Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway
San Diego, California 92132-5190

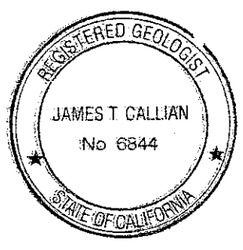
Contract No. N68711-95-D-7526

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY

CLEAN 3

FINAL TECHNICAL MEMORANDUM EXTENDED SITE INVESTIGATION IR SITE 10, POND NOS. 2 AND 3 NAVAL AIR FACILITY EL CENTRO IMPERIAL COUNTY, CALIFORNIA

CTO-0043/0062
March 2004



Prepared by:

BECHTEL ENVIRONMENTAL, INC.
1230 Columbia Street, Suite 400
San Diego, California 92101-8502

Signature: James T. Callian
James T. Callian, RG 6844, CTO Leader

Date: 31 March 2004

DTSC
APR 1 2004
CYPRESS

TABLE OF CONTENTS

Section | Page

ACRONYMS/ABBREVIATIONS v

1 INTRODUCTION

2 BACKGROUND INFORMATION

2.1 Facility Location 2-1
2.2 Facility History 2-1
2.3 Site Description 2-1
2.4 Physical Conditions 2-1
2.5 Previous Investigations 2-2

3 TECHNICAL APPROACH AND DATA QUALITY OBJECTIVES

3.1 Step 1, Statement of Problem 3-1
3.2 Step 2, Decision Identification 3-1
3.3 Step 3, Decision Inputs 3-1
3.4 Step 4, Study Boundaries 3-1
3.5 Step 5, Decision Rules 3-1
3.6 Step 6, Limits on Decision Errors 3-2
3.7 Step 7, Sampling Design 3-2

4 SUMMARY OF RESULTS

5 RISK SCREENING

5.1 Human-Health Risk Screening 5-1
5.1.1 Soil Risk-Screening Results, Pond No. 2 5-1
5.1.1.1 Residential Land Use, Pond No. 2 5-1
5.1.1.2 Industrial Land Use, Pond No. 2 5-4
5.1.2 Soil Risk Screening Results, Pond No. 3 5-11
5.1.2.1 Residential Land Use, Pond No. 3 5-11
5.1.2.2 Industrial Land Use, Pond No. 3 5-16

Section | Page

5.1.3 Uncertainty 5-16
5.1.3.1 Maximum Concentrations 5-16
5.1.3.2 Calculating Risks Using PRGs 5-16
5.1.3.3 Reporting Limits 5-17
5.2 Ecological Risk Screening 5-18
5.2.1 Ecological Risk Screening Results 5-18
5.2.2 Uncertainty Analysis 5-18
5.2.3 Surface Water Screening 5-19

6 CONCLUSIONS AND RECOMMENDATIONS

7 REFERENCES

APPENDICES

Appendix

A DATA COLLECTION METHODS

B CHAIN-OF-CUSTODY FORMS

C ANALYTICAL DATA

D HUMAN-HEALTH RISK SCREENING CRITERIA

E DATA VALIDATION REPORTS

F SURVEY DATA

G SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

H RESPONSES TO COMMENTS

FIGURES

Figure

1-1 Site Location Map 1-3

2-1 Sampling Locations 2-3

5-1 Incremental Cancer Risk, NAF El Centro, Site 10, Pond Nos. 2 and 3 5-2

5-2 Total Hazard Index, NAF El Centro, Site 10, Pond Nos. 2 and 3 5-3

5-3 Total, Background, and Incremental Cancer Risk Estimates, NAF El Centro, Site 10, Pond No. 2 5-8

5-4 Total Cancer Risk Drivers, NAF El Centro, Site 10, Pond No. 2 5-9

5-5 Total Hazard Index Risk Drivers, NAF El Centro, Site 10, Pond No. 2 5-10

5-6 Total, Background, and Incremental Cancer Risk Estimates, NAF El Centro, Site 10, Pond No. 3 5-14

5-7 Total Cancer Risk Drivers, NAF El Centro, Site 10, Pond No. 3 5-15

TABLES

Table

2-1 Historical Data, Analytes Reported in Soil at Pond No. 2 2-5

2-2 Historical Data, Analytes Reported in Soil at Pond No. 3 2-7

2-3 Historical Data, Analytes Reported in Groundwater at Site 10 2-9

4-1 Current Data, Analytes Reported in Soil, Pond Nos. 2 and 3 4-3

4-2 Soil Sampling Data – Frequency and Maximum Concentration 4-7

5-1 Estimates of Cancer Risk and Hazard Index for Chemicals of Potential Concern in Soil at Site 10, Pond No. 2 5-5

5-2 Estimates of Cancer Risk and Hazard Index for Chemicals of Potential Concern in Soil at Site 10, Pond No. 3 5-12

5-3 Summary of Hazard Quotients and Hazard Indices 5-19

5-4 Groundwater Sample Results Screened Against Surface Water Criteria 5-21

This page left blank intentionally

ACRONYMS/ABBREVIATIONS

bgs	below ground surface
BNI	Bechtel National, Inc.
Cal-EPA	California Environmental Protection Agency
Cal-modified	Cal-EPA modified
CLEAN	Comprehensive Long-Term Environmental Action Navy
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DQO	data quality objective
DTSC	(Cal-EPA) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
ERA	ecological risk assessment
ESI	extended site investigation
FSP	field sampling plan
HI	hazard index
HQ	hazard quotient
IR	Installation Restoration (Program)
µg/kg	micrograms per kilogram
$\mu g/m^3$	micrograms per cubic meter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NEESA	Naval Energy and Environmental Support Activity
NFRAP	no further response action planned
PCB	polychlorinated biphenyl
PRG	preliminary remediation goal
RWQCB	(California) Regional Water Quality Control Board
SVOC	semivolatile organic compound
TRV	toxicity reference value

USBR	United States Bureau of Reclamation
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

Section 1
INTRODUCTION

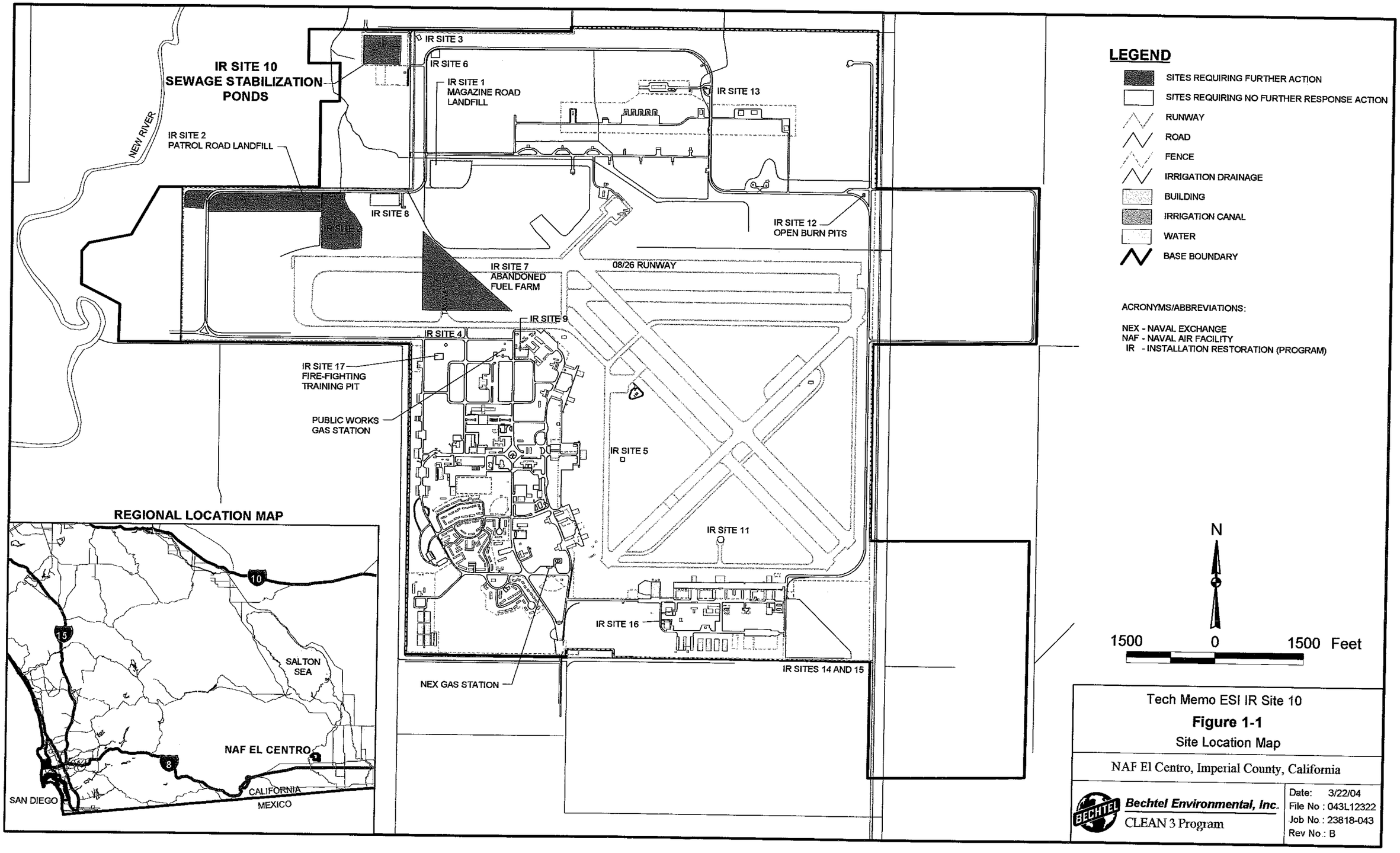
This Technical Memorandum presents results of an extended site investigation (ESI) conducted for Installation Restoration (IR) Program Site 10, Former Sewage Stabilization Ponds, at Naval Air Facility (NAF) El Centro, Imperial County, California (Figure 1-1). Bechtel Environmental, Inc., prepared this Technical Memorandum under Contract Task Order 0043 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) 3 Program, Contract No. N68711-95-D-7526, for Southwest Division Naval Facilities Engineering Command. The draft Technical Memorandum was prepared under Contract Task Order 0208 of the CLEAN II Program, Contract No. N68711-92-D-4670.

Activities conducted during this ESI included surface soil sampling performed from January through April 2001 and groundwater sampling performed in September 2003. Fieldwork was performed in accordance with the Work Plan for Soil and Groundwater Sampling at IR Sites 1, 2, 7, 10, 12, and 17 and Various Petroleum Sites (BNI 2000a), the Field Sampling Plan (FSP) for the ESI at Site 10 (BNI 2000b), and the Groundwater Monitoring Plan/FSP for IR sites (BNI 2001).

Screening human-health (Pond Nos. 2 and 3) and ecological risk (Pond Nos. 1, 2, and 3 combined) assessments were also performed during this ESI to evaluate potential impacts to human health and the environment from exposure to soil and groundwater. Results from these investigations will be included in an Engineering Evaluation/Cost Analysis (EE/CA) (currently in progress) for the site to determine which ponds would be eligible for a recommendation of no further response action planned (NFRAP) and which areas will be subject to removal. The Navy has indicated that future land use of Site 10 will probably remain industrial and is considering using Pond Nos. 2 and 3 for temporary wastewater storage or sludge drying.

This Technical Memorandum includes background information on Site 10 (Section 2), information on the technical approach to this investigation (Section 3), summary of results (Section 4), risk screening results (Section 5), conclusions and recommendations (Section 6), and references cited in this memorandum (Section 7). In addition, Appendix A describes data collection methods. Chain-of-custody forms are provided in Appendix B. Appendix C includes complete analytical data from the ESI. Appendix D details how the risk assessment was performed. Appendix E presents data validation reports. Appendix F provides survey data.

This page left blank intentionally


IR SITE 10
SEWAGE STABILIZATION
PONDS
NEW RIVER
IR SITE 2
PATROL ROAD LANDFILL
IR SITE 3
IR SITE 6
IR SITE 1
MAGAZINE ROAD
LANDFILL
IR SITE 13
IR SITE 8
IR SITE 12
OPEN BURN PITS
IR SITE 7
ABANDONED
FUEL FARM
08/26 RUNWAY
IR SITE 9
IR SITE 4
IR SITE 17
FIRE-FIGHTING
TRAINING PIT
PUBLIC WORKS
GAS STATION
IR SITE 5
IR SITE 11
IR SITE 16
IR SITES 14 AND 15
NEX GAS STATION
REGIONAL LOCATION MAP
SALTON
SEA
NAF EL CENTRO
SAN DIEGO
CALIFORNIA
MEXICO
LEGEND
SITES REQUIRING FURTHER ACTION
SITES REQUIRING NO FURTHER RESPONSE ACTION
RUNWAY
ROAD
FENCE
IRRIGATION DRAINAGE
BUILDING
IRRIGATION CANAL
WATER
BASE BOUNDARY
ACRONYMS/ABBREVIATIONS:
NEX - NAVAL EXCHANGE
NAF - NAVAL AIR FACILITY
IR - INSTALLATION RESTORATION (PROGRAM)
N
1500
0
1500 Feet
Tech Memo ESI IR Site 10
Figure 1-1
Site Location Map
NAF El Centro, Imperial County, California
Bechtel Environmental, Inc.
CLEAN 3 Program
Date: 3/22/04
File No : 043L12322
Job No : 23818-043
Rev No : B

Section 2
BACKGROUND INFORMATION

This section provides information on facility location and history and describes Site 10, physical conditions at NAF El Centro, and previous investigations.

2.1 FACILITY LOCATION

NAF El Centro is an operational facility located 7 miles northwest of El Centro, California, and 85 miles east of the city of San Diego (Figure 1-1). Site 10 is located in the far northwest corner of NAF El Centro, north of the sewage treatment plant for the base.

2.2 FACILITY HISTORY

NAF El Centro historically provided support to fleet squadrons that took advantage of the clear, dry weather and open space found in the Imperial Valley. The facility has supported a variety of activities, mostly in support of Navy parachute testing and training, and aeronautical escape system testing, evaluation, and design. In the early 1990s, the NAF El Centro mission was redefined as a support and training facility for military aviation units and activities. NAF El Centro provides services and housing to military personnel and maintains and operates facilities to support aviation activities.

2.3 SITE DESCRIPTION

Site 10 consists of three unlined ponds with bermed sides (Figure 2-1). The total area of Site 10 is approximately 6 acres. The largest pond (No. 1) is about 550 by 250 feet at the pond bottom and about 10 feet deep. The two smaller ponds (Nos. 2 and 3) are about 250 by 125 feet at the pond bottoms and about 10 feet deep. The pond floors are approximately 2 feet below the adjacent grade, and the berms surrounding the ponds are approximately 6 to 8 feet above the adjacent grade.

The stabilization ponds functioned as the only sewage treatment for the base from the 1940s until 1976. Domestic and industrial sewage flowed into Pond No. 1, where most solids settled out. When Pond No. 1 was full, effluent flowed into Ponds Nos. 2 and 3, then to the New River. The accumulated sludge has not been removed from these ponds. Currently, all the ponds are dry and partially covered with local vegetation.

2.4 PHYSICAL CONDITIONS

The topography at NAF El Centro is relatively flat, with surface elevations ranging from approximately 45 to 50 feet below mean sea level. The climate is arid with high summer temperatures in excess of 115 degrees Fahrenheit. Average precipitation is less than 3 inches per year. Prevailing winds are westerly in the winter and spring and generally southeasterly during the summer.

Soil at NAF El Centro consists of interbedded layers of fine-grained sand, silt, clay, and sand-silt-clay mixtures. The depth to groundwater at Site 10 ranges from approximately

22 to 37 feet below ground surface (bgs) (BNI 2001). Groundwater movement is generally to the northwest toward the New River. The quality of the shallow groundwater is generally poor, is characterized by high concentrations of total dissolved solids, and has no known beneficial use (RWQCB 1998).

2.5 PREVIOUS INVESTIGATIONS

Previous environmental investigations conducted at Site 10 include the following:

- preliminary assessment/site inspection (NEESA 1987)
- hydrogeological assessment (Ogden 1992)
- quarterly groundwater sampling (Ogden 1992)
- data gaps study (BNI 1998)

Soil samples were collected from 23 boreholes during the hydrogeological assessment and the data gaps study (Figure 2-1). Analytical results indicated the presence of metals, pesticides, and polychlorinated biphenyls at concentrations posing a potential threat to human health. The highest concentrations of those analytes were predominantly found in the shallow soil from Pond No. 1. Concentrations of chemicals of potential concern (COPCs) reported in soil samples from Pond Nos. 2 and 3 (Tables 2-1 and 2-2), were mostly within established background concentrations (BNI 1998, DTSC 1998) and below residential preliminary remediation goals (PRGs). The Data Gaps Study Report recommended a removal action for shallow soil in Pond No. 1 and additional surface soil sampling to evaluate if further action is required for Pond Nos. 2 and 3 (BNI 1998)

During the hydrological assessment (Ogden 1992), four on-site monitoring wells were installed (EC10-MW1, EC10-MW2, EC10-MW4, and EC10-MW5). Samples from three of these wells (because EC10-MW5 was dry) were analyzed for several analyte groups (Table 2-3). Compounds reported above their detection limit were screened against criteria for the protection of aquatic life to evaluate the potential risk to aquatic receptors in the unlikely event groundwater from Site 10 would migrate to the New River. Three metals were reported at concentrations above the screening criteria in one of the wells. However, these reported concentrations were only slightly above their respective background values. Therefore, this pathway was not considered significant (Ogden 1992).

