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HUNTERS POINT
SSIC NO. 5090.3

MARCH 2002 MONTHLY REPORT
SITE IR-1/21 INDUSTRIAL LANDFILL GROUNDWATER EXTRACTION SYSTEM HUNTERS POINT NAVAL SHIPYARD

Environmental Remedial Action
Contract Number N62474-98-D-2076
Contract Task Order 0082

Document Control Number 3684
Revision 0

April 4, 2002

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U. S. Department of the Navy
Southwest Division
Naval Facilities Engineering Command
Environmental Division
1220 Pacific Highway
San Diego, California 92132-5190

Submitted by:

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IT CORPORATION
A Member of The IT Group

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Date : April 04, 2002

CTO : 0082

Location: Hunters Point Shipyard

FROM: William Schaal
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Project Manager

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1.0 Introduction

This monthly report was prepared by IT Corporation (IT) on behalf of the U.S. Department of the Navy (Navy) under Environmental Remedial Action Contract Number N62474-98-D-2076, Contract Task Order 0082 to document activities associated with the operation and maintenance (O&M) of the groundwater extraction system (GES) at Hunters Point Shipyard, Site IR-1/21 Industrial Landfill. This report includes a summary of activities from February 19, 2002 through March 19, 2002.

The objective of the GES is to prevent mounding of the groundwater behind a containment wall along a portion of the landfill to reduce the migration of groundwater and landfill constituents into the San Francisco Bay. The GES collects groundwater from seven extraction wells and one extraction trench, and discharges the groundwater into the City and County of San Francisco sanitary sewer. The installation of the containment barrier was completed in December 1997 and the GES began operations in February 1999 (IT, 1999). A cathodic protection system installed in June 1999 minimizes corrosion of the sheet pile barrier.

Operation of the GES and scheduled monitoring events are performed according to the Operation and Maintenance Manual (IT, 2000) and with the City and County of San Francisco Industrial Wastewater Discharger Class I Permit No. 01-1202. This permit was issued on December 1, 2001 and expires on June 17, 2004.

2.0 Summary of Field Activities

Field activities performed during this reporting period of February 19, 2002 through March 19, 2002 include various O&M activities and the collection of field data. The collected field data includes groundwater levels; pressure and flow readings throughout the GES, the quarterly sampling event; and the voltage and amperage readings at the cathodic protection system rectifiers.

2.1 Operation and Maintenance

The following O&M activities were performed at the GES during this reporting period.

- On March 4, 2002, the Y-strainer screens at EW-138, 142, 154, 150, and 158 were cleaned. EW-142 and EW-154 were heavily fouled with brown-colored bacteria.
- On March 4, 2002, the basket strainer and flow meter were cleaned at the collection and monitoring pad. The basket strainer was heavily fouled with bacteria.
- On March 4, 2002, the 24-hour sampler was connected to the collection and monitoring pad.
- On March 5, 2002, a quarterly sample was collected at the collection and monitoring pad.
- On March 12, 2002, the basket strainer and flow meter at the collection and monitoring pad were cleaned.
- On March 13, 2002, the pumps at EW-142 and EW-154 were pulled and inspected for biofouling. Both were heavily fouled. The pumps were cleaned and placed back into the wells.
- On March 14, 2002, the flow readings at the extraction wells and collection and monitoring pad were taken.
- On March 18, 2002, the flow readings at the extraction wells and collection and monitoring pad were taken.
- On March 19, 2002, the relay contract blocks were cleaned at EW-122.
- On March 19, 2002, the relay controller plug at EW-146 was replaced.

2.2 Field Data

Data collected during this period to support O&M of the GES and cathodic protection system include the following:

- Groundwater levels were measured at the extraction wells, monitoring wells, and piezometers.
- Pressure and flow readings were recorded at the extraction wells and at the collection and monitoring pad.
- Voltage and amperage readings were recorded at the cathodic protection system rectifiers.
- A quarterly sample was collected to measure the effluent discharge at the collection and monitoring pad.

These readings and results are included as Appendices A, B, C, and D. These data are used to monitor the performance of the system.

2.2.1 Groundwater Level Measurements

During this reporting period, water levels were measured at the extraction wells, monitoring wells, and piezometers on March 19, 2002. Depth to groundwater was measured to the nearest 0.01 foot. These measurements are provided in Appendix A. Also included in Appendix A are the groundwater elevations associated with the groundwater level measurements and a map of the potentiometric surface.

2.2.2 Groundwater Extraction System Measurements

Water well pressure and pipeline flow readings were taken at the extraction wells on between February 19, 2002 and March 19, 2002. These readings are summarized in Appendix B. Water well pressures from the various groundwater extraction wells ranged from 28 to 55 pounds per square inch (psi). Water pressure at the monitoring pad was recorded as 25 psi.

