APPENDIX A

COMMENT RESPONSES

(Two Pages)

RESPONSE TO CALIFORNIA EPA DTSC COMMENTS ON THE DRAFT FINAL CLOSEOUT REPORT

The following comments were received from Mr. Henry Wong of California EPA, DTSC, dated December 3, 2001. Each comment below is followed by a description of how the comment was addressed.

1. **Comment** **Page ES-2, first paragraph: The Report states that the Remedial Action Plan/Record of Decision (RAP/ROD) requires IR02 to be cleaned up to the residential standards on the western side of the site, and to the industrial standards on the eastern side of the site. Please clarify that the RAP/ROD also requires an institutional control to restrict residential development on the eastern end of IR02. This comment also applies to the last sentence of Section 7.0.**

   Response Agree, the text will be added.

2. **Comment** **Page ES-2, Section 6.4, and Table 5: Please update the quantity of the excavated soil when the data are available.**

   Response Quantities will be updated to reflect values at completion of the project.

3. **Comment** **Page ES-3, last paragraph: The Report concludes that no further action is recommended at the site. Instead of stating "no further action", please specify that further soil excavation is not necessary because the PCB and cadmium cleanup goals as approved in the RAP/ROD have been achieved.**

   Response The Navy believes that further action is not required.

4. **Comment** **Section 4.0: Please mention that the RAP/ROD requires an institutional control restricting residential reuse.**

   Response Agree, the text will be added.

5. **Comment** **Section 5.2: DTSC requires remedial alternatives that are based on industrial/commercial cleanup objective to couple with an institutional control residential restriction. Please clarify that the remedial alternatives for the eastern portion of IR02 are soil excavation to industrial cleanup goals and institutional control.**

   Response Agree, the text will be added.

6. **Comment** **Section 6.3.5: Please attach the technical memorandum on the Investigation of Volatile Organic Contaminated in Grid Square 2D as an appendix to the Report.**

   Response Agree, the tech memorandum will be attached as an appendix.

7. **Comment** **Section 7.0: The Report should mention the final fencing configuration after site restoration.**

Response Agree, the as built drawings to be provided will show the final fencing configuration.

8. **Comment** **Table 5: Please identify the disposal facilities for all types of waste transported off-site.**

Response Agree, Table 5 will be footnoted to identify the disposal facility that received each type of waste.

9 **Comment** **In general, please recall that polynuclear aromatic hydrocarbons (PAHs) contamination was also addressed in a collateral manner during excavation for PCB and cadmium. Confirmation sampling indicates that PAH concentrations remaining are insignificant at IR02. Also recall that the issue of benzene in soil and groundwater at this and adjacent sites has not been fully resolved, and that there exists the possibility of further investigation and response actions at this site. These two issues should be reflected in the text and conclusions of this report.**

Response The text will be changed to state that samples were collected for PAHs during the remedial action, and that the results are addressed in the PAH tech memo, which will be referenced in the text. The text will also state that additional samples of groundwater and soil vapor were collected during two separate investigations performed by the Navy and ERM West, and risk due to migration of benzene vapor into interior spaces is being evaluated in the Groundwater Tech Memo. The conclusions will state that no further action is required to address PCBs and cadmium at IR02, and that the need for further actions due to PAHs and Benzene in soil vapor will be addressed in the respective tech memos.

APPENDIX B

PHOTOGRAPHIC LOG
(Three Pages)

REMOVAL OF CONTAMINATED SOIL AT ALAMEDA FACILITY/ALAMEDA ANNEX IR02

Photograph 1 August 19, 2001

Excavated grid squares at north boarder of site facing west showing paved area not excavated.

Photograph 2 August 19, 2001

South edge of pad in grids 3N-3P facing south, showing dirt on top of concrete.

Photograph 3 August 19, 2001

North edge of pad in grids 3N-3P facing east, showing area of soil excavation adjacent to concrete. Hay bales surround storm drain for sediment control.

Photograph 4 August 19, 2001

Example of small paved area uncovered in excavated grid.

Photograph 5 August 19, 2001

Soil stockpile area with buildings 366 and 365 in background, facing east.

APPENDIX C

BACKFILL MATERIAL CERTIFICATION

(15 Pages)

ROCK TRANSPORT Inc.

725 Julie Ann Way, Oakland, CA 94621-4037 (510) 633-1528 FAX (510) 638-9447

22 August 2001

To Environmental Chemical Corporation:

To the best of my knowledge, I certify that the sub-base fill material being provided by Rock Transport, Inc to Environmental Chemical Corporation (ECC) for placement at U.S. Navy's IR 02 site in Alameda, California,

(1) Has not been exposed to hazardous contaminants,

(2) Consists of "virgin" concrete left over from ready-mix trucks, and

(3) No other materials from unknown sources, suspect use or site has been mixed with the recycled "virgin" concrete.

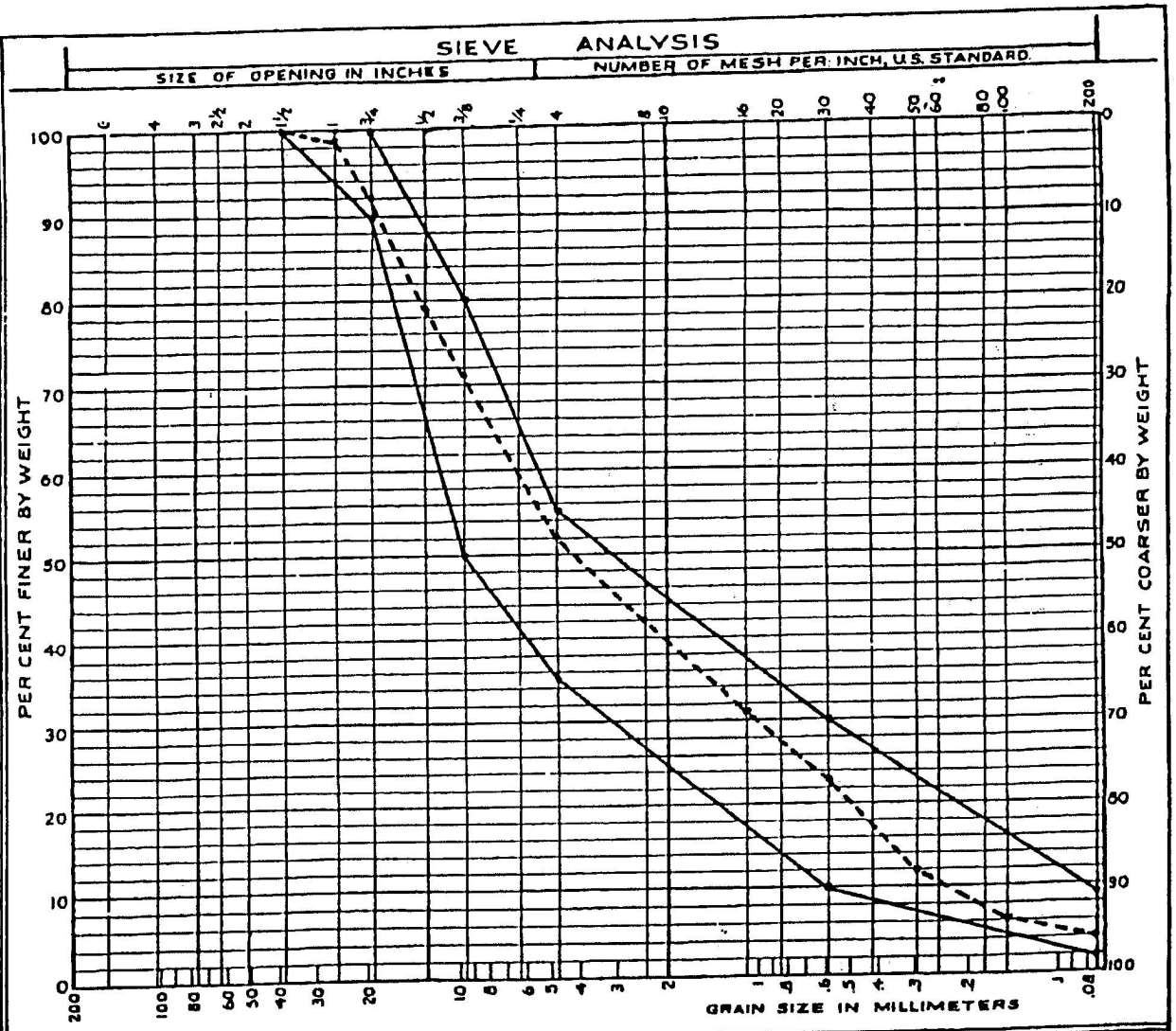
Rock Transport, Inc.

Dick Peterson

Dick Peterson

ROCK TRANSPORT Inc.
725 Julie Ann Way Oakland, California 94621 (510) 633-1528

Sieve Size	Weight Retained	% Retained	% Passing	Spec.
1½"		0	100	100
1"		1	99	
¾"		8	92	90-100
½"		21	79	
⅜"		29	71	50-80
No.4		48	52	35-55
No.8		58	42	
No.16		69	31	
No.30		77	23	10-30
No.50		88	12	
No.100		94	6	
No.200		96	4	2-9



Date: Feb. 2, 2001

Plant: Oakland

Type of material: Crushed Aggregate Base

Lab.#

Tested by

Remarks: Recycled Aggregate Base. Meets grading specification for Crushed Aggregate Base, Standard Specification for Public Works Construction, Table 200-2.2.2 (A).

ENVIRONMENTAL CHEMICAL CORPORATION
Analytical Laboratory Division
6954 Cornell Road, Suite 300
Cincinnati, Ohio 45242
Telephone No. (513) 489-2001
Facsimile No. (513) 489-2223

8. 10/30/01

FACSIMILE COVER SHEET

TO: Kevin Spala FROM: Mary O'Reilly

COMPANY: ECC-Alameda DATE/TIME: 10/19/01 11:00

FAX NO.: Speed Dial (9) NO. OF PAGES (including this cover): 3

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SAMPLE RESULTS

ECC PROJECT NO.: L3666 DATE SAMPLE(S) REC'D: 10/18/01

ANALYSIS & COMMENTS:

HPLC

L:\DATA\FORMS\FXSMP499.WPD

ENVIRONMENTAL CHEMICAL CORPORATION

NARRATIVE HPLC Analysis

ECC Project No.: L3666-2
Customer Name: ECC Alameda
Analysis Method: EPA 8310
SAP: ORG32 rev.5

Extraction Method: EPA 3541
Prep. Group: WG7271
Analytical group: WG7279

1. QC Package for this Prep. Batch is from this Project? yes

2. CALIBRATION: Initial calibration date: 10/03/01
   Continuing calibration passing: X yes or __ Describe any Calibration problems:

3. CONFIRMATION: Mass Spec. ____ Not needed

4. COLUMN USED: Phenomenex Envirosep-PP 125x4.6 mm SN: 87985-1

5. DETECTOR USED: Waters UV 486 SN: 486-PRF132

6. PUMP USED: Waters 600 SN: 600PF6101

7. DILUTION: NONE

8. SURROGATES passing: No

9. MANUAL INTEGRATIONS? YES, See attachment for manual integrations

10. QUALITY CONTROL:
    Method Blank analyzed: YES Any Contamination?: NO
    LCS analyzed: YES Is recovery within QC limits: YES
    Duplicate analyzed: NO %RPD passing: NA or describe problem:
    MS/MSD analyzed: YES recovery within QC limits: YES

11. Any sediment problems, instrument problem, extraction problem, etc. If no problem, write NO in the blank space: NO, If yes describe:

12. CONTROL CHARTS REVIEWED?: TRIED TO REVIEW, BUT CHARTS ARE STILL IN THE PROCESS OF BEING SETUP

Sample results have not yet been confirmed by GC/MS.
VF 10/19/01

REVIEW:			
Level 1	Initial STW	Date 10-19-01	
Level 2	Initial VF	Date 10/19/01	
Level 3	Initial _____	Date _____	

Environmental Chemical Corporation

SAMPLE NUMBER
SS-BS-03

Customer: ENVIRONMENTAL CHEMICAL CORP. Project No.: 5385.007
Source: ALAMEDA ANNEX IR02
Location: ALAMEDA ANNEX
Analysis: EPA Method 8310 PAHs by HPLC

Preparation Batch:	WG7271	Instrument Batch:	WG7279
Matrix:	Soil	Lab Sample ID.:	L3666-2
Lab Notebook No:	1041, P.48	Date Sampled:	17-OCT-01
Initial Cal. ID.:	PAH100301	Date Received:	18-OCT-01
Final Volume:	1.0 ml	Date Extracted:	18-OCT-01
Initial Weight:	30.15 g	Date Analyzed:	18-OCT-01
Percent Solids:	82 %		
Prep. Method:	EPA 3541		

SAMPLE RESULTS

	CAS NO.	COMPOUND	MDL (mg/kg)	RL (mg/kg)	RESULTS (mg/kg)	DILUTION	FLAG
1.	83-32-9	Acenaphthene	0.0050	0.020	0.047	1	
2.	208-96-8	Acenaphthylene	0.0039	0.020	0.016	1	
3.	120-12-7	Anthracene	0.0044	0.020	0.019	1	J
4.	56-55-3	Benzo(a)Anthracene	0.0048	0.020	0.047	1	
5.	50-32-8	Benzo(a)Pyrene	0.0053	0.020	0.030	1	
6.	205-99-2	Benzo(b)Fluoranthene	0.0048	0.020	0.022	1	
7.	191-24-2	Benzo(g,h,i)Perylene	0.0048	0.020	0.014	1	J
8.	207-08-9	Benzo(k)Fluoranthene	0.0048	0.020	0.013	1	J
9.	218-01-9	Chrysene	0.0049	0.020	0.045	1	
10.	53-70-3	Dibenzo(a,h)Anthracene	0.0045	0.020	—	1	U
11.	206-44-0	Fluoranthene	0.0057	0.024	0.11	1	
12.	86-73-7	Fluorene	0.0040	0.020	0.0077	1	J
13.	193-39-5	Indeno(1,2,3-cd)Pyrene	0.0054	0.020	0.020	1	J
14.	91-20-3	Naphthalene	0.0041	0.020	0.020	1	J
15.	85-01-8	Phenanthrene	0.0065	0.024	0.074	1	J
16.	129-00-0	Pyrene	0.0058	0.024	0.14	1	J

SURROGATE STANDARD	RECOVERY (%)	ACCEPTABLE (%)	SPIKE
p-Terphenyl-d14	151	22-167	0.20 mg/kg

RL - Reporting Limit
MDL - Method Detection Limit
J - Estimated Value
U - Below MDL

Comments: 1) Sample results are reported as rounded values. Percent recoveries are calculated using raw values and are reported rounded to zero decimal places.

