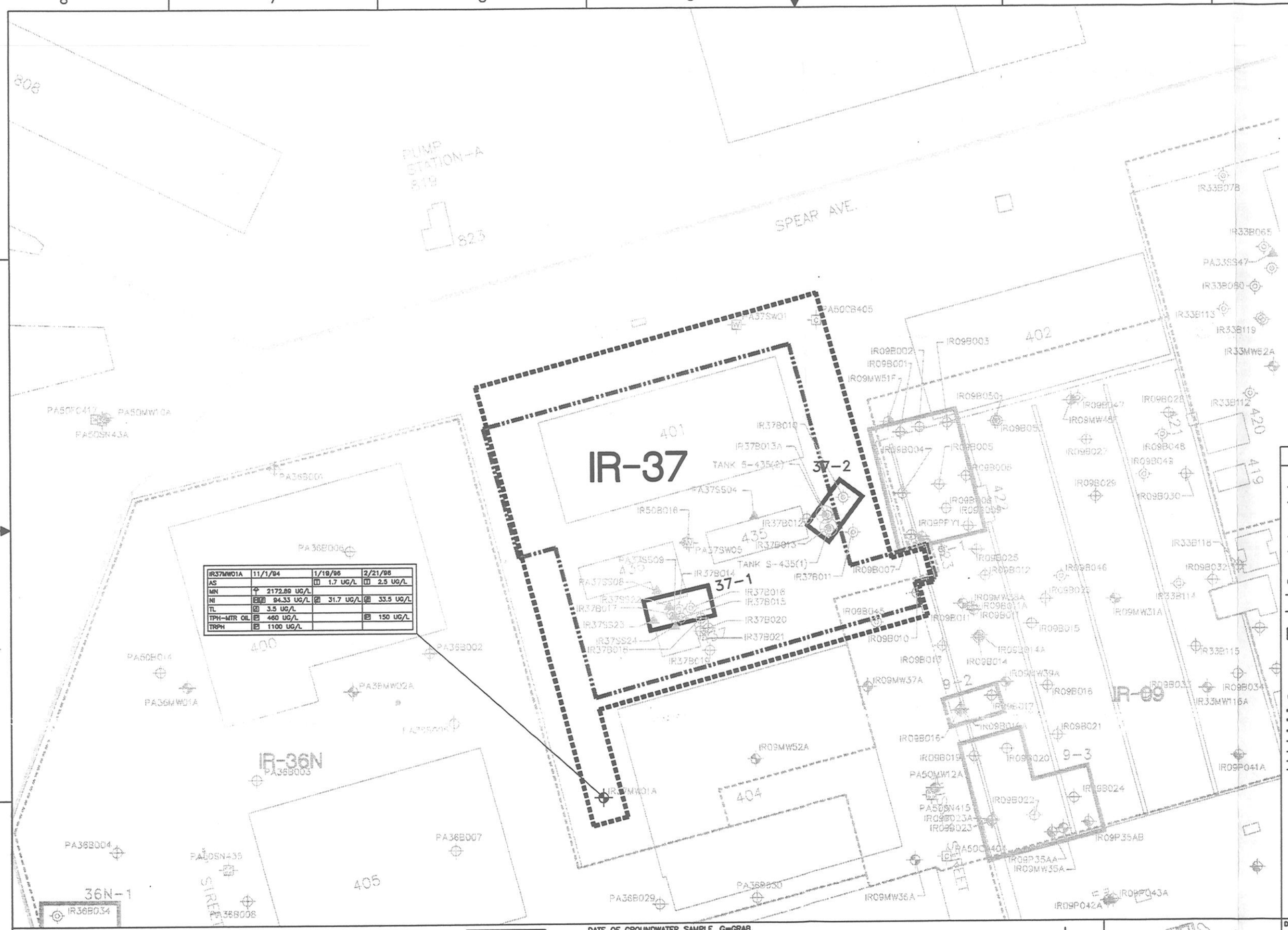
SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.15-3 SHT 1 of 2
PARCEL D
IR-37 GROUNDWATER RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

REV 1 | SH 1 | DWG NO. 372153

FILE NAME: 3721531_.DWG



IR37MW01A	11/1/94	1/19/96	2/21/96
AS		1.7 UG/L	2.5 UG/L
MN	2172.89 UG/L		
NI	94.33 UG/L	31.7 UG/L	33.5 UG/L
TL	3.5 UG/L		
TPH-MTR OIL	460 UG/L		150 UG/L
TRPH	1100 UG/L		

SYMBOL	DESCRIPTION
PA24MW03A	A-AQUIFER MONITORING WELL
IR26MW42B	B-AQUIFER MONITORING WELL
IR06MW49F	BEDROCK MONITORING WELL
IR07P20A	PIEZOMETER
PA24B005	SOIL BORING
PA51SS03	SURFACE SOIL SAMPLE
PA46TA03	TRENCH/TEST PIT
IR46B036	SOIL BORING/GRAB GROUNDWATER
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	EXPLORATORY EXCAVATION
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	UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
	EXTENDED IR SITE BOUNDRY
	IR SITE BOUNDARY
	PARCEL BOUNDARY
	CRANE OR RAILROAD TRACKS
	FENCE
	ROADWAY
	LEAD EPC FOR EXPOSURE AREA EXCEEDS 1,000 mg/kg
	DE MINIMIS CLEANUP AREA EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD TOTAL SEGREGATED HI IS GREATER THAN OR EQUAL TO 1.0). ITALICIZED NUMBERS IN PARENTHESIS DESIGNATE THE DE MINIMUS CLEANUP AREA
	ESTIMATED BOUNDARIES OF SOIL REMEDIATION AREAS EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ECLR>10^{-6} AND OR THE CHILD SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0)

NOTES:

1. POSTED DATA ARE CHEMICALS THAT EXCEED 1998 TAP WATER PRG, NAWQC, MCL OR PETROLEUM SCREENING CRITERIA.
2. STATION LABELS WITHOUT DATA BOXES INDICATE THAT EITHER NO CHEMICALS WERE DETECTED OR THAT DETECTED CHEMICALS WERE BELOW 1998 TAP WATER PRG, NAWQC, MCL OR PETROLEUM SCREENING CRITERIA.

SAMPLE LOCATION → IR10MW28A 6/15/92 — DATE OF GROUNDWATER SAMPLE, G=GRAB, OR HYDROPUNCH SAMPLE DEPTH.

ANALYTE

CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

- EXCEEDS CARCINOGENIC TAP WATER PRG
- EXCEEDS NON-CARCINOGENIC TAP WATER PRG
- EXCEEDS NAWQC
- EXCEEDS MCL
- EXCEEDS PETROLEUM SCREENING CRITERIA
- EXCEEDS HGAL

SCALE IN FEET

PARCEL D KEY MAP

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.15-3 SHT 2 of 2

PARCEL D

IR-37 GROUNDWATER RESULTS EXCEEDING SCREENING CRITERIA

RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 372153 — SH 2 — REV 1

FILE NAME: 3721532_.DWG

SOIL ANALYTICAL RESULTS, IR37
RISK MANAGEMENT REVIEW - DATA GAPS INVESTIGATION
HUNTERS POINT SHIPYARD, PARCEL D

File: IR37.xls
Date: 6/19/2000

Station Number:	ANL.NAME	IR37B026	IR37B026	IR37B026	IR37B026	IR37B027	IR37B027	IR37B027	IR37B027
Sampling Depth:(feet bgs)		3.75	3.75	5.75	5.75	3.75	3.75	5.75	5.75
Sample Number		0018D006	0018D007	0018D008	0018D009	0018D002	0018D003	0018D004	0018D005
Sample Date		5/9/2000	5/9/2000	5/9/2000	5/9/2000	5/9/2000	5/9/2000	5/9/2000	5/9/2000
METAL (MG/KG)	ALUMINUM	8,210	NA	2,880	NA	NA	4,470	NA	2,300
METAL (MG/KG)	ANTIMONY	ND (0.52)	NA	1.1	NA	NA	2	NA	1.8
METAL (MG/KG)	ARSENIC	7.3 *	NA	ND (0.83)	NA	NA	ND (1.2)	NA	ND (1.3)
METAL (MG/KG)	BARIUM	626 ~	NA	14	NA	NA	33.4	NA	14.1
METAL (MG/KG)	BERYLLIUM	ND (0.03)	NA	ND (0.031)	NA	NA	ND (0.029)	NA	ND (0.031)
METAL (MG/KG)	CADMIUM	ND (0.05)	NA	ND (0.052)	NA	NA	ND (0.05)	NA	ND (0.053)
METAL (MG/KG)	CALCIUM	2,320	NA	1,440	NA	NA	1,440	NA	816
METAL (MG/KG)	CHROMIUM	245 *	NA	437 *	NA	NA	765 *	NA	519 *
METAL (MG/KG)	COBALT	51.4	NA	94.4	NA	NA	87.3	NA	103
METAL (MG/KG)	COPPER	87.8	NA	8.8	NA	NA	11.2	NA	9.9
METAL (MG/KG)	IRON	33,200 *	NA	45,500 *	NA	NA	41,000 *	NA	54,900 *
METAL (MG/KG)	LEAD	8.9	NA	0.63	NA	NA	0.43	NA	ND (0.2)
METAL (MG/KG)	MAGNESIUM	70,300	NA	164,000	NA	NA	201,000	NA	194,000
METAL (MG/KG)	MANGANESE	3,300 *~	NA	770	NA	NA	769	NA	882
METAL (MG/KG)	MERCURY	0.15	NA	ND (0.089)	NA	NA	0.18	NA	0.18
METAL (MG/KG)	MOLYBDENUM	ND (0.16)	NA	ND (0.17)	NA	NA	ND (0.16)	NA	ND (0.17)
METAL (MG/KG)	NICKEL	681	NA	1,980 *	NA	NA	1,760 *	NA	2,150 *
METAL (MG/KG)	POTASSIUM	970	NA	131	NA	NA	344	NA	78.7
METAL (MG/KG)	SELENIUM	2.7 ~	NA	1.5	NA	NA	1.3	NA	1.7
METAL (MG/KG)	SILVER	ND (0.11)	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)
METAL (MG/KG)	SODIUM	ND (55.2)	NA	ND (57.5)	NA	NA	ND (54.8)	NA	ND (58.2)
METAL (MG/KG)	THALLIUM	NA	NA	0.85 ~	NA	NA	1 ~	NA	1.2 ~
METAL (MG/KG)	VANADIUM	47.5	NA	32.8	NA	NA	36.6	NA	42.4
METAL (MG/KG)	ZINC	60.1	NA	38.7	NA	NA	33.2	NA	38.8
HEXAVALENT CHROMIUM (MG/KG)	CHROMIUM VI	NA	ND (0.059)	NA	ND (0.061)	0.07	NA	ND (0.063)	NA
MISCELLANEOUS	PERCENT MOISTURE	11.9	15.9	15.5	18.1	11.6	11.3	20.6	16.5

Notes: bgs=Below Ground Surface, MG/KG=Milligram Per Kiligram, NA=Not Analysed,ND( )=Not Detected (detection limit)
* = greater than 1999 Residential PRG, ~ greater than Hunters Point ambient level

R&M Daily Oversight Report
CTO 005: Oversight of Sump, Floor Drain, Floor Vaults, and False Floor Cleanout
Hunters Point

Date: 4/25/00
Weather/Temp: Sunny, Warm, 75^0
Client: TtEMI/Navy
R&M Personnel Onsite: D. Harp
Other Personnel Onsite: TtEMI, Chow Engineering, Navy personnel
Oversight time: 0800-1500

Equipment used: Shovels, 55-gallon drums

R&M Equipment used: Digital camera

Location of Field Activities: Sump located outside of Building 302A

Summary of Field Activities: R&M arrived onsite and met with personnel from TtEMI, Chow Engineering, and the Navy in the parking lot of Dago Mary's restaurant. All parties made brief visits to Building 302A and 274 to discuss the logistics involved during clean up and oversight activities.

Chow Engineering began cleanup work at Building 302A. Soil, water and debris, located in the sump outside of Building 302A, was removed by shovel and containerized within 55-gallon drums. Approximately 4-5 drums were filled with solids removed from the sump. Minor visual signs of contamination (staining and sheen) were observed in the material containerized within the 55-gallon drums. While setting up for the pressure wash and rinse of the sump, Chow Engineering realized that the hose bib attachment to the fire hydrant, which is the only water source in the area, was custom built, as are all of the fire hydrants at Hunters Point. The standard size for a fire hydrant hose bib is 2 ½". Apparently all of the hydrants on Hunters Point are 3.0". Chow Engineering attempted to locate a 3.0" attachment at several nearby stores but could not do so. Cleanup activities at Building 302 A were halted at 1500 and will resume at 0600 tomorrow.

Field Activities Performed by R&M: Oversight of Chow Engineering activities. During cleanup activities at Building 302 A, a large 2" thick steel insert, approximately 4.0' X 4.0' X 3.0' was discovered inside the concrete sump vault. This steel insert is suspended in water and/or product located between the insert and the bottom of the concrete vault. R&M could not determine the distance between the bottom of the insert and the bottom of the vault. However, the nature of the suspended steel insert suggests that there is a minimum of 1.0 foot between the two.

A total of 20 photographs were taken of site conditions, cleanup activities, the steel insert, containerized solids generated, and site safety measures. Six of these photographs are attached.