Individual well pipeline flow and cumulative discharge pipe totalizer flow readings have been effected by biofouling within the lines and flow meters. Under desirable conditions and according to permit operating conditions, the summation of flow meter readings from individual wells is to corroborate the flow meter reading with the discharge totalizer within 10 percent variability. During a period of about 1.5 months, the flow meter readings have not shown the desired corroboration (Appendix B). As a result, meter reading, inspection, and cleaning (if needed) have been performed on a daily basis beginning March 13, 2002. This effort has produced flow meter readings with less than 2 percent variability between the time this practice

was implemented to the close of this reporting period (i.e., March 19, 2002) (Appendix B). The daily practices described to mitigate the biofouling effects will continue until a solution to the biofouling problem is found.

Total flow for the 28-day system discharge period between February 19 and March 19, 2002 is 335,480 gallons based on the summation of flow meter readings from individual wells. This volume was throughput at an average flow rate of 8.3 gallons per minute.

2.2.3 Cathode Protection System Rectifier Inspection

The cathode protection system rectifiers were inspected on March 19, 2002. A record of this inspection is provided in Appendix C. The output at Rectifier 1 was 10 volts direct current (VDC) and 42.0 amperes (amps). The output at Rectifier 2 was 18 VDC and 42.0 amps.

2.3 Sample Collection

The City and County of San Francisco Industrial Wastewater Discharger Class I Permit No. 01-1202 requires a quarterly sample to be collected from the GES effluent. During this reporting period, a sample of the effluent was collected on March 5, 2001 in compliance with the permit requirements and sent to Applied Physics & Chemistry Laboratory (APCL) in Chino, California for analysis. The resultant laboratory data is discussed in Section 3.0 of this report.

3.0 Analytical Data

The sample of the extraction system effluent that was collected on March 5, 2002, and was analyzed for all permit-required analytes. All detected compounds were either not regulated by the City and County of San Francisco's Industrial Wastewater Discharger Permit No. 01-1202, or were below the regulated permit connections. Table 1 shows the reported analytical results and permit limits. The complete set of analytical data and an analytical data summary for this sample are included in Appendix D.

4.0 References

IT Corporation, 2000, *Operation and Maintenance Manual, Groundwater Extraction System/Containment Barrier, Site IR-1/21 Industrial Landfill, Hunters Point Shipyard, San Francisco, California, Delivery Order #0083*, Revision 0, Concord, California.

IT Corporation, 1999, *Contractor Quality Control Plan, Environmental Protection Plan, Sampling and Analysis Plan, Health and Safety Plan, Long Term Groundwater Extraction and Monitoring, Site IR-1/21 Industrial Landfill, Hunters Point Shipyard, San Francisco, California, Delivery Order #0083*, Revision 0, Martinez, California.

San Francisco Public Utilities Commission, 2001, *Industrial Wastewater Discharger – Class I Permit No. 01-1202*, Bureau of Environmental Regulation and Management, San Francisco, California.

TABLES

Table 1
Analytical Results for the Analytes with Permit Limits
March 5, 2002 Sample

Analyte	Analytical Result	Permit Limits	Units
PH	6.74	6.0 to 9.5	pH Unit
Sulfide	<0.2	0.5	mg/L
Temperature	Ambient	52	°C
Cyanide	<0.05	1.0	mg/L
Phenol	0.13	23.0	mg/L
Total Recoverable Oil and Grease	<1.9	300	mg/L
Total Recoverable Petroleum Hydrocarbons (Hydrocarbon Oil and Grease)	<4	100	mg/L
Arsenic	<5	4000	µg/L
Cadmium	<2	500	µg/L
Chromium (total)	7.3	5000	µg/L
Copper	16.8	4000	µg/L
Lead	<5	1500	µg/L
Mercury	0.15 J	50	µg/L
Nickel	14.5	2000	µg/L
Silver	<10	600	µg/L
Zinc	47.7	7000	µg/L

< denotes less than

°C denotes degree(s) Celsius.

µg/L denotes micrograms per liter.

mg/L denotes milligrams per liter.

J reported between PQL and MDL.

APPENDIX A
GROUNDWATER LEVEL MEASUREMENTS AND THE POTENTIOMETRIC SURFACE MAP

Monthly Monitoring Well, Extraction Well, and Piezometer Water Levels
Contract No. N62474-98-D-2076
Contract Task Order 0082
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
U. S. Navy Southwest Division