ENVIRONMENTAL CHEMICAL CORPORATION

Customer:	Environmental Chemical Corporation	Cust. Proj. No.:	5385.007
Source:	Alameda Annex IR02	Project No.:	L 3666
Analysis:	TPH	Date Received:	18-Oct-01
Method:	EPA 418.1	Date Analyzed:	18-Oct-01
Lab Notebook:	1272, P. 4-5	Prep Batch:	TRPHS1018
Reporting Limit:	55.0 mg/kg	Instr. Batch:	TRPHS1018
MDL :	17.0 mg/kg	Percent Solid:	82%

LAB I.D.	CUSTOMER SAMPLE NO.	MATRIX	LOCATION	VALUE mg/kg
L3666-3	SS-BS-03	Soil	Alameda Annex	94.2

BDL: Below Detection Limit
J: Estimated between MDL & RL

ENVIRONMENTAL CHEMICAL CORPORATION
Analytical Laboratory Division
6954 Cornell Road, Suite 300
Cincinnati, Ohio 45242
Telephone No. (513) 489-2001
Facsimile No. (513) 489-2223

JI
EW
8
10/30/01

FACSIMILE COVER SHEET

TO: Kevin Spala

FROM: Mary O'Reilly

COMPANY: ECC-Alameda

DATE/TIME: 10/19/01 9:10

FAX NO.: Speed Dial (9)

NO. OF PAGES (including this cover): 3

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SAMPLE RESULTS

ECC PROJECT NO.: L3666 DATE SAMPLE(S) REC'D: 10/18/01

ANALYSIS & COMMENTS:

VOA

L:\DATA\FORMS\FXSMP499.WPD

ENVIRONMENTAL CHEMICAL CORPORATION
CASE NARRATIVE GC/MS Organic Analysis

ECC Project No.: L36666 K 10-19-01
Customer Name: ENVIRONMENTAL CHEMICAL CORP.
Prep. Batch No: WG7262
Instr. Batch No: WG7263
Method 8260B, **SAP#** ORG11, Rev.10

1. QC Package for this Prep. Batch is from this Project? **Yes**
2. Instrument: : **VOA GC/MS#3, Precept II Autosampler, column J&W DB-624**
3. MSD BFB TUNE CHECK: **Passed**
   SPCC CHECK: **Passed**
4. CALIBRATION: Initial calibration **Passed** - Date: **10/10/01**
   ICV from a different source: **Passed, within limits for all target compounds**
   Continuing calibration: **Passed method criteria for all target compounds**
5. EXTRACTION: **No Problems.**
6. DILUTION: **None.**
7. INTERNAL STANDARD AREA/RETENTION TIME: **Passed method criteria.**
8. SURROGATES: **Passed for all but Dibromofluoromethane. This surrogate was outside limits. (~20% Recovery) Similar results were found in both the MS and MSD indicating matrix effects.**
9. QUALITY CONTROL:
   Method Blank analyzed: **Yes.**
   LCS analyzed: **Yes** Is recovery within QC limits: **Yes, passed for all target compounds.**
   Duplicate analyzed: **N/R**
   MS/MSD analyzed: **YES. Many compounds were low due to matrix.** RPDs! K 10-19-01 **RSD ok.**
10. MANUAL INTEGRATION:
    Initial Calibration: **none**
    ICV: **none**
    CCV: **none**
    LCS: **none**
    Blank: **none**
    MS: **none**
    MSD: **none**
    Sample: **none**
10. Any **sediment problems, instrument problem, extraction problem, etc.:** No problems.
11. TIC: **N/A.**
12. Control Charts: **Updated and reviewed.**

REVIEW: **Level 1** Initial REH Date 10-19-01
Level 2 Initial K Date 10-19-01
Level 3 Initial _____ Date _____

L:\USERS\RHERRMA\CASE NARITIVES\ECC 8260 PRECEPT 3666.DOC

Environmental Chemical Corporation

SAMPLE NUMBER
SS-BS-02

Customer: ENVIRONMENTAL CHEMICAL CORP.
Project No.: 5385.007
Source: ALAMEDA ANNEX IR02
Location: ALAMEDA ANNEX
Analysis: EPA Method 8260B Volatiles by GC/MS

Preparation Batch:	WG7262	Instrument Batch:	WG7263
Matrix:	Soil	Lab Sample ID.:	L3666-1
Lab Notebook No:	1254,p.57	Date Sampled:	17-OCT-01
Initial Cal. ID.:	3VBTEX31	Date Received:	18-OCT-01
Final Volume:	5.0 ml	Date Extracted:	18-OCT-01
Initial Weight:	6.02 g	Date Analyzed:	18-OCT-01
Percent Solids:	83 %		
Prep. Method:	EPA 5035		

SAMPLE RESULTS

	CAS NO.	COMPOUND	MDL (ug/kg)	RL (ug/kg)	RESULTS (ug/kg)	DILUTION	FLAG
1.	71-43-2	Benzene	0.27	2.0	---	1	U
2.	100-41-4	Ethylbenzene	0.25	2.0	---	1	U
3.	1634-04-4	Methyl-tert-butyl Ether	0.27	2.0	---	1	U
4.	108-88-3	Toluene	0.22	2.0	---	1	U
5.	106-42-3	m,p-Xylene	0.49	4.0	---	1	U
6.	95-47-6	ortho-Xylene	0.32	2.0	---	1	U

SURROGATE STANDARD	RECOVERY (%)		ACCEPTABLE (%)	SPIKE
1,2-dichloroethane-d4	107		52-149	50.0 ug/kg
4-bromofluorobenzene	104		65-135	50.0 ug/kg
dibromofluoromethane	24	*	65-135	50.0 ug/kg
toluene-d8	96		65-135	50.0 ug/kg

RL - Reporting Limit
MDL - Method Detection Limit
* - Value(s) outside of QC limits
U - Below MDL

Comments: 1) Sample results are reported as rounded values. Percent recoveries are calculated using raw values and are reported rounded to zero decimal places.

KLEINFELDER

MAXIMUM DENSITY TEST DATA

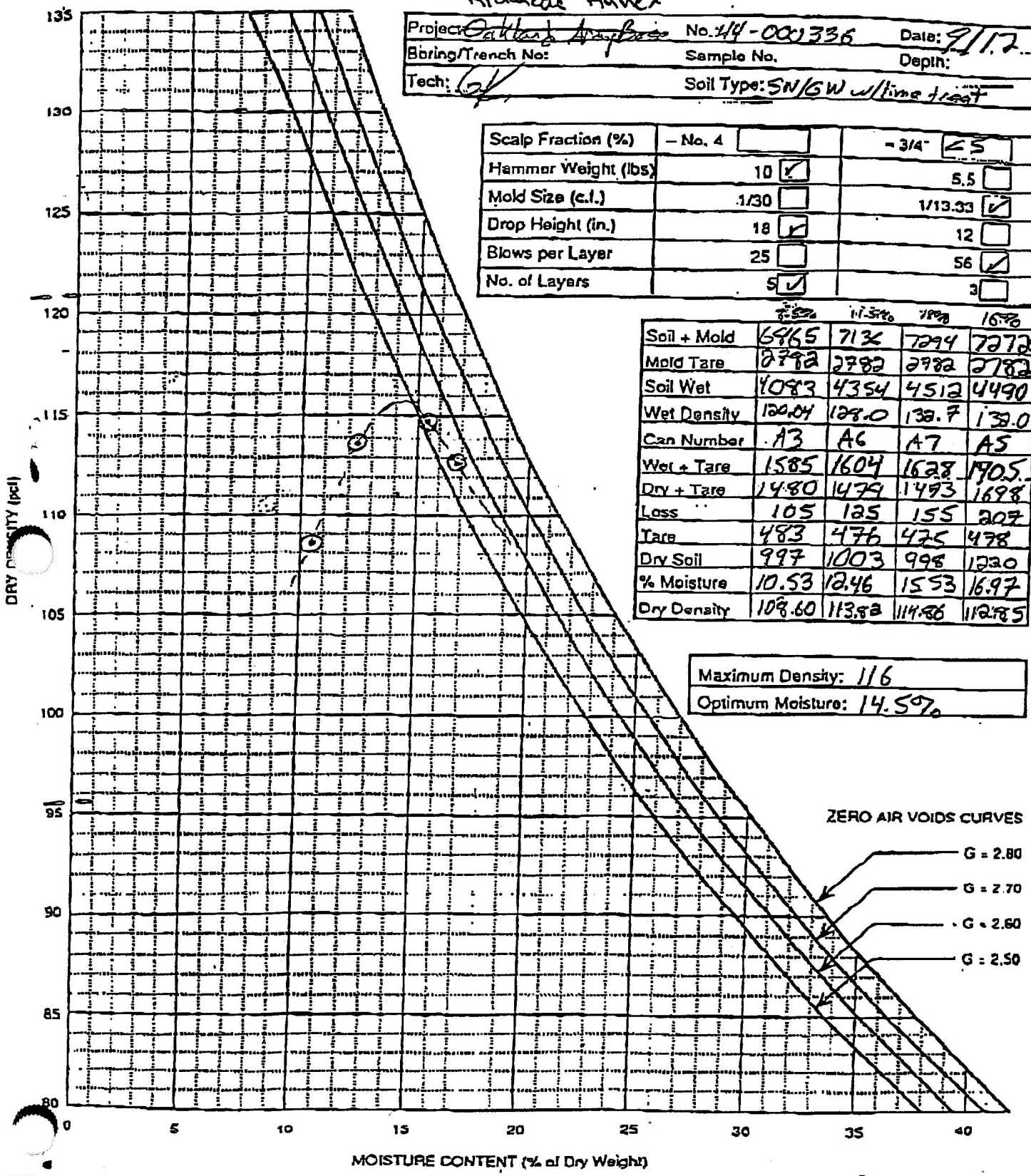
Alameda Annex

Project: ~~Oakland Airport~~	No. 44-001336	Date: 9/17
Boring/Trench No:	Sample No.	Depth:
Tech: GL	Soil Type: SW/GW w/lime treat	

Scalp Fraction (%)	– No. 4		– 3/4"	< 5
Hammer Weight (lbs)	10	✓	5.5	
Mold Size (c.f.)	1/30		1/13.33	✓
Drop Height (in.)	18	✓	12	
Blows per Layer	25		56	✓
No. of Layers	5	✓	3	

	8.5%	11.5%	14%	16%
Soil + Mold	6965	7136	7294	7272
Mold Tare	2782	2782	2782	2782
Soil Wet	4083	4354	4512	4490
Wet Density	120.04	128.0	132.7	132.0
Can Number	A3	A6	A7	A5
Wet + Tare	1585	1604	1628	1705
Dry + Tare	1480	1479	1493	1698
Loss	105	125	155	207
Tare	483	476	475	478
Dry Soil	997	1003	998	1220
% Moisture	10.53	12.46	15.53	16.97
Dry Density	108.60	113.82	114.86	112.85

Maximum Density:	116
Optimum Moisture:	14.5%



Environmental Chemical Corporation

SAMPLE NUMBER: SS-BS-01

Project No.: 5385.007

Client: ENVIRONMENTAL CHEMICAL CORP.