Observations: The aforementioned steel insert located inside the concrete vault is essentially floating on water and what can be assumed to be product. In order to allow proper cleanup of the

vault and inspection of the concrete surface for evidence of deterioration (cracks, holes, etc.), it is necessary to remove the steel insert beneath the sump at Building 302A. Removal of the insert also eliminates the need to drill through the insert to collect soil samples from beneath the concrete vault floor. With contaminated liquid present in the vault beneath the steel insert, such drilling can potentially cause release of liquid from the sump into the subsurface and possible contamination of the soil samples. The following steps are recommended:

- Remove the steel insert from the sump vault and clean thoroughly by pressure washing and rinsing
- Remove the water and sludge that is currently contained within the sump vault beneath the steel insert
- Thoroughly clean the concrete sump vault by pressure wash and rinse
- Inspect the concrete vault for holes and/or cracks
- Core through the concrete sump vault and collect the soil sample at the desired interval.
- Grout the borehole
- Place the steel insert back in the vault, if required

Employee's Signature:_____ David Harp **Date:** _____

R&M Oversight Report No. 2
CTO 005: Oversight of Sump, Floor Drain, Floor Vaults, and False Floor Cleanout
Hunters Point

Date: 4/26/00
Weather/Temp: Sunny, Warm, 75^0
Client: TtEMI/Navy
R&M Personnel Onsite: D. Harp
Other Personnel Onsite: TtEMI (Scott Wald), Chow Engineering (Lance Naterman, Bruce Calrk, Tony ...)
Oversight time: 0600-2100
Equipment used: Pressure washer, MILWAUKEE 8912 wet/dry vacuum, GENERAL FP-1 pipe fodder and 55-gallon drums
R&M Equipment used: Digital camera
Location of Field Activities: Sump located outside of Building 302A and 5 floor drains located inside Building 274.

Summary of Field Activities: R&M arrived onsite and met Chow Engineering at the sump location at Building 302A. Chow Engineering held a tailgate health and safety meeting in which site hazards were discussed. The oversight of field activities began at 6:00 a.m. and was completed at 9:00 p.m. (a 15-hour workday).

Completing Cleanup Work at Building 302A

At approximately 0700 cleanup work at Building 302A (see R&M Oversight Report for 04/25/00) was resumed. The steel insert and the concrete vault were pressure washed and rinsed "Simple Green" cleaning solution (Photo 1) and a long-handle whiskbroom were used to scrub the sides and bottom of the sump. A high-powered pressure washer (Photo 2) was used to remove all of the loosened debris, soil and any other material clinging to the walls of the sump (Photo 3). Once the bottom of the steel insert inside the sump contained enough rinse water, a MILWAUKEE 8912 wet/dry vacuum was used to remove the rinse water from the sump (Photo 4). This process was repeated a total of 4 times. All wash and rinse water generated during cleanout activities was contained within one 55-gallon, labeled drum (Photo 5). No cracks or holes were observed within the steel insert. After cleanout activities were completed, Chow Engineering properly labeled the (6) 55-gallon drums and secured the site with caution tape and orange safety cones.

Floor Drain Cleanout at Building 274

At approximately 0900 hours Chow Engineering moved and setup equipment at Building 274 to perform cleanout of the 5 floor drains (FD) and to determine the drainage direction and discharge location of these drains. The lids that covered the floor drains were removed and each drain hole was sucked with the wet/dry vacuum to remove any loose or free-floating particulates that might have been inside the floor drains. At approximately 1100, Chow Engineering received word that the pipe-rodder had arrived at their main office in Oakland. Chow left the site and returned with the rodder at 1230. Upon opening the pipe rodder box, Chow noticed that two pipe rodder fittings essential to cleanup activities were missing. Chow left the site at 1330 to locate the

missing fittings. At approximately 1500 hours Chow returned without the proper fittings but had located them. Again, Chow left the site to retrieve the missing part. At approximately 1630 Chow returned with the proper fittings and began setup for pipe flushing. The water source used for the floor drain flushing was an old fire hydrant located southwest of Building 274. Upon inspection it was discovered that this fire hydrant was a 2 ½" standard fire hydrant and not a custom 3.0 " hydrant like the one encountered the day before. It was then discovered that this particular hydrant was no longer functional. At approximately 1800 hour, Chow Engineering located pressurized flowing water outside of a nearby building and began the floor drain cleanout.

FD-01, located in the northwest section of Building 274 was cleaned first (Photo 6). A GENERAL FP-1 pressurized Pipe Rodder was used to flush water and debris from the drain line. It was discovered that this floor drain line fed a perpendicular drain line that ran northwest to southeast along the north side of the building. This line feeds a north trending drain line that empties into the Oil Water Separator located near the northwest corner of Building 274 (Photo 7). Waters entering the Oil Water Seperator are then diverted to a drain line that feeds the main sewer drain located north and slightly west of the northwest corner of Building 274 (Photo 8). R&M visually and photographically verified this drainage direction and discharge location.

At approximately 1930, the cleanout of FD-02 was initiated. There are 4 parallel floor drains located at FD –02 which are oriented northwest to southeast. R&M designated location numbers for each individual floor drain as follows:

NW ← ◙ ◙ ◙ ◙ → SW
A B C D

FD-02C was the first floor drain that was flushed and cleaned with the pipe rodder (Photo 9). With considerable effort the pipe rodder was advanced deep into the drain line and flushed with water. FD-02A, FD-02B, and FD-02D were flushed with the pipe rodder and achieved moderate penetration, until an unknown obstruction was encountered. Water was free flowing down each of the aforementioned floor drains indicating that the obstruction was not blocking water flow. Chow Engineering and R&M concluded that the floor drains at FD-02 were constructed with a "P Trap" beneath the drain or a safety screen, which was causing the pipe rodder obstruction. Water was flushed down the floor drains at FD-02 and was observed entering the same main sewer drain as FD-01. This observation suggests the following:

1) The (4) floor drains at FD-02 feed a single drain line that terminates near the southeast corner of Building 274
2) From this terminus, all waters are directed to the northwest and discharge directly into the main sewer drain (same as FD-01) located north and slightly west of the northwest corner of Building 274
3) FD-01 and FD-02 have the same drainage direction and discharge location.

At approximately 2010, a dye test was performed on the drain lines at Building 274 (Photo 10). BRIGHT DYES fluorescent green liquid concentrate was administered to the floor drains. The assumptions made regarding the drainage pattern were proven correct. R&M visually and photographically witnessed this drainage direction and discharge location (Photo 11 and 12).

Field Activities Performed by R&M: Oversight of all field activities.

A total of 34 photographs were taken of site conditions, pressure washing, cleanout, and pipe-flushing activities, dye testing, properly labeled containerized solids generated during cleanup activities, and site safety measures.

Summary of Observations at Building 274

The dye test results confirm the drainage direction and discharge location for all (5) floor drains at Building 274. However, some minor residual debris may still be present within the floor drain lines, particularly in FD-02A, FD-02B, and FD-02D. The obstruction encountered within these lines is still undetermined, but obviously does not hinder the flow of water. Commonly, floor drains as well as toilets and sinks are constructed with "P traps" in the piping. This serves as a safety mechanism to collect or trap debris that makes its way into the lines before reaching an inaccessible area. The other possibility is that the floor drains could have a wire mesh or screen below the drain to serve the same purpose. In any case, R&M is confident that the objective of the task has been satisfied. The drainage direction and discharge location have been delineated. The (4) drain lines at FD-02 all share the same drain line. Additionally, all (5) drain lines discharge into the same main sewer line.

Employee's Signature:_____ David Harp **Date:** _____

R&M Oversight Report No. 3
CTO 005: Oversight of Sump, Floor Drain, Floor Vaults, and False Floor Cleanout
Hunters Point

Date: 4/27/00
Weather/Temp: Morning fog, warm, 65^0
Client: TtEMI/Navy
R&M Personnel Onsite: D. Harp
Other Personnel Onsite: Chow Engineering (Lance Naterman)
Oversight time: 0700-0900
Equipment used: Drum dolly, safety cones, and caution tape
R&M Equipment used: Digital camera
Location of Field Activities: Sump located outside of Building 302A

Summary of Field Activities: R&M oversight representative met Chow Engineering field staff at the sump location at Building 302A. Following a tailgate health and safety meeting, at approximately 0700 Chow Engineering began loading the 55-gallon drums generated from cleanup activities during the previous two days onto their flatbed truck. Chow requested R&M to contact TtEMI and request permission to stage the 55-gallon drums at the Building 302A sump work site until the steel insert is removed and cleaned and additional drums are filled. R&M contacted Scott Wald of TtEMI by telephone and was granted approval for this. Chow Engineering proceeded to stage the drums inside the building directly north of the sump (Photo 1) until cleanout activities are completed next week. The sump was properly barricaded with traffic cones and lined with caution tape (Photo 2).

Field Activities Performed by R&M: Oversight of field activities.

A total of 2 photographs were taken of staged drums and site safety measures.

Observations: None

Employee's Signature:_____ David Harp **Date:** _____

R&M Environmental and Infrastructure Engineering, Inc.

Memo

To: Mike Wanta, Scott Wald (TtEMI)

From: Gavan Heinrich

CC: Ron Matsui (AMC), Thomas McArdle (AMC), Jody (Owens Concrete Saw and Company), Paul Jones (Fast-Tek), Masood Ghassemi (R&M)

Date: 5/19/00

Re: Soil borings and sampling adjacent to the transformer in Bldg 306

Following is a summary of the planned activities, schedule, and assigned responsibilities for soil sampling adjacent to the transformer in Building 306 at Hunters Point Naval Shipyard. I will be onsite for all concrete coring and soil boring activities and will be collecting and shipping the samples.

1. Subtronic Corporation, an underground utility locator, cleared the primary and alternate soil boring locations on Wednesday, May 17. Photos 1 and 2 show the locations of the proposed coreholes and soil borings

2. Owens Concrete Saw & Co., Inc. will perform the concrete coring at building 306. The concrete corer will arrive onsite at 9:30 p.m. on Friday, May 19.

3. Thomas McArdle of Astoria Metal Co. (AMC) will arrive at Building 306 at 10:00 p.m., May 19 and will de-energize the transformer from inside the building. Once the transformer is shut down, concrete coring will begin. Coring of the concrete pad is expected to take from two to three hours per core hole, depending on the thickness of the pad and the presence or absence of steel reinforcement.

4. Fas-Tek will be on site at about 4:00 a.m. on Saturday, May 20 to advance the soil borings. The boreholes will be advanced through the concrete coreholes unless the concrete corer has encountered refusal. If the concrete corer is unable to penetrate the concrete pad, the boreholes will be advanced at the alternate locations approximately five feet southwest of the desired locations. Photos 3 and 4 show the alternate borehole locations.

5. Soil boring and sample collection should be completed by 7.00 a.m. Saturday morning, at which time Mr. Thomas McArdle of AMC will return to Building 306 and re-energize the transformer.

6. Samples will be shipped to APCL Saturday morning immediately following soil boring and sample collection activities.

Photo 1. View of IR35B026 soil boring location looking northwest

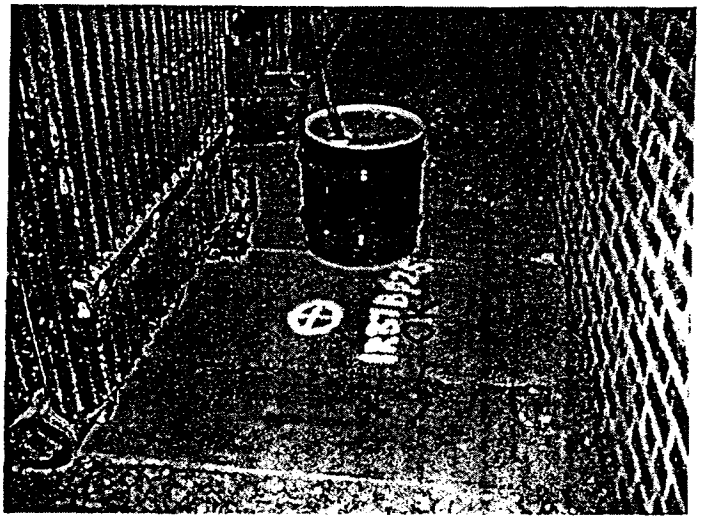

Photo 2. View of IR35B025 soil boring location looking northwest

Photo 3. Alternate location for soil boring IR35B025 looking northeast

Photo 4. Alternate location for soil boring IR35B026 looking northwest

CTO-005A
Report on
Soil Sampling at Buildings 306, 274, and 302 and IR37
Hunters Point Naval Shipyard

Date: 5/22/00
Client: TtEMI/Navy
Report Prepared by: David Harp and Gavan Heinrich (R&M Environemntal)

Building 306

Soil sampling at Building 306 is now complete. R&M met with Owens Concrete Saw &Co (Owens CSC) and Mr. Thomas McArdle of Astoria Metal Co. (AMC) at approximately 10:00 p.m. on 5/19/00 at building 306. Mr. McArdle disconnected the power to the transformer and Owens CSC began work immediately on the concrete coring. It was believed that the concrete under the transformer could be up to 4 feet thick so Owen CSC intended to run two corers simultaneously so that the work would be completed by the time the Geoprobe contractor arrived at abut 4:00 a.m. on 5/20/00). After setting both corers in position (Photo 1), the concrete coring crew started the corer setup on the IR35B026 borehole location and within the five minutes penetrated the concrete slab, which turned out to be only 7" thick (Photo 1). The slab at the opposite end of the transformer (IR35BO25) was only 5" thick and was rapidly penetrated as well. It appears that the actual footings for the transformer are only 18" wide, and that a thinner slab of concrete had been poured in the area between the footings, where the boreholes are located, sometime after the transformer was already in place.