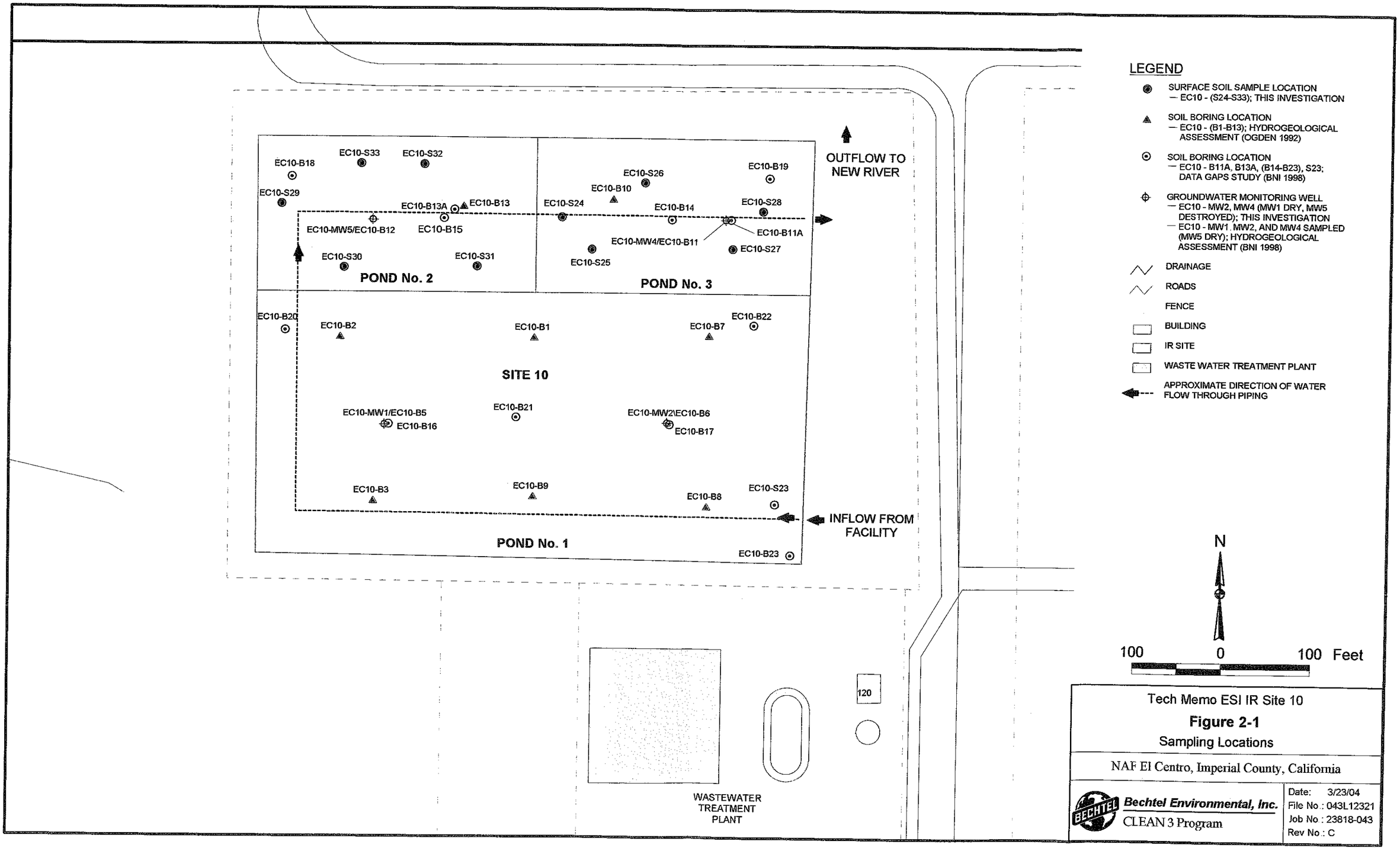

LEGEND
SURFACE SOIL SAMPLE LOCATION
— EC10 - (S24-S33); THIS INVESTIGATION
SOIL BORING LOCATION
— EC10 - (B1-B13); HYDROGEOLOGICAL ASSESSMENT (OGDEN 1992)
SOIL BORING LOCATION
— EC10 - B11A, B13A, (B14-B23), S23; DATA GAPS STUDY (BNI 1998)
GROUNDWATER MONITORING WELL
— EC10 - MW2, MW4 (MW1 DRY, MW5 DESTROYED); THIS INVESTIGATION
— EC10 - MW1, MW2, AND MW4 SAMPLED (MW5 DRY); HYDROGEOLOGICAL ASSESSMENT (BNI 1998)
DRAINAGE
ROADS
FENCE
BUILDING
IR SITE
WASTE WATER TREATMENT PLANT
APPROXIMATE DIRECTION OF WATER FLOW THROUGH PIPING
OUTFLOW TO NEW RIVER
INFLOW FROM FACILITY
POND No. 1
POND No. 2
POND No. 3
SITE 10
EC10-B18
EC10-S33
EC10-S32
EC10-S29
EC10-B13A
EC10-B13
EC10-MW5/EC10-B12
EC10-B15
EC10-S30
EC10-S31
EC10-S26
EC10-B10
EC10-S24
EC10-B14
EC10-B19
EC10-S28
EC10-B11A
EC10-MW4/EC10-B11
EC10-S27
EC10-S25
EC10-B20
EC10-B2
EC10-B1
EC10-B7
EC10-B22
EC10-MW1/EC10-B5
EC10-B16
EC10-B21
EC10-MW2\EC10-B6
EC10-B17
EC10-B3
EC10-B9
EC10-B8
EC10-S23
EC10-B23
120
WASTEWATER TREATMENT PLANT
N
100 0 100 Feet
Tech Memo ESI IR Site 10
Figure 2-1
Sampling Locations
NAF El Centro, Imperial County, California
Bechtel Environmental, Inc.
CLEAN 3 Program
Date: 3/23/04
File No.: 043L12321
Job No.: 23818-043
Rev No.: C

Table 2-1
Historical Data, Analytes Reported in Soil at Pond No. 2

Analyte	Background[a] Concentrations	Residential Soil PRG[b]	STATION ID/DEPTH/SAMPLE ID											
			EC10-B12 at 1.0 foot EC10-B12-S1[c,d]	EC10-B12 at 5.5 feet EC10-B12-S4[d]	EC10-B12 at 21.5 feet EC10-B12-S7[d]	EC10-B13 at 4.0 feet EC10-B13-S3[d]	EC10-B13 at 9.0 feet EC10-B13-S6[d]	EC10-B13 at 20.5 feet EC10-B13-S8[d]	EC10-B13A at 7.5 feet 100S516[c,e]	EC10-B15 at 0.75 feet 100S134[e]	EC10-B15 at 2.75 feet 100S135[e]	EC10-B15 at 4.25 feet 100S136[e]	EC10-B18 at 0.0 feet 100S503[c,e]	EC10-B18 at 10.5 feet 100S504[e]
Volatile Organic Compounds (mg/kg)														
Toluene		520	0.04	0.041 JN	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Petroleum Hydrocarbons (mg/kg)														
Total recoverable petroleum hydrocarbons		NE	4	NA	NA	NA	3	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (mg/kg)														
No analytes reported above detection limits			ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Pesticides/Polychlorinated Biphenyls (mg/kg)														
alpha-chlordane		1.6	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.004 J	NA
gamma-chlordane		1.6	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.005 J	NA
4,4'-DDE		1.7	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.018	NA
4,4'-DDT		1.7	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.0005 J	NA
Dieldrin		0.03	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.006 J	NA
Endosulfan sulfate		NE	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.002 J	NA
Endrin aldehyde		NE	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	0.002 J	NA
Priority Pollutant Metals (mg/kg)														
Antimony	0.68	31	ND	ND	ND	ND	0.52	NA	NA	NA	NA	NA	0.03 J	ND
Arsenic	6.3 (9.2)[f]	0.39	**2[g]**	**2.7**	**1.9**	**1.6**	**3.2**	NA	NA	NA	NA	NA	**3**	**5**
Beryllium	1.1 (2.0)[f]	150	0.74	0.19	0.3	0.47	0.98	NA	NA	NA	NA	NA	0.73	0.76
Cadmium	2.2	9	1.8	0.7	0.28	0.88	2.2	NA	NA	NA	NA	NA	1.25	1.26
Chromium	19	210	13.1	4.8	3.7	4.7	15.1	NA	NA	12.1	12.7	5	20.8	21.1
Copper	22	2,900	14	3.7 J	1.1	3.2	15.1	NA	NA	NA	NA	NA	28.8	33.1
Lead	17	150	10.9	4.9	1.7	4.7	13	NA	NA	NA	NA	NA	17.3	15.5
Mercury	0.05	23	ND	ND	ND	ND	0.1	NA	NA	NA	NA	NA	0.02	0.03
Nickel	20	150	13.6	5.3	3.1	5.7	14.9	NA	NA	NA	NA	NA	17.1	17.5
Selenium	0.7	390	ND	ND	ND	ND	1.1	NA	NA	NA	NA	NA	2	2
Silver	0.6	390	1.3	ND	ND	0.29	0.33	NA	NA	NA	NA	NA	18.4	23.9
Thallium	0.3	5.2	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	0.22	0.23
Zinc	70	23,000	42.2	17	8.1	17.1	47.6	NA	NA	NA	NA	NA	75	73
Soluble Metals[h] (mg/L)														
No analytes reported above detection limits			NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA
Other Analytes (mg/kg)														
Organolead	0.42–0.67[i]	0.0061	ND	NA	NA	NA	**0.28**	NA	ND	NA	NA	NA	ND	ND

Notes:
- [a] background concentrations from data gaps study (BNI 1998)
- [b] United States Environmental Protection Agency Region 9 (U.S. EPA 2000)
- [c] shading indicates shallow samples collected at depths less than 1 foot below ground surface
- [d] samples were collected during the hydrogeological assessment (Ogden 1992)
- [e] samples were collected during the data gaps study (BNI 1998)
- [f] background for Naval Air Facility El Centro in parentheses is regional background concentration (DTSC 1998)
- [g] boldfaced results exceed the residential soil PRG
- [h] soluble cadmium, chromium, hexavalent chromium, copper, and silver were analyzed using the California Waste Extraction Test
- [i] range of background concentrations for organolead from data gaps study (BNI 1998)

Acronyms/Abbreviations:
- DDE – dichlorodiphenyldichloroethene
- DDT – dichlorodiphenyltrichloroethane
- mg/kg – milligrams per kilogram
- mg/L – milligrams per liter
- NA – not analyzed
- ND – not detected
- NE – not established
- PRG – preliminary remediation goal

Data Qualifiers:
- J – estimated value
- N – presumptive evidence of the presence of the analyte

Table 2-2
Historical Data, Analytes Reported in Soil at Pond No. 3

Analyte	Background[a] Concentrations	Residential Soil PRG[b]	STATION ID/DEPTH/SAMPLE ID EC10-B10 at 1.0 foot EC10-B10-S1[c,d]	EC10-B10 at 3.0 feet EC10-B10-S2[d]	EC10-B10 at 13.5 feet EC10-B10-S8[d]	EC10-B11 at 1.5 feet EC10-B11-S1[d]	EC10-B11 at 6.0 feet EC10-B11-S4[d]	EC10-B11 at 15.0 feet EC10-B11-S8[d]	EC10-B11A at 4.5 feet 100S515[e]	EC10-B14 at 0.6 feet 100S137[e]	EC10-B14 at 2.6 feet 100S138[e]	EC10-B14 at 4.1 feet 100S139[e]	EC10-B19 at 0.0 feet 100S505[e,c]	EC10-B19 at 10.5 feet 100S506[e]
Volatile Organic Compounds (mg/kg)														
Toluene		520	0.22	0 02	0 078	0 22	ND	ND	NA	NA	NA	NA	NA	NA
Petroleum Hydrocarbons (mg/kg)														
Total recoverable petroleum hydrocarbons		NE	NA	3	NA	NA	3	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (mg/kg)														
No analytes reported above detection limits			NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Pesticides/Polychlorinated Biphenyls (mg/kg)														
Aroclor 1260		0 22	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.038 J	NA
alpha-chlordane		1 6	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.012	NA
gamma-chlordane		1 6	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.017	NA
4 4'-DDD		2 4	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.0008 J	NA
4,4'-DDE		1 7	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.018	NA
Dieldrin		0 03	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	**0.032**[f]	NA
Endrin aldehyde		NE	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.003 J	NA
Heptachlor epoxide		0.053	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	0.002 J	NA
Priority Pollutant Metals (mg/kg)														
Antimony	0.68	31	0.47	ND	ND	ND	0 48	ND	NA	NA	NA	NA	0.05 J	ND
Arsenic	6 3 (9 2)[g]	0 39	**1.3**	**2.2**	**2.7**	**1**	**1.1**	**3.4**	NA	NA	NA	NA	**4**	**2**
Beryllium	1 1 (2.0)[g]	150	0.57	0.68	0 58	0.59	0 24	1	NA	NA	NA	NA	0.54	0 51
Cadmium	2 2	9	1.5	1 8	1 4	1 5	0.54	2 2	NA	NA	NA	NA	3.08	0 17
Chromium (total)	19	210	10.1	11.6	9.1	11	3 7	15 3	NA	10.5	8 4	3 7	29.5	9 9
Copper	22	2,900	8.8	11.8	9 6	10 4	1 9	18.3	NA	NA	NA	NA	51.2	10 9
Lead	17	150	8.6	10 6	8 8	8 9	2 5	15 5	NA	NA	NA	NA	23.7	7 87
Mercury	0 05	23	0.09	ND	ND	ND	0 09	ND	NA	NA	NA	NA	0.1	ND
Nickel	20	150	10.6	13.3	10.5	11 9	4.5	17 1	NA	NA	NA	NA	13.8	12 9
Selenium	0 7	390	1	ND	ND	ND	0.92	ND	NA	NA	NA	NA	4	0 8
Silver	0.6	390	0.24	ND	ND	0 47	0 24	0.4	NA	NA	NA	NA	47.8	0 14
Thallium	0 3	5.2	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	0.18	0 16
Zinc	70	23,000	31.3	38 2	33 5	35.7	13	51 54	NA	NA	NA	NA	105	37
Soluble Metals[h] (mg/L)														
No analytes reported above detection limits			NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA
Other Analytes (mg/kg)														
Cyanide, total		11	ND	ND	0 4	0 4	0.4	0 5	NA	NA	NA	NA	NA	NA
Organolead	0.42–0 67[i]	0 0061	NA	ND	NA	NA	**0.21**	NA	ND	NA	NA	NA	ND	ND
Phenols, total		37,000	NA	ND	NA	NA	0 2	NA	NA	NA	NA	NA	NA	NA

Notes:
- [a] background concentrations from data gaps study (BNI 1998)
- [b] United States Environmental Protection Agency Region 9 (U S. EPA 2000)
- [c] shading indicates shallow samples collected at depths less than 1 foot below ground surface
- [d] samples were collected during the hydrogeological assessment (Ogden 1992)
- [e] samples were collected during the data gaps study (BNI 1998)
- [f] boldfaced results exceed the residential soil PRG
- [g] background for Naval Air Facility El Centro in parentheses is regional background concentration (DTSC 1998)
- [h] soluble cadmium, chromium, hexavalent chromium, copper, and silver were analyzed using the California Waste Extraction Test
- [i] range of background concentrations for organolead from data gaps study (BNI 1998)

Acronyms/Abbreviations:
- DDD – dichlorodiphenyldichloroethane
- DDE – dichlorodiphenyldichloroethene
- mg/kg – milligrams per kilogram
- mg/L – milligrams per liter
- NA – not analyzed
- ND – not detected
- NE – not established
- PRG – preliminary remediation goal

Data Qualifier:
- J – estimated value

Table 2-3
Historical Data, Analytes Reported in Groundwater at Site 10
(units in micrograms per liter)

Analyte	Screening Criteria	WELL ID/SCREEN INTERVAL/SAMPLE ID		
		EC10-MW1 20.9–30.3 feet bgs EC10-MW1-S1	EC10-MW2 11.1–20.3 feet bgs EC10-MW2-S1	EC10-MW4 17.2–26.9 feet bgs EC10-MW4-S1
Total Fuel Hydrocarbons (mg/L)	—[a]	ND	ND	ND
No analytes reported above detection limits				
Volatile Organics				
Chloroform	1,240[b]	ND	ND	3
Bromodichloromethane	0.019[c]	ND	ND	1
Semivolatile Organic Compounds	—	ND	ND	ND
No analytes reported above detection limits				
PCBs, Chlorinated Pesticides	—	ND	ND	ND
No analytes reported above detection limits				
Total Phenols	—	ND	ND	ND
No analytes reported above detection limits				
Priority Pollutant Metals				
Antimony	1,600[b]	ND	ND	19.2
Arsenic	20.0[d]	5.2 J	6	6.4
Beryllium	5.3[b]	ND	3.7	3
Cadmium	4.6[d]	ND	18	ND
Chromium	50[e]	7.9	ND	7.5
Copper	30.2[d]	10.8	41.9	8.1
Lead	15.1[d]	1.7 J	2.4	ND
Nickel	160[b]	ND	31.2	ND
Selenium	331.1[d]	31.6	11	10.9
Silver	6.6[d]	ND	12.8	ND
Thallium	40[b]	ND	ND	10
Zinc	110[b]	28 J	47.7	24.8
Other Analytes				
Cyanide (mg/L)	154[c]	ND	0.12	ND
Ethylene dibromide	—	ND	ND	ND
Organolead	—	ND	ND	ND
Coliform				
Fecal coliform (units)	—	NA	16	NA

(table continues)

Table 2-3 (continued)

Analyte	Screening Criteria	WELL ID/SCREEN INTERVAL/SAMPLE ID		
		EC10-MW1 20.9–30.3 feet bgs EC10-MW1-S1	EC10-MW2 11.1–20.3 feet bgs EC10-MW2-S1	EC10-MW4 17.2–26.9 feet bgs EC10-MW4-S1
General Chemistry				
Bicarbonate as calcium carbonate (mg/L)	—	462	320	360
Alkalinity, total, as calcium carbonate (mg/L)	—	462	320	360
Calcium	—	178,000	1,570,000	270,000
Cation/anion balance (mg/L)	—	0.9	0.81	0.95
Chloride (mg/L)	—	514	5,180	479
Electrical conductivity (µmhos)	—	7,320	16,700	9,140
Fluoride (mg/L)	—	0.81	0.5	0.9
Iron	1,000[b]	38.6 J	39.2	54.5
Magnesium	—	68,900	344,000	108,000
Manganese	2,000,000[f g]	82.4	934	52.7
Surfactants (MBAS) (mg/L)	—	ND	0.3	ND
Nitrate-nitrite as nitrogen (mg/L)	—	19.5	336	1.7
pH (units)	—	7.39	6.04	7.59
Potassium	—	9,930	30,400	25,100
Sodium	—	1,370,000	1,580,000	1,750,000
Sulfate (mg/L)	—	2,790	1,930	3,990
Total dissolved solids (mg/L)	—	5,330	12,700	6,900
Total hardness (mg/L)	—	728	5,340	1,120

Source: Ogden 1992

Notes:
[a] dash indicates not established
[b] National Ambient Water Quality Criteria, Freshwater Acute/Chronic
[c] health-based water standard (Marshak 1989)
[d] background 95 percent UCL concentration is above identified screening criteria
[e] maximum contaminant level
[f] calculated from soil value
[g] health-based ingestion soil standard, Preliminary Endangerment Assessment

Acronyms/Abbreviations:
bgs – below ground surface
mg/L – milligrams per liter
NA – not analyzed
ND – not reported above detection limit
PCB – polychlorinated biphenyl
MBAS – methylene blue active surfactant
µmhos – micromhos

Data Qualifier:
J – estimated value

Section 3
TECHNICAL APPROACH AND DATA QUALITY OBJECTIVES

The technical approach for Site 10 field activities was developed using the data quality objective (DQO) development process, described in the United States Environmental Protection Agency (U.S. EPA) guidance (U.S. EPA 1994). The DQO process provides a mechanism for developing the technical approach used to design an investigation. The seven steps of the DQO process for this investigation are summarized below.