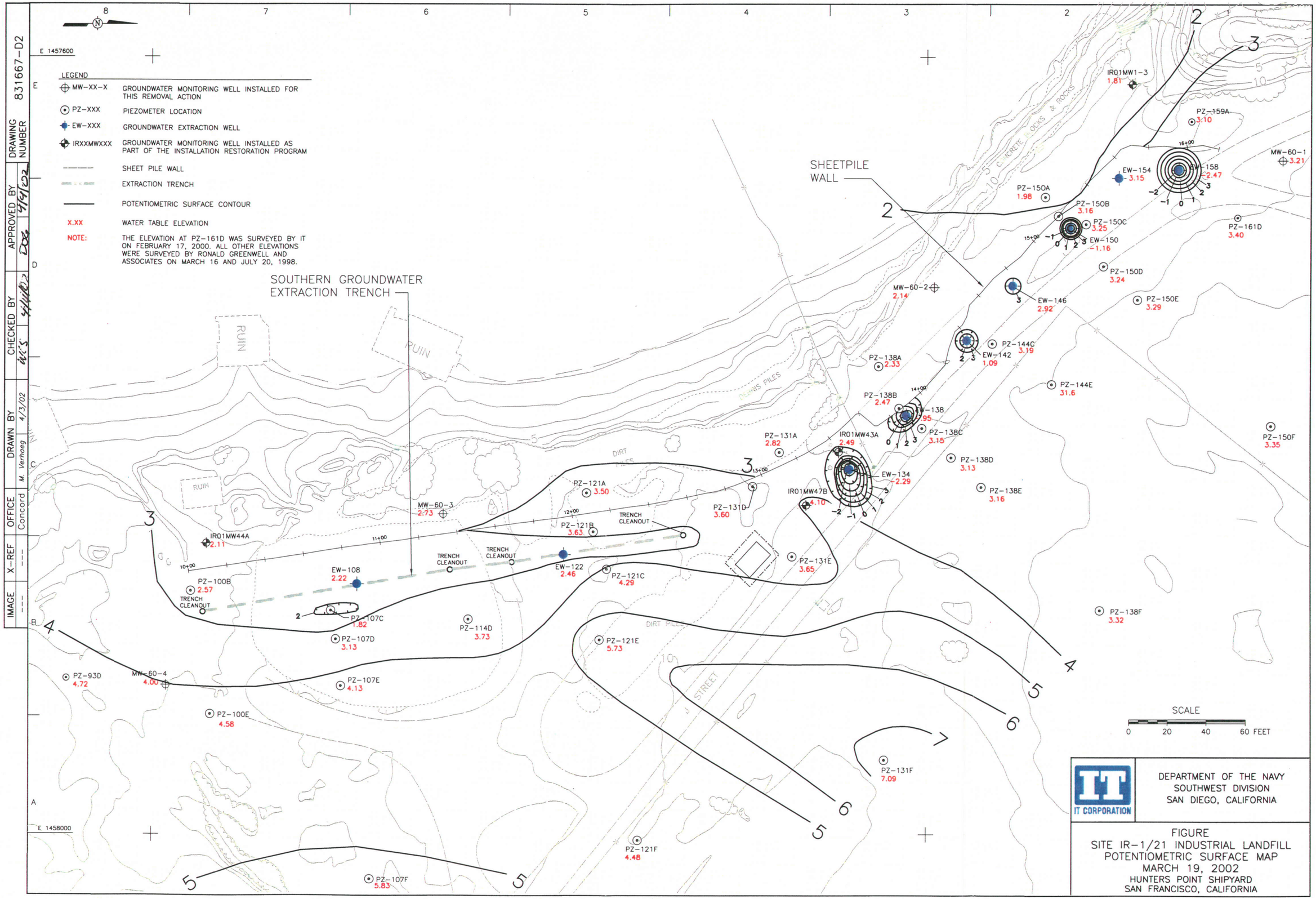
IT Corporation
Project No. 831667

Date Recorded: 03/19/02
Operator: Bob Rust

Location	Time	Depth to Water (ft)	Determined Groundwater Elevation (ft)
EW-108	0:00	4.63	2.22
EW-122	0:00	5.82	2.46
EW-134	1240	11.16	-2.29
EW-138	1230	10.40	-0.95
EW-142	1220	8.96	1.09
EW-146	1210	6.92	2.92
EW-150	1200	10.90	-1.16
EW-154	1150	8.82	1.48
EW-158	1140	12.97	-2.47
IR01MW1-3	1100	11.97	1.81
IR01MW43A	1007	9.73	2.49
IR01MW44A	0900	7.01	2.11
IR01MW47B	1004	8.18	4.10
MW-60-1	1111	11.48	3.21
MW-60-2	1050	11.45	2.14
MW-60-3	0932	7.27	2.73
MW-60-4	0910	5.38	4.00
PZ-93D	0907	5.65	4.72
PZ-100B	0903	7.30	2.57
PZ-100E	0913	7.01	4.58
PZ-107C	0913	8.08	1.82
PZ-107D	0919	7.11	3.13
PZ-107E	0923	6.66	4.13
PZ-107F	0926	5.76	5.83
PZ-114D	0929	6.65	3.73