Fast-Tek, the Geoprobe/soil-boring subcontractor arrived at 4:00 a.m. on 5/20/00 and set up a limited access Geoprobe rig to advance the soil borings. The IR35B025 borehole was advanced first (Photo 2). Based on the rate of penetration the gravel was estimated to be approximately 6.5 feet thick. The Geoprobe encountered difficulty, however, when trying to collect a soil sample below the gravel/soil interface. During a number of sample collection attempts, the narrow sample collection sleeve (1") of the limited access Geoprobe rig became jammed with the coarse gravel before sufficient soil had entered the tube. R&M and Fast-Tek resolved this by advancing the boring as near to the gravel/soil interface as possible before opening the sample collection tube. A sample (0020G001) was collected from 6" to 12" below the gravel/soil interface, placed in an 8-oz. glass jar, and then placed on ice. Borehole IR35B026 also presented difficulties. The soil gravel interface in IR35B026 was at approximately 6 feet bgs, but the Geoprobe encountered refusal repeatedly at 6.75-ft bgs. The obstruction was concrete and was most likely over pour from the nearby transformer footing. In order collect enough sample, R&M advanced the Geoprobe twice, collected two samples from 6" to 9" below the gravel-soil interface, and then composited the two samples. The sample was placed in an 8-oz. glass jar, and then placed on ice. The grouting of the boreholes has been placed on hold, pending availability of the soil sampling results, which may indicate a need for additional sampling at the same or nearby locations. As a temporary measure, the concrete cores were wrapped in the plastic sheeting and placed back in the core holes. Mr. McArdle returned to the site at approximately 8:00 a. m. on 5/20/00 and restored power to the transformer. The were samples packed in an ice cooler with 18 pounds of double-bagged ice and shipped to APCL laboratories on Saturday morning (5/20/00).

Building 274

R&M met with Osborne Concrete Coring on 5/02/00 where five 6" cores were cut through the concrete flooring located adjacent to the floor drains within the building (Photo 4) before any borings were advanced. Samples were collected on 5/09/00 when Fast-Tek Drilling Company advanced borings (IR35B020-IR35B024) through these cored areas to an approximate depth of 3.0 feet bgs. Samples were collected in glass jars and 5-gram Encore samplers and core holes were then grouted with Portland Type II cement. Recovery was relatively poor during sample collection as the ground beneath the foundation was extremely hard. No other complications were encountered.

Building 302

Soil sampling was completed adjacent to the sump vault at Building 302 on May 9, 2000. One boring (IR33B109) was advanced with a Geoprobe to a depth of approximately 7.0 feet below ground surface. Samples were collected in glass jars and Encore samplers to encapsulate the volatiles. After sample collection the boring was grouted with Portland Type II cement.

IR 37

On May 09, 2000, R&M met with Fast-Tek and proceeded to advance two borings (IR37B026 and IR37B027) beneath an old exploratory excavation at IR 37 (Photo 5) to a depth of approximately 6.0 to 6.5 feet bgs. No problems were encountered. Samples were collected in glass jars and 5-gram Encore samplers. The borings were then grouted with Portland Type II cement.

Photos:

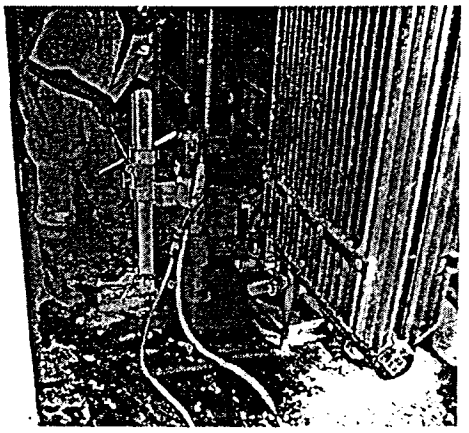

Photo 1. Concrete corer in position over IR35B026 location

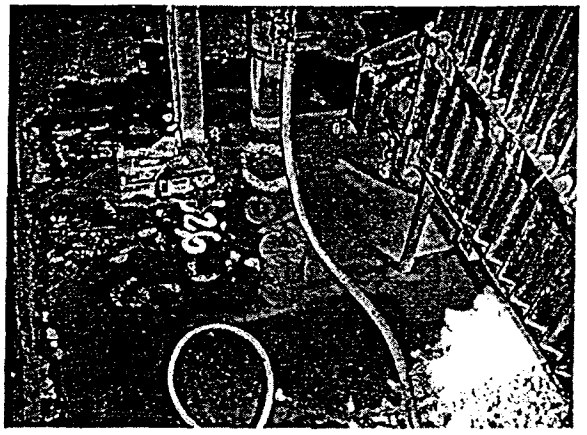

Photo 2. Completion of IR35B026 corehole

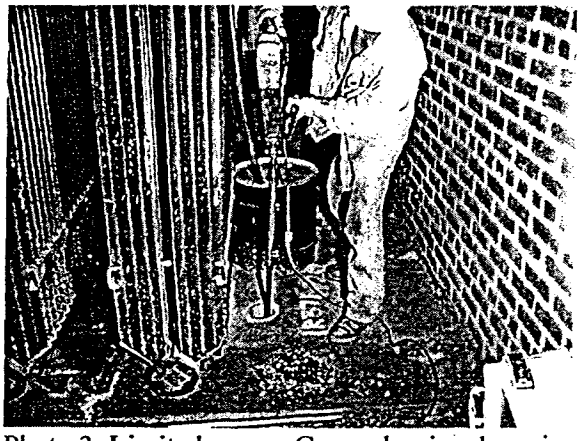

Photo 3. Limited access Geoprobe rig advancing IR35B025

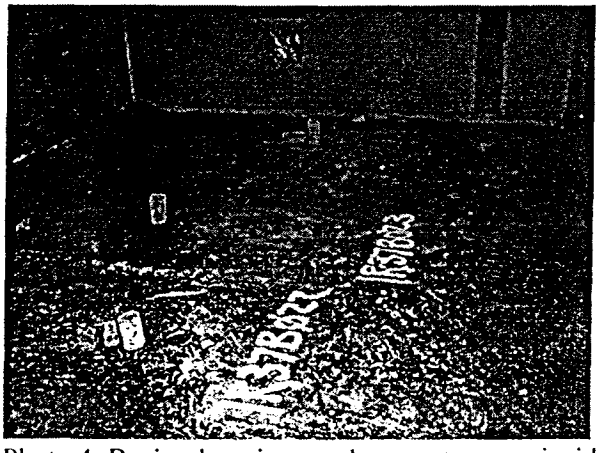

Photo 4. Boring locations and concrete cores inside Building 274

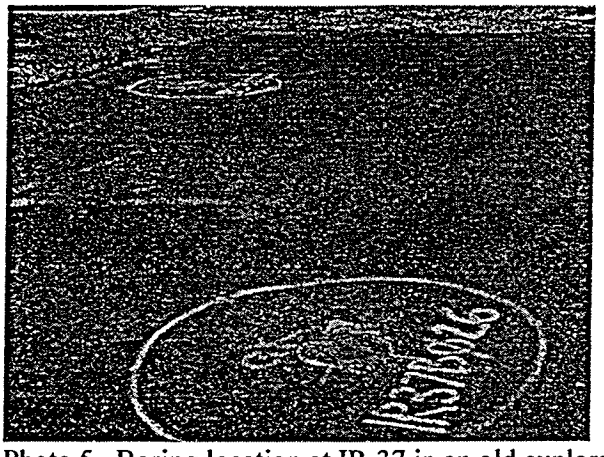

Photo 5. Boring location at IR-37 in an old exploratory excavation

Tt Tetra Tech EM Inc.

LOG OF BORING IR37B026

Time	Rec. Int. (in.)	Sample Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
							AS	ASPHALT
								NO RECOVERY
			0	1				
			0	2				
	12		0	3			GC	CLAYEY/SANDY GRAVEL: Medium brown (10YR 3/3); moist; loose; no cementation; nonplastic
09:55		6			☒			
	24		0	4			CL	GRAVELLY CLAY: Very dark olive-grey (GLEY1 3/10Y); moist; soft; very plastic; a fat clay
10:00			0	5			SC	CLAYEY SAND: Medium olive-grey (GLEY1 4/10Y); moist; loose; nonplastic; no cementation
		6			☒			
				6				Total depth of boring = 6.0 feet
				7				
				8				
				9				
				10				

▼ Water Table

☒ Lab Sample

PROJECT	Hunter's Point	SAMPLING METHOD	Geoprobe
LOCATION	IR-37	GROUND ELEVATION	NA
JOB NUMBER	CTO-005A	TOC ELEVATION	NA
LOGGED BY	G. Heinrich	BORING DIAMETER	1.5 Inches
DATE DRILLED	5/9/00	TOTAL DEPTH OF HOLE	6.0 Feet bgs
DRILLER	Fast-tek	WATER LEVEL	None Encountered
DRILL METHOD	Geoprobe	WELL INSTALLED? (Y/N)	n

Tt Tetra Tech EM Inc.

LOG OF BORING IR37B027

Time	Drive Int. (in.)	Rec. Int. (in.)	PID	Depth (ft)	Sample Interval	Graphic Log	USCS Code	MATERIALS DESCRIPTION
							AS	ASPHALT
								NO RECOVERY
			0	1				
			0	2				
			0	3				
09:28	6	6					GC	CLAYEY/SANDY GRAVEL: Mottled medium green-grey (GLEY1 4/10Y) and dull medium brown; moist; loose; well graded; nonplastic; no cementation; gravel clasts are subangular granitic rock with abundant mica (biotite); angular fragments of serpentinite as large as 5 cm at the bottom of the interval
	12		0	4				
			0	5				
09:34		6						
				6				Total depth of boring = 6.0 feet
				7				
				8				
				9				
				10				

Water Table

Lab Sample

PROJECT Hunter's Point
LOCATION IR-37
JOB NUMBER CTO-005A
LOGGED BY G. Heinrich
DATE DRILLED 5/9/00
DRILLER Fast-tek
DRILL METHOD Geoprobe

SAMPLING METHOD Geoprobe
GROUND ELEVATION NA
TOC ELEVATION NA
BORING DIAMETER 1.5 Inches
TOTAL DEPTH OF HOLE 6.0 Feet bgs
WATER LEVEL None Encountered
WELL INSTALLED? (Y/N) n

N00217.003988
HUNTERS POINT
SSIC NO. 5090.3

IR-38

DRAFT FINAL
PARCEL D
RISK MANAGEMENT REVIEW PROCESS

DATED 20 JUNE 2000

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SITE IR-38: DE MINIMIS AREA 8387 (GRID CELL AX30)

Operational History and Site Characterization

De minimis area 8387 is located approximately 75 feet east of Building 500. Building 500 was the former Chief Petty Officer Barracks, and was designated as IR-38 due to the presence of a former heating oil underground storage tank adjacent to the building. However, de minimis area 8387, physically located to the east of IR-38, was investigated as part of IR-45 (shipyard steam line system); the steam line system was suspected of transporting oils. Historical use of the site is industrial, and the Navy proposes to remediate the site to industrial reuse standards. The City of San Francisco (the City) is proposing that the area be zoned for industrial use, and desires that the area be cleaned up to industrial standards. Biased sampling was conducted in the suspected source area. Based on a review of the data, the Navy believes the area is adequately characterized for remedial investigation and feasibility study (RI/FS) purposes.

Data Evaluation and Risk Assessment

De minimis area 8387 is an 8- by 8-foot area located in grid cell AX30 and associated with test pit PA45TA06. Under an industrial reuse scenario, grid cell AX30 has an estimated excess lifetime cancer risk (ELCR) of 4×10^{-6} and a hazard index (HI) of less than 1, and it has no lead concentrations above 1,000 milligrams per kilogram (mg/kg). Because the ELCR exceeded 1×10^{-6}, further evaluation was conducted. Surrounding borings and grid cells were reviewed and found not to include similar contaminants; therefore, data from adjacent grid cells were not used to evaluate grid cell AX30. Chemicals driving risk (Aroclor-1260, benzo[a]anthracene, benzo[a]pyrene, and benzo[b]fluoranthene) were detected in test pit PA45TA06, as shown on Figure 1. One sample was collected at the bottom of the test pit, adjacent to the steam lines, in the area of suspected contamination. No other borings are located within this exposure area.

De Minimis Area 8387 Industrial Scenario Risk Drivers

Area Risk Drivers	Maximum Detection (mg/kg)	Associated Risk	Associated HI
Aroclor-1260	0.09 at 5.25 feet	5×10^{-7}	<1
Benzo(a)anthracene	0.31 at 5.25 feet	3×10^{-7}	<1
Benzo(a)pyrene	0.33 at 5.25 feet	3×10^{-6}	<1
Benzo(b)fluoranthene	0.33 at 5.25 feet	3×10^{-7}	<1

Risk Management Factors

The maximum concentrations of the chemicals driving risk are below current screening criteria. The maximum concentration of Aroclor-1260 (0.09 mg/kg) is below both U.S. Environmental Protection Agency (EPA) guidance for industrial cleanup of total polychlorinated biphenyls (PCB) (10 mg/kg) and the 1998 preliminary remediation goal (PRG) for total PCBs (1.3 mg/kg). The maximum concentrations of benzo(a)anthracene (0.31 mg/kg) and benzo(b)fluoranthene (0.33 mg/kg) are below the 1995 and the 1998 industrial PRGs (2.6 and 3.6 mg/kg, respectively). The maximum concentration of benzo(a)pyrene (0.33 mg/kg) is above the 1995 industrial PRG (0.26 mg/kg) but below the 1998 industrial PRG (0.36 mg/kg).