Source: ALAMEDA ANNEX IR02

Location: ROCK TRANSPORT

Analysis: EPA Method 8082 PCBs by GC/ECD

Preparation Batch:	WG6755	Instrument Batch:	WG6739
Matrix:	Soil	Lab Sample ID.:	L3517-1
Lab Notebook No:	1274 P. 12	Date Sampled:	31-AUG-01
Initial Cal. ID.:	4AP0910	Date Received:	05-SEP-01
Final Volume:	25 ml	Date Extracted:	10-SEP-01
Initial Weight:	10.07 g	Date Analyzed:	11-SEP-01
Percent Solids:	89 %		
Prep. Method:	COLUMN		

SAMPLE RESULTS

	CAS NO.	COMPOUND	MDL (mg/kg)	RL (mg/kg)	RESULTS (mg/kg)	DILUTION	FLAG
1.	12674-11-2	Aroclor 1016	0.033	0.14	---		U
2.	11104-28-2	Aroclor 1221	0.015	0.14	---		U
3.	11141-16-5	Aroclor 1232	0.038	0.14	---		U
4.	53469-21-9	Aroclor 1242	0.020	0.14	---		U
5.	12672-29-6	Aroclor 1248	0.031	0.14	---		U
6.	11097-69-1	Aroclor 1254	0.035	0.14	---		U
7.	11096-82-5	Aroclor 1260	0.021	0.14	---		U

SURROGATE STANDARD	RECOVERY (%)	ACCEPTABLE (%)	SPIKE
Decachlorobiphenyl	123	79-152	0.28 mg/kg

RL - Reporting Limit

MDL - Method Detection Limit

U - Below MDL

Comments: 1) Sample results are reported as rounded values. Percent recoveries are calculated using raw values and are reported rounded to zero decimal places.

Environmental Chemical Corporation

		SAMPLE	
		SS-BS-01	
Customer:	ENVIRONMENTAL CHEMICAL CORP.	Project. No.:	5385.007
Source:	ALAMEDA ANNEX IR02		
Location:	ROCK TRANSPORT		
Analysis:	ICP METALS		
Instrument Batch:	WG6729,		
Preparation Batch:	WG6700	Lab Sample ID.:	L3517-1
Matrix:	Soil	Date Sampled:	31-AUG-01
Lab Notebook No:	1265,	Date Received:	05-SEP-01
Initial Cal. ID.:	T090701-A	Date Digested:	05-SEP-01
Final Volume:	100.0 ml	Date Analyzed:	07-SEP-01
Initial Weight:	1.0401 g		
Percent Solids:	89 %		
Prep. Method:	EPA 3050B		

SAMPLE RESULTS

ANALYTICAL METHOD	ANALYTE	MDL (mg/kg)	R L (mg/kg)	RESULTS (mg/kg)	DILUTION	FLAG
EPA Method 6010B	Cadmium	0.068	0.32	—	1	U

RL - Reporting Limit MDL - Method Detection Limit

Comments:

Environmental Chemical Corporation

SAMPLE
SS-BS-01

Customer: ENVIRONMENTAL CHEMICAL CORP. Project. No.: 5385.007
Source: ALAMEDA ANNEX IR02
Location: ROCK TRANSPORT
Analysis: ICP METALS
Instrument Batch: WG6862,
Preparation Batch: WG6845
Matrix: Soil
Lab Notebook No: 1265.
Initial Cal. ID.: T092401-A.
Final Volume: 100.0 ml
Initial Weight: 1.1400 g
Percent Solids: 89 %
Prep. Method: EPA 3050B

Lab Sample ID.: L3517-3
Date Sampled: 31-AUG-01
Date Received: 05-SEP-01
Date Digested: 21-SEP-01
Date Analyzed: 24-SEP-01

SAMPLE RESULTS

ANALYTICAL METHOD	ANALYTE	MDL (mg/kg)	RL (mg/kg)	RESULTS (mg/kg)	DILUTION	FLAG
EPA Method 6010B	Antimony	0.53	2.0	---	1	U
EPA Method 6010B	Arsenic	0.32	2.5	6.4	1	
EPA Method 6010B	Barium	0.084	0.30	140	1	B
EPA Method 6010B	Beryllium	0.0053	0.049	0.37	1	
EPA Method 6010B	Chromium	0.084	0.79	64.0	1	B
EPA Method 6010B	Cobalt	0.13	0.79	6.8	1	
EPA Method 6010B	Copper	0.12	0.99	19.2	1	B
EPA Method 6010B	Lead	0.24	1.8	6.9	1	B
EPA Method 6010B	Molybdenum	0.16	0.59	1.2	1	
EPA Method 6010B	Nickel	0.26	1.5	50.2	1	
EPA Method 6010B	Selenium	0.44	2.0	---	1	U
EPA Method 6010B	Silver	0.060	0.59	---	1	U
EPA Method 6010B	Thallium	1.1	3.9	---	1	U
EPA Method 6010B	Vanadium	0.11	0.49	43.4	1	
EPA Method 6010B	Zinc	1.9	6.9	58.2	1	B

RL - Reporting Limit MDL - Method Detection Limit

Comments:

Environmental Chemical Corporation

SAMPLE
SS-BS-01

Project No.: 5385.007

Customer: ENVIRONMENTAL CHEMICAL CORP.
Source: ALAMEDA ANNEX IR02
Location: ROCK TRANSPORT
Analysis: CV METALS

Instrument Batch: WG6880,
Preparation Batch: WG6879
Matrix: Soil
Lab Notebook No: 1277,
Initial Cal. ID.: WG6880,
Final Volume: 100.0 ml
Initial Weight: 0.6172 g
Percent Solids: 89 %
Prep. Method: EPA 7471A

Lab Sample ID.: L3517-3
Date Sampled: 31-AUG-01
Date Received: 05-SEP-01
Date Digested: 25-SEP-01
Date Analyzed: 26-SEP-01

SAMPLE RESULTS

ANALYTICAL METHOD	ANALYTE	MDL (mg/kg)	RL (mg/kg)	RESULTS (mg/kg)	DILUTION	FLAG
EPA Method 7471A	Mercury	0.012	0.042	0.058	1	B

RL - Reporting Limit

MDL - Method Detection Limit

Post Digest Spike Recovery: Mercury: 95%

Comments:

APPENDIX D

INVESTIGATION OF VOLATILE ORGANIC COMPOUND CONTAMINATION IN GRID SQUARE 2D

(Forty Pages)

Comprehensive Long-Term Environmental Action Navy (CLEAN) II
Contract No. N62474-94-D-7609
Contract Task Order No. 0289

Prepared for

DEPARTMENT OF THE NAVY
Lou Ocampo, Remedial Project Manager
Naval Facilities Engineering Command
Southwest Division, BRAC Operations
1230 Colombia Street
Suite 1100
San Diego, California 92101

Final
Investigation of Volatile Organic Contamination in Grid Square 2D Removal of Contaminated Surface Soil at IR02 Fleet and Industrial Supply Center Oakland Alameda Facility/Alameda Annex, Alameda, California

DS.0289.17216
December 2001

Prepared by

Tetra Tech EM Inc.
591 Camino de la Reina, Suite 640
San Diego, California 92108
(619) 718-9676

James P. Wright for
Steve C. Geyer, P.E., Installation Coordinator

James P. Wright
James P. Wright, P.E., Lead Engineer

1.0 INTRODUCTION

The U.S. Navy completed polychlorinated biphenyl (PCB) and cadmium soil remediation at Installation Restoration Site 02 (IR02), Fleet and Industrial Supply Center Oakland (FISCO) Alameda Facility/Alameda Annex, Alameda, California in November 2001. On July 26, 2001, an unexpected organic chemical odor was noted in Grid 2D. Field team members verified the presence of organic vapors using a hand-held photoionization detector (PID). A field investigation was conducted to determine whether the organic odor indicated additional contamination that might require remediation. The remainder of this report describes (1) collection of soil samples in IR02 to characterize the potential source of the organic vapors and analytical results of these soil samples (Section 2.0) and (2) analysis of and conclusions drawn from the results of the investigation (Section 3.0). The figure and tables cited in the text are located immediately after the references. The draft final version of this investigation report (TtEMI 2001a) was reviewed by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). DTSC's comments have been incorporated into this final version as described in the response to comments in the appendix.

2.0 SOIL INVESTIGATION AND ANALYTICAL RESULTS

This section describes the soil investigation to characterize the potential source of the organic vapors (Section 2.1) and the analytical results of the soil samples that were collected (Section 2.2).

2.1 SOIL INVESTIGATION

As soon as the need for additional investigation of the potential source of the organic vapors became apparent, Tetra Tech EM Inc. (TtEMI), prepared a draft addendum of the field sampling plan and quality assurance project plan (Addendum 2) as the basis for collecting additional soil samples at IR02 (TtEMI 2001b). The identification of organic vapors and the subsequent investigation of the potential source of these vapors was an unforeseen situation not included in the original statement of work for FISCO. Field work underway at IR02 was put on hold pending resolution of the additional soil investigation, resulting in schedule delays and downtime costs.

Addendum 2 stated that soil samples would be collected using an EnCore® sampler to collect samples from soil removed using a backhoe from two trenches constructed at IR02 (see Figure 1). After reviewing the draft of Addendum 2, DTSC requested that soil samples be collected directly from the trench using a sliding hammer core sampler with 2-inch stainless steel sleeves. In order to hold schedule

delays and downtime costs to a minimum and after receiving verbal approval from DTSC, soil samples were collected on September 12, 2001, using the sampling technique requested by DTSC. Addendum 2 was subsequently approved on September 26, 2001.

To find the area with the highest volatile organic compound (VOC) contamination, two trenches crossing each other at right angles, were dug in the area, and soil samples were collected at the locations that had the highest VOC readings on the PID (see Figure 1). Trenches were dug into the suspect area until no further organic vapor detections were noted on the sides and bottom of the trench. Eight soil samples were collected at depths ranging from 0.5 to 7 feet below ground surface (bgs).

2.2 SOIL SAMPLE ANALYTICAL RESULTS

The eight soil samples collected from the two intersecting trenches at IR02 were analyzed in an off-site laboratory for VOCs using U.S. Environmental Protection Agency (EPA) Method 8260B (EPA 1996).

Analytical results for the 11 VOCs detected in the eight soil samples are presented in Table 1. The final two or three digits in the sample identification numbers reflect the depth at which the samples were collected in feet bgs. For example, "02" indicates a sample collected at 2 feet bgs, while "005" indicates a sample collected at 0.5 foot bgs. These analytical results are summarized, including the frequency of detection, the maximum detected concentration, the location of the maximum detected concentration, and the EPA preliminary remediation goals (PRG) for soil for each detected compound in Table 2. Draft analytical data sheets are presented in the attachment.

As shown in Table 1, the detection and concentrations of compounds are not distributed evenly among the eight sample locations. Notable observations are summarized below:

- Seven or more compounds were detected in four of the eight sampling locations – 2D-VOC1-005, 2D-VOC2-005, 2D-VOC4-02, and 2D-VOC8-02. (Note:)
- The highest two concentrations for seven of 11 detected compounds were measured in samples from two locations, 2D-VOC1-005 and 2D-VOC2-005.
- The highest concentration for eight of the 11 detected compounds was measured in the sample from location 2D-VOC1-005.
- Only 1 or 2 compounds were detected at locations 2D-VOC3-03, 2D-VOC5-03, and 2D-VOC6-04, and no compounds were detected at location 2D-VOC7-04.

- The highest levels of contamination were within an area approximately 5 feet square and 2 feet deep.

As these results indicate, the presence of organic contamination in soil at Grid 2D is a localized condition. The four sampling locations at which the highest levels of contamination were detected (2D-VOC1-005, 2D-VOC2-005, 2D-VOC4-02, and 2D-VOC8-02) are clustered near the intersection of the two trenches. Based on review of these sample locations (see Figure 1), the highest level of contamination was detected over about 25 square feet and in less than 50 cubic feet of soil. As evidenced by the analytical results presented in Tables 1 and 2 and the ambient air measurements made using the PID, the concentration of VOCs in the soil and the concentration of VOCs in the ambient air drops off sharply beyond the localized area consisting of these four sampling locations.

3.0 ANALYSIS AND CONCLUSIONS

This section presents analysis (Section 3.1) of and conclusions (Section 3.2) drawn from the results of the investigation.

3.1 ANALYSIS OF INVESTIGATION RESULTS

As discussed in Section 2.2, contamination of soil in Grid 2D is a localized condition. The highest measured concentrations of VOCs in soil are clustered at the intersection of the north-south and east-west trenches near the center of Grid 2D. It should also be noted that of the 11 VOCs detected in soil samples collected from the trenches, only 1,4-dichlorobenzene was detected at a concentration that exceeded an EPA Region 9 residential or industrial PRG (see Table 2). The Agency for Toxic Substances and Disease Registry (ATSDR) reports that this compound, 1,4-dichloroethene, is used to control moths, molds, and mildew as well as to deodorize restrooms and waste containers (ATSDR 1999). This compound was detected in five of the eight soil samples at the following concentrations:

- 0.01 milligram per kilogram (mg/kg) – 2D-VOC6-04
- 2.3 mg/kg – 2D-VOC4-02
- 2.5 mg/kg – 2D-VOC8-02
- 14.0 mg/kg – 2D-VOC2-005
- 18.0 mg/kg – 2D-VOC1-005

Only two of these concentrations (14.0 and 18.0 mg/kg) exceed the EPA Region 9 residential land use PRG of 3.4 mg/kg (EPA 2000) (see Table 2).