Location	Time	Depth to Water (ft)	Determined Groundwater Elevation (ft)
PZ-121A	0935	7.67	3.50
PZ-121B	0939	7.99	3.63
PZ-121C	0942	8.34	4.29
PZ-121E	0945	5.96	5.73
PZ-121F	0948	9.12	4.48
PZ-131A	1001	10.40	2.82
PZ-131D	0958	8.46	3.60
PZ-131E	0955	10.48	3.65
PZ-131F	0952	6.41	7.09
PZ-138A	1010	11.26	2.33
PZ-138B	1014	11.57	2.47
PZ-138C	1017	11.20	3.15
PZ-138D	1020	11.64	3.13
PZ-138E	0:00	11.23	3.16
PZ-138F	1027	16.56	3.32
PZ-144C	1053	11.56	3.19
PZ-144E	1056	11.92	3.16
PZ-150A	1047	13.53	1.98
PZ-150B	1044	11.51	3.16
PZ-150C	1041	11.58	3.25
PZ-150D	1038	11.91	3.24
PZ-150E	1034	12.01	3.29
PZ-150F	1031	19.18	3.35
PZ-159A	1104	10.99	3.10
PZ-161D	1107	11.86	3.40

NOTES:
ft denotes feet.
Determined Groundwater Elevation = Top of Casing Elevation - Depth to Water



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
SAN DIEGO, CALIFORNIA

IT CORPORATION

FIGURE
SITE IR-1/21 INDUSTRIAL LANDFILL
POTENTIOMETRIC SURFACE MAP
MARCH 19, 2002
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

APPENDIX B
EXTRACTION WELL AND SYSTEM READINGS

Monthly Extraction Well and System Readings, 02/19/02-03/19/02
Contract Task Order 0082
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
Contract No. N62474-98-D-2076

IT Corporation
Project No. 831667

Date Recorded: 03/19/2002
Operator: Bob Rust

Location	Time	Pressure (psi)	Actual Flow Rate (gpm)	Average Flow Rate (gpm)	Total Flow (gal) (Since 02/20/99)	Change in Flow (gal) (02/19/02-03/19/02)
EW-108	1300	37	0	8.07	325497	14,547
EW-122	1250	25	0	4.96	199867	403
EW-134	1240	30	0	5.04	203080	4,943
EW-138	1230	42	3	66.33	2674510	72,295
EW-142	1220	35	1.5	7.04	283852	9,072
EW-146	1210	30	0	19.23	775201	0
EW-150	1200	32	4	57.98	2337632	59,358
EW-154	1150	28	0	5.24	211112	5,688
EW-158	1140	55	6	225.94	9110073	169,174
Total Change in Flow at the Wells						335,480
Collection and Monitoring Pad	1310	25	9.5	340.14	13714439	194125

Conductivity at Monitoring Pad: 3.5 **mS/CM**
Number of days in reporting period **28**

Average Monthly Flow Rate, Using Readings at the Wells (gpm)	8.32
Average Monthly Flow Rate, Using Readings at Monitoring Pad (gpm)	4.81
Error of Flow Meter at the Monitoring Pad (%)	-42.14%

Abbreviations:
psi = pounds per square inch
gpm = gallons per minute
gal = gallon
EW = extraction well
mS/CM = millisiemens/centimeter

Monthly Extraction Well and System Readings, 03/13/02-03/19/02
Contract Task Order 0082
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
Contract No. N62474-98-D-2076

IT Corporation
Project No. 831667

Date Recorded: 03/19/2002
Operator: Bob Rust

Location	Time	Pressure (psi)	Actual Flow Rate (gpm)	Average Flow Rate (gpm)	Total Flow (gal) (Since 02/20/99)	Change in Flow (gal) (03/13/02-03/19/02)
EW-108				44.91	323,333	2,164
EW-122				27.76	199,867	0
EW-134				28.07	202,137	943
EW-138				368.99	2,656,761	17,749
EW-142				39.15	281,874	1,978
EW-146				107.67	775,201	0
EW-150				322.80	2,324,195	13,437
EW-154				29.07	209,286	1,826
EW-158				1260.01	9,072,050	38,023
Total Change in Flow at the Wells						76,120
Collection and Monitoring Pad				1894.02	13,636,972	77,467

Conductivity at Monitoring Pad: mS/CM
Number of days in reporting period 5

Average Monthly Flow Rate, Using Readings at the Wells (gpm)	10.57
Average Monthly Flow Rate, Using Readings at Monitoring Pad (gpm)	10.76
Error of Flowmeter at the Monitoring Pad (%)	1.77%

Abbreviations:
psi = pounds per square inch
gpm = gallons per minute
gal = gallon
EW = extraction well
mS/CM = millisiemens/centimeter

APPENDIX C
CATHODIC PROTECTION SYSTEM MONTHLY INSPECTION RECORD

Cathodic Protection System Monthly Inspection Record
Contract No. N62474-98-D-2076
Contract Task Order 0082
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
U. S. Navy Southwest Division