Groundwater Issues

At de minimis area 8387, groundwater is encountered at about 5 to 6 feet below ground surface (bgs). The risk management review (RMR) did not include evaluation of soil as a source to groundwater. The groundwater below this area is currently being evaluated as a potential drinking water source. A complete groundwater evaluation, including an evaluation of soil as a source to groundwater contamination, will be documented in a proposed Phase I groundwater data gap evaluation.

Other Information

Total petroleum hydrocarbons (TPH) were not detected in soil at concentrations above screening criteria. No removal actions or exploratory excavations have been conducted in this de minimis area.

Conclusions:

✓ The Navy concluded that no Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response action is required for de minimis area 8387.

RISK MANAGEMENT DECISION PROCESS FOR SOIL
PARCEL D, HUNTERS POINT SHIPYARD

IR Site Number	Risk Grid Cell Number and ELCR Grid Value	Remediation or De Minimis Area Number
IR-38	AX30, 4×10^{-6}	DM 8387

Operational History	De minimis area 8387 is located approximately 75 feet east of Building 500. Building 500 was the former Chief Petty Officer Barracks. De minimis area 8387 is associated with test pit PA45TA06, located on the eastern end of "H" Street.
• Is the site adequately characterized?	Yes. De minimis area 8387 is the location of test pit PA45TA06. One sample was collected at the bottom of the test pit, adjacent to the steam lines, in the area of suspected contamination. No other borings are located within this exposure area.
• Are the detected chemicals consistent with the operational history?	Yes. Aroclor-1260 (5×10^{-7}), benzo(a)anthracene (3×10^{-7}), benzo(a)pyrene (3×10^{-6}), and benzo(b)fluoranthene (3×10^{-7}) were detected at 5.25 feet bgs, at the bottom of the test pit. Polynuclear aromatic hydrocarbons (PAH) and PCBs may be the result of leaks from the steam lines that are suspected of transporting oils, or an artifact of the artificial fill process.
• Does the distribution of the detected chemicals make sense?	Yes.

Are There Hot Spots Located in This Area?	No. The chemicals of potential concern are below current screening criteria.
• How do these hot spots compare with the ambient values (metals and PAHs)?	N/A

Is Groundwater Contamination Present?	Groundwater data were not collected for de minimis area 8387.
• Is the groundwater contamination similar to the detected chemicals in the surrounding soils?	N/A
• Has a potential source of the groundwater contamination been identified?	N/A

Has TPH been Detected over a Screening Criterion?	
• TPH as gasoline > 100 parts per million (ppm)?	No.
• TPH as diesel > 1,000 ppm?	No.
• TPH as motor oil > 1,000 ppm?	No.
• Total recoverable petroleum hydrocarbons > 1,000 ppm?	No.
• Total oil and grease > 1,000 ppm?	No.

Special Factors	
• Ecological risk present (paved/unpaved)?	No. The site is covered with asphalt.
• PCBs greater than 10 ppm?	No. Aroclor-1260 was detected at a maximum concentration of 0.09 mg/kg.
• Previous removal actions?	No.
– Does this correspond with the distribution of the chemicals?	N/A
• Previous exploratory excavations?	No.
– Does this correspond with the distribution of the chemicals?	N/A

Is there a Problem with	
• Maximum concentrations?	No.
• Human health risks?	No.
– Individual risk?	No.
– Cumulative risks?	No.
– Ambient risk?	No.

Action Required	No further action is recommended for this site.
Remedial action required?	No.
Additional site characterization?	No.
Use of institutional controls to mitigate risk?	No.
No further action recommended?	Yes.

NOTES:

The Navy concluded that no CERCLA response action is required for de minimis area 8387.

SUMMARY OF HUMAN HEALTH RISK AT PARCEL D UNDER 10^{-6} FUTURE INDUSTRIAL SOIL CLEANUP SCENARIO (Continued)
PARCEL D, HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA

IR-Site	Grid Cell	Remedial or De Minimis Area	Chemical Risk Driver	95% UCL/ Risk	ELCR and HI Grid Value	Sampling Station		Analytical Results				Potential Source	Surface Cover	TPH Concentration (mg/kg)	Notes
						Number	Depth (feet bgs)	Detected Concentration (mg/kg)	1995 PRG (mg/kg)	1998 PRG (mg/kg)	HPAL (mg/kg)				
IR-37 (IR-09)	AS23	RA 37-2	Arsenic	2×10^{-6}	4×10^{-6}	IR09B007	1.25	13	2.0	3.0	11.1	May be related to surface spillage of waste oil. Arsenic attributed to variations in background concentrations.	Clean fill material covering the former UST excavation. Asphalt is surrounding the former USTs.	TPH-mo: 3,800 TRPH: 2,400	Remedial area 37-2 is east of Building 435, where the USTs were located. Building 435 is a wood frame building with a concrete floor. The Navy used Building 435 for equipment storage, and it housed a paint booth and workshop area. Various paints and paints thinners were discharged to drains within building.
			Benzo(a)pyrene	8×10^{-7}	HI < 1	IR37B013	1.25	0.10	0.26	0.36	NA				
			Beryllium	3×10^{-7}		IR09B007	1.25	1.20	3.9	3,400	NA				
			Aroclor-1260	2×10^{-7}		IR37B010	5.25	0.04	0.34	1.3	NA				
			Aroclor-1260	—		IR37B013	5.25	0.02	0.34	1.3	NA				
			Aroclor-1242	1×10^{-7}		IR37B013	1.25	0.02	0.34	1.3	NA				
			Benzo(a)anthracene	1×10^{-7}		IR37B013	1.25	0.15	2.6	3.6	NA				
			Nickel	1×10^{-7}		IR09B006	5.75	6,300	34,000	37,000	Variable				
IR-38	A×30	DM 8387	Benzo(a)pyrene	3×10^{-6}	4×10^{-6}	PA45TA06	5.25	0.33	0.26	0.36	NA	PCBs and PAHs may be a result of leakage of fuels transported through steam lines.	Landscape	None exceeding the soil cleanup criteria.	IR-38 covers about 2.2 acres and consists of Building 500 and former UST S-508. This 750-gallon steel heating oil UST was removed in July 1991. De minimis area 8387 is about 75 feet east of Building 500. Building 500 was the former Chief Petty Officer Barracks. The de minimis area is associated with a test pit located on the east end of "H" Street.
			Aroclor-1260	5×10^{-7}	HI < 1	PA45TA06	5.25	0.09	0.34	1.3	NA				
			Benzo(a)anthracene	3×10^{-7}		PA45TA06	5.25	0.31	2.6	3.6	NA				
			Benzo(b)fluoranthene	3×10^{-7}		PA45TA06	5.25	0.33	2.6	3.6	NA				
IR-39	AZ33	DM 9196 This de minimis area is located in Parcel E and should not be evaluated as part of Parcel D. It was included as part of Parcel D, since the risk grid cell falls within both Parcels D and E	Beryllium	1×10^{-6}	1×10^{-6}	IR14MW10A	2.25	1.4	3.9	3,400	0.71	Unknown	Soil	None exceeding soil cleanup criteria.	IR-39 covers about 6.5 acres and consists of Building 505, former Building 519, and a large vacant lot southwest of Building 709. De minimis area 9196 is inside of former Building 520 (Parcel E). Building 520, which the Navy used as a dental clinic, was demolished at an unknown date.
			Beryllium	—	HI < 1	IR14MW10A	4.25	1.1	3.9	3,400	0.71				
			Beryllium	—		IR14MW10A	6.25	1.5	3.9	3,400	0.71				
			Beryllium	—		IR14MW10A	8.75	1.4	3.9	3,400	0.71				
IR-53 (IR-69)	BG30	RA 53-1	Arsenic	2×10^{-6}	5×10^{-6}	IR69B002	0.25	11	2.0	3.0	11.1	PCBs may be related to surface spillage of waste oil. Source of arsenic and lead are unknown. Arsenic attributed to variations in background concentrations.	Asphalt surrounding the exploratory excavation site, EE-15/16. Soil on top of EE-15/16	TRPH: 2,400 TPH-mo: 4,200 TPH-d: 1,200	IR-53 covers about 0.5 acre and consists of Buildings 525 and 530. Remedial area 53-1 is in the northeast corner of Building 530. The Navy Public Works used Building 530 as an automotive hobby shop. Remedial area 53-1 was excavated as part of the exploratory excavation EE-15/16.
			Arsenic	—	HI < 1	IR53B029	6.50	17	2.0	3.0	11.1				
			Aroclor-1260	2×10^{-6}		PA53SS09	1.25	0.32	0.34	1.3	NA				
			Aroclor-1248	9×10^{-7}		PA53SS09	1.25	0.17	0.34	1.3	NA				
			Lead	—		PA53SS09	1.25	1,400	1,000	1,000	8.99				
IR-53 (IR-16)	BG31 This remedial area is included as part of IR-16 since the exposure grid occupies both IR-16 and IR-53. The actual remedial area is located in both IR-16 and IR-55.	RA 53-2	Benzo(a)pyrene	7×10^{-6}	2×10^{-5}	PA53SS03	0.00	0.88	0.26	0.36	NA	May be related to surface spillage of waste oil. Arsenic and beryllium attributed to variations in background concentrations of arsenic and beryllium.	Asphalt is in poor condition with some soil exposed.	None exceeding soil cleanup criteria.	Remedial areas 53-2 and 53-3 are north of Building 525. Building 525 was formerly a storehouse for containers of adhesives, joint sealing compounds, paint emulsions, and other materials.
		RA 53-3	Benzo(a)pyrene	—	HI < 1	IR53B018A	1.25	0.51	0.26	0.36	NA				
		RA 53-2	Arsenic	3×10^{-6}		PA53SS12	1.25	11	2.0	3.0	11.1				
		NA	Arsenic	—		IR16B012	6.25	12	2.0	3.0	11.1				
		RA 53-2	Arsenic	—		IR53B014	6.25	11	2.0	3.0	11.1				
		RA 53-3	Dibenzo(a,h)anthracene	2×10^{-6}		IR53B018A	1.25	0.38	0.26	0.36	NA				
		RA 53-3	Indeno(1,2,3-cd)pyrene	1×10^{-6}		IR53B018A	1.25	1.4	2.6	3.6	NA				
		RA 53-2	Aroclor-1260	1×10^{-6}		IR53B014	1.25	0.22	0.34	1.3	NA				
		RA 53-3	Benzo(b)fluoranthene	6×10^{-7}		IR53B018A	1.25	0.74	2.6	3.6	NA				
		RA 53-3	Benzo(a)anthracene	4×10^{-7}		IR53B018A	1.25	0.53	2.6	3.6	NA				
		RA 53-2	Beryllium	3×10^{-7}		PA53SS12	1.25	1.1	3.9	3,400	0.71				
		RA 53-3	Benzo(k)fluoranthene	2×10^{-7}		IR53B018A	1.25	0.27	26	36	NA				

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37 (IR-09, IR-36N)	AS25 (069072)	NC	NE	NE	NE	NE	NE
IR-37 (IR-09, IR-36N, IR-66)	AS26 (069076)	1E-10 (2E-11)	4,4'-DDT (8E-11)	0.00066	PA36B029	6.75	0.0007
			4,4'-DDD (2E-11)	0.00029	PA36B029	6.75	0.0003
			4,4'-DDE (1E-11)	0.00012	PA36B029	6.75	0.0001
IR-38 (IR-36S, IR-36W)	AV32 (077092, 077093, 077094, 078093, 078094, 079092, 079094)	7E-06 (4E-07)	Benzo(a)pyrene (3E-06)	0.41	IR39B030	2.25	0.4
			Benzene (3E-06)	2.5	IR39B013	6.25	3
			Benzo(a)anthracene (3E-07)	0.39	IR39B013	6.25	0.4
			Chrysene (4E-08)	0.51	IR39B013	6.25	0.5
			Chrysene	--	IR39B030	2.25	0.4
			Pentachlorophenol (9E-09)	0.068	IR39B012A	8.25	0.07
			4,4'-DDT (5E-10)	0.0039	IR39B013	6.25	0.004
			Beta-BHC (2E-09)	0.0037	IR39B013	6.25	0.004
IR-38 (IR-36S)	AW31 (080090, 081089, 082089, 082090, 082091)	5E-06 (7E-07)	Arsenic (5E-06)	12	PA38SS01	0.00	12.3
			Arsenic	--	IR38B006	6.25	6.5
			Arsenic	--	IR38B007	6.25	5.9
			Arsenic	--	IR38B002	6.25	1.9
			Benzene (2E-08)	0.015	IR38B002	6.25	0.02
			Benzene	--	IR38B006	6.25	0.006
			4,4'-DDD (5E-10)	0.0062	IR38B002	6.25	0.006
			4,4'-DDE (4E-10)	0.0036	IR38B002	6.25	0.004