In addition, as a result of comments resolution for the draft ESI Technical Memorandum, an ecological risk screening was performed to evaluate the potential risk to ecological receptors.

3.1 STEP 1, STATEMENT OF PROBLEM

Surface soil may be contaminated from previous site activities and may present an unacceptable risk to human health.

3.2 STEP 2, DECISION IDENTIFICATION

The field investigation data was used to answer the following question:

> Does surface soil contamination in Pond Nos. 2 and 3 pose an unacceptable risk to human health?

3.3 STEP 3, DECISION INPUTS

Historical data derived from previous investigations as well as data from the recent sampling effort were used as inputs to make decisions. Residential and industrial PRGs (U.S. EPA 2000a) for soil and background concentrations for metals and organolead (DTSC 1998 and BNI 1998) were used to evaluate the data.

3.4 STEP 4, STUDY BOUNDARIES

The horizontal extent of the investigation encompassed Pond Nos. 2 and 3 within the bermed area. The vertical extent of the ESI is limited to the upper 6 inches of soil within the ESI site. Sampling was confined to the upper half foot of soil because only limited data on surface soil conditions were collected during previous investigations, and site-specific COPCs were expected to be most prevalent in shallow soil adjacent to the point of release at each sample location (i.e., wastewater/soil interface).

3.5 STEP 5, DECISION RULES

The following rules were applied to make the decisions identified in Step 2.

- If surface soil contamination does not pose a significant risk to human health under residential scenarios, then NFRAP would be recommended
- If surface soil contamination does pose a significant risk under the residential scenario, but contaminants are below industrial PRGs, then property redevelopment and land-use restrictions would be recommended.

- If surface soil contamination poses a significant threat under the industrial scenario, then further action would be recommended.

As a result of the comments resolution for the draft Technical Memorandum, ecological risk was evaluated for all of Site 10 as well.

3.6 STEP 6, LIMITS ON DECISION ERRORS

A judgmental sampling approach was used to select sample locations; therefore, statistical limits on decision errors are not quantifiable. The most severe case would be to conclude that action is not required when, in reality, soil contamination poses an unacceptable risk to human health. The judgmental sampling approach is designed to limit the probability of error, as discussed in the following section.

3.7 STEP 7, SAMPLING DESIGN

Sample locations close to the inlet pipe at each pond were selected. Sample locations in depressions (low areas) in the ponds where COPCs would have been likely to accumulate from previous sewage flow and at shallow areas where samples were not previously collected were also selected. Appendices B, C, and E present chain-of-custody forms, complete analytical data, and validation reports.

Section 4
SUMMARY OF RESULTS

This section summarizes analytical results from soil and groundwater sampling conducted as part of this investigation. These data and historical data (subsurface and surface soil) were used in the risk screenings presented in the following sections.

A total of ten surface soil (0 to 1 foot bgs) samples were collected during the ESI, five samples each from Pond Nos. 2 and 3. The sample locations within each pond were selected using a judgmental approach. The locations provide data for the area where the wastewater inlet pipe entered each pond (low areas [depressions] in each pond where COPCs would be expected to accumulate) and the areas in each pond where shallow soil had not been sampled previously.

Soil samples were analyzed for semivolatile organic compounds (SVOCs), organochlorine pesticides, polychlorinated biphenyls (PCBs), metals, organolead, hexavalent chromium, and cyanide. Laboratory analytical results, residential PRGs, background metals, and organolead concentrations are presented in Table 4-1. Table 4-2 summarizes the detection frequency and maximum reported concentrations of reported analytes. Appendix C includes complete analytical data, and Appendix E includes data validation reports.

Soil sampling results indicated the following.

- Sample station EC10-S31 contained the only SVOC, benzo(a)pyrene, reported above the residential PRG.
- Two pesticides/PCBs, Aroclor 1254 and dieldrin, were reported above residential PRGs. An elevated concentration of Aroclor 1254 was reported in EC10-31, and elevated concentrations of dieldrin were reported in samples EC10-S30 and EC10-S31.
- Hexavalent chromium was reported in one sample from EC10-S30 at a concentration above the PRG.
- Two metals, cadmium and arsenic, were reported above PRGs. Arsenic was reported above its residential PRG at all sample stations; however, all but one arsenic concentration are below the background concentration at NAF El Centro (6.3 milligrams per kilogram [mg/kg]). However, the arsenic concentration above background is below the regional background concentration for arsenic (9.2 mg/kg) (DTSC 1998). Cadmium was reported above the residential PRG for cadmium at EC10-S32

Groundwater samples were collected in September 2003 from interior pond wells EC10-MW1 and EC10-MW4 and were analyzed for volatile organic compounds (VOCs) (Appendix C) to determine whether VOCs were present at concentrations that may impact indoor air quality. VOCs were not reported above their detections limits in these samples. The last time groundwater samples were collected from the on-site wells was in May 1991 during the hydrogeological assessment.

This page left blank intentionally

Table 4-1
Current Data, Analytes Reported in Soil, Pond Nos. 2 and 3
(in milligrams per kilogram)

	Background Threshold Value[a]	Residential Soil PRG[b]	POND NO. 3					POND NO. 2				
			EC10-S24, 0–0.5 ft 208S101/208X101[c]	EC10-S25, 0–0.5 ft 208S102/208X102	EC10-S26, 0–0.5 ft 208S103/208X103	EC10-S27, 0–0.5 ft 208S104/208X104	EC10-28, 0–0.5 ft 208S105/208X105	EC10-29, 0–0.5 ft 208S106/208X106	EC10-30, 0–0.5 ft 208S107/208X107	EC10-31, 0–0.5 ft 208S108/208X108	EC10-32, 0–0.5 ft 208S109/208X109	EC10-33, 0–0.5 ft 208S110/208X110
Semivolatile Organic Compounds												
4-chloroaniline		240	ND	ND	ND	ND	ND	ND	0.098 J	0.082 J	ND	ND
Benz(a)anthracene		0.62	ND	ND	ND	ND	ND	ND	ND	0.26 J	ND	ND
Benzo(a)pyrene		0.06	ND	ND	ND	ND	ND	ND	ND	**0.2[d] J**	ND	ND
Benzo(b)fluoranthene		0.62	0.25 J	ND	ND	ND	ND	ND	ND	0.38	ND	ND
Benzo(g,h,i)perylene		NE	0.076 J	ND	ND	ND	ND	ND	ND	0.13 J	ND	ND
Benzo(k)fluoranthene		6.2[e]	ND	ND	ND	ND	ND	ND	ND	0.16 J	ND	ND
Benzoic acid		100,000	ND	0.12 J	ND	ND	0.074 J	ND	0.17 J	0.32 J	ND	0.13 J
Butyl benzyl phthalate		12,000	ND	ND	0.12 J	ND	ND	ND	ND	ND	ND	0.23 J
Chrysene		62[e]	0.15 J	ND	ND	ND	ND	ND	ND	0.35 J	ND	ND
Fluoranthene		2,300	ND	ND	ND	ND	ND	ND	ND	0.27 J	ND	ND
Indeno(1,2,3-c,d)pyrene		0.62	0.072 J	ND	ND	ND	ND	ND	ND	0.13	ND	ND
Pyrene		2,300	ND	ND	ND	ND	ND	ND	ND	0.24 J	ND	ND
Pesticides/Polychlorinated Biphenyls												
4,4′-DDD		2.4	ND	0.0056	ND	ND	ND	ND	ND	0.016	ND	ND
4,4′-DDE		1.7	0.027	0.071	0.024	0.02	0.012	ND	0.023	0.1	0.11	0.0036
Aldrin		0.029	ND	ND	ND	ND	ND	ND	ND	0.0033	ND	ND
alpha-chlordane		1.6	0.0056	0.0086	ND	0.0024	ND	ND	0.042	0.063	ND	ND
Aroclor 1254		0.22	0.078	0.12	ND	ND	ND	ND	0.16	**0.48**	0.1	ND
Dieldrin		0.03	0.017	0.022	0.0045	0.0063	0.0056	ND	**0.036**	**0.14**	0.0085	ND
Endrin		18	ND	ND	ND	ND	ND	ND	ND	0.012	ND	ND
Endrin ketone		18	ND	ND	ND	ND	ND	ND	ND	0.0048	ND	ND
gamma-chlordane		1.6	0.011	0.017	0.0027	0.0048	0.0029	ND	0.049	0.12	0.0043	ND
Heptachlor epoxide		0.053	ND	ND	ND	ND	ND	ND	ND	0.0069	ND	ND
Metals												
Antimony	0.68	31	0.04 R	0.04 R	0.04 R	0.04 R	0.04 R	0.04 R	0.04 R	0.04 R	0.3 J	0.04 R
Arsenic	6.3 (9.2)	0.39	**3.3**	**3.1**	**2.1**	**2.2**	**1.6**	**3.9**	**4**	**3**	**8.7**	**4.9**
Beryllium	1.1 (2.0)	150	0.68	0.44	0.72	0.64	0.74	0.86	0.52	0.15	0.31	0.56
Cadmium	2.2	9[e]	2.3 J	2.2 J	1.1 J	1.2 J	0.68 J	1.1 J	2.5 J	2.9 J	**22** J	1 J
Chromium	19	210	18.5	79.2	27.7	33.3	17.4	24.2	16.4	23	41	15.2
Copper	22	2,900	51.1 J	52.7 J	33.9 J	40.7 J	26 J	33.2 J	68.3 J	66.9 J	326 J	22.7 J
Hexavalent chromium[f]		0.20[e]	ND	ND	ND	ND	ND	ND	**4 J**	ND	ND	ND
Lead	17	150	17.6	16.4	15.1	17.7	16.6	16.9	19.3	15.5	51.3	15.4
Mercury	0.05	23	0.14	0.19	0.05	0.07	0.06	ND	0.09	0.38	0.35	0.03
Nickel	20	150[e]	16.5 J	13.2 J	17.7 J	15.9 J	17 J	19.5 J	16.2 J	8.9 J	20.9 J	14.7 J
Selenium	0.7	390	2.3	3	ND	1.8	ND	ND	3.6	3.8	15.1	ND
Silver	0.6	390	41.4	47.5	14.3	36	4	19.8	45.2	77.4	84.8	10.9
Zinc	70	23,000	82.7	85.3	66.3	83.8	58.9	76.7	91.3	84.7	354	59.7
Other												
Cyanide		11	ND	ND	ND	ND	ND	ND	ND	ND	1.7 J	ND
Organolead	0.42–0.67[g]	0.0061	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

(table continues)

Table 4-1 (continued)

Notes:

[a] background concentrations calculated on basis of 95th percentiles for Naval Air Facility El Centro (DTSC 1998); numbers in parentheses are regional background concentrations (BNI 1998)
[b] United States Environmental Protection Agency Region 9 (U S EPA 2000)
[c] sample IDs with "X" are hexavalent chromium only
[d] boldfaced result exceeds residential PRG
[e] California-modified PRG (U.S. EPA 2000)
[f] hexavalent chromium results from samples collected in April 2001; all other samples collected in January to February 2001
[g] range of background concentrations for organolead from data gaps study (BNI 1998)

Acronyms/Abbreviations:

DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
mg/kg – milligrams per kilogram
NE – not established
PRG – preliminary remediation goal

Data Qualifiers:

J – estimated value
ND – not detected
R – rejected

Table 4-2
Soil Sampling Data – Frequency and Maximum Concentration
(results reported in milligrams per kilogram)

Analyte	Number of Samples Analyzed	Number of Reported Detections	Maximum Result Location	Maximum Result Sample	Maximum Concentration	Results Range[a]
Semivolatile Organic Compounds[b]						
4-chloroaniline	10	2	EC10-S30	208S107	0.098 J	0.082 J–0.098 J
Benz(a)anthracene	10	1	EC10-S31	208S108	0.260 J	—[c]
Benzo(a)pyrene	10	1	EC10-S31	208S108	0.2 J	—
Benzo(b)fluoranthene	10	2	EC10-S31	208S108	0.38	0.25 J–0.38
Benzo(g,h,i)perylene	10	2	EC10-S31	208S108	0.13 J	0.076 J–0.13 J
Benzo(k)fluoranthene	10	1	EC10-S31	208S108	0.16 J	—
Benzoic acid	10	5	EC10-S31	208S108	0.32 J	0.074 J–0.32 J
Butyl benzyl phthalate	10	2	EC10-S33	208S110	0.23 J	0.12 J, 0.23 J
Chrysene	10	2	EC10-S31	208S108	0.35 J	0.15 J–0.35 J
Fluoranthene	10	1	EC10-S31	208S108	0.27 J	—
Indeno(1,2,3-c,d)pyrene	10	2	EC10-S31	208S108	0.13 J	0.072 J–0.13 J
Pyrene	10	1	EC10-S31	208S108	0.240 J	—
Pesticides/Polychlorinated Biphenyls[d]						
4,4′-DDD	10	2	EC10-S31	208S108	0.016	0.0056–0.016
4,4′-DDE	10	9	EC10-S32	208S109	0.110	0.0036–0.110
Aldrin	10	1	EC10-S31	208S108	0.0033	—
alpha-chlordane	10	5	EC10-S31	208S108	0.063	0.0024–0.063
Aroclor 1254	10	5	EC10-S31	208S108	0.480	0.078–0.480
Dieldrin	10	8	EC10-S31	208S108	0.140	0.0045–0.140
Endrin	10	1	EC10-S31	208S108	0.012	—
Endrin ketone	10	1	EC10-S31	208S108	0.0048	—
gamma-chlordane	10	8	EC10-S31	208S108	0.12	0.0027–0.12
Heptachlor epoxide	10	1	EC10-S31	208S108	0.0069	—
Metals[e]						
Antimony	10	1[f]	EC10-S32	208S109	0.3 J	—
Arsenic	10	10	EC10-S32	208S109	8.7	1.6–8.7
Beryllium	10	10	EC10-S29	208S106	0.86	0.15–0.86
Cadmium	10	10	EC10-S32	208S109	22 J	0.68 J–22 J
Chromium	10	10	EC10-S25	208S102	79.2	15.2–79.2
Copper	10	10	EC10-S25	208S109	326 J	22.7 J–326 J
Lead	10	10	EC10-S32	208S109	51.3	15.1–51.3

(table continues)

Table 4-2 (continued)

Analyte	Number of Samples Analyzed	Number of Reported Detections	Maximum Result Location	Maximum Result Sample	Maximum Concentration	Results Range[a]
Mercury	10	9	EC10-S31	208S108	0.38	0.03–0.38
Nickel	10	10	EC10-S32	208S109	20.9 J	8.9 J–20.9 J
Selenium	10	6	EC10-S32	208S109	15.1	1.8 J–15.1 J
Silver	10	10	EC10-S32	208S109	84.8	4–84.8
Zinc	10	10	EC10-S32	208S109	354	58.9–354
Other						
Cyanide[g]	10	1	EC10-S32	208S109	1.7 J	—
Hexavalent chromium[h i]	10	1	EC10-S30	208X107	4	—
Organolead	10	0	—	—	—	—

Notes:
[a] range of reported values; many values are nondetect (less than the laboratory reporting limit, essentially zero), and a nondetect value is not considered the lower end of the range
[b] semivolatile organic compounds analyzed using U.S. EPA Method 8270
[c] dash indicates "not applicable"; the analyte was reported in only one sample out of ten or, in the case of organolead, not detected in any sample
[d] pesticides and polychlorinated biphenyls analyzed using U.S. EPA Method 8080
[e] priority pollutant metals analyzed using U.S. EPA Method 6010; except mercury analyzed using U.S. EPA Method 7471
[f] nine samples qualified as "rejected" during data validation
[g] cyanide analyzed using U.S. EPA Method 9012
[h] hexavalent chromium analyzed using U.S. EPA Method 7196A
[i] hexavalent chromium results from samples collected in April 2001; all other samples collected in January to February 2001

Acronyms/Abbreviations:
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
ND – no detections
U.S. EPA – United States Environmental Protection Agency

Data Qualifier:
J – estimated value

Section 5
RISK SCREENING

This section presents risk screening results for soil at Site 10, Pond Nos. 2 and 3. All current and historical data, including data for subsurface and surface soil, were used for the screening. Both human-health and ecological risk scenarios were evaluated.

5.1 HUMAN-HEALTH RISK SCREENING

The incremental cancer risks and total hazard indices (HIs) are shown in Figure 5-1 (cancer risk) and Figure 5-2 (HIs). For scenarios with cancer risks exceeding 1×10^{-6} or HIs exceeding 1, the chemicals that contribute significantly to the risk (risk drivers) are discussed in detail below.

Sections 5.1.1 and 5.1.2 detail the risk screening results.