Of the 11 VOCs measured in soil samples collected from the two trenches, only seven were detected (at frequencies ranging from less than 0.5 to 6 percent) in over 300 soil samples previously collected at FISCO as part of the remedial investigation (RI) (PRC 1996). The compound detected most frequently during the RI was tetrachloroethene, which was detected at a frequency of 19 out of 345 samples (about 6 percent); 1,4-dichlorobenzene was detected in only four of 340 samples (about 1 percent) at a similar maximum concentration (17.0 mg/kg) as detected in the trench samples (18.0 mg/kg).

Only 1,4-dichloroethene and tetrachloroethene of the 11 VOCs measured in soil samples collected from the trenches are considered potential carcinogens by EPA (EPA 2000). As stated above, only 1,4-dichlorobenzene was detected at concentrations that exceeded its EPA Region 9 residential PRG. Findings of the site-specific risk assessment in the RI reported a reasonable maximum exposure (RME) excess lifetime cancer risk associated with potential residential exposure to 1,4-dichlorobenzene at FISCO of 5×10^{-6} (PRC 1996). It should be noted that while the RI considered potential exposure through ingestion of homegrown produce, the EPA Region 9 PRGs do not consider this pathway. Therefore, the RI results are not directly comparable to PRGs. However, the RI results do provide important context in that the RI results confirm that 1,4-dichlorobenzene is a compound detected only infrequently across the FISCO installation and the risks associated with potential residential exposure to 1,4-dichlorobenzene are at the low end of EPA's risk range of 10^{-6} to 10^{-4} (EPA 1994).

3.2 CONCLUSIONS

In conclusion, the detection of measurable organic vapor concentrations in the air at Grid 2D appears to be the result of soil contamination limited primarily to an area of about 37.5 square feet and to depths of between 0.5 and 2 feet bgs. Furthermore, potential risks and hazards associated with potential exposure to this soil contamination are limited. Of the 11 VOCs detected in soil samples collected from two trenches at Grid 2D, only 1,4-dichlorobenzene exceeded its EPA Region 9 residential PRG. Also, the concentrations of 1,4-dichlorobenzene measured in soil samples collected at Grid 2D are similar to those measured during the RI (PRC 1996). As stated in the RI report, the risk associated with potential residential exposure to 1,4-dichlorobenzene was calculated as 5×10^{-6}. Based on its infrequent detection and the low magnitude of the calculated residential risk, 1,4-dichlorobenzene was not identified as requiring remediation based on the RI results (PRC 1996).

Therefore, on the basis of the limited and localized extent of contamination, the low concentrations measured for compounds detected in soil samples collected from the trenches (all less than their respective EPA Region 9 residential PRGs, with the exception of 1,4-dichlorobenzene), and the expectation that risks associated with potential residential exposure to 1,4-dichlorobenzene will be at the low end of EPA's risk range, TtEMI concludes that no further action is required regarding the presence of VOCs in soil at Grid 2D.

REFERENCES

Agency for Toxic Substances and Disease Registry. 1999. "ToxFAQs for 1,4-Dichlorobenzene." June. Accessed on September 21. On-Line Address: http://www.atsdr.cdc.gov/tfacts10.html

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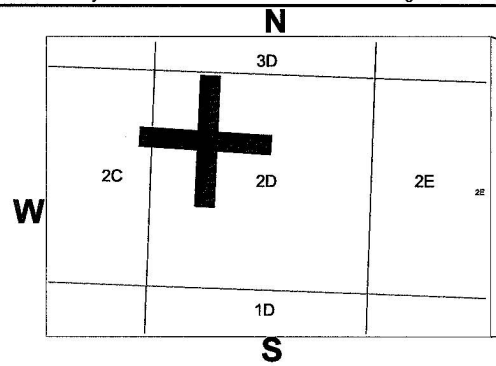
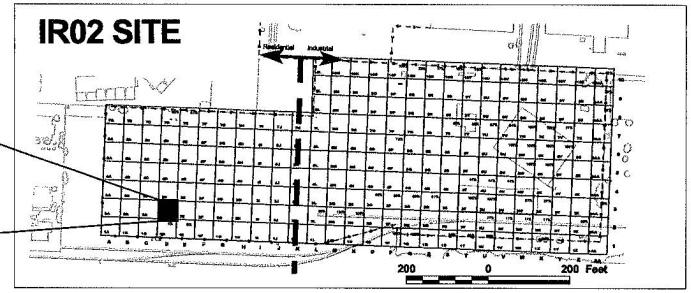
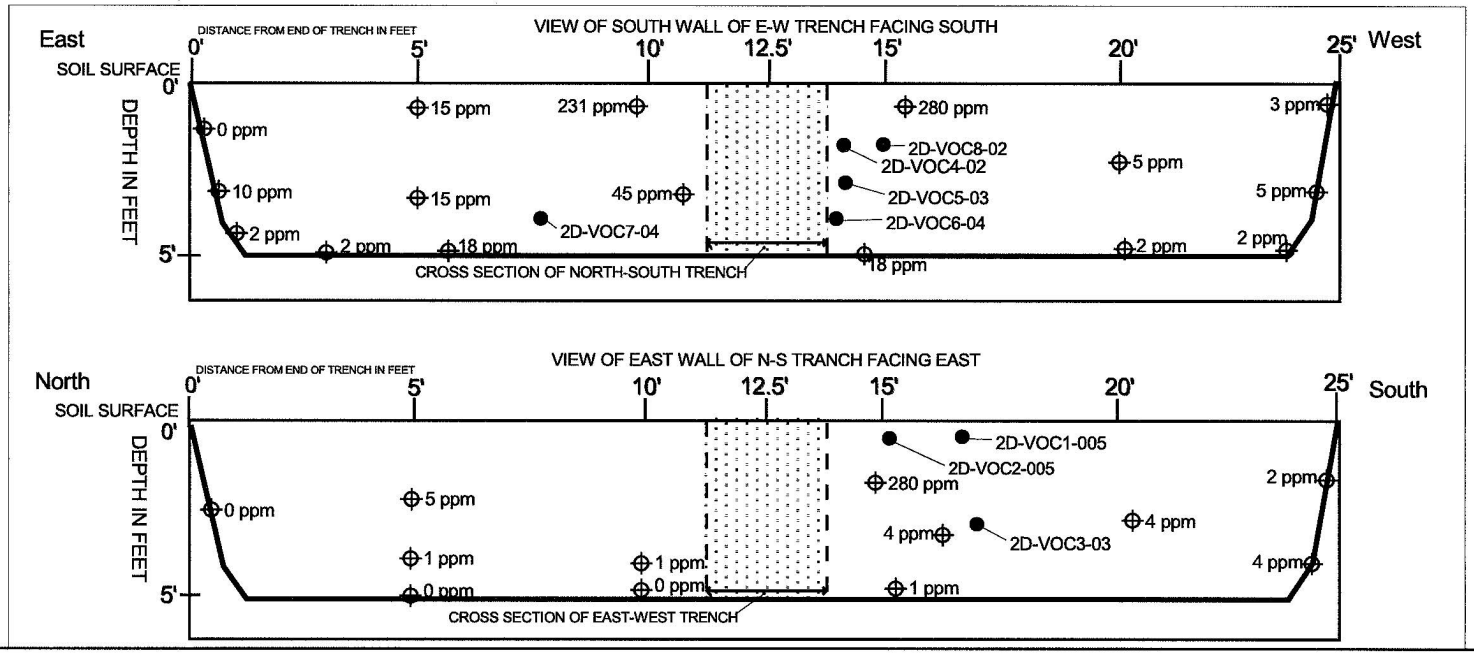
EPA. 1996. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)." Revision 3. Office of Solid Waste. December.

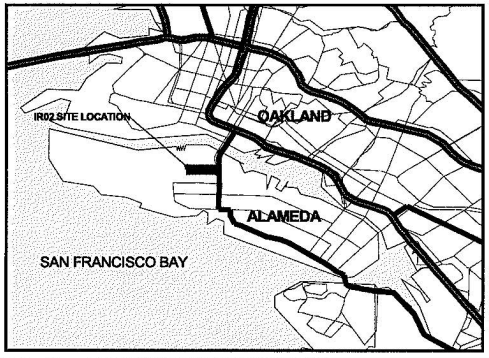
EPA. 2000. "Region 9 PRGs Table 2000 Update." November 3. Accessed on September 21, 2001. On-Line Address: http://www.epa.gov/region09/waste/sfund/prg/whatsnew.htm

10-31-2001 S:\Navy\FISCOANX\RD for IR02\Remedial Action Oversight\VOC issue\Figures TtEMI-ST mark.bourgeois









Legend

▬	Investigative trench
⊕15 ppm	Photoionization detector sample location and reading in parts per million organic vapor
●— TEXT	Soil sample location and sample number
2E	Grid Square Designation

Tetra Tech EM Inc.

ALAMEDA FACILITY / ALAMEDA ANNEX
ALAMEDA, CALIFORNIA

FIGURE 1

VOLATILE ORGANIC COMPOUNDS INVESTIGATION AT CELL D2

TABLE 1

ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS DETECTED IN TRENCH SOIL SAMPLES COLLECTED IN GRID 2D FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND, ALAMEDA FACILITY/ALAMEDA ANNEX, ALAMEDA, CALIFORNIA

Compound	Sample Number							
	2D-VOC1-005	2D-VOC2-005	2D-VOC3-03	2D-VOC4-02	2D-VOC5-03	2D-VOC6-04	2D-VOC7-04	2D-VOC8-02
Bromobenzene	1.0	0.53	0.0048 U	0.066	0.005 U	0.0051 U	0.0048 U	0.066
Chlorobenzene	1.3	0.31	0.0048 U	0.22	0.005 U	0.0051 U	0.0048 U	0.22
2-Chlorotoluene	0.32	0.20	0.0048 U	0.016	0.005 U	0.0051 U	0.0048 U	0.016
4-Chlorotoluene	0.38	0.25	0.0048 U	0.018	0.005 U	0.0051 U	0.0048 U	0.016
1,2-Dichlorobenzene	24.0	20.0	0.0048 U	4.6	0.005 U	0.055	0.0048 U	5.3
1,3-Dichlorobenzene	5.8	4.7	0.0048 U	0.33	0.005 U	0.0051 U	0.0048 U	0.34
1,4-Dichlorobenzene	18.0	14.0	0.0048 U	2.3	0.005 U	0.010	0.0048 U	2.5
Naphthalene	0.038	0.023 U	0.0048 U	0.23	0.005 U	0.0051 U	0.0048 U	0.20
Tetrachloroethene	0.027	0.023 U	0.0082	0.0096	0.0085	0.0051 U	0.0048 U	0.0012 U
1,2,3-Trichlorobenzene	0.025 U	0.023 U	0.0048 U	0.014	0.005 U	0.0051 U	0.0048 U	0.019
1,2,4-Trichlorobenzene	0.045	0.055	0.0048 U	0.042	0.005 U	0.0051 U	0.0048 U	0.055

Notes:

U = Not detected at the indicated reporting limit

All analytical results are presented in units of milligram per kilogram.

The locations of all soil samples are shown on Figure 1.

Draft analytical results are reported in full in Attachment A.

TABLE 2

SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED IN TRENCH SOIL SAMPLES COLLECTED IN GRID 2 AND COMPARISON WITH PRELIMINARY REMEDIATION GOALS FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND, ALAMEDA FACILITY/ALAMEDA ANNEX, ALAMEDA, CALIFORNIA

Compound	Frequency of Detection[a]	Maximum Detected Concentration (mg/kg)	Location of Maximum Detected Concentration[b]	EPA Region 9 Preliminary Remediation Goals[c] (mg/kg)	
				Residential	Industrial
Bromobenzene	4/8	1.0	2D-VOC1-005	28	92
Chlorobenzene	4/8	1.3	2D-VOC1-005	150	540
2-Chlorotoluene	4/8	0.32	2D-VOC1-005	160	570
4-Chlorotoluene	4/8	0.38	2D-VOC1-005	160[d]	570[d]
1,2-Dichlorobenzene	5/8	24.0	2D-VOC1-005	370	370
1,3-Dichlorobenzene	4/8	5.8	2D-VOC1-005	13	52
1,4-Dichlorobenzene	5/8	**18.0**	2D-VOC1-005	3.4	8.1
Naphthalene	3/8	0.23	2D-VOC4-02	56	190
Tetrachloroethene	5/8	0.027	2D-VOC1-005	5.7	19
1,2,3-Trichlorobenzene	2/8	0.019	2D-VOC8-02	650[e]	3,000[e]
1,2,4-Trichlorobenzene	4/8	0.055	2D-VOC2-005/ 2D-VOC8-02	650	3,000

Notes:

Concentration in bold exceeds U.S. Environmental Protection Agency (EPA) Region 9 preliminary remediation goal.

a Complete sample-specific analytical results for compounds detected in trench soil samples are presented in Table 1.

b The locations of the eight soil samples collected in two trenches at Grid 2D are shown on Figure 1.

c EPA. 2000. "Region 9 PRGs Table 2000 Update." November 3. Accessed on September 21, 2001. On-Line Address: http://www.epa.gov/region09/waste/sfund/prg/whatsnew.htm

d PRGs for 4-chlorotoluene are not available; the values presented are those for the related chemical 2-chlorotoluene.

e PRGs for 1,2,3-trichlorobenzene are not available; the values presented are those for the related chemical 1,2,4-trichlorobenzene.