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

Site[a]	Industrial Exposure Area[b,c]	Total ELCR[d]	COPC Contributing Significantly to the Total ELCR[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
					Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-38 (IR-36S)	AW31 (080090, 081089, 082089, 082090, 082091) (Continued)	5E-06 (7E-07)	4,4'-DDT (1E-09)	0.010	IR38B002	6.25	0.01
IR-38	AX30 (083087)	4E-06 (5E-07)	Benzo(a)pyrene (3E-06)	0.33	PA45TA06	5.25	0.3
			Aroclor-1260 (5E-07)	0.094	PA45TA06	5.25	0.09
			Benzo(b)fluoranthene (3E-07)	0.33	PA45TA06	5.25	0.3
			Benzo(a)anthracene (3E-07)	0.31	PA45TA06	5.25	0.3
			Indeno(1,2,3-cd)pyrene (3E-07)	0.31	PA45TA06	5.25	0.3
			Benzo(k)fluoranthene (2E-07)	0.26	PA45TA06	5.25	0.3
			Chrysene (3E-08)	0.37	PA45TA06	5.25	0.4
IR-38	AX31 (083090, 084090)	7E-09 (6E-10)	Benzene (7E-09)	0.0060	IR38B003	6.25	0.006
IR-38 (IR-39)	AY31 (088090)	NC	NE	NE	NE	NE	NE
IR-38 (IR-08)	BA31 (093089)	NC	NE	NE	NE	NE	NE

(Continued)

SOIL SUMMARY TABLE
COPCs CONTRIBUTING 100 PERCENT TO 10E-6 FUTURE INDUSTRIAL CARCINOGENIC RISKS
PARCEL D HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA

HI	Hazard Index
EPC	Exposure point concentration
mg/kg	Milligram per kilogram
NC	Not calculated. No noncarcinogenic COPCs were identified in this exposure area; therefore, a total HI and total segregated HI was not calculated exposure area.
NE	Not evaluated
a	The number presented in parenthesis is another IR site with which the subject industrial exposure area is associated.
b	The exposure area presented is based on a 0.5-acre exposure area.
c	The exposure area presented in parentheses is the associated exposure area for the residential scenario based on a 2500-square foot exposure area. The total residential scenario can be found in Table N.5.9.
d	The total HI and total segregated HI presented is for the RME case. The value presented in parentheses is for the average exposure case. The total segregated HI evaluates the ingestion of, dermal contact with, and inhalation of VOCs and particulate emissions from soil, and ingestion of pathway exposure.
e	Only the COPC-specific HIs for COPCs contributing about 90% of the HIs that exceed 1 or COPCs contributing a HI exceeding 1 under the RME
f	The value presented is the EPC assumed for the COPCs contributing significantly to the total HI under the RME case.
g	If the total COPC-specific total segregated HI exceeding 1 can be attributed to one or several sample locations, the sampling location, depth, and are listed.
h	Chromium VI was not speciated; therefore, for all IR-sites, a surrogate chromium VI value was calculated assuming 0.99 percent of the total chromium value (see Attachment N-C).
i	The central nervous sysstem is the primary system affected by the indicated chemical, generally at the lowest dose levels.
j	Blood, including the hematopoietic system, is the primary of critical system affected by the indicated chemical, generally at the lowest dose levels.
k	Examples of non-specific toxicity include decreased organ weights and decreased weight gain, effects not limited to a few organs or systems.
l	The kidney is the primary organ affected by the indicated chemical, generally at the lowest dose levels.
m	The gastrointestinal system is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
n	The cardiovascular system is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
o	The skin is the primary or critical organ affected by the indicated chemical, generally at the lowest dose levels.
p	The liver is the primary or critical organ affected by the indicated chemical, generally at the lowest dose levels.
q	The peripheral nervous system (PNS) is the primary or critical system affected by the indicated chemical, generally at the lowest dose levels.
*	The detected concentration exceeds the residential soil U.S. EPA Region IX Preliminary Remediation Goal (PRG).
α	The detected concentration exceeds the Hunters Point Ambient Level (HPAL).

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TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site [a]	Industrial Exposure Area [b,c]	Total ELCR[d]	Total Segregated HI[e]	COPC Contributing Significantly to the Total ELCR, Total HI, or Lead[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
						Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-37 (IR-09)	AS23 (068065, 068067, 069065, 069066, 069067, 070066, 070067)	4×10^{-6} (5×10^{-7})	<1	Arsenic (2×10^{-6}) Benzo(a)pyrene (8×10^{-7}) Beryllium (3×10^{-7}) Aroclor-1260 (2×10^{-7}) Aroclor-1260 Aroclor-1242 (1×10^{-7}) Benzo(a)anthracene (1×10^{-7}) Nickel (1×10^{-7})	4.3 0.1 0.34 0.04 -- 0.022 0.15 3,000	IR09B007 IR37B013 IR09B007 IR37B010 IR37B013 IR37B013 IR37B013 IR09B006	1.25 1.25 1.25 5.25 5.25 1.25 1.25 5.75	13 α, # 0.10 1.2 α, # 0.04 0.02 0.02 0.15 6,300
IR-37 (IR-09)	AS24 (070068, 070070)	NC	<1	NE	NE	NE	NE	NE
IR-37 (IR-09, IR-36N)	AS25 (070073)	NC	<1	NE	NE	NE	NE	NE
IR-37 (IR-09, IR-36N, IR-66)	AS26 (069076)	1×10^{-10} (2×10^{-11})	<1	NE	NE	NE	NE	NE
IR-38 (IR-36S, IR-36W)	AV32 (077092, 077093, 077094, 078093, 078094, 79092, 079094)	7×10^{-6} (4×10^{-7})	<1	Benzo(a)pyrene (3×10^{-6}) Benzene (3×10^{-6}) Benzo(a)anthracene (3×10^{-7})	0.41 2.5 0.39	IR39B030 IR39B013 IR39B013	2.25 6.25 6.25	0.41 # 2.5 0.39
IR-38 (IR-36S)	AW31 (080090, 081089, 082089, 082090, 82091)	5×10^{-6} (7×10^{-7})	<1	Arsenic (5×10^{-6})	12	PA38SS01	0.00	12 α, #

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site [a]	Industrial Exposure Area [b,c]	Total ELCR[d]	Total Segregated HI[e]	COPC Contributing Significantly to the Total ELCR, Total HI, or Lead[f]	EPC[g] (mg/kg)	Significant Sampling Location Information[h]		
						Sampling Location	Sampling Depth (feet bgs)	Detected Concentration (mg/kg)
IR-38	AX30 (083087)	4×10^{-6} (5×10^{-7})	<1	Benzo(a)pyrene (3×10^{-6}) Aroclor-1260 (5×10^{-7}) Benzo(a)anthracene (3×10^{-7}) Benzo(b)fluoranthene (3×10^{-7})	0.33 0.094 0.31 0.33	PA45TA06 PA45TA06 PA45TA06 PA45TA06	5.25 5.25 5.25 5.25	0.33 # 0.09 0.31 0.33
IR-38	AX31 (083090, 084090)	7×10^{-9} (6×10^{-10})	<1	NE	NE	NE	NE	NE
IR-38 (IR-39)	AY31 (088090)	NC	<1	NE	NE	NE	NE	NE
IR-38 (IR-08)	BA31 (093089)	NC	<1	NE	NE	NE	NE	NE
IR-39 (IR-36W)	AR33 (065095, 066095)	5×10^{-8} (2×10^{-9})	<1	NE	NE	NE	NE	NE
IR-39 (IR-36W)	AR34 (066098, 067098)	1×10^{-6} (1×10^{-7})	<1	Benzo(a)pyrene (1×10^{-6})	0.14	IR36MW135A	1.00	0.14
IR-39 (IR-36W)	AS33 (068096, 069095, 069096, 070095, 070096)	4×10^{-7} (3×10^{-8})	<1	NE	NE	NE	NE	NE
IR-39	AS34 (068098)	3×10^{-7} (4×10^{-8})	<1	NE	NE	NE	NE	NE

TABLE N.5-18 (Continued)

SOIL SUMMARY TABLE
FUTURE INDUSTRIAL CARCINOGENIC RISKS, NONCARCINOGENIC HAZARDS, AND LEAD LEVELS OF CONCERN
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Notes:

bgs	Below ground surface
COPC	Chemical of potential concern
ELCR	Excess lifetime cancer risk
EPC	Exposure point concentration
HI	Hazard index
mg/kg	Milligram per kilogram
NC	Not calculated; no carcinogenic COPCs identified in this exposure area; therefore, total segregated HI not calculated
NE	Not evaluated
#	Detected concentration exceeds U.S. Environmental Protection Agency (EPA) Region IX preliminary remediation goal (PRG) for industrial soil
α	Detected concentration exceeds Hunters Point ambient level (HPAL)

a The number presented in parentheses is another IR site with which the subject industrial exposure area is associated.

b The exposure area presented is based on a 0.5-acre exposure area.

c The number presented in parentheses is the associated exposure area for the residential scenario based on a 2,500-square foot exposure area. The total ELCRs for the residential scenario are presented in Table N.5-9, and the total HIs for the residential scenario are presented in Table N.5-10.

d The total ELCR presented is for the RME case. The value presented in parentheses is for the average exposure case. The total ELCR evaluates the ingestion of, dermal contact with, and inhalation of volatile organic compounds (VOC) and particulate emissions from the soil exposure pathway.

e The total HIs for the industrial scenario are presented in Table N.I-1 of Attachment N-I.

f Only the COPC-specific ELCRs for COPCs contributing about 90 percent of the total ELCRs that exceed 1×10^{-4}, COPCs contributing a risk exceeding 1×10^{-6} under the RME case, or lead concentrations exceeding 1,000 mg/kg are listed.

g The value presented is the EPC assumed for the COPCs contributing significantly to the total ELCR under the RME case.

h If the COPC-specific total ELCR exceeding 1×10^{-6} can be attributed to one or several sampling locations, the sampling location, depth, and concentration are listed.

i Chromium VI was not speciated; therefore, for all IR-sites except IR-36S, a surrogate chromium VI value was calculated assuming 0.78 percent of the total chromium value (see Attachment N-C). For IR-36S, a surrogate chromium VI value was calculated assuming 3.3 percent of the total chromium value.

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TABLE N.D-1
SOIL SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/kg)	Total Chromium Detection Limit (mg/kg)	Chromium VI Concentration (mg/kg)	Chromium VI Detection Limit (mg/kg)
IR-37	067065	IR09MW51F	9605G061	01/31/96	1.88	392	0.08	0.10	0.05
	069067	IR09B007	8939E011	09/26/89	3.25	142 a	0.63	0.25	0.11
		IR09B007	8939E012	09/26/89	1.25	54.9	0.56	ND	0.10
		IR09B007	8939E013	09/26/89	5.25	783 a	0.66	0.62	0.12
		IR09B007	8939E014	09/26/89	10.25	872	0.72	0.12	0.05
	070067	IR09B010	8941F011	10/11/89	1.25	8.6	0.64	0.14	0.05
		IR09B010	8941F012	10/11/89	3.25	814	0.75	0.10	0.06
		IR09B010	8941F013	10/11/89	5.75	282	0.72	ND	0.06
		IR09B010	8941F014	10/11/89	10.75	56.5 a	0.70	ND	0.05
IR-38	080090	PA38SS01	9309J354	03/02/93	0.00	148	0.80	ND	0.05
	088090	PA39MW01A	9307J270	02/16/93	2.25	10.9	0.38	ND	0.05
		PA39MW01A	9307J271	02/16/93	4.25	75.9	0.42	ND	0.05
		PA39MW01A	9307J272	02/16/93	9.25	55.0	0.42	ND	0.05
IR-39	077098	PA39B003	93080040	02/22/93	2.25	784	0.40	ND	0.05
		PA39B003	93080041	02/22/93	4.25	56.3	0.40	ND	0.05
		PA39B003	93080042	02/22/93	6.75	59.0	0.42	ND	0.05
		PA39B003	93080043	02/22/93	9.25	131	0.42	ND	0.05
	084095	PA39B004	9309A663	03/03/93	1.75	59.6	0.44	ND	0.05
		PA39B004	9309A664	03/03/93	4.25	303	0.42	ND	0.05
		PA39B004	9309A665	03/03/93	6.25	304	0.41	ND	0.05
	086096	PA39MW02A	9307J273	02/17/93	2.25	448	0.43	ND	0.05
		PA39MW02A	9307J274	02/17/93	4.25	222	0.43	ND	0.05
		PA39MW02A	9307J275	02/17/93	6.25	38.9	0.40	ND	0.05
		PA39MW02A	9307J276	02/17/93	9.25	150	0.41	ND	0.05
	088097	PA39B005	9309A675	03/04/93	1.75	17.8	0.42	ND	0.05
		PA39B005	9309A676	03/04/93	4.25	533	0.40	ND	0.05
		PA39B005	9309A677	03/04/93	6.75	54.3	0.40	ND	0.05
		PA39B005	9309A678	03/04/93	9.75	50.2	0.41	ND	0.05
	089092	PA39B007	93080027	02/22/93	2.25	240	0.42	ND	0.05
		PA39B007	93080028	02/22/93	4.25	119	0.42	ND	0.05
		PA39B007	93080029	02/22/93	6.75	37.7	0.41	ND	0.05
IR-44	089072	PA50TA09	9327P235	07/08/93	9.75	56.0	0.41	ND	0.05
IR-53	112089	PA53SS03	9309J350	03/02/93	0.00	172	0.77	ND	0.05
	112090	PA53SS04	9309J351	03/02/93	0.00	145	0.75	ND	0.05
IR-66	071074	PA36B030	9307J266	02/16/93	2.25	109	0.43	ND	0.05
		PA36B030	9307J267	02/16/93	4.25	421	0.41	ND	0.05
		PA36B030	9307J268	02/16/93	6.75	334	0.42	ND	0.05
		PA36B030	9307J269	02/16/93	9.25	166	0.43	ND	0.05
	073072	IR09MW36A	9015G170	04/09/90	0.75	70.4	0.37	ND	0.06