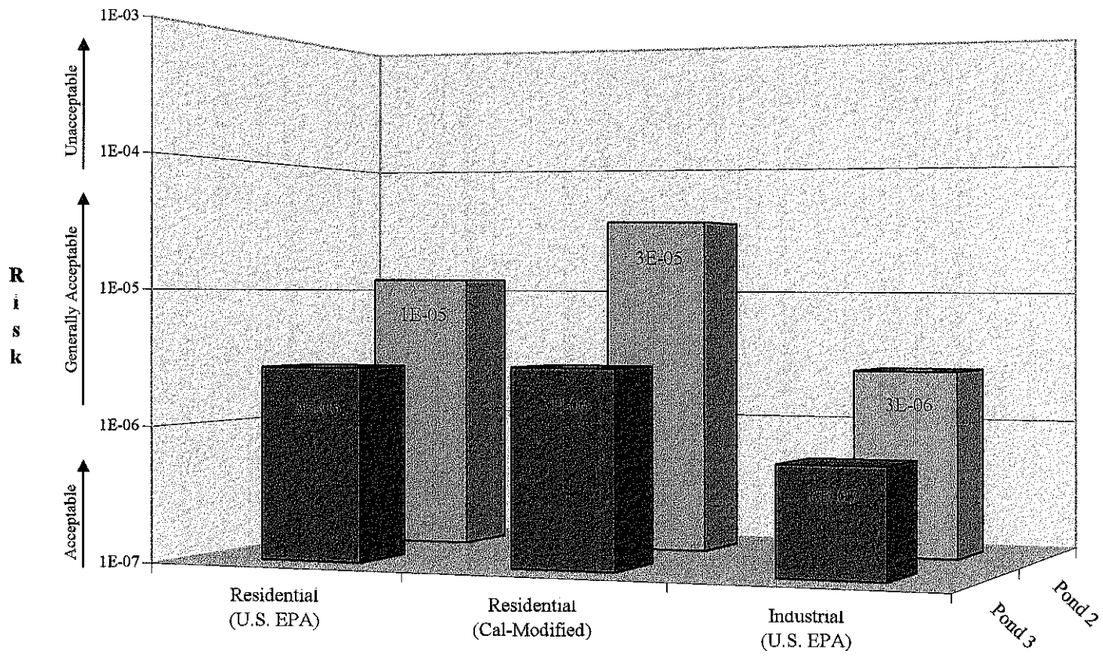
5.1.1 Soil Risk-Screening Results, Pond No. 2

Thirty-seven COPCs were identified at Pond No. 2, including 10 metals and 27 organic chemicals. Concentrations of five chemicals (antimony, arsenic, beryllium, thallium, and organolead) that were reported but not identified as COPCs were below established background concentrations. Organolead was also not identified as a COPC because of the inability to reproduce historical results and its low frequency of detection. Section 5.1.1.1 details risk screening results under a residential land-use scenario; Section 5.1.1.2 discusses results assuming an industrial land-use scenario.

5.1.1.1 RESIDENTIAL LAND USE, POND NO. 2

Under the residential scenario, the total cancer risk for Pond No. 2 was estimated at 1×10^{-5} and 3×10^{-5} using U.S. EPA and California Environmental Protection Agency (Cal-EPA)-modified (Cal-modified) PRGs, respectively. Aroclor 1254, benzo(a)pyrene, benzo(b)fluoranthene, and dieldrin were identified as the principal risk drivers, contributing 18, 27, 5, and 38 percent, respectively, of the U.S. EPA-derived total cancer risk. Cadmium, hexavalent chromium, Aroclor 1254, benzo(a)pyrene, benzo(b)fluoranthene and dieldrin are identified as the principal risk drivers, contributing 7, 57, 6, 9, 2, and 13 percent, respectively, of the total cancer risk estimate using Cal-modified PRGs (U.S. EPA 2000a). The cancer risk due to background concentrations of cadmium and hexavalent chromium, the only carcinogenic metals reported above background, was estimated at 9×10^{-8} and 5×10^{-7} using U.S. EPA and Cal-modified PRGs, respectively. Incremental cancer risk from exposure to the soil was estimated at 1×10^{-5} and 3×10^{-5} using U.S. EPA and Cal-modified PRGs, respectively. Table D-5 (Appendix D) summarizes the total, background, and incremental risk for each analyte.

Estimated risks were based on maximum reported concentrations. The maximum reported concentration for cadmium (22 mg/kg) was collected at sample location EC10-S32 (0.5 feet bgs). The maximum reported concentration for hexavalent chromium (4 mg/kg) was collected at sample location EC10-S30 (0.5 feet bgs). The maximum reported concentrations for Aroclor 1254 (0.48 mg/kg), benzo(a)pyrene (0.2 mg/kg),



U.S. EPA refers to U.S. EPA toxicity values
Cal-Modified refers to California EPA toxicity values

Figure 5-1
Incremental Cancer Risk
NAF El Centro, Site 10, Pond Nos. 2 and 3

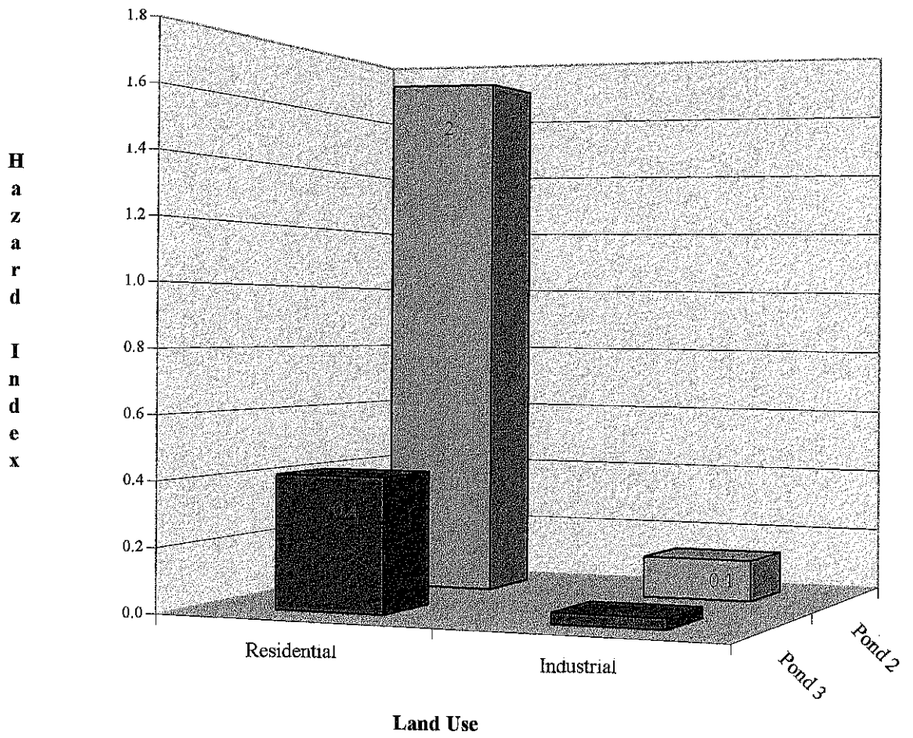


Figure 5-2
Total Hazard Index
NAF El Centro, Site 10, Pond Nos. 2 and 3

benzo(b)fluoranthene (0.38 mg/kg), and dieldrin (0.14 mg/kg) were collected at sample location EC10-S31 (0.5 feet bgs). Appendix D presents the risk estimates associated with the individual COPCs. Table 5-1 tabulates the cancer risk drivers, the risk estimates, and individual COPC contributions to risk from Pond No. 2. Figure 5-3 presents cancer risk estimates for Pond No. 2 under the residential scenario. Figure 5-4 presents the COPCs identified as cancer risk drivers for Pond No. 2.

Under residential conditions, the HI at Pond No. 2 was estimated at 2. Cadmium, copper, silver, Aroclor 1254, and dieldrin are the primary contributors to the HI, contributing 35, 7, 13, 26, and 3 percent, respectively. The HI for background concentrations of metals under the residential scenario is 0.09. Table 5-1 tabulates the HI risk drivers and their contributions. Figure 5-2 presents the HI for Pond No. 2 under the residential scenario. The maximum reported concentrations of cadmium (22 mg/kg), copper (326 mg/kg), and silver (84.8 mg/kg) were from sample location EC10-S32 (0.5 feet bgs). The maximum reported concentration of Aroclor 1254 (0.48 mg/kg) and dieldrin (0.14 mg/kg) were from sample location EC10-S31 (0.5 feet bgs). Figure 5-5 shows the principle contributors to the HI. Appendix D details the contribution of each chemical to the total cancer risk and HI.

The maximum reported lead concentration (51.3 mg/kg) at Pond No. 2 was below the residential PRG of 150 mg/kg.

5.1.1.2 INDUSTRIAL LAND USE, POND NO. 2

Under the industrial land-use scenario, the total cancer risk associated with the soil at Pond No. 2 was estimated at 3×10^{-6} using U.S. EPA PRGs. Aroclor 1254, benzo(a)pyrene, benzo(b)fluoranthene, and dieldrin were identified as the principal risk drivers, contributing 18, 26, 5, and 36 percent of the U.S. EPA-derived total cancer risk, respectively. The cancer risk due to background metals concentrations was calculated at 4×10^{-8}. Incremental cancer risk from exposure to the soil under the industrial scenario was quantified at 3×10^{-6}.

The maximum reported concentrations of Aroclor 1254 (0.48 mg/kg), benzo(a)pyrene (0.2 mg/kg), benzo(b)fluoranthene (0.38 mg/kg), and dieldrin (0.14 mg/kg) were reported at sample location EC10-S31 (0.5 feet bgs). Appendix D presents the risk estimates associated with the individual COPCs. Table 5-1 tabulates the cancer risk drivers, the risk estimates, and the individual COPC contributions to the risk from Pond No. 2. Figure 5-3 presents the cancer risks for Pond No. 2 under the industrial scenario. Figure 5-4 presents the COPCs identified as cancer risk drivers for Pond No. 2 soil.

Under the industrial land-use scenario, the HI for Pond No. 2 was estimated at 0.1. The HI for background concentrations of metals is 0.004 under the industrial scenario. Figure 5-2 presents the HI for Pond No. 2 under the industrial scenario. Appendix D presents the contribution of each chemical to the total cancer risk and HI.

Table 5-1
Estimates of Cancer Risk and Hazard Index for Chemicals of Potential Concern in Soil at Site 10, Pond No. 2

	CANCER RISK			HAZARD INDEX	
	U.S. EPA[a] Residential	Cal-EPA[a] Residential	U.S. EPA[a] Industrial	Residential	Industrial
Total risk	1E-05	3E-05	3E-06	2	0.1
Background metals risk	9E-08	5E-07	4E-08	0.09	0.004
Incremental risk[b]	1E-05	3E-05	3E-06	—[c]	—[c]
Contribution of Risk-Driver COPC					
Cadmium	2E-08 0.1%	2E-06 7%	7E-09 0.3%	0.6 35%	0.03 [d]
Chromium, hexavalent	1E-07 1%	2E-05 57%	6E-08 2%	0.02 1%	0.0007 [d]
Chromium, total	2E-07 [d]	2E-07 [d]	9E-08 [d]	NA	NA
Copper	NA	NA	NA	0.1 7%	0.004 [d]
Lead	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	0.02 [d]	0.0006 [d]
Nickel	NA	1E-07 [d]	NA	0.01 [d]	0.0005 [d]
Selenium	NA	NA	NA	0.04 [d]	0.002 [d]
Silver	NA	NA	NA	0.2 13%	0.008 [d]
Zinc	NA	NA	NA	0.02 [d]	NA
4,4′-DDD	7E-09 [d]	7E-09 [d]	9E-10 [d]	NA	NA
4,4′-DDE	6E-08 [d]	6E-08 [d]	9E-09 [d]	NA	NA
4,4′-DDT	3E-10 [d]	3E-10 [d]	4E-11 [d]	0.00001 [d]	0.0000007 [d]
4-chloroaniline	NA	NA	NA	0.0004 [d]	0.00003 [d]

(table continues)

Table 5-1 (continued)

	CANCER RISK			HAZARD INDEX	
	U.S. EPA[a] Residential	Cal-EPA[a] Residential	U.S. EPA[a] Industrial	Residential	Industrial
Contribution of Risk-Driver COPC (continued)					
Aldrin	1E-07 [d]	1E-07 [d]	2E-08 [d]	0.002 [d]	0.0001 [d]
alpha-Chlordane	4E-08 [d]	4E-08 [d]	6E-09 [d]	0.002 [d]	0.00009 [d]
Aroclor 1254	2E-06 18%	2E-06 6%	5E-07 18%	0.4 26%	0.03 [d]
Benz(a)anthracene	4E-07 [d]	4E-07 [d]	9E-08 [d]	NA	NA
Benzo(a)pyrene	3E-06 27%	3E-06 9%	7E-07 26%	NA	NA
Benzo(b)fluoranthene	6E-07 5%	6E-07 2%	1E-07 5%	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	0.00006 [d]	0.000002 [d]
Benzo(k)fluoranthene	3E-08 [d]	3E-07 [d]	6E-09 [d]	NA	NA
Benzoic acid	NA	NA	NA	NA	NA
Butylbenzyl phthalate	NA	NA	NA	0.00002 [d]	NA
Chrysene	6E-09 [d]	6E-08 [d]	1E-09 [d]	NA	NA
Cyanide	NA	NA	NA	0.2 [d]	0.05 [d]
Dieldrin	5E-06 38%	5E-06 13%	9E-07 36%	0.05 3%	0.003 [d]
Endosulfan sulfate	NA	NA	NA	0.000005 [d]	0.0000004 [d]
Endrin	NA	NA	NA	0.0007 [d]	0.00005 [d]
Endrin aldehyde	NA	NA	NA	0.0001 [d]	0.000008 [d]
Endrin ketone	NA	NA	NA	0.0003 [d]	0.00002 [d]

(table continues)

Table 5-1 (continued)

	CANCER RISK			HAZARD INDEX	
	U.S. EPA[a] Residential	Cal-EPA[a] Residential	U.S. EPA[a] Industrial	Residential	Industrial
Contribution of Risk-Driver COPC (continued)					
Fluoranthene	NA	NA	NA	0.0001 [d]	0.000009 [d]
gamma-Chlordane	8E-08 [d]	8E-08 [d]	1E-08 [d]	0.003 [d]	0.0002 [d]
Heptachlor epoxide	1E-07 [d]	1E-07 [d]	3E-08 [d]	0.009 [d]	0.0006 [d]
Indeno(1,2,3-c,d)pyrene	2E-07 [d]	2E-07 [d]	4E-08 [d]	NA	NA
Pyrene	NA	NA	NA	0.0001 [d]	0.000004 [d]
Toluene	NA	NA	NA	NA	NA
Total Risk Driver Contribution	89%	95%	88%	85%	[e]

Notes:
[a] U.S. EPA 2000a
[b] incremental cancer risk was calculated by subtracting the background risk from the total cancer risk
[c] dash indicates incremental risk is not calculated for noncarcinogens
[d] COPC is not identified as a risk and/or a hazard driver
[e] not calculated because the total risk is below the target risk level

Acronyms/Abbreviations:
Cal-EPA – California Environmental Protection Agency
COPC – chemical of potential concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
NA – not applicable
U.S. EPA – United States Environmental Protection Agency

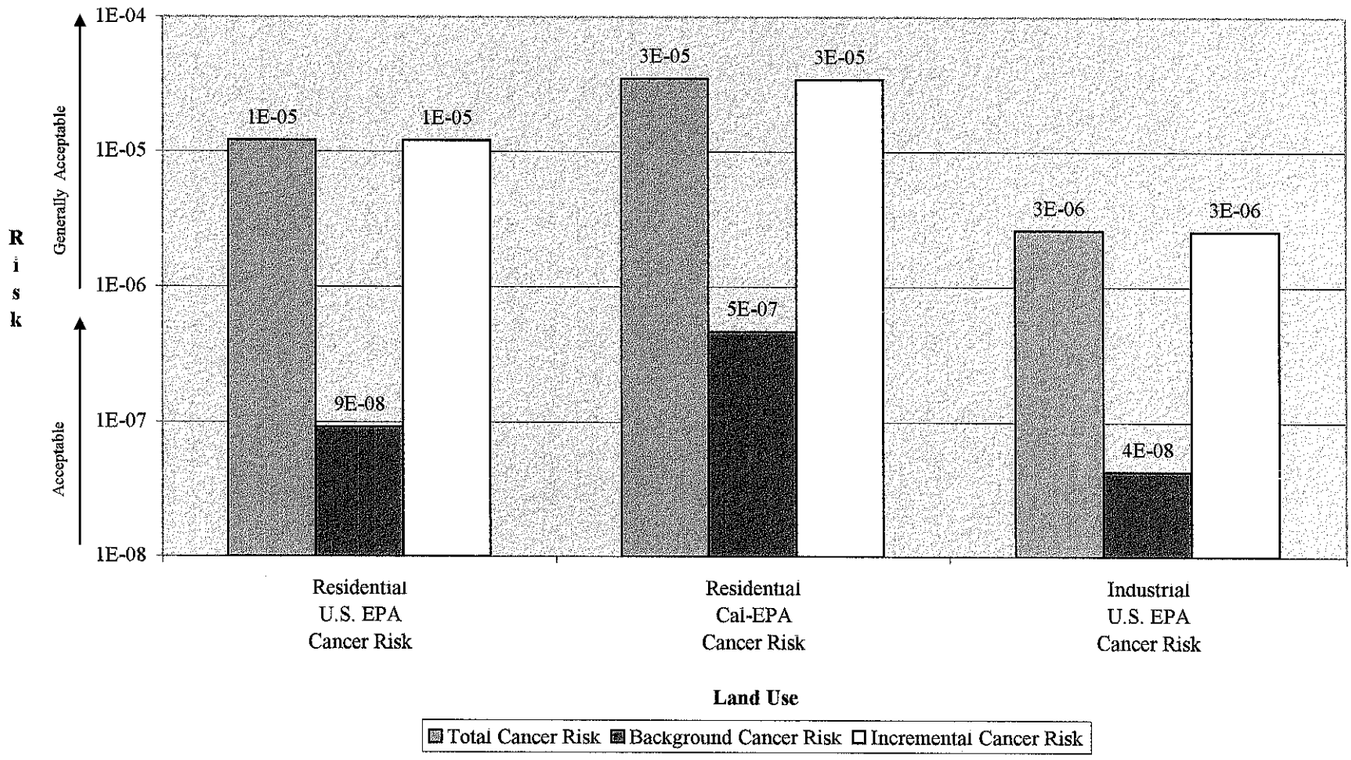


Figure 5-3
Total, Background, and Incremental Cancer Risk Estimates
NAF El Centro, Site 10, Pond No. 2