APPENDIX

RESPONSE TO COMMENTS

Investigation of Volatile Organic Contamination in Grid Square D2
Removal of Contaminated Surface Soil at IR02

(One Sheet)

RESPONSE TO COMMENTS

Investigation of Volatile Organic Contamination in Grid Square D2
Removal of Contaminated Surface Soil at IR02

The following comments address the "Draft final Investigation of Volatile Organic Contamination in Grid Square D2 Removal of Contaminated Surface Soil at IR02" of November 1, 2001, as received from Mr. Henry Wong of California EPA, DTSC during a phone conversation between Mr. Lou Ocampo, P.E., of Naval Facilities Engineering Command, Southwest Division, and James P. Wright, P.E., of TtEMI, on November 15, 2001. Each item below is a comment expressed by Mr. Wong, followed by a description of how the comment was addressed.

1. **Comment:** **The cover page refers to grid 2, not grid D2.**

   Response: The cover page will be corrected to refer to grid D2.

2. **Comment:** **On page 4, in the second paragraph, it is not clear how the risk reported for 1,4-diclorobenzene was derived.**

   Response: Text will be added explaining that the cited risk estimate was calculated in the site-specific risk assessment in the remedial investigation.

3. **Comment:** **How will the final report be submitted?**

   Response: The final report will be submitted as an appendix to the closeout report.

ATTACHMENT

ANALYTICAL RESULTS

Investigation of Volatile Organic Contamination in Grid Square D2
Removal of Contaminated Surface Soil at IR02

(20 Sheets)

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 V
(510)486-0532 F

FACSIMILE TRANSMISSION
FACSIMILE TRANSMISSION
FACSIMILE TRANSMISSION

DATE: 9/14/01

PAGE 1 of 20

TO: Kevin Spala
Enviromental Chemical Corp.
Burlingame, CA

FAX #: (510) ~~286-0908~~ 749-9104

FROM: Patricia Flynn

SUBJECT: Analytical Results for Login 154113

... If you would like to receive your reports via email (PDF format), please contact your project manager for details.

Rush 8260

This facsimile contains CONFIDENTIAL INFORMATION which may be LEGALLY PRIVILEGED and which is intended only for the use of the addressee(s) named above. If you received this facsimile in error, please notify us immediately by telephone at (510) 486-0900. Thank you

Curtis and Tompkins
323 5th Street
Berkeley, CA 94710
(510) 486-0900, Fax (510) 486-0532

154113

CHAIN OF CUSTODY RECORD

COMPANY Environmental Chemical Corp.
ADDRESS 450 D. Ave.
Alameda, Ca 94501
PHONE 510 749 9101 FAX 510 749 9104
PROJECT NAME/LOCATION Alameda Annex - IR02
PROJECT NUMBER 5385-007 PROJECT MANAGER Kevin Spala

SAMPLED BY
Justin Tacl (PRINT NAME) (SIGNATURE)
(PRINT NAME) (SIGNATURE)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	EPA 8082 PCBs	EPA 6010B (Cd. only)	EPA 8310 PAHs	EPA 8260B VOCs		COMMENTS
9/12	3PM	2D-VOC1-005	X		1	Soil	N	X	X	X	X		MS/MSD Tube
		2D-VOC2-005			1								Tube
		2D-VOC3-03			1								Tube
		2D-VOC4-02			1								Tube
		2D-VOC5-03			1								Tube
		2D-VOC6-04			1								Tube
		2D-VOC7-04			1								Tube
		2D-VOC8-02			1								Tube
		RB-VOC1-00			3	Water	Y						vile, jar, & bottle

RESULTS TO: See above

INVOICE TO: See above

Relinquished by (signature)	DATE	TIME	Received by (signature)	DATE	TIME
[signature]	12/06/01	1700	[signature]	9/12/01	5:00
Relinquished by (signature)	DATE	TIME	Received by (signature)	DATE	TIME
[signature]	9/12/01	5:45	[signature]		
METHOD OF SHIPMENT	DATE	TIME	Received for Laboratory (signature)	DATE	TIME
[signature]			[signature]	9/12/01	545p

TURN AROUND TIME 5 DAYS

REMARKS 48 hours for VOCs

DRAFT

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Environmental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC1-005	Diln Fac:	5.000
Lab ID:	154113-001	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	Wet	Analyzed:	09/13/01

Analyte	Result	RL
Freon 12	ND	50
Chloromethane	ND	60
Vinyl Chloride	ND	50
Bromomethane	ND	50
Chloroethane	ND	50
Trichlorofluoromethane	ND	25
Acetone	ND	100
Freon 113	ND	25
1,1-Dichloroethene	ND	25
Methylene Chloride	ND	100
Carbon Disulfide	ND	25
MTBE	ND	25
trans-1,2-Dichloroethene	ND	25
Vinyl Acetate	ND	250
1,1-Dichloroethane	ND	25
2-Butanone	ND	50
cis-1,2-Dichloroethene	ND	25
2,2-Dichloropropane	ND	25
Chloroform	ND	25
Bromochloromethane	ND	25
1,1,1-Trichloroethane	ND	25
1,1-Dichloropropene	ND	25
Carbon Tetrachloride	ND	25
1,2-Dichloroethane	ND	25
Benzene	ND	25
Trichloroethene	ND	25
1,2-Dichloropropane	ND	25
Bromodichloromethane	ND	25
Dibromomethane	ND	25
4-Methyl-2-Pentanone	ND	50
cis-1,3-Dichloropropene	ND	25
Toluene	ND	25
trans-1,3-Dichloropropene	ND	25
1,1,2-Trichloroethane	ND	25
2-Hexanone	ND	50
1,3-Dichloropropane	27	25
Tetrachloroethene	ND	25
Dibromochloromethane	ND	25
1,2-Dibromoethane	1,300 >LR b	25
Chlorobenzene	ND	25
1,1,1,2-Tetrachloroethane	ND	25
Ethylbenzene	ND	25
m,p-Xylenes	ND	25
o-Xylene	ND	25
Styrene	ND	25
Bromoform	ND	25
Isopropylbenzene	ND	25
1,1,2,2-Tetrachloroethane	ND	25
1,2,3-Trichloropropane	ND	25
Propylbenzene	1,000 >LR b	25
Bromobenzene	ND	25
1,3,5-Trimethylbenzene	320	25
2-Chlorotoluene		

b= See narrative
ND= Not Detected
RL= Reporting Limit
>LR= Response exceeds instrument's linear range

DRAFT

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC1-005	Diln Fac:	5.000
Lab ID:	154113-001	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Results		RL
4-Chlorotoluene	380		25
tert-Butylbenzene	ND		25
1,2,4-Trimethylbenzene	ND		25
sec-Butylbenzene	ND		25
para-Isopropyl Toluene	ND		25
1,3-Dichlorobenzene	5,800	>LR b	25
1,4-Dichlorobenzene	18,000	>LR b	25
n-Butylbenzene	ND		25
1,2-Dichlorobenzene	24,000	>LR b	25
1,2-Dibromo-3-Chloropropane	ND		25
1,2,4-Trichlorobenzene	45		25
Hexachlorobutadiene	ND		25
Naphthalene	38		25
1,2,3-Trichlorobenzene	ND		25

Surrogate	%Rec	Limits
Dibromofluoromethane	105	63-133
1,2-Dichloroethane-d4	113	76-127
Toluene-d8	99	80-111
Bromofluorobenzene	123	77-126

b= See narrative
ND= Not Detected
RL= Reporting Limit
>LR= Response exceeds instrument's linear range

DRAFT Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

b #:	154113	Location:	Alameda Annex IR02
lient:	Enviromental Chemical Corp.	Prep:	EPA 5030B
roject#:	5385-007	Analysis:	EPA 8260B
ield ID:	2D-VOC2-005	Dilu Fac:	4.545
ab ID:	154113-002	Batch#:	66387
atrix:	Soil	Sampled:	09/12/01
nits:	ug/Kg	Received:	09/12/01
asis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
reon 12	ND	45
hloromethane	ND	45
inyl Chloride	ND	45
romomethane	ND	45
hloroethane	ND	45
richlorofluoromethane	ND	23
cetone	ND	91
reon 113	ND	23
1,1-Dichloroethene	ND	23
ethylene Chloride	ND	91
arbon Disulfide	ND	23
TBE	ND	23
rans-1,2-Dichloroethene	ND	23
inyl Acetate	ND	230
1,1-Dichloroethane	ND	23
2-Butanone	ND	45
cis-1,2-Dichloroethene	ND	23
2,2-Dichloropropane	ND	23
hloroform	ND	23
B chloromethane	ND	23
1, -Trichloroethane	ND	23
1,1-Dichloropropene	ND	23
arbon Tetrachloride	ND	23
1,2-Dichloroethane	ND	23
enzene	ND	23
richloroethene	ND	23
1,2-Dichloropropane	ND	23
romodichloromethane	ND	23
ibromomethane	ND	45
4-Methyl-2-Pentanone	ND	23
cis-1,3-Dichloropropene	ND	23
oluene	ND	23
trans-1,3-Dichloropropene	ND	23
1,1,2-Trichloroethane	ND	46
2-Hexanone	ND	23
1,3-Dichloropropane	ND	23
etrachloroethene	ND	23
ibromochloromethane	ND	23
1,2-Dibromoethane	310	23
hlorobenzene	ND	23
1,1,1,2-Tetrachloroethane	ND	23
thylbenzene	ND	23
m,p-Xylenes	ND	23
o-Xylene	ND	23
tyrene	ND	23
romoform	ND	23
sopropylbenzene	ND	23
1,1,2,2-Tetrachloroethane	ND	23
1,2,3-Trichloropropane	ND	23
ropylbenzene	530	23
romobenzene	ND	23
1,3,5-Trimethylbenzene	200	23
2-Chlorotoluene		

b= See narrative
= Not Detected
: Reporting Limit
e Response exceeds instrument's linear range

DRAFT

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC2-005	Diln Fac:	4.545
Lab ID:	154113-002	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
4-Chlorotoluene	250	23
tert-Butylbenzene	ND	23
1,2,4-Trimethylbenzene	ND	23
sec-Butylbenzene	ND	23
para-Isopropyl Toluene	ND	23
1,3-Dichlorobenzene	4,700 >LR b	23
1,4-Dichlorobenzene	14,000 >LR b	23
n-Butylbenzene	ND	23
1,2-Dichlorobenzene	20,000 >LR b	23
1,2-Dibromo-3-Chloropropane	ND	23
1,2,4-Trichlorobenzene	55	23
Hexachlorobutadiene	ND	23
Naphthalene	ND	23
1,2,3-Trichlorobenzene	ND	23

Surrogate	%Rec	Limits
Dibromofluoromethane	104	63-133
1,2-Dichloroethane-d4	112	76-127
Toluene-d8	98	80-111
Bromofluorobenzene	119	77-126

b= See narrative
ND= Not Detected
RL= Reporting Limit
>LR= Response exceeds instrument's linear range

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

ab #:	154113	Location:	Alameda Annex IR02
lient:	Environmental Chemical Corp.	Prep:	EPA 5030B
roject#:	5385-007	Analysis:	EPA 8260B
ield ID:	2D-VOC3-03	Diln Fac:	0.9615
ab ID:	154113-003	Batch#:	66387
atrix:	Soil	Sampled:	09/12/01
nits:	ug/Kg	Received:	09/12/01
asis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
reon 12	ND	9.6
hloromethane	ND	9.6
inyl Chloride	ND	9.6
romomethane	ND	9.6
hloroethane	ND	9.6
richlorofluoromethane	ND	4.8
cetone	ND	19
reon 113	ND	4.8
1,1-Dichloroethene	ND	4.8
ethylene Chloride	ND	19
arbon Disulfide	ND	4.8
MT	ND	4.8
r -1,2-Dichloroethene	ND	4.8
inyl Acetate	ND	48
1,1-Dichloroethane	ND	4.8
2-Butanone	ND	9.6
cis-1,2-Dichloroethene	ND	4.8
2,2-Dichloropropane	ND	4.8
Chloroform	ND	4.8
Bromochloromethane	ND	4.8
1,1,1-Trichloroethane	ND	4.8
1,1-Dichloropropene	ND	4.8
Carbon Tetrachloride	ND	4.8
1,2-Dichloroethane	ND	4.8
Benzene	ND	4.8
Trichloroethene	ND	4.8
1,2-Dichloropropane	ND	4.8
Bromodichloromethane	ND	4.8
Dibromomethane	ND	9.6
4-Methyl-2-Pentanone	ND	4.8
cis-1,3-Dichloropropene	ND	4.8
Toluene	ND	4.8
trans-1,3-Dichloropropene	ND	4.8
1,1,2-Trichloroethane	ND	9.6
2-Hexanone	ND	4.8
1,3-Dichloropropane	8.2	4.8
Tetrachloroethene		