IT Corporation **Project No. 831667**

Date	Rectifier 1 Output		Rectifier 2 Output		Step Voltage Control Settings	
	VDC	Amperes	VDC	Amperes	C	F
06/01/1999	10.5	41.4	10.3	44.8	1	3
08/19/1999	10.8	44.0	10.2	48.2	1	3
09/09/1999	10.8	44.1	10.2	48.8	1	3
10/28/1999	10.6	47.4	10.0	≥ 50.0	1	3
11/18/1999	11.8	46.3	9.9	≥ 50.0	1	3
12/16/1999	11.5	46.1	8.7	48.6	1	3
01/13/2000	11.5	45.3	10.1	48.5	1	3
02/03/2000	11.4	46.5	10.0	48.2	1	3
03/09/2000	11.3	46.2	9.9	48.9	1	3
04/06/2000	10.8	45.3	10.1	48.9	1	3
05/10/2000	11.3	45.5	10.0	48.3	1	3
06/07/2000	10.7	44.5	10.0	48.0	1	3
07/06/2000	11.0	44.0	10.0	47.5	1	3
08/23/2000	12	44	10	48	1	3
09/12/2000	12	44	10	47.5	1	3
10/09/2000	11	45	10	48	1	3
11/02/2000	11	44	10	47.5	1	3
12/06/2000	10.5	46	10	49.5	1	3
06/07/2000	10.7	44.5	10.0	48.0	1	3
12/06/2000	10.5	46	10	49.5	1	3

Cathodic Protection System Monthly Inspection Record
Contract No. N62474-98-D-2076
Contract Task Order 0082
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
U. S. Navy Southwest Division

IT Corporation **Project No. 831667**

Date	Rectifier 1 Output		Rectifier 2 Output		Step Voltage Control Settings	
	VDC	Amperes	VDC	Amperes	C	F
01/09/2001	11	46.5	10	≥ 50.0	1	3
02/06/2001	11	48	10	≥ 50.0	1	3
03/23/2001	11	45	10	48.5	1	3
04/06/2001	12	46.5	10	≥ 50.0	1	3
05/17/2001	11	47.0	10	≥ 50.0	1	3
06/18/2001	10	41.0	16	41.0	1	3
07/19/2001	10	41.0	16	41.0	1	3
08/15/2001	10	42.0	16	42.0	1	3
9/00/01	no readings	no readings	no readings	no readings	1	3
10/09/2001	10	42.0	16	42.0	1	3
11/14/2001	10	41.0	16	41.0	1	3
12/13/2001	10	42.0	16	42.0	1	3
01/15/2001	10	43	16	43	1	3
02/19/2002	10	44	14	44	1	3
03/19/2002	10	42	18	42	1	3

Notes:
≥ = greater than or equal to (gauge was maxed out)
VDC denotes volts direct current.

APPENDIX D
SAMPLING DATA

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
The IT Group
Attention: Dwayne Ishida
3347 Michelson Dr
Irvine CA 92612
Tel: (949)660-7561 Fax: (949)475-5433

Service ID #: 801-021874
Collected by: R.Rust
Collected on: 03/05/02

Received: 03/06-07/02
Extracted: 03/07-11/02
Tested: 03/06-14/02
Reported: 03/14/02

Sample Description: Water
Project Description: 831667 CTO 82 Hunters Point

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result 082-ES00126-74 02-01874-1
CHEMICAL OXYGEN DEMAND (COD)	410.4	mg-O_2/L	20	159
CHLORIDE CL^-	325.3	mg/L	1	1,120
CYANIDE, TOTAL	335.2	mg/L	0.05	<0.05
FLUORIDE	340.2	mg/L	0.1	0.61
IGNITABILITY (FLASHPOINT)	1010	°C	0.5 [a]	>100
OIL AND GREASE	413.2	mg/L	1.9 [b]	<1.9
PH	9040B	pH unit	0.01	6.74
PHENOLICS	420.1	mg/L	0.1	0.13
SOLIDS, TOTAL SUSPENDED (TSS)	160.2	mg/L	4	48.0
SULFIDE, DISSOLVED	376.2	mg/L	0.2	<0.2
CHROMIUM (VI)	7196A	mg/L	0.01	<0.01
ORGANO LEAD	LUFT	mg/L	0.1	<0.1
TRPH	418.1	mg/L	4	<4
METALS				
Dilution Factor				1
ANTIMONY	6010B	μg/L	10	2.0J
ARSENIC	6010B	μg/L	5	<5
BARIUM	6010B	μg/L	10	616
BERYLLIUM	6010B	μg/L	2	<2
CADMIUM	6010B	μg/L	2	<2
CHROMIUM	6010B	μg/L	5	7.3
COBALT	6010B	μg/L	5	1.6J
COPPER	6010B	μg/L	10	16.8
LEAD	6010B	μg/L	5	<5
MERCURY	7470A	μg/L	0.5	0.15J
MOLYBDENUM	6010B	μg/L	5	<5
NICKEL	6010B	μg/L	5	14.5
SELENIUM	6010B	μg/L	10	<10
SILVER	6010B	μg/L	10	<10
THALLIUM	6010B	μg/L	10	6.8J
VANADIUM	6010B	μg/L	10	3.2J
ZINC	6010B	μg/L	10	47.7

APPENDIX D – SAMPLING DATA
PAGE NO.2

THE ABOVE IDENTIFIED PAGE IS NOT AVAILABLE.