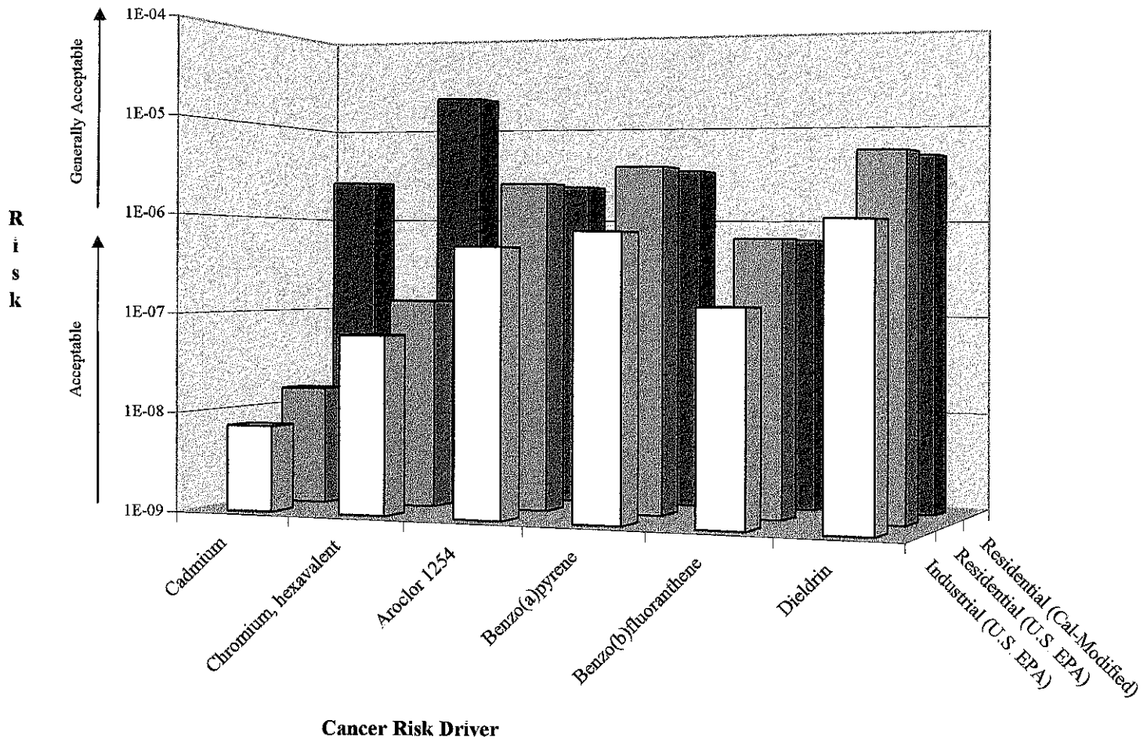


Figure 5-4
Total Cancer Risk Drivers
NAF El Centro, Site 10, Pond No. 2

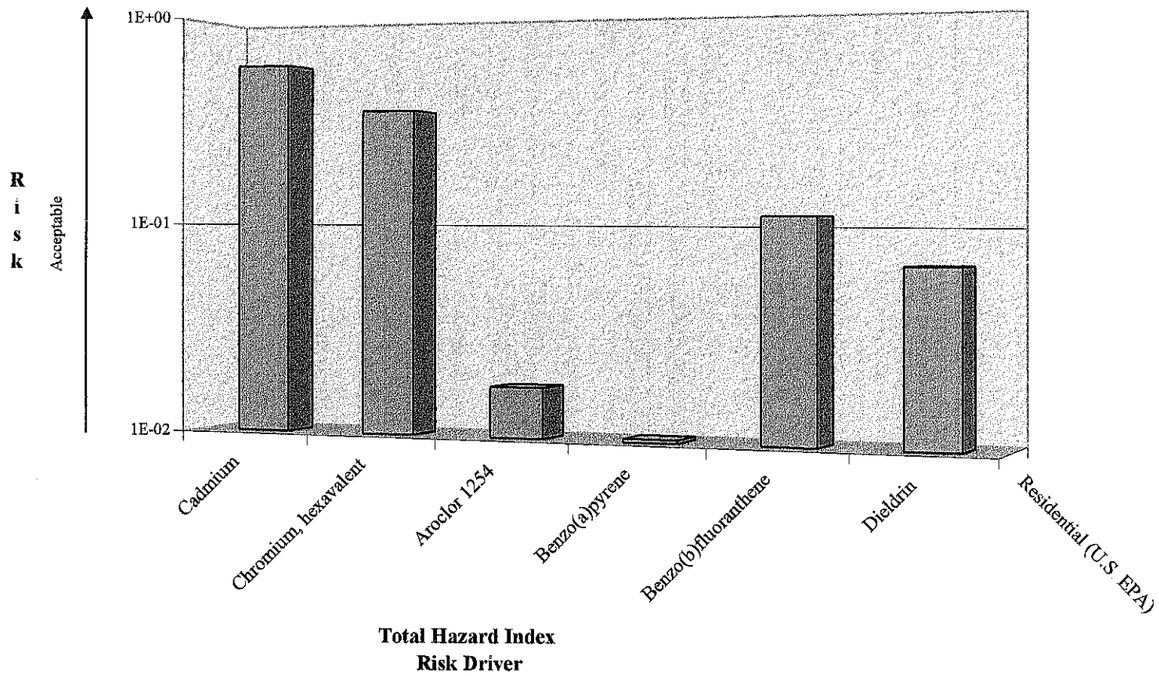


Figure 5-5
Total Hazard Index Risk Drivers
NAF El Centro, Site 10, Pond No. 2

5.1.2 Soil Risk Screening Results, Pond No. 3

Twenty-six COPCs were identified for Pond No. 3 including 8 metals and 18 organic chemicals. Concentrations of six chemicals (antimony, arsenic, beryllium, nickel, thallium, and organolead) detected but not identified as COPCs were below established regional background concentrations (BNI 1998, DTSC 1998). Organolead was also not identified as a COPC because of the inability to reproduce historical results and its low frequency of detection. Section 5.1.2.1 details risk screening results under a residential land-use scenario; Section 5.1.2.2 discusses results under an industrial land-use scenario.

5.1.2.1 RESIDENTIAL LAND USE, POND NO. 3

Under the residential scenario, the total cancer risk associated with the soil at Pond No. 3 was estimated at 3 × 10-6 using both the U.S. EPA 2000 and Cal-modified PRGs 2000. Total chromium, Aroclor 1254, Aroclor 1260, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene, and dieldrin are the principal risk drivers, contributing 14, 20, 6, 14, 4, and 38 percent, respectively, to the U.S. EPA-derived total cancer risk. Cadmium, total chromium, Aroclor 1254, Aroclor 1260, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene, and dieldrin are identified as the principal risk drivers, contributing 11, 12, 17, 5, 13, 4, and 34 percent, respectively, to the total cancer risk estimate using Cal-modified PRGs. The cancer risk due to background concentrations was estimated at 9 × 10-8 and 3 × 10-7 using U.S. EPA and Cal-modified PRGs, respectively. Incremental cancer risk from exposure to the soil was quantified at 3 × 10-6 using both U.S. EPA and Cal-modified PRGs.

Estimated risks were based on maximum reported concentrations. The maximum reported concentrations for cadmium (3.08 mg/kg), Aroclor 1260 (0.038 mg/kg), and dieldrin (0.032 mg/kg) were collected at sample location EC10-B19 (0 feet bgs) The maximum reported concentrations for total chromium (79.2 mg/kg) and Aroclor 1254 (0.12 mg/kg) were collected at sample location EC10-S25 (0.5 feet bgs). The maximum reported concentrations for benzo(b)fluoranthene (0.25 mg/kg) and indeno(1,2,3-c,d)pyrene (0.072 mg/kg) were collected at sample location EC10-S24 (0.5 feet bgs). Appendix D presents the risk estimates associated with the individual COPCs. Table 5-2 tabulates the cancer risk drivers, the risk estimates, and the individual COPC contribution to the risk from Pond No. 3. Figure 5-6 presents the cancer risk estimates for the Pond No. 3 under the residential scenario. Figure 5-7 shows the COPCs identified as cancer risk drivers for Pond No. 3.

Under residential conditions, the HI for Pond No. 3 was estimated at 0.4. The HI for background concentrations of metals is 0.08 under the residential scenario. Table 5-2 tabulates the HI. Figure 5-2 graphs the HI for Pond No. 3 under the residential scenario. Appendix D details the contribution of each chemical to the total cancer risk and HI.

The maximum reported lead concentration (23.7 mg/kg) at Pond No. 3 was below the residential PRG of 150 mg/kg.

Table 5-2
Estimates of Cancer Risk and Hazard Index for Chemicals of Potential Concern in Soil at Site 10, Pond No. 3

	CANCER RISK			HAZARD INDEX	
	U.S. EPA[a] Residential	Cal-EPA[a] Residential	U.S. EPA[a] Industrial	Residential	Industrial
Total risk	3E-06	3E-06	7E-07	0.4	0.03
Background metals risk	9E-08	3E-07	4E-08	0.08	0.003
Incremental risk[b]	3E-06	3E-06	6E-07	—[c]	—[c]
Contribution of Risk-Driver COPC					
Cadmium	2E-09 0.08%	3E-07 11%	1E-09 [d]	0.08 [d]	0.004 [d]
Chromium, total	4E-07 14%	4E-07 12%	2E-07 [d]	NA	NA
Copper	NA	NA	NA	0.02 [d]	0.0007 [d]
Lead	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	0.008 [d]	0.0003 [d]
Selenium	NA	NA	NA	0.01 [d]	0.0004 [d]
Silver	NA	NA	NA	0.1 [d]	0.005 [d]
Zinc	NA	NA	NA	0.005 [d]	NA
4,4'-DDD	2E-09 [d]	2E-09 [d]	3E-10 [d]	NA	NA
4,4'-DDE	4E-08 [d]	4E-08 [d]	6E-09 [d]	NA	NA
alpha-Chlordane	8E-09 [d]	8E-09 [d]	1E-09 [d]	0.0003 [d]	0.00002 [d]
Aroclor 1254	6E-07 20%	6E-07 17%	1E-07 [d]	0.1 [d]	0.009 [d]
Aroclor 1260	2E-07 6%	2E-07 5%	4E-08 [d]	NA	NA
Benzo(b)fluoranthene	4E-07 14%	4E-07 13%	9E-08 [d]	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	0.00003 [d]	0.000001 [d]

(table continues)

Table 5-2 (continued)

	CANCER RISK			HAZARD INDEX	
	U.S. EPA[a] Residential	Cal-EPA[a] Residential	U.S. EPA[a] Industrial	Residential	Industrial
Contribution of Risk-Driver COPC (continued)					
Benzoic acid	NA	NA	NA	NA	NA
Butylbenzyl phthalate	NA	NA	NA	0.00001 [d]	NA
Chrysene	2E-09 [d]	3E-08 [d]	5E-10 [d]	NA	NA
Cyanide	NA	NA	NA	0.05 [d]	0.01 [d]
Dieldrin	1E-06 38%	1E-06 34%	2E-07 [d]	0.01 [d]	0.0007 [d]
Endrin aldehyde	NA	NA	NA	0.0002 [d]	0.00001 [d]
gamma-Chlordane	1E-08 [d]	1E-08 [d]	2E-09 [d]	0.0005 [d]	0.00003 [d]
Heptachlor epoxide	4E-08 [d]	4E-08 [d]	7E-09 [d]	0.003 [d]	0.0002 [d]
Indeno(1,2,3-c,d)pyrene	1E-07 4%	1E-07 4%	3E-08 [d]	NA	NA
Toluene	NA	NA	NA	NA	NA
Total phenols	NA	NA	NA	0.000005 [d]	NA
Total Risk Driver Contribution	96%	96%	[e]	[e]	[e]

Notes:
[a] U.S. EPA 2000a
[b] incremental cancer risk was calculated by subtracting the background risk from the total cancer risk
[c] dash indicates incremental risk is not calculated for noncarcinogens
[d] COPC is not identified as a risk and/or a hazard driver
[e] not calculated because the total risk is below the target risk level

Acronyms/Abbreviations:
Cal-EPA – California Environmental Protection Agency
COPC – chemical of potential concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
NA – not applicable
U.S. EPA – United States Environmental Protection Agency

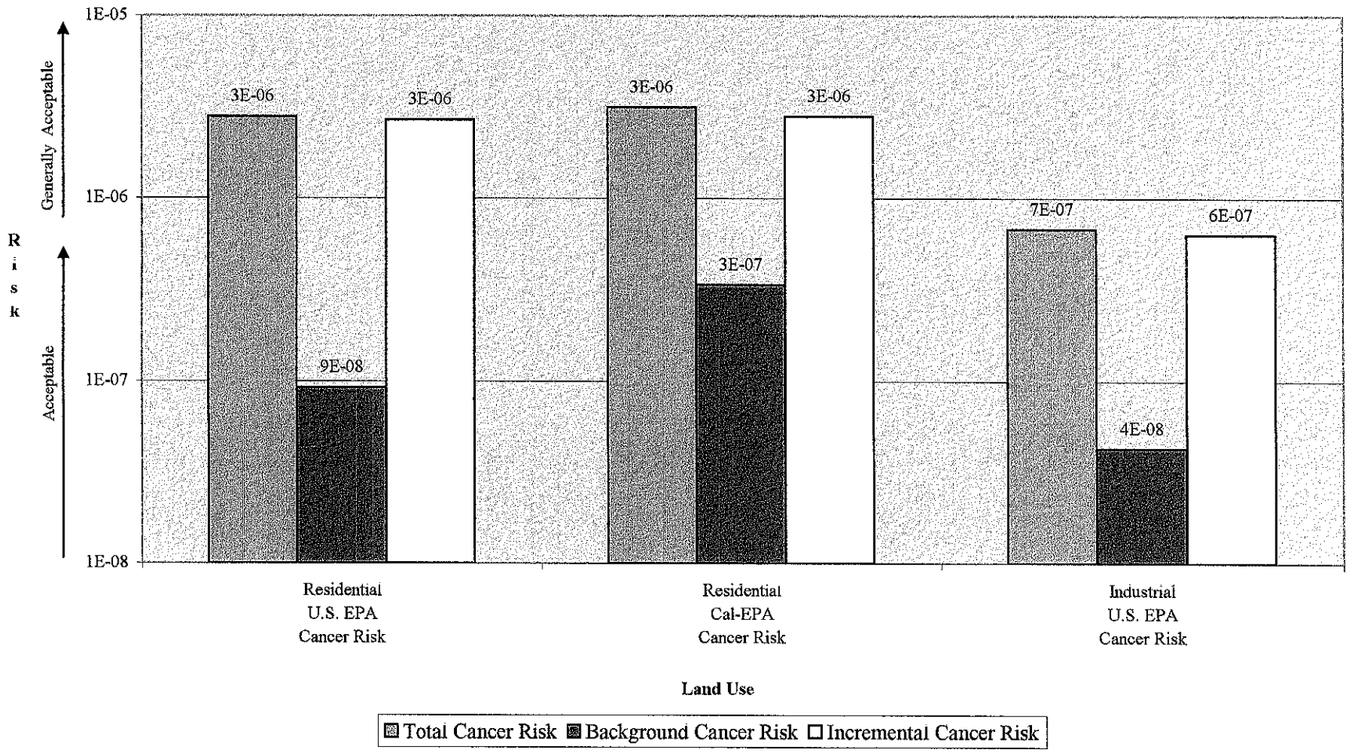


Figure 5-6
Total, Background, and Incremental Cancer Risk Estimates
NAF El Centro, Site 10, Pond 3

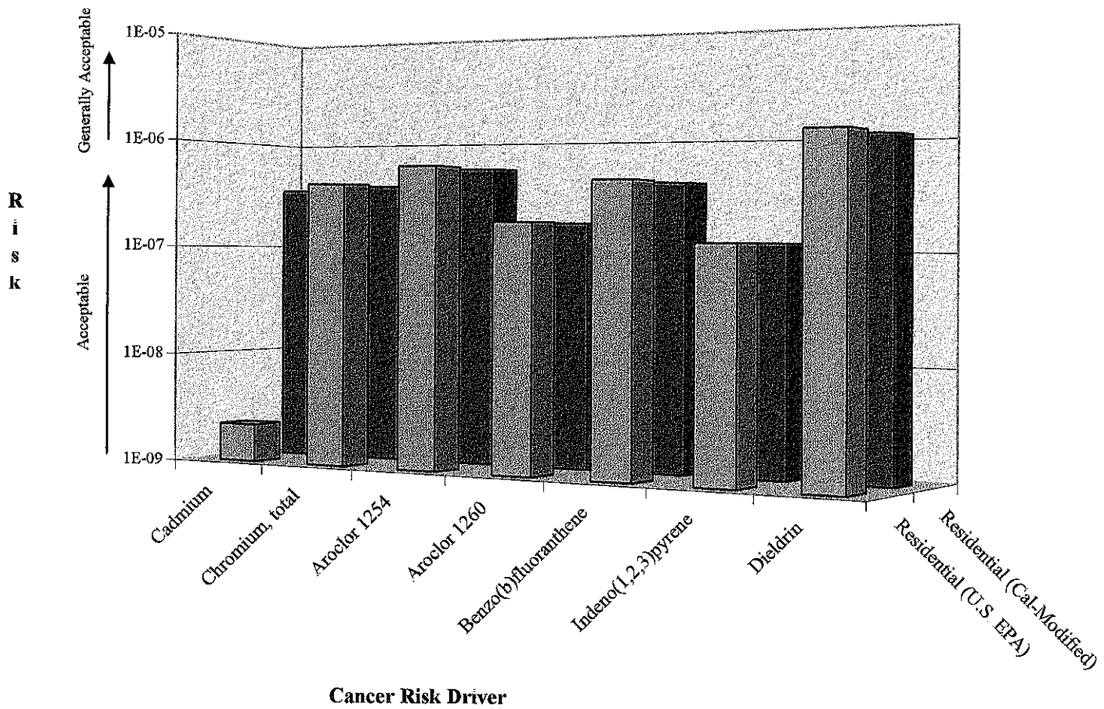


Figure 5-7
Total Cancer Risk Drivers
NAF El Centro, Site 10, Pond No. 3

5.1.2.2 INDUSTRIAL LAND USE, POND NO. 3

Under the industrial land-use scenario, the total cancer risk associated with the soil at Pond No. 3 was estimated at 7×10^{-7} using U.S. EPA PRGs 2000. The cancer risk due to background metals concentrations was calculated at 4×10^{-8}. Incremental cancer risk from exposure to the soil under the industrial scenario was quantified at 6×10^{-7}.

Appendix D presents the risk estimates associated with the individual COPCs. Table 5-2 tabulates the cancer risk drivers, the risk estimates, and the individual COPC contribution to the risk from Pond No. 3. Figure 5-6 shows the cancer risks estimates for the Pond No. 3 under the industrial scenario.

Under industrial use, the HI for Pond No. 3 was estimated at 0.03. The HI for background concentrations of metals is 0.003 under the industrial scenario. Table 5-2 tabulates the HI. Figure 5-2 charts the HI for Pond No. 3 under the industrial scenario. Appendix D presents the contribution of each chemical to the total cancer risk and HI.

The maximum reported lead concentration (23.7 mg/kg) at Pond No. 3 was below the industrial PRG of 750 mg/kg.

5.1.3 Uncertainty

In a screening risk assessment, there are several sources of uncertainty: the use of maximum reported concentrations, the use of PRGs as screening criteria, and the fact that certain chemicals have PRGs below the applicable laboratory reporting limits.