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC3-03	Diln Fac:	0.9615
Lab ID:	154113-003	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
Dibromochloromethane	ND	4.8
1,2-Dibromoethane	ND	4.8
Chlorobenzene	ND	4.8
1,1,1,2-Tetrachloroethane	ND	4.8
Ethylbenzene	ND	4.8
m,p-Xylenes	ND	4.8
o-Xylene	ND	4.8
Styrene	ND	4.8
Bromoform	ND	4.8
Isopropylbenzene	ND	4.8
1,1,2,2-Tetrachloroethane	ND	4.8
1,2,3-Trichloropropane	ND	4.8
Propylbenzene	ND	4.8
Bromobenzene	ND	4.8
1,3,5-Trimethylbenzene	ND	4.8
2-Chlorotoluene	ND	4.8
4-Chlorotoluene	ND	4.8
tert-Butylbenzene	ND	4.8
1,2,4-Trimethylbenzene	ND	4.8
sec-Butylbenzene	ND	4.8
para-Isopropyl Toluene	ND	4.8
1,3-Dichlorobenzene	ND	4.8
1,4-Dichlorobenzene	ND	4.8
n-Butylbenzene	ND	4.8
1,2-Dichlorobenzene	ND	4.8
1,2-Dibromo-3-Chloropropane	ND	4.8
1,2,4-Trichlorobenzene	ND	4.8
Hexachlorobutadiene	ND	4.8
Naphthalene	ND	4.8
1,2,3-Trichlorobenzene	ND	4.8

Surrogate	%REC	Limits
Dibromofluoromethane	106	63-133
1,2-Dichloroethane-d4	113	76-127
Toluene-d8	99	80-111
Bromofluorobenzene	98	77-126

ND= Not Detected
RL= Reporting Limit
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DRAFT

Curtis & Tompkins, Ltd

Volatile Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Environmental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC4-02	Diln Fac:	1.923
Lab ID:	154113-004	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result		RL
Freon 12	ND		19
Chloromethane	ND		19
Vinyl Chloride	ND		19
Bromomethane	ND		19
Chloroethane	ND		19
Trichlorofluoromethane	ND		9.6
Acetone	ND		38
Freon 113	ND		9.6
1,1-Dichloroethene	ND		9.6
Methylene Chloride	ND		38
Carbon Disulfide	ND		9.6
MTBE	ND		9.6
trans-1,2-Dichloroethene	ND		9.6
Vinyl Acetate	ND		96
1,1-Dichloroethane	ND		9.6
2-Butanone	ND		19
cis-1,2-Dichloroethene	ND		9.6
2,2-Dichloropropane	ND		9.6
Chloroform	ND		9.6
Bromochloromethane	ND		9.6
1,1,1-Trichloroethane	ND		9.6
1,1-Dichloropropene	ND		9.6
Carbon Tetrachloride	ND		9.6
1,2-Dichloroethane	ND		9.6
Benzene	ND		9.6
Trichloroethene	ND		9.6
1,2-Dichloropropane	ND		9.6
Bromodichloromethane	ND		9.6
Dibromomethane	ND		9.6
4-Methyl-2-Pentanone	ND		19
cis-1,3-Dichloropropene	ND		9.6
Toluene	ND		9.6
trans-1,3-Dichloropropene	ND		9.6
1,1,2-Trichloroethane	ND		9.6
2-Hexanone	ND		19
1,3-Dichloropropane	ND		9.6
Tetrachloroethene	ND		9.6
Dibromochloromethane	ND		9.6
1,2-Dibromoethane	ND		9.6
Chlorobenzene		220	9.6
1,1,1,2-Tetrachloroethane	ND		9.6
Ethylbenzene	ND		9.6
m,p-Xylenes	ND		9.6
o-Xylene	ND		9.6
Styrene	ND		9.6
Bromoform	ND		9.6
Isopropylbenzene	ND		9.6
1,1,2,2-Tetrachloroethane	ND		9.6
1,2,3-Trichloropropane	ND		9.6
Propylbenzene		66	9.6
Bromobenzene	ND		9.6
1,3,5-Trimethylbenzene		16	9.6
2-Chlorotoluene			

b= See narrative
ND Not Detected
RL Reporting Limit
DL= Response exceeds instrument's linear range

DRAFT

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Environmental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC4-02	Diln Fac:	1.923
Lab ID:	154113-004	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result		RL
4-Chlorotoluene	18		9.6
tert-Butylbenzene	ND		9.6
1,2,4-Trimethylbenzene	ND		9.6
sec-Butylbenzene	ND		9.6
para-Isopropyl Toluene	330		9.6
1,3-Dichlorobenzene	2,300	>LR b	9.6
1,4-Dichlorobenzene	ND		9.6
n-Butylbenzene	4,600	>LR b	9.6
1,2-Dichlorobenzene	ND		9.6
1,2-Dibromo-3-Chloropropane	42		9.6
1,2,4-Trichlorobenzene	ND		9.6
Hexachlorobutadiene	230		9.6
Naphthalene	14		9.6
1,2,3-Trichlorobenzene			

Surrogate	%REC	Limits
Dibromofluoromethane	105	63-133
1,2-Dichloroethane-d4	109	76-127
Toluene-d8	97	80-111
Bromofluorobenzene	95	77-126

b= See narrative
ND= Not Detected
RL= Reporting Limit
>LR= Response exceeds instrument's linear range

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOCS-03	Diln Fac:	1.000
Lab ID:	154113-005	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Compound	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
M	ND	5.0
t- ns-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	8.5	5.0

ND Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

b #:	154113	Location:	Alameda Annex IR02
ient:	Enviromental Chemical Corp.	Prep:	EPA 5030B
oject#:	5385-007	Analysis:	EPA 8260B
eld ID:	2D-VOCS-03	Diln Fac:	1.000
b ID:	154113-005	Batch#:	66387
trix:	Soil	Sampled:	09/12/01
its:	ug/Kg	Received:	09/12/01
sis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
ibromochloromethane	ND	5.0
,2-Dibromoethane	ND	5.0
hlorobenzene	ND	5.0
,1,1,2-Tetrachloroethane	ND	5.0
thylbenzene	ND	5.0
,p-Xylenes	ND	5.0
-Xylene	ND	5.0
tyrene	ND	5.0
romoform	ND	5.0
eopropylbenzene	ND	5.0
,1,2,2-Tetrachloroethane	ND	5.0
,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	103	63-133
1,2-Dichloroethane-d4	113	76-127
Toluene-d8	99	80-111
Bromofluorobenzene	99	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC6-04	Diln Fac:	1.020
Lab ID:	154113-006	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.1
Acetone	ND	20
Freon 113	ND	5.1
1,1-Dichloroethene	ND	5.1
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.1
MTBE	ND	5.1
t[illegible]-1,2-Dichloroethene	ND	5.1
Vinyl Acetate	ND	51
1,1-Dichloroethane	ND	5.1
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.1
2,2-Dichloropropane	ND	5.1
Chloroform	ND	5.1
Bromochloromethane	ND	5.1
1,1,1-Trichloroethane	ND	5.1
1,1-Dichloropropene	ND	5.1
Carbon Tetrachloride	ND	5.1
1,2-Dichloroethane	ND	5.1
Benzene	ND	5.1
Trichloroethene	ND	5.1
1,2-Dichloropropane	ND	5.1
Bromodichloromethane	ND	5.1
Dibromomethane	ND	5.1
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.1
Toluene	ND	5.1
trans-1,3-Dichloropropene	ND	5.1
1,1,2-Trichloroethane	ND	5.1
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.1
Tetrachloroethene	ND	5.1

ND= Not Detected
RL= Reporting Limit
Page 1 of 2

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC6-04	Diln Fac:	1.020
Lab ID:	154113-006	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result		RL
Dibromochloromethane	ND		5.1
1,2-Dibromoethane	ND		5.1
Chlorobenzene	ND		5.1
1,1,1,2-Tetrachloroethane	ND		5.1
Ethylbenzene	ND		5.1
m,p-Xylenes	ND		5.1
o-Xylene	ND		5.1
Styrene	ND		5.1
Bromoform	ND		5.1
Isopropylbenzene	ND		5.1
1,1,2,2-Tetrachloroethane	ND		5.1
1,2,3-Trichloropropane	ND		5.1
Propylbenzene	ND		5.1
Bromobenzene	ND		5.1
1,3,5-Trimethylbenzene	ND		5.1
2-Chlorotoluene	ND		5.1
4-Chlorotoluene	ND		5.1
tert-Butylbenzene	ND		5.1
1,2,4-Trimethylbenzene	ND		5.1
sec-Butylbenzene	ND		5.1
para-Isopropyl Toluene	ND		5.1
1,3-Dichlorobenzene		10	5.1
1,4-Dichlorobenzene	ND		5.1
n-Butylbenzene		55	5.1
1,2-Dichlorobenzene	ND		5.1
1,2-Dibromo-3-Chloropropane	ND		5.1
1,2,4-Trichlorobenzene	ND		5.1
Hexachlorobutadiene	ND		5.1
Naphthalene	ND		5.1
1,2,3-Trichlorobenzene	ND		5.1

Surrogate	%REC	Limits
Dibromofluoromethane	105	63-133
1,2-Dichloroethane-d4	115	76-127
Toluene-d8	99	80-111
Bromofluorobenzene	99	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

b #:	154113	Location:	Alameda Annex IR02
ient:	Enviromental Chemical Corp.	Prep:	EPA 5030B
oject#:	5385-007	Analysis:	EPA 8260B
eld ID:	2D-VOC7-04	Diln Fac:	0.9615
b ID:	154113-007	Batch#:	66387
trix:	Soil	Sampled:	09/12/01
its:	ug/Kg	Received:	09/12/01
sis:	wet	Analyzed:	09/13/01

Analyte	Results	RL
reon 12	ND	9.6
hloromethane	ND	9.6
inyl Chloride	ND	9.6
romomethane	ND	9.6
hloroethane	ND	9.6
richlorofluoromethane	ND	4.8
cetone	ND	19
reon 113	ND	4.8
1,1-Dichloroethene	ND	4.8
ethylene Chloride	ND	19
Ca n Disulfide	ND	4.8
MTE	ND	4.8
trans-1,2-Dichloroethene	ND	4.8
Vinyl Acetate	ND	48
1,1-Dichloroethane	ND	4.8
2-Butanone	ND	9.6
cis-1,2-Dichloroethene	ND	4.8
2,2-Dichloropropane	ND	4.8
Chloroform	ND	4.8
Bromochloromethane	ND	4.8
1,1,1-Trichloroethane	ND	4.8
1,1-Dichloropropene	ND	4.8
Carbon Tetrachloride	ND	4.8
1,2-Dichloroethane	ND	4.8
Benzene	ND	4.8
Trichloroethene	ND	4.8
1,2-Dichloropropane	ND	4.8
Bromodichloromethane	ND	4.8
Dibromomethane	ND	4.8
4-Methyl-2-Pentanone	ND	9.6
cis-1,3-Dichloropropene	ND	4.8
Toluene	ND	4.8
trans-1,3-Dichloropropene	ND	4.8
1,1,2-Trichloroethane	ND	4.8
2-Hexanone	ND	9.6
1,3-Dichloropropane	ND	4.8
Tetrachloroethene	ND	4.8

N Not Detected
RL Reporting Limit

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

b #:	154113	Location:	Alameda Annex IR02
ient:	Enviromental Chemical Corp.	Prep:	EPA 5030B
roject#:	5385-007	Analysis:	EPA 8260B
eld ID:	2D-VOC7-04	Dilu Fac:	0.9615
ab ID:	154113-007	Batch#:	66387
atrix:	Soil	Sampled:	09/12/01
nits:	ug/Kg	Received:	09/12/01
asis:	Wet	Analyzed:	09/13/01

Analyte	Result	RL
ibromochloromethane	ND	4.8
.2-Dibromoethane	ND	4.8
hlorobenzene	ND	4.8
.1,1,2-Tetrachloroethane	ND	4.8
thylbenzene	ND	4.8
.p-Xylenes	ND	4.8
-Xylene	ND	4.8
tyrene	ND	4.8
romoform	ND	4.8
Isopropylbenzene	ND	4.8
1,1,2,2-Tetrachloroethane	ND	4.8
1,2,3-Trichloropropane	ND	4.8
Propylbenzene	ND	4.8
Bromobenzene	ND	4.8
1,3,5-Trimethylbenzene	ND	4.8
2-Chlorotoluene	ND	4.8
4-Chlorotoluene	ND	4.8
tert-Butylbenzene	ND	4.8
1,2,4-Trimethylbenzene	ND	4.8
sec-Butylbenzene	ND	4.8
para-Isopropyl Toluene	ND	4.8
1,3-Dichlorobenzene	ND	4.8
1,4-Dichlorobenzene	ND	4.8
n-Butylbenzene	ND	4.8
1,2-Dichlorobenzene	ND	4.8
1,2-Dibromo-3-Chloropropane	ND	4.8
1,2,4-Trichlorobenzene	ND	4.8
Hexachlorobutadiene	ND	4.8
Naphthalene	ND	4.8
1,2,3-Trichlorobenzene	ND	4.8