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TABLE N.D-3

DETERMINATION OF CHROMIUM VI EXPOSURE POINT CONCENTRATION AND SURROGATE CHROMIUM VI VALUES OF SOIL SAMPLES ANALYZED FOR TOTAL CHROMIUM ONLY[a]
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Analyzed for Total Chromium and Chromium VI[b]	Analyzed for Chromium VI Only[c]	Chromium VI EPC[d] (mg/kg)	Analyzed for Total Chromium Only[e]				Surrogate Chromium VI Value[f] (mg/kg)
					Sample Station	Sample Number	Sample Depth (feet bgs)	Detected Value[f] (mg/kg)	
IR-37	066069	No	No	ND	IR50B016	9422R210	1.75	413.000	
					IR50B016	9422R211	6.25	612.000	
	066070	No	No	ND	IR37B016	9423C260	2.75	328.880	
					IR37B016	9423C261	5.75	711.750	
	066071	Yes	No	ND	IR37B014	9423C266	2.75	18.650	
					IR37B014	9423C267	5.75	472.500	
					IR37B015	9423C263	1.25	218.720	
					IR37B015	9423C264	6.25	601.520	
					IR37B017	9424C268	0.75	83.200	
					IR37B017	9424C269	3.25	370.000	
					IR37B017	9424C270	5.75	431.000	
					IR37SS22	9605J797	0.00	105.000	
					IR37SS23	9605J798	0.00	63.800	
					IR37SS24	9605J796	0.00	31.100	
	067065	Yes	No	0.100					
	067068	No	No	ND	IR37B012	9422C250	5.25	74.610	
	067070	No	No	ND	IR37B018	9537J241	0.75	93.900	
					IR37B018	9537J242	2.25	835.000	
					IR37B018	9537J243	6.25	492.000	
	067071	No	No	ND	IR37B019	9537J245	0.75	107.000	
					IR37B019	9537J246	2.75	101.000	
					IR37B019	9537J247	5.75	348.000	
					IR37B020	9538J289	0.75	54.000	
					IR37B020	9538J290	2.75	390.000	
					IR37B020	9538J291	6.25	481.000	
					IR37B021	9545J582	0.75	113.000	
					IR37B021	9545J583	3.00	421.000	
					IR37B021	9545J584	5.50	562.000	
	068067	No	No	ND	IR37B010	9421C246	5.25	600.000	
					IR37B011	9415C147	5.75	510.740	
					IR37B013	9421R180	1.25	60.700	
					IR37B013	9421R181	5.25	363.000	
	069067	Yes	No	0.620					
	070067	Yes	No	0.140					
	070068	No	Yes	ND					
IR-38	080090	Yes	No	ND					
	082089	No	No	ND	IR38B002	9414A766	6.25	124.540	

TABLE N.D-3

DETERMINATION OF CHROMIUM VI EXPOSURE POINT CONCENTRATION AND SURROGATE CHROMIUM VI VALUES OF SOIL SAMPLES ANALYZED FOR TOTAL CHROMIUM ONLY[a]
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Analyzed for Total Chromium and Chromium VI[b]	Analyzed for Chromium VI Only[c]	Chromium VI EPC[d] (mg/kg)	Analyzed for Total Chromium Only[e]				Surrogate Chromium VI Value[g] (mg/kg)
					Sample Station	Sample Number	Sample Depth (feet bgs)	Detected Value[f] (mg/kg)	
IR-38	082090	No	No	ND	IR38B006	9415R001	6.25	375.000	
	082091	No	No	ND	IR38B007	9415R005	6.25	325.000	
	083087	No	No	ND	PA45TA06	9322G733	5.25	67.050	
	083090	No	No	ND	IR38B003 IR38B004	9414A768 9414A773	6.25 6.25	252.000 173.600	
	088090	Yes	No	ND					
	094090	No	No	ND	PA38B002 PA38B002	9310A689 9310A690	1.75 6.75	154.700 120.380	
IR-39	068098	No	No	ND	IR36B067A IR36B067A	9416L363 9416L364	1.25 6.25	35.800 260.000	
	072099	No	No	ND	IR36B113 IR36B113	9426N561 9426N562	1.25 6.25	468.500 900.460	
	073097	No	No	ND	IR36B112 IR36B112	9426A959 9426A960	0.75 5.25	128.590 445.890	
	074098	No	No	ND	IR39B028 IR39B028	9435R627 9435R628	1.25 6.25	596.130 606.740	
	076098	No	No	ND	IR39B010 IR39B010	9420A840 9420A841	1.25 6.25	197.000 230.000	
	076099	No	No	ND	IR39B008 IR39B008	9419T123 9419T124	1.75 6.25	509.190 113.620	
	076100	No	No	ND	IR39MW33A IR39MW33A	9550J673 9550J674	1.00 6.00	179.000 775.000	
	077098	Yes	No	ND	IR39B009 IR39B009	9419T130 9419T131	1.25 5.75	46.050 115.910	
	077100	No	No	ND	IR39B034 IR39B034	9601G013 9601G014	2.50 5.50	346.000 785.000	
	078099	Yes	No	ND					
	084095	Yes	No	ND					
	086096	Yes	No	ND					
	088097	Yes	No	ND					
	089092	Yes	No	ND					

TABLE N.D-4
GROUNDWATER SAMPLES ANALYZED FOR BOTH TOTAL CHROMIUM AND CHROMIUM VI
HUNTERS POINT SHIPYARD, PARCEL D REMEDIAL INVESTIGATION

Site	Residential Exposure Area	Sample Station Location	Sample Number	Sample Date	Sample Depth (feet bgs)	Total Chromium Concentration (mg/L)	Total Chromium Detection Limit (mg/L)	Chromium VI Concentration (mg/L)	Chromium VI Detection Limit (mg/L)
IR-35	092058	IR22MW08A	9318X989	05/06/93	0.00	ND	0.008	ND	0.01
		IR22MW08A	9336X027	09/09/93	0.00	ND	0.002	ND	0.01
		IR22MW08A	9402X169	01/13/94	0.00	ND	0.002	ND	0.02
	093063	IR22MW15A	9318X983	05/04/93	0.00	0.009	0.003	ND	0.01
		IR22MW15A	9318X984	05/04/93	0.00	0.009	0.003	ND	0.01
		IR22MW15A	9336X028	09/09/93	0.00	ND	0.002	ND	0.05
		IR22MW15A	9402X167	01/13/94	0.00	ND	0.002	ND	0.01
IR-36N	059078	PA36MW01A	9305J230	02/04/93	0.00	ND	0.003	ND	0.01
	061083	PA36MW03A	9306J248	02/11/93	0.00	ND	0.003	ND	0.01
		PA36MW03A	9306J249	02/11/93	0.00	ND	0.003	ND	0.01
	062076	PA36MW02A	9305J232	02/04/93	0.00	ND	0.003	ND	0.01
IR-36S	067087	PA36MW07A	9308J309	02/23/93	0.00	ND	0.002	ND	0.01
	072085	PA36MW04A	9305J234	02/05/93	0.00	ND	0.003	ND	0.01
	076087	PA36MW05A	9306J244	02/10/93	0.00	0.004	0.002	ND	0.01
		PA36MW05A	9306J245	02/10/93	0.00	0.002	0.002	ND	0.01
	077092	PA50MW09A	9317X971	04/26/93	0.00	ND	0.002	ND	0.01
		PA50MW09A	9612J947	03/21/96	0.00	0.0005	0.0004	ND	0.01
		PA50MW09A	9618J077	05/02/96	0.00	ND	0.0007	ND	0.01
IR-36W	067087	PA36MW07A	9308J309	02/23/93	0.00	ND	0.002	ND	0.01
	067092	PA36MW06A	9306J252	02/11/93	0.00	ND	0.003	ND	0.01
	069093	PA36MW08A	9307A590	02/16/93	0.00	ND	0.002	ND	0.01
		PA36MW08A	9307A591	02/16/93	0.00	ND	0.002	ND	0.01
	077092	PA50MW09A	9317X971	04/26/93	0.00	ND	0.002	ND	0.01
		PA50MW09A	9612J947	03/21/96	0.00	0.0005	0.0004	ND	0.01
		PA50MW09A	9618J077	05/02/96	0.00	ND	0.0007	ND	0.01
IR-37	067065	IR09MW51F	9607W102	02/15/96	0.00	0.06	0.0004	0.06	0.01
		IR09MW51F	9612W167	03/18/96	0.00	0.05	0.0004	0.05	0.01
		IR09MW51F	9612W168	03/18/96	0.00	0.05	0.0004	0.05	0.01
		IR09MW51F	9620J114	05/14/96	0.00	0.05	0.0007	0.05	0.01
IR-38	088090	PA39MW01A	9307A611	02/18/93	0.00	ND	0.002	ND	0.01
		PA39MW01A	9307A612	02/18/93	0.00	ND	0.002	ND	0.01
IR-39	086096	PA39MW02A	9307D024	02/19/93	0.00	ND	0.002	ND	0.01
		PA39MW02A	9307D025	02/19/93	0.00	ND	0.002	ND	0.01
IR-44	086080	PA50MW06A	9317X969	04/26/93	0.00	ND	0.002	ND	0.01
IR-53	109085	PA50MW05A	9316X960	04/22/93	0.00	ND	0.002	ND	0.01
		PA50MW05A	9316X961	04/22/93	0.00	ND	0.002	ND	0.01

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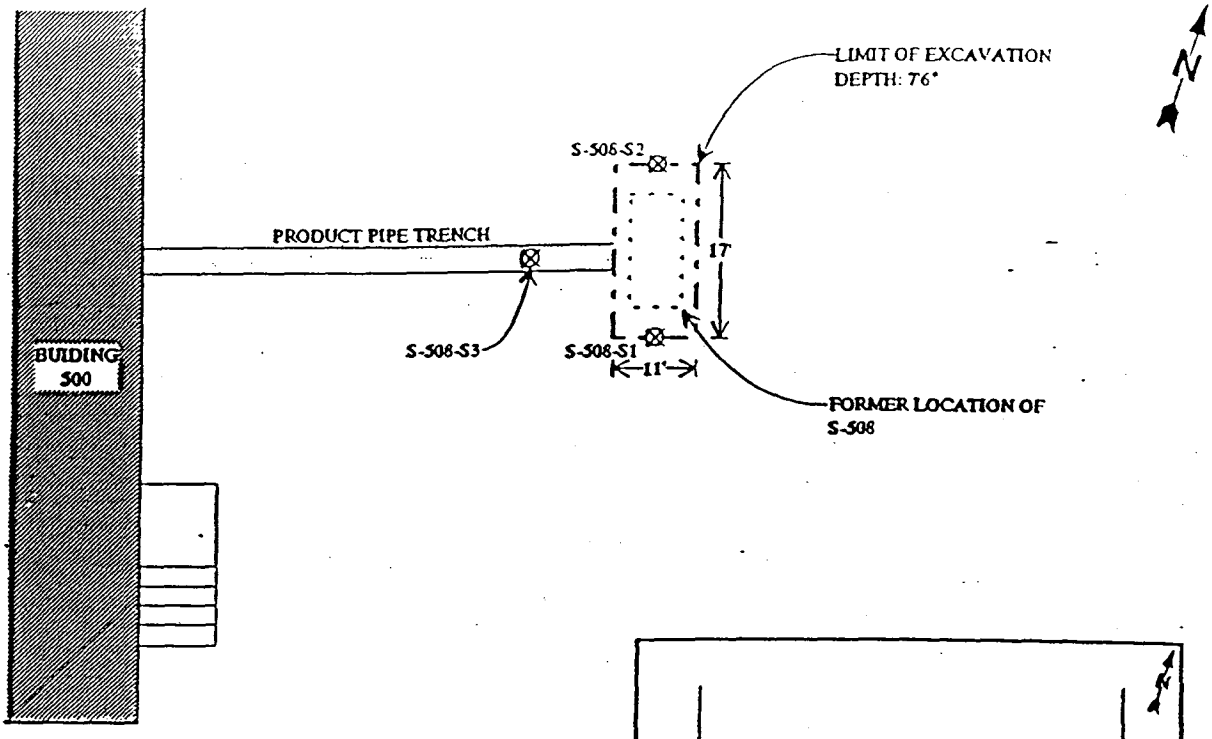
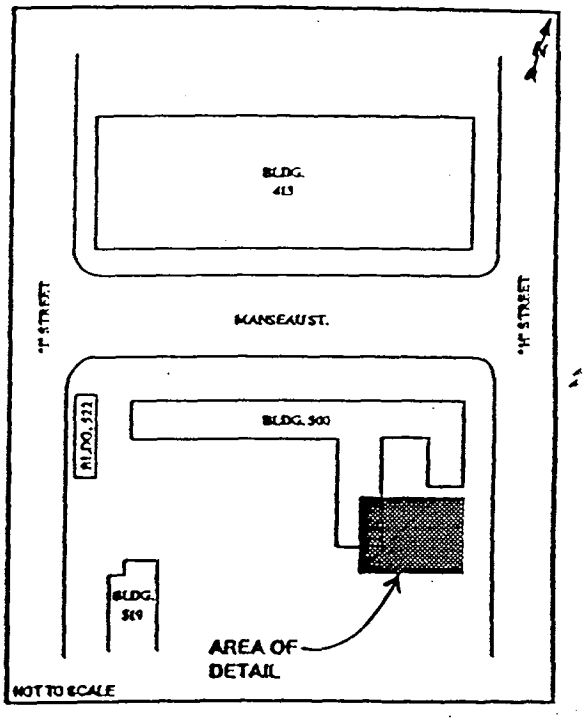