5.1.3.1 MAXIMUM CONCENTRATIONS

Use of the maximum reported concentrations of each COPC as the exposure-point concentration tends to overestimate risk. Risk assessment guidance assumes that exposure to chemicals at any site is related to the mean value of the concentrations; therefore, the use of the maximum concentrations compared to PRGs adds a safety factor in any decision to pursue no further action.

5.1.3.2 CALCULATING RISKS USING PRGs

PRGs are established by U.S. EPA and the Cal-EPA to represent a potential, incremental cancer risk of 1×10^{-6} or a HI of 1.0. In developing these PRGs, certain exposure pathways were considered to be typical. For soil, these pathways include ingestion, inhalation of particulates, inhalation of volatiles, and dermal absorption. They do not include exposure to indoor air from soil gas; exposure to groundwater contaminated by soil leachate; ingestion of contaminated plant, meat, or dairy products; or inhalation of particulates dispersed by truck and heavy equipment use. The risks may be overestimated if one or more PRG pathways are not applicable, or the risks may be underestimated if pathways not considered in PRG development are likely.

The likely exposure pathways at Pond Nos. 2 and 3 are consistent with the typical pathways assumed by U.S. EPA and Cal-EPA in establishing the soil PRGs. The

likely pathways include ingestion, inhalation of particulates and volatiles, and dermal absorption.

Exposure to groundwater contaminated by soil leachate is not applicable at Site 10 because the groundwater has been designated as being of nonbeneficial use by the California Regional Water Quality Control Board (RWQCB 1998).

Exposure to VOC-impacted air inside a hypothetical building is not a significant pathway. For the vapor intrusion pathway from soil, historical VOC data were reviewed, and toluene was the only reported VOC. The Johnson and Ettinger Model for Subsurface Vapor Intrusion into Buildings (U.S. EPA 2003) was used to calculate an indoor air concentration using the maximum reported toluene concentration (220 micrograms per kilogram [µg/kg]). The model was also used to reverse-calculate an acceptable risk-based soil concentration. The calculated Site 10 indoor air and maximum reported concentrations for toluene in soil were 4.86 micrograms per cubic meter (µg/m^3) and 220 µg/kg, respectively. The Site 10 toluene concentrations are nearly two orders of magnitude lower than the acceptable threshold indoor air (416 µg/m^3) and risk-based soil (19,000 µg/kg) concentrations. The reported toluene concentrations also do not contribute significantly to the overall Site 10 risk.

To evaluate the presence of VOCs in groundwater beneath the site, groundwater samples were collected in September 2003 from in-pond wells EC10-MW1 and EC10-MW4 and analyzed for VOCs. No VOCs were reported above respective detection limits (Appendix C). Therefore, it was not necessary to include the vapor intrusion pathway from soil or groundwater in the human-health screening risk evaluation.

Ingestion of COPCs through contaminated plants, meat, or dairy products is not likely because Site 10 is not currently used or expected to be used for farming. Future land use of Site 10 will probably remain industrial.

5.1.3.3 REPORTING LIMITS

There are chemicals for which the PRGs are below the practical reporting limits achievable by analytical laboratories. In a screening risk assessment, this can cause cancer risk and HI calculations to be underestimated.

Eight chemicals (benzidine, benzo[a]pyrene, bis[2-chloroethyl]ether, dibenz[a,b]anthracene, hexachlorobenzene, hexavalent chromium, n-nitroso-di-n-propylamine, and organolead) were reported in one or both ponds that had reporting limits above the U.S. EPA or Cal-modified residential PRG (Appendix D). However, review of these chemicals indicates that only three, hexavalent chromium, benzo(a)pyrene, and dibenz(a,h)anthracene, are likely to be present based on each chemical's similarity to other chemicals detected. The risk associated with half the reporting limit for these three chemicals is 5×10^{-6} (Cal-modified), 3×10^{-6}, and 3×10^{-6}, respectively. Thus, there is a potential for the overall risk to increase by 1×10^{-5}. Note that hexavalent chromium and benzo(a)pyrene were reported in samples from Pond No. 2 at concentrations greater than one-half detection limits and were included

as COPCs. So, for Pond No. 2, the potential increased risk would only be associated with dibenz(a,h)anthracene.

5.2 ECOLOGICAL RISK SCREENING

This screening-level ecological risk assessment (ERA) with refined exposure estimates indicates that potential risks exist for representative wildlife. The potential for ecological risk is unlikely (hazard quotient [HQ]-low less than 1) for exposure to most of the chemicals of potential ecological concern (COPECs). Potential ecological risk is indicated by the screening-level ERA for receptor exposure primarily to cadmium. Site 10 HQ-low and HQ-high values and background HQ-low values are summarized in Table 5-3.

Section 5.2.1 discusses the ERA screening results. See Appendix G for details of the ERA screening.

5.2.1 Ecological Risk Screening Results

Six metals were reported with HQ-low values exceeding 1, indicating the potential for ecological risk. However, nickel showed an HQ-low that was the same as the HQ-low for the background concentration, representing a potential risk equivalent to background. Pesticides indicated a negligible potential risk with an HI of 2. Because the factors included in the risk estimate were conservative, it is likely that these organic compounds represent a condition of negligible ecological risk. Only cadmium showed an HQ-high that exceeded 1, indicating it is the principal COPEC.

The results of this screening-level ERA suggest that reported concentrations of chemicals at Site 10 may represent a condition of ecological risk. COPECs include cadmium, copper, lead, selenium, and zinc. These COPECs are present at the site at concentrations that represent potential adverse growth and reproductive effects to small mammals and birds that feed on invertebrates.

A Tier 2 baseline ERA may be implemented to provide data for site-specific exposures and effects, or a site remediation may be implemented to reduce the potential risk to the ecological receptors. The potential risk will be sufficiently reduced if the site exposure characterization is no greater than the background characterization or the exposure characterization represents an HQ of 1.

5.2.2 Uncertainty Analysis

Some uncertainties are inherent in the risk assessment process, while other uncertainties result from limitations of the studies upon which the assessment is based. It is important to identify the sources and effects of uncertainty in the risk assessment to provide defensible hazard assessments and impact evaluations and to minimize subjective interpretation of the nature and degree of potential hazards posed by the COPECs. Most assumptions are intentionally conservative so that the risk assessment more likely

Table 5-3
Summary of Hazard Quotients and Hazard Indices

Analyte	Background Concentration (HQ-Low)	NAF El Centro Site 10 (HQ-Low)	NAF El Centro Site 10 (HQ-High)
Cadmium	**4E+1***	**2E+2***	**4E+0***
Copper	7E-1	**4E+0***	3E-2
Lead	**9E+0***	**2E+1***	3E-2
Nickel	**2E+1***	**2E+1***	7E-2
Selenium	**2E+0***	**1E+1***	6E-1
Zinc	**3E+0***	**1E+1***	3E-1
HI – metals	**7E+1***	**2E+2***	**5E+0***
HI – pesticides	NA	**2E+0***	7E-2

Note:
* boldface indicates hazard quotient or hazard index value greater than or equal to 1

Acronyms/Abbreviations:
HI – hazard index
HQ – hazard quotient
NA – not available
NAF – Naval Air Facility

overestimates than underestimates the potential hazard for ecological receptors. Assumptions must be made in exposure and risk assessment when values are unknown or when multitudes of values are possible

The qualitative effects of the major assumptions in this risk assessment are discussed in the following subsections. For details on the uncertainty analysis, see Appendix G.

5.2.3 Surface Water Screening

The surface water screening (Table 5-4) is performed to evaluate the potential for compounds reported in groundwater to impact the New River. The screening is considered conservative because analyte concentrations in surface water at potential seepage points would be lower than in groundwater because of attenuation effects of fate and transport processes such as dispersion and degradation. The following analytes, reported in groundwater at concentrations exceeding screening criteria, are not expected to be present in surface water at concentrations presenting an unacceptable ecological risk as discussed below.

- Butyl benzyl phthalate – reported in 4 of 11 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 2.

- Cadmium – reported in 4 of 18 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 3. Also reported in upgradient well sample at a concentration near screening level.
- Copper – reported in 6 of 18 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 2. Also reported in background and upgradient wells. Concentration in sample from upgradient well was approximately 26 times concentration from on-site well.
- Cyanide – reported in 1 of 11 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 23. However, reported only once in 1991 and not reported during subsequent sampling of downgradient wells.
- Iron – reported in 4 of 9 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 10. Also reported in background and upgradient wells. Concentration in sample from upgradient well was approximately 10 times concentration from on-site well.
- Selenium – reported in 7 of 18 samples analyzed, all at concentrations exceeding screening criteria by approximately 2 to 8 times. Also reported in background and upgradient wells at concentrations exceeding screening criteria by approximately 7 and 45 times. Selenium concentrations at Site 10 are likely related to regionwide selenium patterns. Colorado River water is used to irrigate agriculture in the Imperial Valley. Water draining to the Colorado River from parts of Utah, Colorado, and New Mexico contains selenium. There is no local geological source of selenium in the Imperial Valley (Seiler 1995, 1997). Evaporative concentration of the irrigation water in the soil leads to accumulation of selenium in the soil (USBR 1998). Selenium contamination in the valley is due to the selenium load of the irrigation water supply, which originates in the upper reaches of the Colorado River (RWQCB 2002). In addition, selenium concentrations were not detected above the reporting limit in more than 60 percent of the samples.
- Silver – reported in 2 of 18 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by less than a factor of 4. Also reported in upgradient well at half the screening level.

Table 5-4
Groundwater Sample Results Screened Against Surface Water Criteria[a]
(units in micrograms per liter)

Analyte	Screening Criteria	Number of Samples Analyzed	Number Above Criteria	MAXIMUM CONCENTRATION FOR COMPOUND REPORTED ABOVE SCREENING CRITERIA IN WELL							BACKGROUND WELL EC10-MW3	UPGRADIENT WELL EC10-MW6
				ON-SITE WELLS				DOWNGRADIENT WELLS			(Maximum Concentrations for Only Those Compounds Reported Above Screening Criteria in On-Site or Downgradient Wells)	
				EC10-MW1	EC10-MW2	EC10-MW4	EC10-MW5	EC10-MW7	EC10-MW8	EC-P7[b]		
1,2-dichloroethylene	1,160[c]	20	0	—[d]	—	—	—	—	—	—	—	—
Aluminum	87[e f]	18	0	—	—	—	—	—	—	—	—	—
Antimony	1,600	18	0	—	—	—	—	—	—	—	—	—
Arsenic	150[g h]	18	0	—	—	—	—	—	—	—	—	—
Barium	NE	18	0	—	—	—	—	—	—	—	—	—
Benzene	530	20	0	—	—	—	—	—	—	—	—	—
Beryllium	5.3	18	0	—	—	—	—	—	—	—	—	—
Bis(2-ethylhexyl)phthalate	41[i,j]	11	0	—	—	—	—	—	—	—	—	—
Bromodichloromethane	1,100[k]	20	0	—	—	—	—	—	—	—	—	—
Butyl benzyl phthalate	3[l]	11	1	—	—	—	—	—	5 J	—	ND	ND
Cadmium	6.2[g h m]	18	1	—	18	—	—	—	—	—	ND	4 J
Calcium	NE	13	0	—	—	—	—	—	—	—	—	—
Chloroform	1,240	20	0	—	—	—	—	—	—	—	—	—
Chloromethane	1,100[k]	20	0	—	—	—	—	—	—	—	—	—
Chromium	(III) – 480[g n] (VI) – 11[g h]	18	0	—	—	—	—	—	—	—	—	—
Cobalt	NE	18	0	—	—	—	—	—	—	—	—	—
Copper	29[g h m]	18	1	—	41.9	—	—	—	—	—	4	1,090
Cyanide, total	5.2[h n]	11	1	—	120	—	—	—	—	—	ND	ND
Diesel	NE	11	0	—	—	—	—	—	—	—	—	—
Iron	100[o]	9	1	—	—	—	—	—	—	958	9.1	892
Lead	6.2[g h]	18	0	—	—	—	—	—	—	—	—	—
Magnesium	NE	13	0	—	—	—	—	—	—	—	—	—
Manganese	NE	9	0	—	—	—	—	—	—	—	—	—
Nickel	170[g h]	18	0	—	—	—	—	—	—	—	—	—
Potassium	NE	13	0	—	—	—	—	—	—	—	—	—
Selenium	5.0[h p]	18	7	31.6	11	10.9	—	40.9	34.5	16.5	33.9	223
Silver	3.7[g h m]	18	1	—	12.8	—	—	—	—	—	ND	1.8 J
Sodium	NE	18	0	—	—	—	—	—	—	—	—	—

(table continues)

Table 5-4 (continued)

Analyte	Screening Criteria	Number of Samples Analyzed	Number Above Criteria	MAXIMUM CONCENTRATION FOR COMPOUND REPORTED ABOVE SCREENING CRITERIA IN WELL							BACKGROUND WELL EC10-MW3	UPGRADIENT WELL EC10-MW6
				ON-SITE WELLS				DOWNGRADIENT WELLS			(Maximum Concentrations for Only Those Compounds Reported Above Screening Criteria in On-Site or Downgradient Wells)	
				EC10-MW1	EC10-MW2	EC10-MW4	EC10-MW5	EC10-MW7	EC10-MW8	EC-P7[b]		
Thallium	40	18	0	—	—	—	—	—	—	—	—	—
Toluene	1,750	20	0	—	—	—	—	—	—	—	—	—
Trichloroethene	4,500	20	0	—	—	—	—	—	—	—	—	—
Vanadium	NE	18	0	—	—	—	—	—	—	—	—	—
Zinc	380[g]	18	0	—	—	—	—	—	—	—	—	—

Notes:

[a] screening criteria (Marshack 2001) from California Toxics Rule, continuous concentration (4-day average); if not established, screening criteria were selected as follows:

- California Toxics Rule, maximum concentration (1-hour average) divided by 10
- California Toxics Rule, instantaneous maximum divided by 10
- National Recommended Ambient Water Quality Criteria, continuous concentration (4-day average)
- National Recommended Ambient Water Quality Criteria, 24-hour average
- National Recommended Ambient Water Quality Criteria, maximum concentration (1-hour average) divided by 10
- National Recommended Ambient Water Quality Criteria, instantaneous maximum divided by 10
- National Recommended Ambient Water Quality Criteria, toxicity information (lowest observed effect level) – chronic
- National Recommended Ambient Water Quality Criteria, toxicity information (lowest observed effect level) – acute divided by 10

[b] EC-P7 is a deep well located near EC10-MW7; the top of the EC-P7 screen interval begins approximately 19 feet below the bottom of the EC10-MW7 screen interval

[c] for dichloroethylenes

[d] dash indicates not reported in samples from on-site or downgradient wells at concentrations above screening criteria

[e] expressed as total recoverable

[f] for pH between 6.5 and 9.0

[g] expressed as dissolved

[h] criteria do not apply to waters subject to water quality objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's 1986 Basin Plan (U.S. EPA 2000b).

[i] solubility limit at 25°C (Leyder and Boulanger 1983); can range from 1.1 and 1,200 $\mu g/L$ (Staples et al. 1997)

[j] not toxic to aquatic organisms at or below the solubility limit of this chemical (U.S. EPA 1999)

[k] for halomethanes

[l] for sum of phthalate esters

[m] criteria vary with water hardness, which ranged from 210,000 to 7,100,000 depending on the sample

[n] these criteria were promulgated for specific California waters in the National Toxics Rule (U.S. EPA 1995)

[o] U.S. EPA 1976

[p] expressed as total recoverable; this National Toxics Rule criterion applies to San Francisco Bay through Susuin Bay and Sacramento-San Joaquin Delta, Salt Slough, Mud Slough (north), and San Joaquin River, Sack Dam to mouth of Merced River; does not apply to Grassland Water District, San Luis National Wildlife Refuge, and Los Banos State Wildlife Refuge (U.S. EPA 1995)

Acronyms/Abbreviations:

°C – degrees Celsius
µg/L – micrograms per liter
ND – not detected above reporting limit
NE – not established

Data Qualifier:

J – estimated

Section 6
CONCLUSIONS AND RECOMMENDATIONS

A screening level human-health risk assessment was conducted for Pond Nos. 2 and 3. For Pond No. 2, under the residential land-use scenario, total and incremental cancer risks were estimated at 1×10^{-5} and 3×10^{-5} using U.S. EPA and Cal-modified PRGs, respectively. The U.S. EPA risk drivers were identified as Aroclor 1254, benzo(a)pyrene, benzo(b)fluoranthene, and dieldrin. The HI under the residential scenario was estimated at 2.

For Pond 3, under the residential land-use scenario, total and incremental risks were estimated at 3×10^{-6} using both the U.S. EPA and Cal-modified PRGs. The principal risk drivers were total chromium, Aroclor 1254, Aroclor 1260, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene, and dieldrin. The HI under the residential scenario was estimated at 0.4.

As presented in Section 5, estimated risks under the residential land-use scenario for Pond Nos. 2 and 3 are within the generally acceptable risk range (i.e., within 10^{-6} to 10^{-4} or within the "risk management range"). Risk estimates under the industrial land-use scenario for both ponds are lower than those under the residential scenario.

A screening-level ERA was performed for the combined area of the three pond bottoms. The HI for metals, based on toxicity reference value (TRV)-low, was estimated at 200 using site soil concentrations and 70 using background soil concentrations. Six metal compounds (cadmium, copper, lead, nickel, selenium, and zinc) were reported with HQ-low greater than 1; however, the HQ-low for nickel was the same as that for background. The HI for pesticides, based on TRV-low, was estimated at 2, likely representing a condition of negligible ecological risk. Cadmium was the only compound with an HQ-high exceeding 1, indicating it is the principal COPEC.

An EE/CA will be performed for Pond Nos. 1, 2, and 3 to evaluate Site 10 as a whole to determine the area that will be subject to removal. It is likely a recommendation for NFRAP will be made for one or both of Pond Nos. 2 and 3, as supported by the low (minimal) risk values estimated in the conservative human-health and ecological risk screening.

This page left blank intentionally

Section 7
REFERENCES

Bechtel National, Inc. 1998. Final Data Gaps Study Report, Naval Air Facility, El Centro, California. March.

———. 2000a. Work Plan, Soil and Groundwater Sampling at IR Sites 1, 2, 7, 10, 12, and 17 and Various Petroleum Sites, Naval Air Facility El Centro, California. July.

———. 2000b. Draft Field Sampling Plan for Extended Site Investigation at IR Site 10, Pond Nos. 2 and 3, Naval Air Facility El Centro, Imperial County, California. October.

———. 2001. Final Groundwater Monitoring Plan/Field Sampling Plan, Installation Restoration Program Sites, Naval Air Facility El Centro, California. January.