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QUESTIONS MAY BE DIRECTED TO:

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RECORDS MANAGEMENT SPECIALIST
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676

Component Analyzed	Method	Unit	PQL	Analysis Result 082-ES00126-74 02-01874-1
SEMI-VOC, 64 COMPOUNDS				
Dilution Factor				1
ACENAPHTHENE	8270C	μg/L	10	32
ACENAPHTHYLENE	8270C	μg/L	10	<10
ANTHRACENE	8270C	μg/L	10	1J
BENZO(A)ANTHRACENE	8270C	μg/L	10	<10
BENZO(A)PYRENE	8270C	μg/L	10	<10
BENZO(B)FLUORANTHENE	8270C	μg/L	10	<10
BENZO(G,H,I)PERYLENE	8270C	μg/L	10	<10
BENZO(K)FLUORANTHENE	8270C	μg/L	10	<10
BENZOIC ACID	8270C	μg/L	50	<50
BIS(2-CHLOROETHOXY) METHANE	8270C	μg/L	10	<10
BIS(2-CHLOROETHYL) ETHER	8270C	μg/L	10	<10
BIS(2-CHLOROISOPROPYL) ETHER	8270C	μg/L	10	<10
BIS(2-ETHYLHEXYL) PHTHALATE	8270C	μg/L	10	<10
4-BROMOPHENYL PHENYL ETHER	8270C	μg/L	10	<10
BENZYL BUTYL PHTHALATE	8270C	μg/L	10	<10
CARBAZOLE	8270C	μg/L	10	<10
4-CHLORO-3-METHYLPHENOL	8270C	μg/L	10	<10
4-CHLOROANILINE	8270C	μg/L	10	<10
2-CHLORONAPHTHALENE	8270C	μg/L	10	<10
2-CHLOROPHENOL	8270C	μg/L	10	<10
4-CHLOROPHENYL PHENYL ETHER	8270C	μg/L	10	<10
CHRYSENE	8270C	μg/L	10	<10
DI-N-BUTYL PHTHALATE	8270C	μg/L	10	<10
DI-N-OCTYLPHTHALATE	8270C	μg/L	10	<10
DIBENZ(A,H)ANTHRACENE	8270C	μg/L	10	<10
DIBENZOFURAN	8270C	μg/L	10	15
1,2-DICHLOROBENZENE	8270C	μg/L	10	<10
1,3-DICHLOROBENZENE	8270C	μg/L	10	<10
1,4-DICHLOROBENZENE	8270C	μg/L	10	6J
3,3'-DICHLOROBENZIDINE	8270C	μg/L	20	<20
2,4-DICHLOROPHENOL	8270C	μg/L	10	<10
DIETHYL PHTHALATE	8270C	μg/L	10	<10
DIMETHYL PHTHALATE	8270C	μg/L	10	<10
2,4-DIMETHYLPHENOL	8270C	μg/L	10	<10
4,6-DINITRO-2-METHYLPHENOL	8270C	μg/L	50	<50
2,4-DINITROPHENOL	8270C	μg/L	50	<50
2,4-DINITROTOLUENE	8270C	μg/L	10	<10
2,6-DINITROTOLUENE	8270C	μg/L	10	<10
FLUORANTHENE	8270C	μg/L	10	2J
FLUORENE	8270C	μg/L	10	16
HEXACHLOROBENZENE	8270C	μg/L	10	<10
HEXACHLOROBUTADIENE	8270C	μg/L	10	<10
HEXACHLOROCYCLOPENTADIENE	8270C	μg/L	10	<10