Surrogate	%REC	Limits
Dibromofluoromethane	104	63-133
1,2-Dichloroethane-d4	116	76-127
Toluene-d8	100	80-111
Bromofluorobenzene	99	77-126

ND= Not Detected
RL= Reporting Limit

DRAFT

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Environmental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC8-02	Diln Fac:	2.381
Lab ID:	154113-008	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Basis:	wet	Analyzed:	09/13/01

Analyte	Result	RL
Freon 12	ND	24
Chloromethane	ND	24
Vinyl Chloride	ND	24
Bromomethane	ND	24
Chloroethane	ND	24
Trichlorofluoromethane	ND	12
Acetone	ND	48
Freon 113	ND	12
1,1-Dichloroethene	ND	12
Methylene Chloride	ND	48
Carbon Disulfide	ND	12
MTBE	ND	12
trans-1,2-Dichloroethene	ND	12
Vinyl Acetate	ND	120
1,1-Dichloroethane	ND	12
2-Butanone	ND	24
cis-1,2-Dichloroethene	ND	12
2,2-Dichloropropane	ND	12
Chloroform	ND	12
Bromochloromethane	ND	12
1,1,1-Trichloroethane	ND	12
1,1-Dichloropropene	ND	12
Carbon Tetrachloride	ND	12
1,2-Dichloroethane	ND	12
Benzene	ND	12
Trichloroethene	ND	12
1,2-Dichloropropane	ND	12
Bromodichloromethane	ND	12
Dibromomethane	ND	12
4-Methyl-2-Pentanone	ND	24
cis-1,3-Dichloropropene	ND	12
Toluene	ND	12
trans-1,3-Dichloropropene	ND	12
1,1,2-Trichloroethane	ND	12
2-Hexanone	ND	24
1,3-Dichloropropane	ND	12
Tetrachloroethene	ND	12
Dibromochloromethane	ND	12
1,2-Dibromoethane	ND	12
Chlorobenzene	220	12
1,1,1,2-Tetrachloroethane	ND	12
Ethylbenzene	ND	12
m,p-Xylenes	ND	12
o-Xylene	ND	12
Styrene	ND	12
Bromoform	ND	12
Isopropylbenzene	ND	12
1,1,2,2-Tetrachloroethane	ND	12
1,2,3-Trichloropropane	ND	12
Propylbenzene	66	12
Bromobenzene	ND	12
1,3,5-Trimethylbenzene	16	12
2-Chlorotoluene		

DB = See narrative
ND = Not Detected
RL = Reporting Limit
>URL = Response exceeds instrument's linear range

DRAFT

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Environmental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	2D-VOC8-02	Diln Fac:	2.381
Lab ID:	154113-008	Batch#:	66387
Matrix:	Soil	Sampled:	09/12/01
Units:	ug/Kg	Received:	09/12/01
Lands:	wer	Analyzed:	09/13/01

Analyte	Result		RL
4-Chlorotoluene	16		12
tert-Butylbenzene	ND		12
1,2,4-Trimethylbenzene	ND		12
sec-Butylbenzene	ND		12
para-Isopropyl Toluene	340		12
1,3-Dichlorobenzene	2,500	>LR b	12
1,4-Dichlorobenzene	ND		12
n-Butylbenzene	5,300	>LR b	12
1,2-Dichlorobenzene	ND		12
1,2-Dibromo-3-Chloropropane	55		12
1,2,4-Trichlorobenzene	ND		12
Hexachlorobutadiene	200		12
Naphthalene	19		12
1,2,3-Trichlorobenzene			

Surrogate	%Rec	Limits
Dibromofluoromethane	105	63-133
1,2-Dichloroethane-d4	114	76-127
Toluene-d8	100	80-111
Bromofluorobenzene	95	77-126

b= See narrative
ND= Not Detected
RL= Reporting Limit
>LR= Response exceeds instrument's linear range

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	RB-VOC1-00	Batch#:	66386
Lab ID:	154113-009	Sampled:	09/12/01
Matrix:	Water	Received:	09/12/01
Units:	ug/L	Analyzed:	09/13/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
M[illegible]	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND = Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd

Purgeable Organics by GC/MS

Lab #:	154113	Location:	Alameda Annex IR02
Client:	Enviromental Chemical Corp.	Prep:	EPA 5030B
Project#:	5385-007	Analysis:	EPA 8260B
Field ID:	RB-VOC1-00	Batch#:	66386
Lab ID:	154113-009	Sampled:	09/12/01
Matrix:	Water	Received:	09/12/01
Units:	ug/L	Analyzed:	09/13/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-122
1,2-Dichloroethane-d4	110	78-123
Toluene-d8	96	80-110
Bromofluorobenzene	105	80-115

ND= Not Detected
RL= Reporting Limit

APPENDIX E

RADIUM DIAL LETTER
(One Page)

TECHNICAL MEMORANDUM
RADIATION SCREENING OF SUSPECTED RADIUM DIALS
IR 02 ALAMEDA ANNEX

To: Shirley Ng, Project Engineer, ROICC

From: Emir Utush, ECC QC / SSHO

Date: 05 September 2001

Environmental Chemical Corporation (ECC) informed the Navy the week of 23 August 2001 that debris fragments of instrument dials were uncovered in the area of Grid 2D in the residential sector of IR 02. ECC suspected that these fragments may be from radioactive radium dials. As a precaution, ECC obtained a gamma scintillation detector – (Ludlum Model 19 micro-Roentgen (uR/hr) meter with a cesium-137 check source) to measure any potential radiation from these fragments. The results were negative: no radiation above background was detected. The waste soil generated in the excavation of Grid 2D and the adjacent area Grid 2 D-S was also screened in 1-foot layers within the stockpile management area. ECC again found no radiation beyond background at approximately 8 uR/hr.

After review of these results and discussion with Tetra Tech about the likely appearance of radioactive radium dials, ECC concluded that it did not have onsite contamination from radium dials.

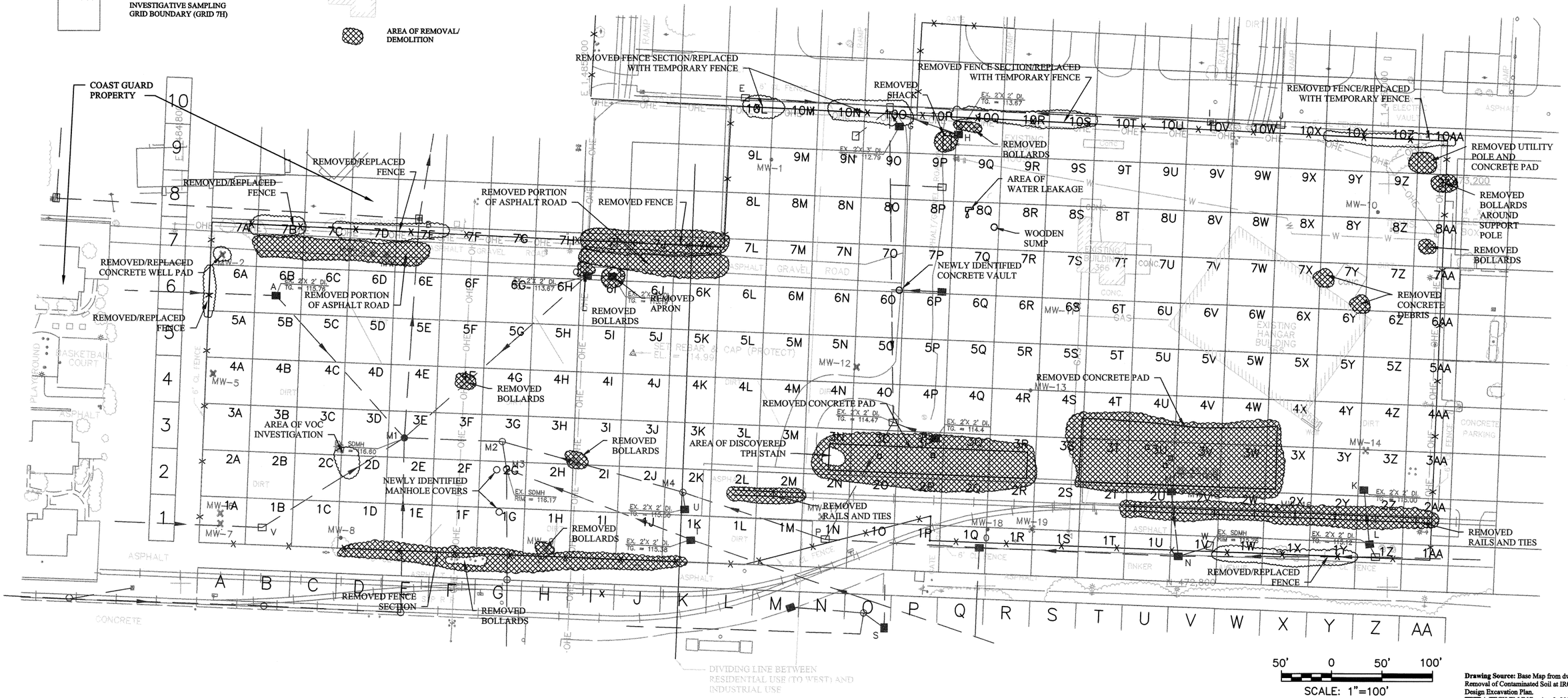
Cc: Lou Ocampo, Navy RPM
Henry Wong, DTSC
Kevin Spala, ECC PM

APPENDIX F

AS-BUILT DRAWINGS
(Four Pages)

LEGEND

- ASSUMED STORM DRAIN LINE AND FLOW DIRECTION (TG=114.4FT)
- EX. 2'X 2' DI. TG= 114.47 — OBSERVED CATCH BASIN AND ELEVATION
- RAILROAD TRACKS
- CHAIN LINK FENCE
- MW-9 — MONITORING WELLS
- EXISTING BOLLARDS AROUND POLE
- EXISTING WATER VALVE
- 7H — INVESTIGATIVE SAMPLING GRID BOUNDARY (GRID 7H)
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STEEL BOLLARD POST
- EXISTING JOINT POLE & LITE
- EXISTING POWER POLE OR JOINT POLE
- NOTED WATER LEAK/REPORTED TO CITY OF ALAMEDA
- NEWLY IDENTIFIED MANHOLE COVER/OR VAULT
- VAULT/SUMP STRUCTURES UNCOVERED UNDER REMOVED CONCRETE PADS.
- EXISTING BUILDINGS
- AREA OF REMOVAL/ DEMOLITION



50' 0 50' 100'

SCALE: 1"=100'

Drawing Source: Base Map from dwg C2, Removal of Contaminated Soil at IR02/Final Design Excavation Plan. TETRA TECH EM INC. ; Apr 3, 2001

ECC

ENVIRONMENTAL CHEMICAL CORPORATION
1240 BAYSHORE HIGHWAY
BURLINGAME, CA 94010

DRAWN BY: JOHN SZALUS	**C-2, AS-BUILT DRAWING (STRUCTURES REMOVED/REPLACED)**
APPROVED BY: EMIR UTUSH	EXCAVATION OF PCB AND CADMIUM CONTAMINATED SOIL INSTALLATION RESTORATION SITE 02 FISCO ALAMEDA FACILITY, ALAMEDA ANNEX, ALAMEDA, CALIFORNIA
DATE: 07-DEC-01	PROJECT CODE: 5385-007 — CONTRACT CODE: N62474-97-D-1512, D.O. 007
SIZE: D	SCALE: 1" - 50' — FILENAME: IR02_C2site plan_as_built .dwg — SHEET: 1 OF 4 — REV: -

LEGEND

- 6 INCH CUT & FILL
- 12 INCH CUT & FILL
- 18 INCH CUT & FILL
- 24 INCH CUT & FILL
- 115.4 × FINAL CUT ELEVATION
- [C 0.52] FINAL CUT DEPTH FROM ORIGINAL GRADE ELEVATION
- 7H INVESTIGATIVE SAMPLING GRID BOUNDARY (GRID 7H)
- EXISTING BUILDINGS