BNI. *See* Bechtel National, Inc.

California Department of Toxic Substances Control. 1998. Letter regarding response to 13 August 1998 DTSC comments on the draft Ecological Scoping Assessment, NAF El Centro, October 1997. 14 September.

California Regional Water Quality Control Board. 1998. Letter regarding beneficial-use designation of groundwater at NAF El Centro. June.

———. 2002. Colorado River Region. Water Quality Control Plan–Colorado River Basin Region 7. http://www.swrcb.ca.gov/rwqcb7/documents/RB7Plan.pdf.

DTSC. *See* California Department of Toxic Substances Control.

Leyder, F. and P. Boulanger. 1983. Ultraviolet absorption, aqueous solubility and octanol-water partition for several phthalates. *Bull. Environ. Contam. Toxicol.* 30:152–157.

Marshack, J.B. 1989. A Compilation of Water Quality Goals. Prepared for Regional Water Quality Control Board Colorado River Region. May.

———. 2001 (updates to Marshack 2000). A Compilation of Water Quality Goals. Prepared for California Environmental Protection Agency Regional Water Quality Control Board Central Valley Region.

Naval Energy and Environmental Support Activity. 1987. Preliminary Assessment/Site Inspection of Naval Air Facility El Centro, California.

NEESA. *See* Naval Energy and Environmental Support Activity.

Ogden. *See* Ogden Environmental Energy Services.

Ogden Environmental Energy Services. 1992. Final Hydrogeological Assessment Report (HAR), Site 10 Sewage Stabilization Ponds, Volumes I and II. May.

RWQCB. *See* California Regional Water Quality Control Board.

Seiler, R.L. 1995. Prediction of areas where irrigation drainage may induce selenium contamination of water. *Journal of Environmental Quality.* 24(5):973–979.

———. 1997. Methods to Identify Areas Susceptible to Irrigation-Induced Selenium Contamination in the Western United States. U.S. Department of the Interior, U.S. Geological Survey. Fact Sheet FS-038-97. http://water.usgs.gov/pubs/FS/FS-038-97.

Staples, C.A., D.R Peterson, T.F. Parkerton, and W.J Adams. 1997. The environmental fate of phthalate esters: A literature review. *Chemosphere*. 35: 667–749.

United States Bureau of Reclamation. 1998. The Source, Transport, and Fate of Selenium and Other Contaminants in Hydrological and Biological Cycles of the Salton Sea Area U.S. Bureau of Reclamation, Salton Sea /Lower Colorado Study. http://www.sci.sdsu.edu/salton/USBR Salton Sea Study.html

United States Environmental Protection Agency. 1976. The Red Book. Quality Criteria for Water

———. 1994. Guidance for Data Quality Objective Process. EPA QA-G-4. September.

———. 1995. National Toxics Rule revisions. *Federal Register*, Volume 60, No. 86, pp. 22228–22237. 0`4 May.

———. 1999. Office of Water, National Recommended Water Quality Criteria–Correction, EPA 822-Z-99-001. http://www.epa.gov/ost/pc/revcom.pdf. April.

———. 2000a. Preliminary Residential Cal-modified and Industrial Guidelines.

——— 2000b. California Toxics Rule. *Federal Register*, Volume 65, No. 97, pp. 31682-31719. 18 May.

———. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion Into Buildings. June.

USBR. *See* United States Bureau of Reclamation.

U.S. EPA. United States Environmental Protection Agency.

APPENDIX A

DATA COLLECTION METHODS

TABLE OF CONTENTS

Section | Page

A1 STANDARD OPERATING PROCEDURES A-1

A2 LAND SURVEY A-1

A3 SOIL SAMPLING A-1

A4 GROUNDWATER SAMPLING A-2

A5 DECONTAMINATION AND DISPOSAL OF INVESTIGATION-DERIVED WASTE A-2

A6 SAMPLE CONTAINERS A-2

A7 SAMPLE PRESERVATION A-2

A8 SAMPLE PACKAGING AND SHIPMENT A-2

A9 SAMPLE DOCUMENTATION A-3
- A9.1 Field Logbooks A-3
- A9.2 Documents and Chain of Custody A-3
- A9.3 Sample Labels A-4

A10 QUALITY CONTROL SAMPLES A-4

A11 REFERENCES A-4

TABLE

Table

A-1 Sample Containers, Preservatives, and Holding Times A-3

This page left blank intentionally

Appendix A
DATA COLLECTION METHODS

This section describes standard operating procedures (SOPs) used and the methods and procedures followed during the field sampling activity. The SOPs and methods presented below are intended to assure that field measurements are consistent and reproducible. Sample preservation, holding, and shipping procedures are also outlined in this section.

A1 STANDARD OPERATING PROCEDURES

The following Comprehensive Long-Term Environmental Action Navy (CLEAN) Program SOPs were used in the investigation.

- SOP 4, Soil Sampling
- SOP 6, Instrument Calibration and Use
- SOP 7, Water and Free Product Level Measurement in Wells
- SOP 8, Groundwater Sampling
- SOP 9, Sample Containers, Preservation, and Handling
- SOP 10, Sample Custody, Transfer, and Shipment
- SOP 11, Decontamination of Equipment
- SOP 17, Logbook Protocols
- SOP 22, Investigation-Derived Waste Management
- SOP 26, Preparing Field Sampling Plans

A2 LAND SURVEY

All new soil sampling locations were surveyed by a California registered surveyor. Horizontal coordinates are referenced to North American Datum of 1983 and elevations are referenced to North American Vertical Datum of 1988. Survey coordinates are provided in Appendix F.

A3 SOIL SAMPLING

Soil samples were collected from ten locations during January 2001. Samples were collected from locations EC10-S24 through EC10-S33 (Figure 2-2). To collect the samples, the top layer (1 to 2 inches) of soil and debris was scraped away followed by sampling of the top 6 inches of soil using a disposable Teflon® trowel. Following collection, the sample was placed in two 4-oz glass jars and sealed with a Teflon-lid. Samples were stored in a cooler with ice and shipped to the analytical laboratory for testing.

Due to laboratory analysis errors, samples for hexavalent chromium were recollected following the same procedure with the exception of collecting the sample in one 4-ounce glass jar instead two. Samples were collected from staked locations for EC10-S24 through EC10-S33.

A4 GROUNDWATER SAMPLING

Soil samples were collected from ten staked locations (EC10-S24 through EC10-S33) during January 2001 (Figure 2-2). To collect the samples, the top layer (1 to 2 inches) of soil and debris was scraped away. Then the top 6 inches of soil were sampled using a disposable Teflon® trowel. After collection, the sample was placed in two 4-ounce glass jars and sealed with a Teflon lid. Samples were stored in a cooler with ice and shipped to the analytical laboratory for testing.

Because of laboratory analysis errors, samples for hexavalent chromium were recollected following the same procedure, except that the sample was collected in one 4-ounce glass jar rather than two.

A5 DECONTAMINATION AND DISPOSAL OF INVESTIGATION-DERIVED WASTE

Samples were collected using disposable Teflon trowels, making decontamination of sample collection tools unnecessary.

All investigation-derived waste materials (e.g., Teflon trowels and personal protective equipment) were disposed according to contract requirements and methods described in the Investigation-Derived Waste Management Plan (Attachment C to the Contract Task Order 0208 Work Plan [BNI 2000]).

A6 SAMPLE CONTAINERS

Sample containers were selected in accordance with CLEAN Program SOP 9. Table A-1 indicates the container types and volumes for Site 10 analytical parameters. The subcontract laboratory designated for analytical services supplied all sample containers. The sample containers were cleaned and quality control tested according to procedures appropriate to the specific analyses.

A7 SAMPLE PRESERVATION

Samples were preserved in accordance with CLEAN Program SOP 9. Holding times listed in Table A-1 indicate the time allowed for the laboratory to prepare and analyze the samples.

A8 SAMPLE PACKAGING AND SHIPMENT

Samples shipped to the project laboratory were accompanied by the appropriate paperwork as described in CLEAN Program SOP 10. The field investigation crew prepared samples for shipment to the laboratory via overnight carrier. Samples were packaged as described in SOP 9 and dispatched to the designated laboratory for analysis. See Appendix B for chain-of-custody forms and laboratory receipt form.

Table A-1
Sample Containers, Preservatives, and Holding Times

Analyte	Container	Preservative	Holding Time
SVOCs	Two 4-ounce glass jars	Cool to 4 °C	14/40 days[a]
Organochlorine pesticides	Two 4-ounce glass jars	Cool to 4 °C	14/40 days[a]
Polychlorinated biphenyls	Two 4-ounce glass jars	Cool to 4 °C	14/40 days[a]
Priority pollutant metals (except mercury)	Two 4-ounce glass jars	Cool to 4 °C	6 months
Mercury	Two 4-ounce glass jars	Cool to 4 °C	28 days
Cyanide	Two 4-ounce glass jars	Cool to 4 °C	14 days
Hexavalent chromium	Two 4-ounce glass jars	Cool to 4 °C	1 month/4 days[b]
Organolead	Two 4-ounce glass jars	Cool to 4 °C	14 days

Notes:
[a] 7 days to extract, 40 days to analyze following extraction
[b] 1 month to digest, 4 days to analyze following digestion

Acronyms/Abbreviations:
°C – degrees Celsius
SVOC – semivolatile organic compound

A9 SAMPLE DOCUMENTATION

This section describes the paperwork associated with sampling, including field logbooks, sample paperwork, chain-of-custody forms, and sample labels.

A9.1 Field Logbooks

A controlled, prepaginated, permanently bound field logbook was maintained by the senior representative in accordance with CLEAN Program SOP 17. All entries and corrections were made as described in SOP 17. The field logbook was completed and is part of the permanent project record.

A9.2 Documents and Chain of Custody

Sample identification documents were prepared so that sample identification and chain of custody is maintained and sample disposition is controlled.

Official custody of samples were maintained and documented from the time of sample collection until the validation of analytical results. The chain-of-custody record is the document that records the transfer of sample custody.

Once samples were received at the laboratory, laboratory personnel were responsible for acknowledging receipt of samples, recording the temperature within the shipping cooler, and verifying that the containers have not been opened or damaged. Laboratory

personnel also maintained custody and sample tracking records throughout sample preparation and analysis. The laboratory sent a copy of the chain-of-custody record to the CLEAN Program office at the completion of analytical work.

A9.3 Sample Labels

Field personnel affixed a label to each sample container. The label included the information described in the work plan.

Detailed sample custody, transfer, and shipment procedures can be found in CLEAN Program SOP 10

A10 QUALITY CONTROL SAMPLES

Because sampling equipment was disposable and not reused, it was not decontaminated; therefore, collection of quality control samples (i.e., equipment rinsate) was unnecessary.

A11 REFERENCES

Bechtel National, Inc. 2000. Work Plan Soil and Groundwater Sampling at IR Sites 1,2, 7, 10, 12, and 17 and Various Petroleum Sites, Naval Air Facility El Centro, California. July.

BNI. *See* Bechtel National, Inc.

APPENDIX B

CHAIN-OF-CUSTODY FORMS

0101277

EC011

CLEAN II

CHAIN-OF-CUSTODY RECORD

18400

12

Site Name: NAF El Centro
CTO Number: 208
Site Contact/Supervisor: Tom Kirk

Sampler(s): Tom Kirk
Signature(s): K. Thomas Kirk

Analytical Laboratory Name: Laucks
Analytical Laboratory Address: 940 S. Harney Seattle WA 98108
Field Logbook/Page Number: 208-BWS-01

Pay Items/ Analyses Required: 7.3/SVOC; 8.3/Pest+PCB; 9.4/PP Metals; 9.11/Cr(VI); 10.2/Cyanide

Preservation (4°C)

TAT (in days): 2 | 7 | 14 | 30

	Sample ID No. (7 digit)	Date/Time Collected	Station Description	Sample Matrix	Number of Containers	Archive (Container No.)	Container Nos. (2 digit)											Remarks (e.g., MS, MSD)
1	2085101 X TX	1/10/01 0845	EC10-S24	Soil	2		11	11	41	41	41							
2	2085102	0900	EC10-S25		2		11	11	41	41	41							
3	2085103	0915	EC10-S26		2		11	11	41	41	41							
4	2085104	0930	EC10-S27		2		11	11	41	41	41							
5	2085105	0935	EC10-S28		2		11	11	41	41	41							
6	2085106	0950	EC10-S29		2		11	11	41	41	41							
7	2085107	1000	EC10-S30		2		11	11	41	41	41							
8	2085108	1010	EC10-S31		2		11	11	41	41	41							
9	2085109	1020	EC10-S32		2		11	11	41	41	41							
10	2085110	1030	EC10-S33		2		11	11	41	41	41							

Relinquished By/Company	Received By/Company	Date	Time	Reason for Transfer
K. Thomas Kirk	Fed Ex	1/10/01	1130	Ship to lab
	[signature]	1/11/01	835	Laucks

Comments/Instructions:

Method of Shipment: Fed Ex
Airbill No.: 813654879070
Cooler Temp.:
Lab SDG:

Total No. of Containers: 20
Total No. of Coolers Shipped: 1

CLEAN II

CHAIN-OF-CUSTODY RECORD

18401

00005

Site Name: NAF El Centro
CTO Number: 208
Site Contact/Supervisor: Tom Kirk

Sampler(s): Tom Kirk
Signature(s): K. Thomas Kirk

Pay Items/ Analyses Required: 9.12 / organo lead

Analytical Laboratory Name: Columbia
Analytical Laboratory Address: 1317 S. 13th Ave. Kelso WA 98626
Field Logbook/Page Number: 208-BWS-01

Preservation (4°C)

TAT (in days): 2 | 7 | 14 | 30

	Sample ID No. (7 digit)	Date/Time Collected	Station Description	Sample Matrix	Number of Containers	Archive (Container No.)	Container Nos. (2 digit)	Remarks (e.g., MS, MSD)
1	2083101	1/10/01 0845	EC10-S24	Soil	1		71	
2	2085102	0900	EC10-S25	Soil	1		71	
3	2085103	0915	EC10-S26		1		71	
4	2085104	0930	EC10-S27		1		71	
5	2085105	0935	EC10-S28		1		71	
6	2085106	0950	EC10-S29		1		71	
7	2085107	1000	EC10-S30		1		71	
8	2085108	1010	EC10-S31		1		71	
9	2085109	1020	EC10-S32		1		71	
10	2083110	1030	EC10-S33		1		71	

Relinquished By/Company	Received By/Company	Date	Time	Reason for Transfer
K. Thomas Kirk	Fed Ex	1/10/01	1130	ship to lab
	Fed Ex	1/11/01	1000	

Comments/Instructions: Subcontracted from Laucks

Method of Shipment: Fed Ex
Airbill No.: 813654879070
Cooler Temp.:
Lab SDG: K2100230

Total No. of Containers: 10
Total No. of Coolers Shipped: 1

1word_p-1\forms\cocrecor.doc

Cooler 1 of 1

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 0101277
Assigned SDG Number:

Number of Cooler

Temperature		pH of Bottle Types								
		40z								
1		2) NiC								
2										
3										
4	21°C									
5										
6										
7										
8										
9										
10										

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12
N/C =	Not Checked for pH

templog.doc/revision 4/12

FGD-X

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form

Project/Client Bechtel Work Order K21 00230

Cooler received on 1/11/01 and opened on 1/11/01 by KM

1	Were custody seals on outside of cooler? If yes, how many and where? Front/Back						YES NO
2.	Were seals intact and signature & date correct?						YES NO
3.	COC #	18401	___	___	___	___	
	Temperature of cooler(s) upon receipt:	0.9°	___	___	___	___	
	Temperature Blank:	___	___	___	___	___	
4.	Were custody papers properly filled out (ink, signed, etc.)?						YES NO
5.	Type of packing material present B. WRAP						
6.	Did all bottles arrive in good condition (unbroken)?						YES NO
7.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?						YES NO
8.	Did all bottle labels and tags agree with custody papers?						YES NO
9.	*Were the correct types of bottles used for the tests indicated?*						YES NO
10.	Were all of the preserved bottles received at the lab with the appropriate pH?						~~YES NO~~
11.	Were VOA vials checked for absence of air bubbles, and if present, noted below?						~~YES NO~~
12.	Did the bottles originate from CAS/K or a branch laboratory? ___						YES NO

Explain any discrepancies ___

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

00007

CRFREV.DOC1/2/01

CLEAN II

CHAIN-OF-CUSTODY RECORD

17197

Site Name: Site 10
CTO Number: 208
Site Contact/Supervisor: Scott Donovan

Sampler(s): Brown/Kevin
Signature(s):

Analytical Laboratory Name: Kapuskasing Lab
Analytical Laboratory Address: Seattle, WA
Field Logbook/Page Number: 208-EWS-01

Pay Items/ Analyses Required: Hex Cr 9.11

Preservation (4°C): 4°C

TAT (in days): 2 | 7 | 14 | 30

Sample ID No. (7 digit)	Date/Time Collected	Station Description	Sample Matrix	Number of Containers	Archive (Container No.)	Container Nos. (2 digit)	Remarks (e.g., MS, MSD)
208R101	26 Apr 01 1215	EC10-S24	SS	1		41	Pond 3
208R102	1230	EC10-S25	SS	1		41	
208R103	1245	EC10-S26	SS	1		41	
208R104	1300	EC10-S27	SS	1		41	
208R105	1315	EC10-S28	SS	1		41	
208R106	1330	EC10-S29	SS	1		41	Pond 2
208R107	1345	EC10-S30	SS	1		41	
208R108	1400	EC10-S31	SS	1		41	
208R109	1415	EC10-S32	SS	1		41	
208R110	1430	EC10-S33	SS	1		41	

Relinquished By/Company	Received By/Company	Date	Time	Reason for Transfer
Kevin Brown	FedEx	26 Apr 01	1500	Ship to lab

Comments/Instructions:

Method of Shipment:
Airbill No.: 8186 5814 5129
Cooler Temp.:
Lab SDG:

Total No. of Containers: 10
Total No. of Coolers Shipped: 1

APPENDIX C

ANALYTICAL DATA

ANALYTICAL DATA

SOIL DATA

Pages: 48

GROUNDWATER DATA

Pages: 8

User-Specified Query Criteria

Date Printed: 18-Mar-03

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

MATRIX CODE	SS
SAMPLING EVENT	208005
SITE ID	00010

With the exception of SITE ID, the fields presented above represent fields the user accessed prior to performing the query. For the available fields that were not accessed, all of the possible criteria were considered.