Component Analyzed	Method	Unit	PQL	Analysis Result 082-ES00126-74 02-01874-1
HEXACHLOROETHANE	8270C	μg/L	10	< 10
INDENO(1,2,3-C,D)PYRENE	8270C	μg/L	10	< 10
ISOPHORONE	8270C	μg/L	10	< 10
2-METHYLNAPHTHALENE	8270C	μg/L	10	3J
3/4-METHYLPHENOL (P-CRESOL)	8270C	μg/L	10	< 10
2-METHYLPHENOL (O-CRESOL)	8270C	μg/L	10	< 10
NAPHTHALENE	8270C	μg/L	10	6J
2-NITROANILINE	8270C	μg/L	50	< 50
3-NITROANILINE	8270C	μg/L	50	< 50
4-NITROANILINE	8270C	μg/L	50	< 50
NITROBENZENE	8270C	μg/L	10	< 10
2-NITROPHENOL	8270C	μg/L	10	< 10
4-NITROPHENOL	8270C	μg/L	50	< 50
N-NITROSODI-N-PROPYLAMINE	8270C	μg/L	10	< 10
N-NITROSODIPHENYLAMINE	8270C	μg/L	10	< 10
PENTACHLOROPHENOL	8270C	μg/L	50	< 50
PHENANTHRENE	8270C	μg/L	10	4J
PHENOL	8270C	μg/L	10	< 10
PYRENE	8270C	μg/L	10	< 10
1,2,4-TRICHLOROBENZENE	8270C	μg/L	10	< 10
2,4,5-TRICHLOROPHENOL	8270C	μg/L	50	< 50
2,4,6-TRICHLOROPHENOL	8270C	μg/L	10	< 10
ORGANOCHLORINE PESTICIDES				
Dilution Factor				1
ALDRIN	8081A	μg/L	0.05	< 0.05
BETA BHC	8081A	μg/L	0.05	< 0.05
ALPHA BHC	8081A	μg/L	0.05	< 0.05
DELTA BHC	8081A	μg/L	0.05	< 0.05
GAMMA BHC (LINDANE)	8081A	μg/L	0.05	< 0.05
ALPHA-CHLORDANE	8081A	μg/L	0.05	< 0.05
GAMMA-CHLORDANE	8081A	μg/L	0.05	< 0.05
P,P'-DDD	8081A	μg/L	0.1	< 0.1
P,P'-DDE	8081A	μg/L	0.1	< 0.1
P,P'-DDT	8081A	μg/L	0.1	< 0.1
DIELDRIN	8081A	μg/L	0.1	< 0.1
ALPHA ENDOSULFAN	8081A	μg/L	0.05	< 0.05
BETA ENDOSULFAN	8081A	μg/L	0.1	< 0.1
ENDOSULFAN SULFATE	8081A	μg/L	0.5	< 0.5
ENDRIN	8081A	μg/L	0.1	< 0.1
ENDRIN ALDEHYDE	8081A	μg/L	0.1	< 0.1
ENDRIN KETONE	8081A	μg/L	0.1	< 0.1
HEPTACHLOR	8081A	μg/L	0.05	< 0.05
HEPTACHLOR EPOXIDE	8081A	μg/L	0.05	< 0.05
METHOXYCHLOR	8081A	μg/L	2	< 2
TOXAPHENE	8081A	μg/L	5	< 5

Component Analyzed	Method	Unit	PQL	Analysis Result 082-ES00126-74 02-01874-1
PCBS				
Dilution Factor				1
PCB-1016 (AROCLOR 1016)	8082	μg/L	1	<1
PCB-1221 (AROCLOR 1221)	8082	μg/L	2	<2
PCB-1232 (AROCLOR 1232)	8082	μg/L	1	<1
PCB-1242 (AROCLOR 1242)	8082	μg/L	1	<1
PCB-1248 (AROCLOR 1248)	8082	μg/L	1	<1
PCB-1254 (AROCLOR 1254)	8082	μg/L	1	<1
PCB-1260 (AROCLOR 1260)	8082	μg/L	1	0.3J
CHLORINATED HERBICIDES				
Dilution Factor				1
ACIFLUORFEN	8151A	μg/L	1	<1
BENTAZON	8151A	μg/L	0.5	<0.5
CHLORAMBEN	8151A	μg/L	0.5	<0.5
2,4-D	8151A	μg/L	0.5	<0.5
2,4 DB	8151A	μg/L	0.5	<0.5
DALAPON	8151A	μg/L	1	<1
DICAMBA	8151A	μg/L	0.5	<0.5
3,5-DICHLOROBENZOIC ACID	8151A	μg/L	0.5	<0.5
DICHLOROPROP	8151A	μg/L	0.5	<0.5
DINOSEB	8151A	μg/L	0.5	<0.5
MCPA	8151A	μg/L	100	<100
MCPP	8151A	μg/L	100	<100
4-NITROPHENOL	8151A	μg/L	0.5	<0.5
PENTACHLOROPHENOL	8151A	μg/L	0.5	<0.5
PICLORAM	8151A	μg/L	0.5	<0.5
2,4,5-T	8151A	μg/L	0.5	<0.5
SILVEX (2,4,5-TP)	8151A	μg/L	0.5	<0.5

Component Analyzed	Method	Unit	PQL	Analysis Result 082-TB00126-75 02-01874-2
Dilution Factor				1
PHC AS GASOLINE	M8015V	mg/L	0.05	0.01J