NOTES

1. ALL CUTS MEASURED FROM ORIGINAL GRADE.
2. ALL CUTS FILLED AND COMPACTED TO ORIGINAL GRADE.

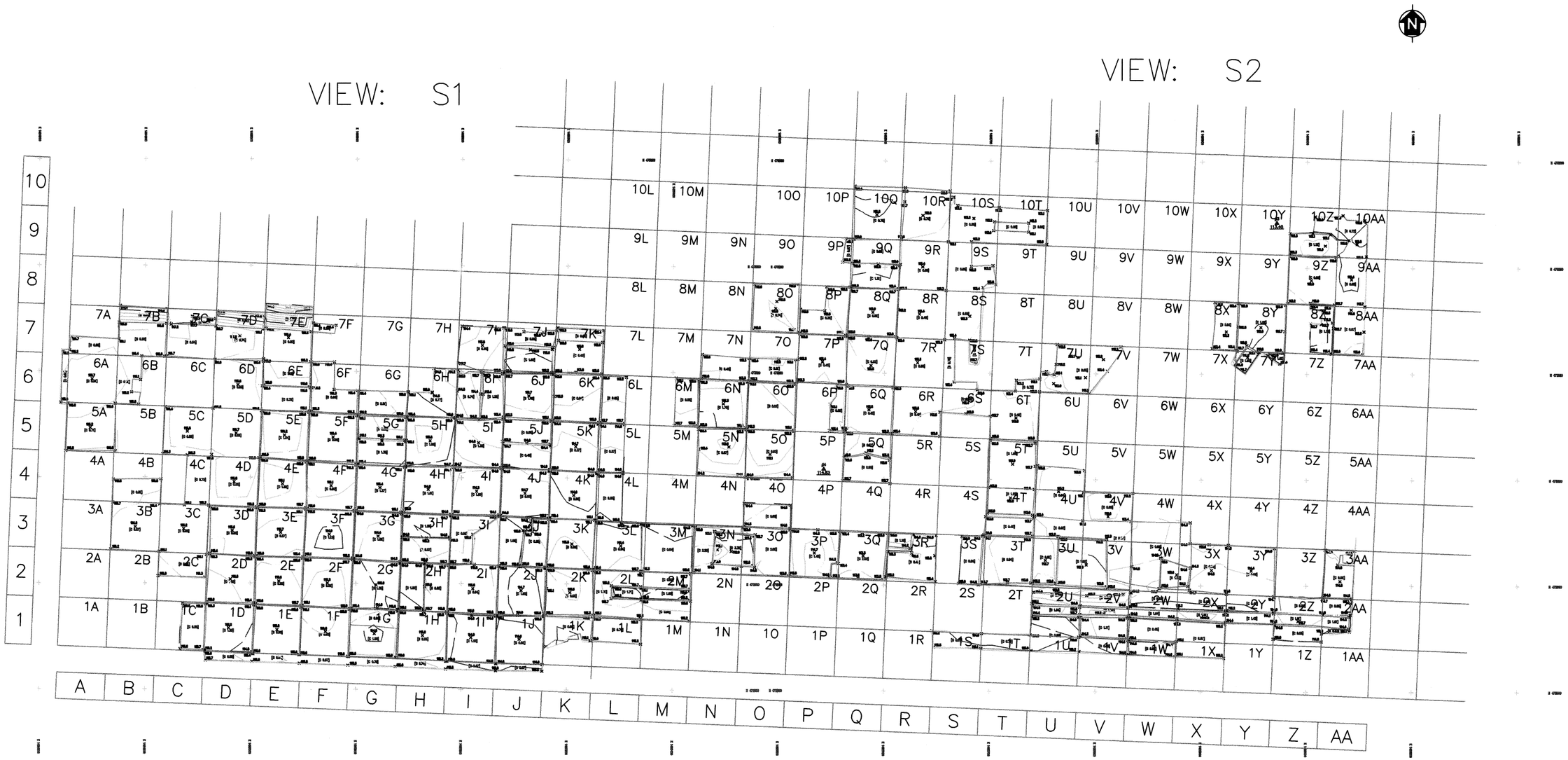
50' 0 50' 100'

SCALE: 1"=100'

Drawing Source: Base Map from dwg C2, Removal of Contaminated Soil at IR02/Final Design Excavation Plan. TETRA TECH EM INC. ; Apr 3, 2001

ENVIRONMENTAL CHEMICAL CORPORATION
1240 BAYSHORE HIGHWAY
BURLINGAME, CA 94010

DRAWN BY: JOHN SZALUS	C-2, AS-BUILT DRAWING (EXCAVATION MAP)
APPROVED BY: EMIR UTUSH	EXCAVATION OF PCB AND CADMIUM CONTAMINATED SOIL INSTALLATION RESTORATION SITE 02 FISCO ALAMEDA FACILITY, ALAMEDA ANNEX, ALAMEDA, CALIFORNIA
DATE: 07-DEC-01	PROJECT CODE: 5385-007 — CONTRACT CODE: N62474-97-D-1512, D.O. 007
SIZE: D	SCALE: 1" - 50' — FILENAME: IR02_C2site plan_as_ built .dwg — SHEET: 2 OF 4 — REV: -



LEGEND

114.4 FINAL CUT ELEVATION

[C 0.52] FINAL CUT DEPTH FROM ORIGINAL GRADE ELEVATION

BASIS OF COORDINATES AND ELEVATION:

NAD 1927 HORIZONTAL FEET COORDINATES, CCS ZONE 3, ESTABLISHED BY CONVENTIONAL TOTAL-STATION SURVEY METHODS FROM SITE CONTROL POINT #4 TO #3 BEING N 61°26'24" E (487.49'), COORDINATES PROVIDED IN CAD FORMAT BY ECC.

ELEVATIONS BASED ON ALAMEDA POINT (FORMER NAS ALAMEDA) VERTICAL FEET DATUM, ESTABLISHED BY CONVENTIONAL TOTAL-STATION SURVEY METHODS FROM SITE CONTROL POINTS #4 & #3.

CTL PT	NORTH	EAST	ELEV
#4	473009.40	1485542.80	114.83
#3	473242.46	1485970.97	113.45

NOTES:

CONTOUR INTERVAL: 0.5 FOOT

EXCAVATION QUANTITY: 8340 CY

PRISMOIDAL METHOD

ORIGINAL SURFACE	OG
FINAL SURFACE	EX-MAIN
CUT COMPACTION FACTOR	0.00 %
RAW CUT VOLUME	7978.88 CY

EXCAVATED MATERIAL CALCULATED BY PRISMOIDAL METHOD, FROM ORIGINAL GROUND SURFACE DEVELOPED FROM GRID CORNER AND SAMPLE POINT LAYOUT DATA, COMPARED TO EXCAVATED SITE SURVEY SURFACE SURVEYED ON OCTOBER 10-22, 2001.

AVERAGE CELL EXCAVATION DEPTH INDICATED IN BRACKETS, EXAMPLE: [C 1.22].

SHEET LAYOUT
#1

50' 0 50' 100'
SCALE: 1"=100'

Drawing Source: Base Map from dwg C2, Removal of Contaminated Soil at IR02/Final Design Excavation Plan.
TETRA TECH EM INC. ; Apr 3, 2001

Control data provided by HUNTER SURVEYING. ; Nov 2001.

ECC

ENVIRONMENTAL CHEMICAL CORPORATION
1240 BAYSHORE HIGHWAY
BURLINGAME, CA 94010

DRAWN BY: JOHN SZALUS

APPROVED BY: EMIR UTUSH

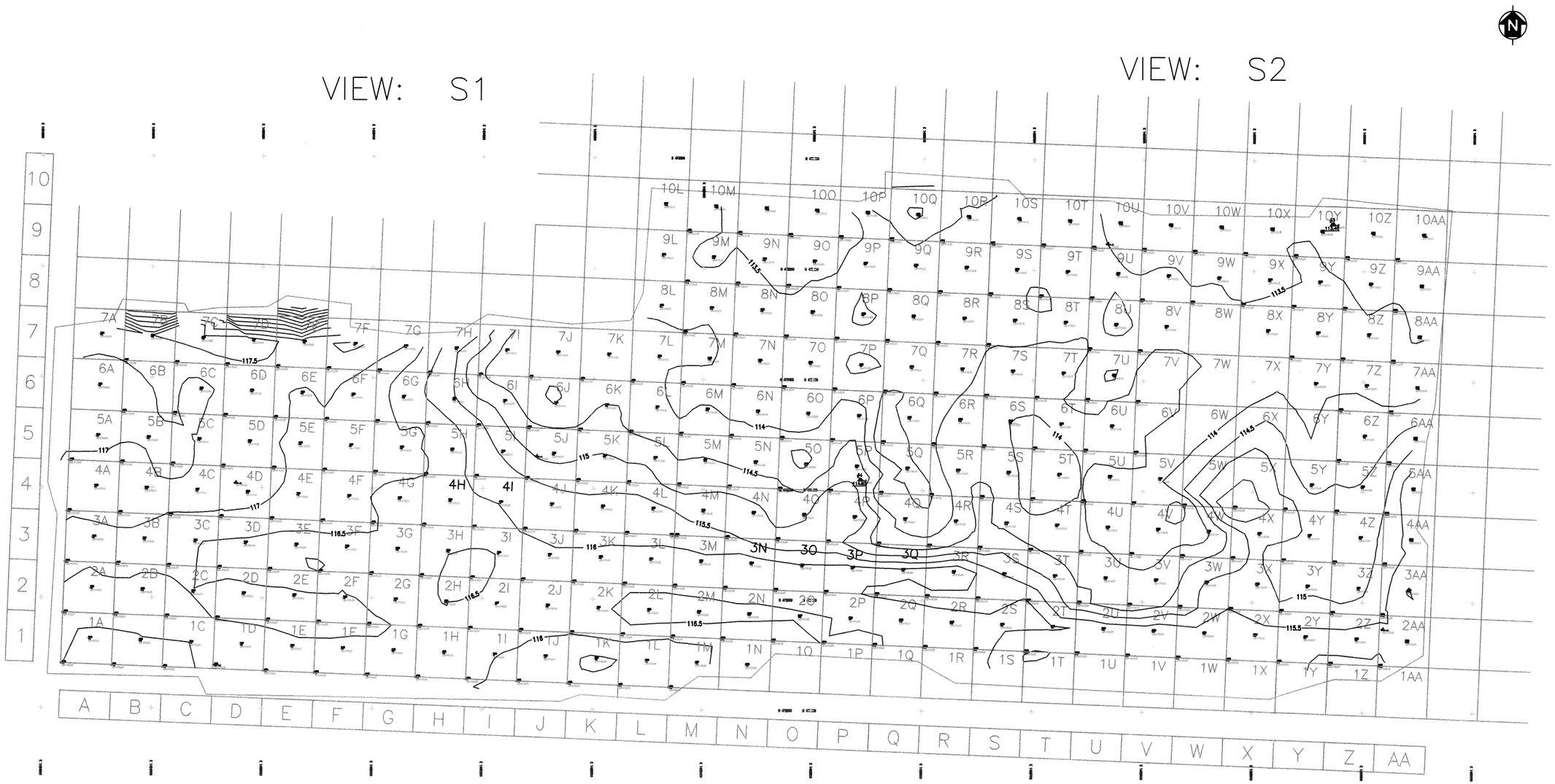
DATE: 07-DEC-01

SIZE: D

C-2, AS-BUILT DRAWING (EXCAVATION DEPTHS)

EXCAVATION OF PCB AND CADMIUM CONTAMINATED SOIL
INSTALLATION RESTORATION SITE 02
FISCO ALAMEDA FACILITY, ALAMEDA ANNEX, ALAMEDA, CALIFORNIA

PROJECT CODE: 5385-007	CONTRACT CODE: N62474-97-D-1512, D.O. 007		
SCALE: 1" - 50'	FILENAME: IR02_Surveydata_as_built.dwg	SHEET: 3 OF 4	REV: -



BASIS OF COORDINATES AND ELEVATION:

NAD 1927 HORIZONTAL FEET COORDINATES, CCS ZONE 3, ESTABLISHED BY CONVENTIONAL TOTAL-STATION SURVEY METHODS FROM SITE CONTROL POINT #4 TO #3 BEING N 61°26'24" E (487.49'). COORDINATES PROVIDED IN CAD FORMAT BY ECC.

ELEVATIONS BASED ON ALAMEDA POINT (FORMER NAS ALAMEDA) VERTICAL FEET DATUM, ESTABLISHED BY CONVENTIONAL TOTAL-STATION SURVEY METHODS FROM SITE CONTROL POINTS #4 & #3.

CTL PT	NORTH	EAST	ELEV
#4	473009.40	1485542.80	114.83
#3	473242.46	1485970.97	113.45

NOTES:

CONTOUR INTERVAL: 0.5 FOOT

ELEVATIONS SHOWN ON BACKFILL COMPACTED TO ORIGINAL GRADE.

SHEET LAYOUT
S1

50' 0 50' 100'
SCALE: 1"=100'

Drawing Source: Base Map from dwg C2, Removal of Contaminated Soil at IR02/Final Design Excavation Plan.
TETRA TECH EM INC. ; Apr 3, 2001

Control data provided by
HUNTER SURVEYING. ; Nov 2001.

ECC

ENVIRONMENTAL CHEMICAL CORPORATION
1240 BAYSHORE HIGHWAY
BURLINGAME, CA 94010

DRAWN BY: JOHN SZALUS
APPROVED BY: EMIR UTUSH
DATE: 07-DEC-01
SIZE: D

C-2, AS-BUILT DRAWING (BACKFILL TO ORIGINAL GRADE)

EXCAVATION OF PCB AND CADMIUM CONTAMINATED SOIL
INSTALLATION RESTORATION SITE 02
FISCO ALAMEDA FACILITY, ALAMEDA ANNEX, ALAMEDA, CALIFORNIA

PROJECT CODE: 5385-007	CONTRACT CODE: N62474-97-D-1512, D.O. 007		
SCALE: 1" - 50'	FILENAME:IR02_original grade_as_ built.dwg	SHEET: 4 OF 4	REV: -