NOTE: NOT TO SCALE

LEGEND

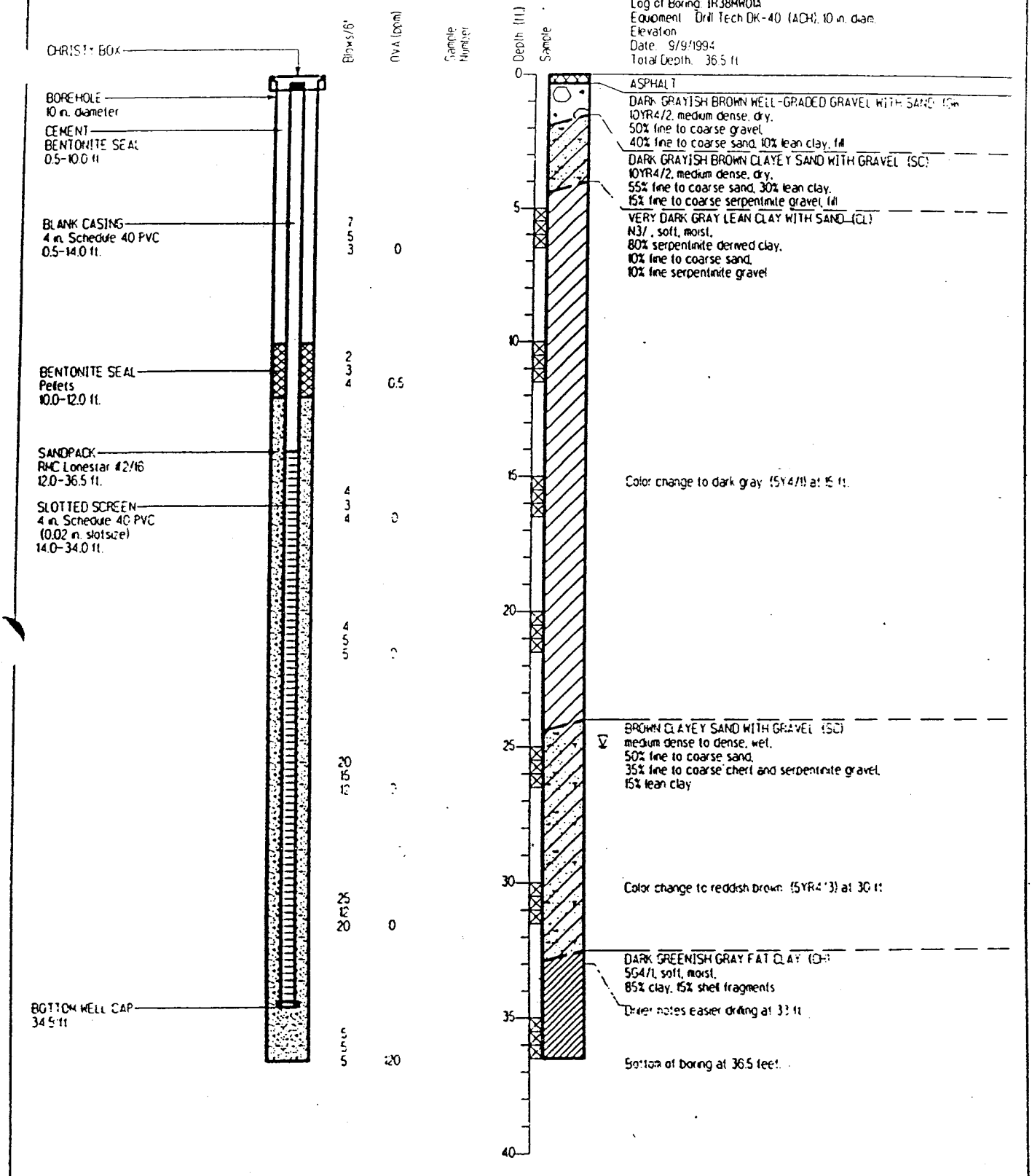
⊗ SOIL SAMPLE LOCATION

FORMER LOCATION OF UST

LIMIT OF EXCAVATION

FIGURE A-1
TANK S-508

Log of Boring: IR38MW01A
Equipment: Drill Tech DK-40 (ACH), 10 in. diam.
Elevation:
Date: 9/9/1994
Total Depth: 36.5 ft



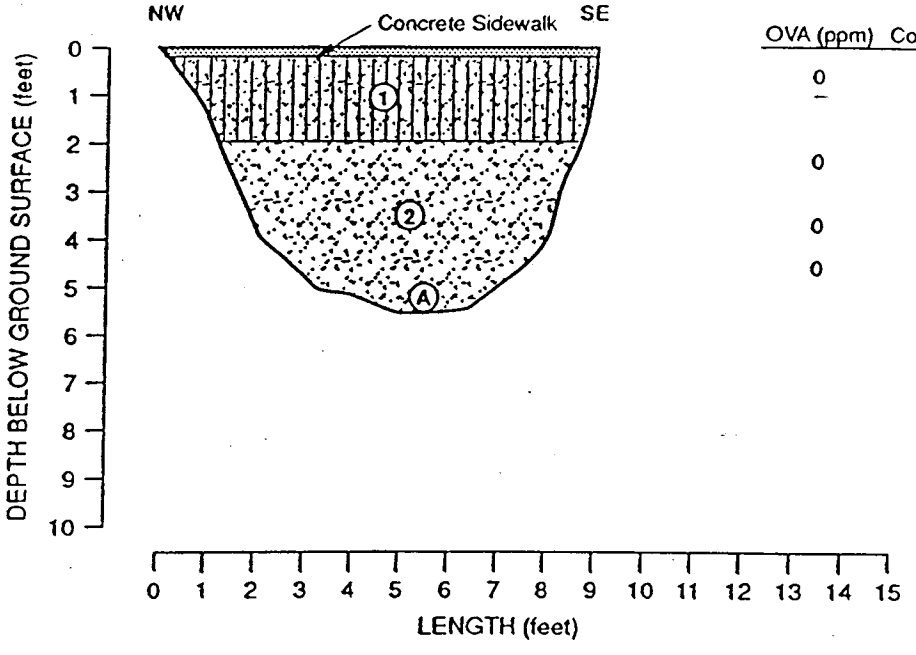
Harding Lawson Associates
Engineering and Environmental Services

Log of Boring and Well Completion IR38MW01A

Engineering Field Activity West
Hunters Point Annex
San Francisco, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISION
	11402			

Test Pit #: PA45TA06
Date Started: 6-2-93
Date Completed: 6-2-93
Orientation: N85W
Elevation: 8.21



EXPLANATION:

(1) VERY DARK GRAYISH BROWN SILTY SAND WITH GRAVEL (SM)
5Y 3/2, medium dense, moist, 55 to 60% medium- to coarse-grained sand, 25 to 30% fine to coarse gravel, 15% silt, fill

(2) VERY DARK GRAYISH BROWN POORLY GRADED SAND (SP)
5Y 3/2 medium dense, moist to wet, 75 to 80% medium- to coarse-grained sand, 10% fine to coarse gravel, 5 to 10% silt, some wood, rebar, and metal wire debris, fill

(A) SAMPLE: 9322G733

012794LZ

Harding Lawson Associates
Engineering and Environmental Services

Log of Test Pit PA45TA06
Parcel D Site Inspection Report
Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE
E5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PMc	11400 090504	MTE	1/94	

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

SYM NO.	SYM	DESCRIPTION
1		A-AQUIFER MONITORING WELL
2		B-AQUIFER MONITORING WELL
3		BEDROCK MONITORING WELL
4		PIEZOMETER
5		DAMES & MOORE BORING
6		SOIL BORING
7		SOIL BORING/GRAB GROUNDWATER/HYDROPUNCH
8		EMCON A-AQUIFER MONITORING WELL
9		EMCON BEDROCK MONITORING WELL
10	A	AIR SAMPLE
11		SUMP SAMPLE
12		SURFACE SOIL SAMPLE
13		SANDBLAST MATERIAL
14	W	STORM DRAIN
15	A	ASBESTOS SAMPLE
16	W	WIPE SAMPLE
17	D	FLOOR DRAIN
18		FLOOR VAULT
19		SANITARY SEWER
20		TRENCH/TEST PIT
21		REMOVAL OR EXPLORATORY EXCAVATION STATION
22		EMCON SOIL BORING
23	ooo	GROUND PENETRATING RADAR PROFILE
24		TIDAL STATION
25	C	CATCH BASIN
26		FLOOD CONTROL GATE
27		STEAMLINE INSPECTION AND/OR BORESCOPE
28		DRY HOLE
29		PROPOSED SOIL BORING
30		PROPOSED SOIL BORING/HYDROPUNCH/GRAB GROUNDWATER
31		INTERTIDAL SEDIMENT SAMPLE
32		RAINFALL STATION
33	S	FLOOR SCRAPINGS
34		UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
35	CC	CONCRETE CORE
36	SG	SOIL GAS
37		DRUM
38		TANK
39		BULK SAMPLE
40		HAND-AUGER
41	R	REFUSAL WITH NO SAMPLE
42		WEEP HOLE
43		DRILL RIG FLUID
44		SURFACE WATER SAMPLE
45		QUALITY CONTROL
46		CORE SEDIMENT SAMPLE FOR ERA
47		OTHER
48		PUMPING STATION
49		REFERENCE STATION FOR ERA
50		TISSUE STATION FOR ERA
51		UNKNOWN TYPE
52	RT	RADIATION TEST STATION
53		STORM DRAIN MANHOLE
54		CONE PENETROMETER
55		AIR SPARGING WELL
56	SBG	SOIL BORING/SOIL GAS
57		TREATMENT SYSTEM
58		VAPOR EXTRACTION WELL
59		STORM DRAIN REACH
60		PROPOSED SURFACE SOIL SAMPLE
61		PROPOSED A-AQUIFER MONITORING WELL
62	T	TISSUE OR TISSUE AND SOIL FOR ECO VALIDATION
63		PROPOSED SOIL GAS
64		SOIL BORING/GRAB GROUNDWATER
65		SOIL BORING/HYDROPUNCH

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

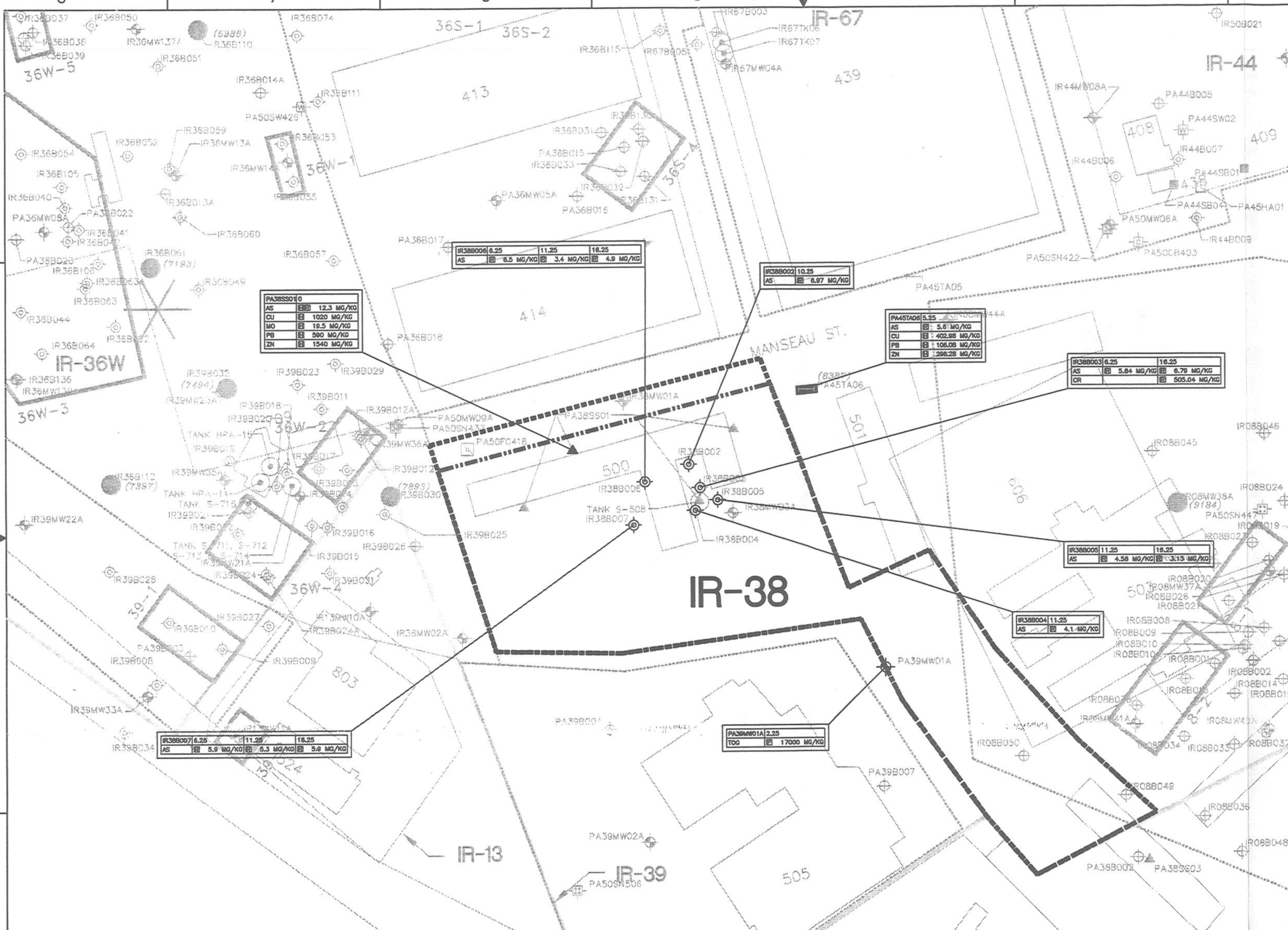
SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.16-2 SHT 1 of 2
PARCEL D
IR-38 SOIL RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 382162 SH 1 REV 1