Component Analyzed	Method	Unit	PQL	Analysis Result 082-ES00126-74 02-01874-1	082-TB00126-75 02-01874-2
VOLATILE ORGANICS					
Dilution Factor				1	1
ACETONE	8260B	μg/L	10	48	<10
BENZENE	8260B	μg/L	0.5	8.0	<0.5
BROMOBENZENE	8260B	μg/L	0.5	<0.5	<0.5
BROMOCHLOROMETHANE	8260B	μg/L	1	<1	<1
BROMODICHLOROMETHANE	8260B	μg/L	0.5	<0.5	<0.5
BROMOFORM	8260B	μg/L	0.5	<0.5	<0.5
BROMOMETHANE	8260B	μg/L	0.5	<0.5	<0.5
2-BUTANONE	8260B	μg/L	10	<10	<10
N-BUTYLBENZENE	8260B	μg/L	0.5	0.6	<0.5
SEC-BUTYLBENZENE	8260B	μg/L	0.5	0.7	<0.5
T-BUTYLBENZENE	8260B	μg/L	0.5	<0.5	<0.5
CARBON TETRACHLORIDE	8260B	μg/L	0.5	<0.5	<0.5
CHLOROBENZENE	8260B	μg/L	0.5	87.1	<0.5
DIBROMOCHLOROMETHANE	8260B	μg/L	0.5	<0.5	<0.5
CHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
CHLOROFORM	8260B	μg/L	0.5	<0.5	<0.5
CHLOROMETHANE	8260B	μg/L	0.5	<0.5	<0.5
2-CHLOROTOLUENE	8260B	μg/L	0.5	<0.5	<0.5
4-CHLOROTOLUENE	8260B	μg/L	0.5	<0.5	<0.5
1,2-DIBROMO-3-CHLOROPROPANE	8260B	μg/L	2	<2	<2
1,2-DIBROMOETHANE	8260B	μg/L	1	<1	<1
DIBROMOMETHANE	8260B	μg/L	0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	8260B	μg/L	0.5	7.0	<0.5
1,3-DICHLOROBENZENE	8260B	μg/L	0.5	1.8	<0.5
1,4-DICHLOROBENZENE	8260B	μg/L	0.5	9.1	<0.5
DICHLORODIFLUOROMETHANE	8260B	μg/L	0.5	7.2	<0.5
1,1-DICHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
1,2-DICHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
1,1-DICHLOROETHENE	8260B	μg/L	0.56 [b]	<0.56	<0.56
CIS-1,2-DICHLOROETHENE	8260B	μg/L	0.5	<0.5	<0.5
TRANS-1,2-DICHLOROETHENE	8260B	μg/L	0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	8260B	μg/L	0.5	<0.5	<0.5
1,3-DICHLOROPROPANE	8260B	μg/L	0.5	<0.5	<0.5
2,2-DICHLOROPROPANE	8260B	μg/L	0.5	<0.5	<0.5
1,1-DICHLOROPROPENE	8260B	μg/L	0.5	<0.5	<0.5
ETHYLBENZENE	8260B	μg/L	0.5	0.3J	<0.5
HEXACHLOROBUTADIENE	8260B	μg/L	1	<1	<1
2-HEXANONE	8260B	μg/L	10	<10	<10
ISOPROPYLBENZENE (CUMENE)	8260B	μg/L	0.5	1.3	<0.5

Component Analyzed	Method	Unit	PQL	Analysis Result 082-ES00126-74 02-01874-1	082-TB00126-75 02-01874-2
P-CYMENE (P-ISOPROPYLTOLUENE)	8260B	μg/L	0.5	<0.5	<0.5
METHYLENE CHLORIDE	8260B	μg/L	1.1 [b]	3.4	2.4
4-METHYL-2-PENTANONE	8260B	μg/L	10	<10	<10
TERT-BUTYL METHYL ETHER	8260B	μg/L	1	<1	<1
NAPHTHALENE	8260B	μg/L	0.5	7.1	<0.5
N-PROPYLBENZENE	8260B	μg/L	0.5	0.9	<0.5
STYRENE	8260B	μg/L	0.5	<0.5	<0.5
1,1,1,2-TETRACHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
1,1,2,2-TETRACHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
TETRACHLOROETHYLENE(PCE)	8260B	μg/L	0.5	<0.5	<0.5
TOLUENE	8260B	μg/L	0.5	1.1	<0.5
1,2,3-TRICHLOROBENZENE	8260B	μg/L	0.5	<0.5	<0.5
1,2,4-TRICHLOROBENZENE	8260B	μg/L	0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
1,1,2-TRICHLOROETHANE	8260B	μg/L	0.5	<0.5	<0.5
TRICHLOROETHYLENE (TCE)	8260B	μg/L	0.5	<0.5	<0.5
TRICHLOROFLUOROMETHANE	8260B	μg/L	0.5	<0.5	<0.5
1,2,3-TRICHLOROPROPANE	8260B	μg/L	0.5	<0.5	<0.5
1,2,4-TRIMETHYLBENZENE	8260B	μg/L	0.5	0.5J	<0.5
1,3,5-TRIMETHYLBENZENE	8260B	μg/L	0.5	<0.5	<0.5
VINYL CHLORIDE	8260B	μg/L	0.5	<0.5	<0.5
O-XYLENE	8260B	μg/L	0.5	0.6	<0.5
M,P-XYLENE	8260B	μg/L	1	1	<1
TERT-BUTYL ALCOHOL (TBA)	8260B	μg/L	20	<20	<20

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

[a] Corresponds to the minimum reading of the thermometer used.

[b] MDL reported.

Respectfully submitted,

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Applied P & Ch Laboratory