FILE NAME: 3821621_.DWG



SYMBOL	DESCRIPTION
PA24MW03A	A-AQUIFER MONITORING WELL
IR26MW42B	B-AQUIFER MONITORING WELL
IR08MW49F	BEDROCK MONITORING WELL
IR07P20A	PIEZOMETER
PA24B005	SOIL BORING
PA51SS03	SURFACE SOIL SAMPLE
PA46TA03	TRENCH/TEST PIT
IR46B036	SOIL BORING/GRAB GROUNDWATER
IR46B036	SOIL BORING/HYPROPUNCH
	EXPLORATORY EXCAVATION
159	EXISTING BUILDING
155	LOCATION OF FORMER BUILDING
	UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
	EXTENDED IR SITE BOUNDRY
	IR SITE BOUNDARY
	PARCEL BOUNDARY
	CRANE OR RAILROAD TRACKS
	FENCE
	ROADWAY
	LEAD EPC FOR EXPOSURE AREA EXCEEDS 1,000 mg/kg
	DE MINIMIS CLEANUP AREA EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD TOTAL SEGREGATED HI IS GREATER THAN OR EQUAL TO 1.0). ITALICIZED NUMBERS IN PARENTHESIS DESIGNATE THE DE MINIMUS CLEANUP AREA
	ESTIMATED BOUNDARIES OF SOIL REMEDIATION AREAS EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ECLR>10^{-6} AND OR THE CHILD SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0)

NOTES:

1. POSTED DATA ARE CHEMICALS THAT EXCEED 1998 INDUSTRIAL PRG, HPAL OR PETROLEUM SCREENING CRITERIA.
2. STATION LABELS WITHOUT DATA BOXES INDICATE EITHER THAT NO CHEMICALS WERE DETECTED OR THAT DETECTED CHEMICALS WERE BELOW 1998 PRG, HPAL OR PETROLEUM SCREENING CRITERIA.

SAMPLE LOCATION — IR07B046 | 2.75 — SOIL SAMPLE DEPTH (feet bgs)

ANALYTE

CONCENTRATIONS FOR INORGANICS AND TPH-g, TPH-d, TPH-mo, TOG, AND TRPH ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
CONCENTRATIONS FOR ORGANICS ARE REPORTED IN MICROGRAMS PER KILOGRAM (μg/kg).

C EXCEEDS CARCINOGENIC INDUSTRIAL PRG
R EXCEEDS NON-CARCINOGENIC INDUSTRIAL PRG
H EXCEEDS HPAL
P EXCEEDS PETROLEUM SCREENING CRITERIA

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.16-2 SHT 2 of 2
PARCEL D
IR-38 SOIL RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 382162 SH 2 REV 1

FILE NAME: 3821622

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

SYM NO.	SYM	DESCRIPTION
1		A-AQUIFER MONITORING WELL
2		B-AQUIFER MONITORING WELL
3		BEDROCK MONITORING WELL
4		PIEZOMETER
5		DAMES & MOORE BORING
6		SOIL BORING
7		SOIL BORING/GRAB GROUNDWATER/HYDROPUNCH
8		EMCON A-AQUIFER MONITORING WELL
9		EMCON BEDROCK MONITORING WELL
10	A	AIR SAMPLE
11		SUMP SAMPLE
12		SURFACE SOIL SAMPLE
13		SANDBLAST MATERIAL
14	W	STORM DRAIN
15	A	ASBESTOS SAMPLE
16	W	WIPE SAMPLE
17	D	FLOOR DRAIN
18		FLOOR VAULT
19		SANITARY SEWER
20		TRENCH/TEST PIT
21		REMOVAL OR EXPLORATORY EXCAVATION STATION
22		EMCON SOIL BORING
23	ooo	GROUND PENETRATING RADAR PROFILE
24		TIDAL STATION
25	C	CATCH BASIN
26		FLOOD CONTROL GATE
27		STEAMLINE INSPECTION AND/OR BORESCOPE
28		DRY HOLE
29		PROPOSED SOIL BORING
30		PROPOSED SOIL BORING/HYDROPUNCH/GRAB GROUNDWATER
31		INTERTIDAL SEDIMENT SAMPLE
32		RAINFALL STATION
33	S	FLOOR SCRAPINGS
34		UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
35	CC	CONCRETE CORE
36	SG	SOIL GAS
37		DRUM
38		TANK
39		BULK SAMPLE
40		HAND-AUGER
41	R	REFUSAL WITH NO SAMPLE
42		WEEP HOLE
43		DRILL RIG FLUID
44		SURFACE WATER SAMPLE
45		QUALITY CONTROL
46		CORE SEDIMENT SAMPLE FOR ERA
47		OTHER
48		PUMPING STATION
49		REFERENCE STATION FOR ERA
50		TISSUE STATION FOR ERA
51		UNKNOWN TYPE
52	RT	RADIATION TEST STATION
53		STORM DRAIN MANHOLE
54		CONE PENETROMETER
55		AIR SPARGING WELL
56	SBG	SOIL BORING/SOIL GAS
57		TREATMENT SYSTEM
58		VAPOR EXTRACTION WELL
59		STORM DRAIN REACH
60		PROPOSED SURFACE SOIL SAMPLE
61		PROPOSED A-AQUIFER MONITORING WELL
62	T	TISSUE OR TISSUE AND SOIL FOR ECO VALIDATION
63		PROPOSED SOIL GAS
64		SOIL BORING/GRAB GROUNDWATER
65		SOIL BORING/HYDROPUNCH

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

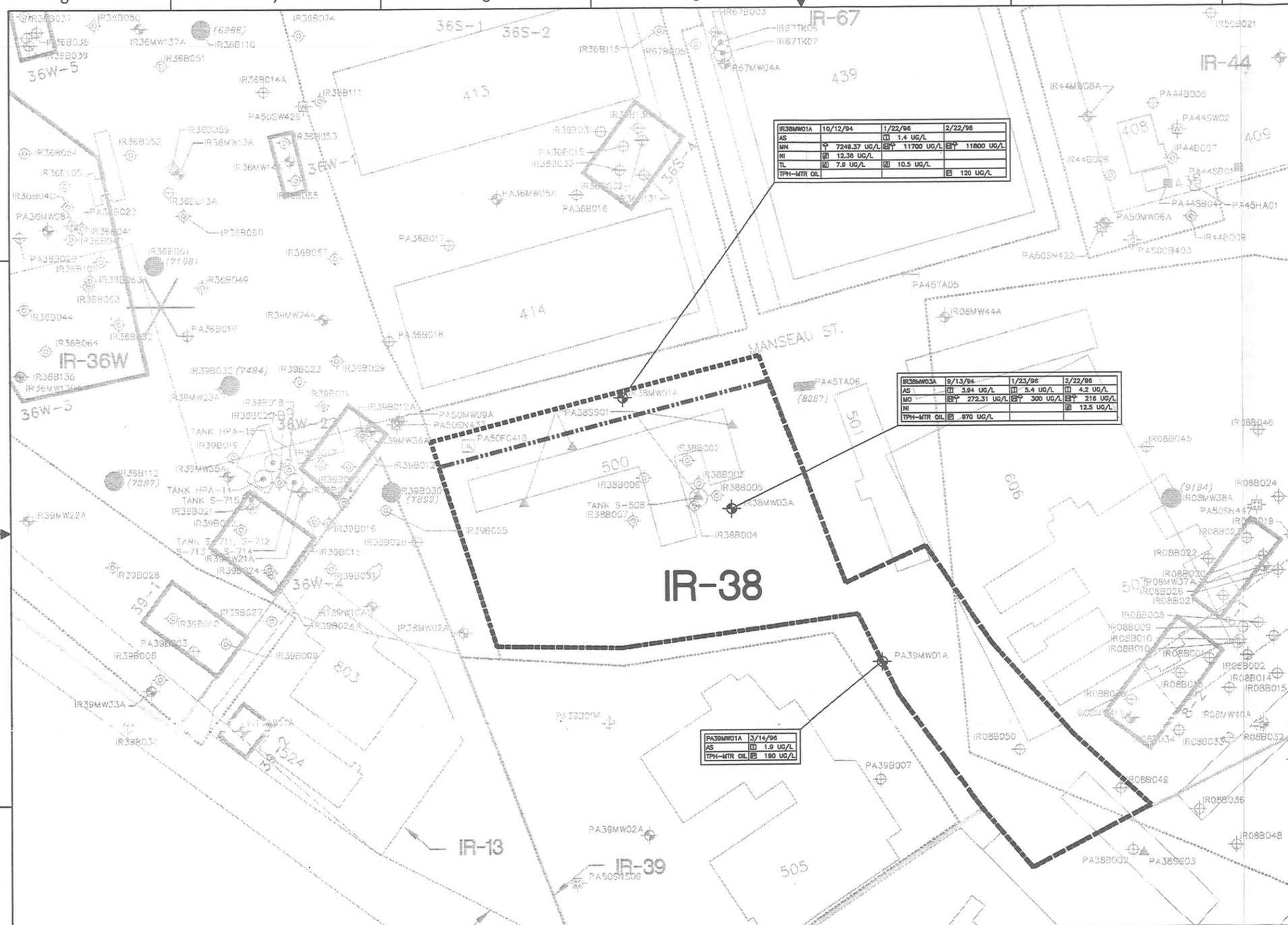
SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.16-3 SHT 1 of 2
PARCEL D
IR-38 GROUNDWATER RESULTS
EXCEEDING SCREENING CRITERIA
RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 382163 SH 1 REV 1

FILE NAME: 3821631_.DWG



SYMBOL	DESCRIPTION
PA24MW03A	A-AQUIFER MONITORING WELL
IR26MW42B	B-AQUIFER MONITORING WELL
IR06MW49F	BEDROCK MONITORING WELL
IR07P20A	PIEZOMETER
PA24B005	SOIL BORING
PA51SS03	SURFACE SOIL SAMPLE
PA46TA03	TRENCH/TEST PIT
IR46B036	SOIL BORING/GRAB GROUNDWATER
IR46B036	SOIL BORING/HYPROPUNCH
	EXPLORATORY EXCAVATION
159	EXISTING BUILDING
155	LOCATION OF FORMER BUILDING
	UNDERGROUND STORAGE TANK IN HPA TANK PROGRAM
	EXTENDED IR SITE BOUNDRY
	IR SITE BOUNDARY
	PARCEL BOUNDARY
	CRANE OR RAILROAD TRACKS
	FENCE
	ROADWAY
	LEAD EPC FOR EXPOSURE AREA EXCEEDS 1,000 mg/kg
	DE MINIMIS CLEANUP AREA EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ELCR>10^{-6} AND OR THE CHILD TOTAL SEGREGATED HI IS GREATER THAN OR EQUAL TO 1.0). ITALICIZED NUMBERS IN PARENTHESIS DESIGNATE THE DE MINIMUS CLEANUP AREA
	ESTIMATED BOUNDARIES OF SOIL REMEDIATION AREAS EXCEEDING SOIL CLEANUP GOAL SCENARIO 2 (AREAS WITHIN BOUNDARIES EXCEED FUTURE INDUSTRIAL ECLR>10^{-6} AND OR THE CHILD SEGRAGATED HI IS GREATER THAN OR EQUAL TO 1.0)

NOTES:

1. POSTED DATA ARE CHEMICALS THAT EXCEED 1998 TAP WATER PRG, NAWQC, MCL OR PETROLEUM SCREENING CRITERIA.
2. STATION LABELS WITHOUT DATA BOXES INDICATE THAT EITHER NO CHEMICALS WERE DETECTED OR THAT DETECTED CHEMICALS WERE BELOW 1998 TAP WATER PRG, NAWQC, MCL OR PETROLEUM SCREENING CRITERIA.

SAMPLE LOCATION — IR10MW28A 6/15/92 — DATE OF GROUNDWATER SAMPLE, G=GRAB, OR HYDROPUNCH SAMPLE DEPTH.

ANALYTE — TCE 38 ug/kg; As 0.0035 ug/kg

CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
- EXCEEDS CARCINOGENIC TAP WATER PRG
- EXCEEDS NON-CARCINOGENIC TAP WATER PRG
- EXCEEDS NAWQC
- EXCEEDS MCL
- EXCEEDS PETROLEUM SCREENING CRITERIA
- EXCEEDS HGAL

SCALE IN FEET

PARCEL D KEY MAP

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SOUTHWEST DIVISION

HUNTERS POINT SHIPYARD — SAN FRANCISCO, CALIFORNIA

Figure 2.16-3 SHT 2 of 2

PARCEL D

IR-38 GROUNDWATER RESULTS EXCEEDING SCREENING CRITERIA

RISK MANAGEMENT REVIEW PROCESS REPORT

DWG NO. 382163 — SH 2 — REV -

1 FILE NAME: 3821632_.DWG