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
Pay Item : CYANIDE														
EC10-S24	SS	REG	0	208S10141	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 9012	U	CYANIDE	1.7 MG/KG		J	000 REG	1/10/2001	1/19/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 9012	U	CYANIDE	0.5 MG/KG	U	UJ	000 REG	1/10/2001	1/19/2001	1/22/2001
Pay Item : SVOCS WITH TICS														
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZO(B)FLUORANTHENE	250 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZO(G,H,I)PERYLENE	76 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZOIC ACID	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	680 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	CHRYSENE	150 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	72 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S24	SS	REG	0	208S10111	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,4-DINITROPHENOL	710 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZOIC ACID	120 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	770 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S25	SS	REG	0	208S10211	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZOIC ACID	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	560 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	BUTYL BENZYL PHTHALATE	120 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S26	SS	REG	0	208S10311	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZOIC ACID	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	710 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S27	SS	REG	0	208S10411	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZOIC ACID	74 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	750 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S28	SS	REG	0	208S10511	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZOIC ACID	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	830 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S29	SS	REG	0	208S10611	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,4-DINITROPHENOL	700 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-CHLOROANILINE	98 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZOIC ACID	170 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	480 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S30	SS	REG	0	208S10711	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,4-DINITROPHENOL	700 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-CHLOROANILINE	82 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZ(A)ANTHRACENE	260 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZO(A)PYRENE	200 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZO(B)FLUORANTHENE	380 UG/KG			000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZO(G,H,I)PERYLENE	130 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZO(K)FLUORANTHENE	160 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZOIC ACID	320 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	1000 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	CHRYSENE	350 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	FLUORANTHENE	270 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	130 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S31	SS	REG	0	208S10811	EPA 8270	U	PYRENE	240 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	1,2,4-TRICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	1,2-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	1,3-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	1,4-DICHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,4,5-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,4,6-TRICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,4-DICHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,4-DIMETHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,4-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2,6-DINITROTOLUENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2-CHLORONAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2-CHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2-METHYLNAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	2-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	3,3'-DICHLOROBENZIDINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	3-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-CHLOROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-METHYLPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-NITROANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	4-NITROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	ACENAPHTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	ACENAPHTHYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	ANILINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZ(A)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZIDINE	350 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZO(A)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZO(B)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZO(G,H,I)PERYLENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZO(K)FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZOIC ACID	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BENZYL ALCOHOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	1200 UG/KG	B	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	BUTYL BENZYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	CARBAZOLE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	CHRYSENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	DI-N-BUTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	DI-N-OCTYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	DIBENZOFURAN	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	DIETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	DIMETHYL PHTHALATE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	FLUORANTHENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	FLUORENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	HEXACHLOROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	HEXACHLOROBUTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	HEXACHLOROETHANE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	ISOPHORONE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	N-NITROSODIPHENYLAMINE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	NAPHTHALENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	NITROBENZENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	PENTACHLOROPHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	PHENANTHRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	PHENOL	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S32	SS	REG	0	208S10911	EPA 8270	U	PYRENE	350 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	1,2,4-TRICHLOROBENZENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	1,2-DICHLOROBENZENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	1,2-DIPHENYLHYDRAZINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	1,3-DICHLOROBENZENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	1,4-DICHLOROBENZENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,4,5-TRICHLOROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,4,6-TRICHLOROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,4-DICHLOROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,4-DIMETHYLPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,4-DINITROPHENOL	690 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,4-DINITROTOLUENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2,6-DINITROTOLUENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2-CHLORONAPHTHALENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2-CHLOROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2-METHYLNAPHTHALENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2-METHYLPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2-NITROANILINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	2-NITROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	3,3'-DICHLOROBENZIDINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	3-NITROANILINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4,6-DINITRO-2-METHYLPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-BROMOPHENYL PHENYL ETHER	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-CHLORO-3-METHYLPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-CHLOROANILINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-CHLOROPHENYL PHENYL ETHER	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-METHYLPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-NITROANILINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	4-NITROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	ACENAPHTHENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	ACENAPHTHYLENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	ANILINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	ANTHRACENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZ(A)ANTHRACENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZIDINE	340 UG/KG	U	UJ	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZO(A)PYRENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZO(B)FLUORANTHENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZO(G,H,I)PERYLENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZO(K)FLUORANTHENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZOIC ACID	130 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BENZYL ALCOHOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BIS(2-CHLOROETHOXY)METHANE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BIS(2-CHLOROETHYL)ETHER	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BIS(2-ETHYLHEXYL)PHTHALATE	340 UG/KG	BJ	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	BUTYL BENZYL PHTHALATE	230 UG/KG	J	J	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	CARBAZOLE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	CHRYSENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	DI-N-BUTYL PHTHALATE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	DI-N-OCTYL PHTHALATE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	DIBENZ(A,H)ANTHRACENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	DIBENZOFURAN	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	DIETHYL PHTHALATE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	DIMETHYL PHTHALATE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	FLUORANTHENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	FLUORENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	HEXACHLOROBENZENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	HEXACHLOROBUTADIENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	HEXACHLOROCYCLOPENTADIENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	HEXACHLOROETHANE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	INDENO(1,2,3-CD)PYRENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	ISOPHORONE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	N-NITROSO-DI-N-PROPYLAMINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	N-NITROSODIPHENYLAMINE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	NAPHTHALENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	NITROBENZENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	PENTACHLOROPHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	PHENANTHRENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	PHENOL	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
EC10-S33	SS	REG	0	208S11011	EPA 8270	U	PYRENE	340 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/19/2001
Pay Item : TCL PEST/AROCLORS														
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	4,4'-DDE	27 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ALPHA-CHLORDANE	5.6 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1254	78 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	DIELDRIN	17 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	GAMMA-CHLORDANE	11 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S24	SS	REG	0	208S10111	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	4,4'-DDD	5.6 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	4,4'-DDE	100 UG/KG	PE	R	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	4,4'-DDT	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ALPHA-CHLORDANE	8.6 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1016	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1221	70 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1232	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1242	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1248	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1254	120 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1260	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	DIELDRIN	22 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDOSULFAN II	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDOSULFAN SULFATE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDRIN	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDRIN ALDEHYDE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDRIN KETONE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	GAMMA-CHLORDANE	17 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	4,4'-DDD	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	4,4'-DDE	71 UG/KG	D		DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	4,4'-DDT	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ALDRIN	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ALPHA-BHC	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ALPHA-CHLORDANE	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1016	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1221	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1232	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1242	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1248	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1254	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	AROCLOR-1260	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	BETA-BHC	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	DELTA-BHC	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	DIELDRIN	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDOSULFAN I	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDOSULFAN II	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDOSULFAN SULFATE	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDRIN	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDRIN ALDEHYDE	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	ENDRIN KETONE	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	GAMMA-BHC (LINDANE)	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	GAMMA-CHLORDANE	13 UG/KG	D	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	HEPTACHLOR	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	HEPTACHLOR EPOXIDE	9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	METHOXYCHLOR	90 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S25	SS	REG	0	208S10211	EPA 8080	U	TOXAPHENE	900 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/26/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	4,4'-DDE	24 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ALPHA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1254	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	DIELDRIN	4.5 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	GAMMA-CHLORDANE	2.7 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S26	SS	REG	0	208S10311	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	4,4'-DDE	20 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ALPHA-CHLORDANE	2.4 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1254	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	DIELDRIN	6.3 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	GAMMA-CHLORDANE	4.8 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S27	SS	REG	0	208S10411	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	4,4'-DDE	12 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ALPHA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1254	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	DIELDRIN	5.6 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	GAMMA-CHLORDANE	2.9 UG/KG			000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S28	SS	REG	0	208S10511	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/24/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	4,4'-DDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ALPHA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1254	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	DIELDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	GAMMA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S29	SS	REG	0	208S10611	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	4,4'-DDD	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	4,4'-DDE	23 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	4,4'-DDT	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ALPHA-CHLORDANE	32 UG/KG	E	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1016	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1232	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1242	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1248	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1254	160 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1260	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	DIELDRIN	36 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDOSULFAN II	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDOSULFAN SULFATE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDRIN	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDRIN ALDEHYDE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDRIN KETONE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	GAMMA-CHLORDANE	44 UG/KG	PEZ	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	4,4'-DDD	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	4,4'-DDE	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	4,4'-DDT	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ALDRIN	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ALPHA-BHC	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ALPHA-CHLORDANE	42 UG/KG	D		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1016	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1221	690 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1232	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1242	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1248	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1254	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	AROCLOR-1260	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	BETA-BHC	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	DELTA-BHC	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	DIELDRIN	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDOSULFAN I	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDOSULFAN II	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDOSULFAN SULFATE	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDRIN	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDRIN ALDEHYDE	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	ENDRIN KETONE	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	GAMMA-BHC (LINDANE)	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	GAMMA-CHLORDANE	49 UG/KG	D		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	HEPTACHLOR	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	HEPTACHLOR EPOXIDE	18 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	METHOXYCHLOR	180 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S30	SS	REG	0	208S10711	EPA 8080	U	TOXAPHENE	1800 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	4,4'-DDD	16 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	4,4'-DDE	93 UG/KG	PE	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	4,4'-DDT	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ALDRIN	3.3 UG/KG			000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ALPHA-CHLORDANE	59 UG/KG	PE	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1016	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1232	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1242	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1248	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1254	370 UG/KG	PE	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1260	35 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	DIELDRIN	96 UG/KG	PEZ	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDOSULFAN II	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDOSULFAN SULFATE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDRIN	12 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDRIN ALDEHYDE	3.5 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDRIN KETONE	4.8 UG/KG	Z		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	GAMMA-CHLORDANE	88 UG/KG	PEZ	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	HEPTACHLOR EPOXIDE	6.9 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	4,4'-DDD	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	4,4'-DDE	100 UG/KG	D		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	4,4'-DDT	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ALDRIN	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ALPHA-BHC	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ALPHA-CHLORDANE	63 UG/KG	D		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1016	170 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1221	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1232	170 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1242	170 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1248	170 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1254	480 UG/KG	DP		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	AROCLOR-1260	170 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	BETA-BHC	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	DELTA-BHC	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	DIELDRIN	140 UG/KG	DPZ		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDOSULFAN I	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDOSULFAN II	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDOSULFAN SULFATE	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDRIN	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDRIN ALDEHYDE	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	ENDRIN KETONE	17 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	GAMMA-BHC (LINDANE)	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	GAMMA-CHLORDANE	120 UG/KG	DPZ		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	HEPTACHLOR	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	HEPTACHLOR EPOXIDE	8.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	METHOXYCHLOR	89 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S31	SS	REG	0	208S10811	EPA 8080	U	TOXAPHENE	890 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	4,4'-DDE	100 UG/KG	PE	R	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ALPHA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1221	69 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1254	100 UG/KG	P		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	DIELDRIN	8.5 UG/KG	PZ		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	GAMMA-CHLORDANE	4.3 UG/KG	Z		000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	4,4'-DDD	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	4,4'-DDE	110 UG/KG	DP		DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	4,4'-DDT	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ALDRIN	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ALPHA-BHC	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ALPHA-CHLORDANE	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1016	69 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1221	140 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1232	69 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1242	69 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1248	69 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1254	120 UG/KG	D	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	AROCLOR-1260	69 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	BETA-BHC	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	DELTA-BHC	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	DIELDRIN	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDOSULFAN I	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDOSULFAN II	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDOSULFAN SULFATE	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDRIN	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDRIN ALDEHYDE	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	ENDRIN KETONE	6.9 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	GAMMA-BHC (LINDANE)	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	GAMMA-CHLORDANE	5.5 UG/KG	DZ	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	HEPTACHLOR	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	HEPTACHLOR EPOXIDE	3.5 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	METHOXYCHLOR	35 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S32	SS	REG	0	208S10911	EPA 8080	U	TOXAPHENE	350 UG/KG	U	R	DL1 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	4,4'-DDD	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	4,4'-DDE	3.6 UG/KG			000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	4,4'-DDT	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ALDRIN	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ALPHA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ALPHA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1016	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1221	68 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1232	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1242	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1248	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1254	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	AROCLOR-1260	34 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	BETA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	DELTA-BHC	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	DIELDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ENDOSULFAN I	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ENDOSULFAN II	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ENDOSULFAN SULFATE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ENDRIN	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ENDRIN ALDEHYDE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	ENDRIN KETONE	3.4 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	GAMMA-BHC (LINDANE)	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	GAMMA-CHLORDANE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	HEPTACHLOR	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	HEPTACHLOR EPOXIDE	1.8 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	METHOXYCHLOR	18 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
EC10-S33	SS	REG	0	208S11011	EPA 8080	U	TOXAPHENE	180 UG/KG	U	U	000 REG	1/10/2001	1/16/2001	1/25/2001
Pay Item : HEXAVALENT CR														
EC10-S24	SS	REG	0	208S10141	EPA 7196A	U	CHROMIUM, HEXAVALENT	10 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S24	SS	REG	0	208X10141	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S25	SS	REG	0	208S10241	EPA 7196A	U	CHROMIUM, HEXAVALENT	6 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S25	SS	REG	0	208X10241	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S26	SS	REG	0	208S10341	EPA 7196A	U	CHROMIUM, HEXAVALENT	10 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S26	SS	REG	0	208X10341	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S27	SS	REG	0	208S10441	EPA 7196A	U	CHROMIUM, HEXAVALENT	6 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S27	SS	REG	0	208X10441	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S28	SS	REG	0	208S10541	EPA 7196A	U	CHROMIUM, HEXAVALENT	5 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S28	SS	REG	0	208X10541	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S29	SS	REG	0	208S10641	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S29	SS	REG	0	208X10641	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S30	SS	REG	0	208S10741	EPA 7196A	U	CHROMIUM, HEXAVALENT	5 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S30	SS	REG	0	208X10741	EPA 7196A	U	CHROMIUM, HEXAVALENT	4 MG/KG		J	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S31	SS	REG	0	208S10841	EPA 7196A	U	CHROMIUM, HEXAVALENT	6 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S31	SS	REG	0	208X10841	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S32	SS	REG	0	208S10941	EPA 7196A	U	CHROMIUM, HEXAVALENT	15 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S32	SS	REG	0	208X10941	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001
EC10-S33	SS	REG	0	208S11041	EPA 7196A	U	CHROMIUM, HEXAVALENT	39 MG/KG		R	000 REG	1/10/2001	2/2/2001	2/2/2001
EC10-S33	SS	REG	0	208X11041	EPA 7196A	U	CHROMIUM, HEXAVALENT	2 MG/KG	U	UJ	000 REG	4/26/2001	5/2/2001	5/2/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
Pay Item : ORGANIC LEAD														
EC10-S24	SS	REG	0	208S10171	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S25	SS	REG	0	208S10271	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S26	SS	REG	0	208S10371	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S27	SS	REG	0	208S10471	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S28	SS	REG	0	208S10571	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S29	SS	REG	0	208S10671	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S30	SS	REG	0	208S10771	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S31	SS	REG	0	208S10871	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S32	SS	REG	0	208S10971	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
EC10-S33	SS	REG	0	208S11071	EPA 7420	U	ORGANIC LEAD	0.5 MG/KG	U	U	000 REG	1/10/2001	1/19/2001	1/19/2001
Pay Item : PRIORITY POLLUTANT METALS														
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	ANTIMONY	0.13 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	ARSENIC	3.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	BERYLLIUM	0.68 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	CADMIUM	2.3 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	CHROMIUM	18.5 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	COPPER	51.1 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	LEAD	17.6 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 7471	U	MERCURY	0.14 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	NICKEL	16.5 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	SELENIUM	2.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	SILVER	41.4 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	THALLIUM	0.28 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S24	SS	REG	0	208S10141	EPA 6010	U	ZINC	82.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	ANTIMONY	0.12 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	ARSENIC	3.1 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	BERYLLIUM	0.44 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	CADMIUM	2.2 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	CHROMIUM	79.2 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	COPPER	52.7 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	LEAD	16.4 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 7471	U	MERCURY	0.19 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	NICKEL	13.2 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	SELENIUM	3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	SILVER	47.5 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	THALLIUM	0.26 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S25	SS	REG	0	208S10241	EPA 6010	U	ZINC	85.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	ANTIMONY	0.12 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	ARSENIC	2.1 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	BERYLLIUM	0.72 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	CADMIUM	1.1 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	CHROMIUM	27.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	COPPER	33.9 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	LEAD	15.1 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 7471	U	MERCURY	0.05 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	NICKEL	17.7 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	SELENIUM	1.2 MG/KG		U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	SILVER	14.3 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	THALLIUM	0.26 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S26	SS	REG	0	208S10341	EPA 6010	U	ZINC	66.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	ANTIMONY	0.13 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	ARSENIC	2.2 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC

Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	BERYLLIUM	0.64 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	CADMIUM	1.2 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	CHROMIUM	33.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	COPPER	40.7 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	LEAD	17.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 7471	U	MERCURY	0.07 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	NICKEL	15.9 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	SELENIUM	1.8 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	SILVER	36 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	THALLIUM	0.27 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S27	SS	REG	0	208S10441	EPA 6010	U	ZINC	83.8 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	ANTIMONY	0.12 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	ARSENIC	1.6 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	BERYLLIUM	0.74 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	CADMIUM	0.68 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	CHROMIUM	17.4 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	COPPER	26 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	LEAD	16.6 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 7471	U	MERCURY	0.06 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	NICKEL	17 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	SELENIUM	1.1 MG/KG		U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	SILVER	4 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	THALLIUM	0.26 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S28	SS	REG	0	208S10541	EPA 6010	U	ZINC	58.9 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	ANTIMONY	0.13 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	ARSENIC	3.9 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	BERYLLIUM	0.86 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	CADMIUM	1.1 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	CHROMIUM	24.2 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	COPPER	33.2 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	LEAD	16.9 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 7471	U	MERCURY	0.03 MG/KG	U*	U	000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	NICKEL	19.5 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	SELENIUM	1.5 MG/KG		U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	SILVER	19.8 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	THALLIUM	0.29 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S29	SS	REG	0	208S10641	EPA 6010	U	ZINC	76.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	ANTIMONY	0.13 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	ARSENIC	4 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	BERYLLIUM	0.52 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	CADMIUM	2.5 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	CHROMIUM	16.4 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	COPPER	68.3 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	LEAD	19.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 7471	U	MERCURY	0.09 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	NICKEL	16.2 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	SELENIUM	3.6 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	SILVER	45.2 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	THALLIUM	0.28 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S30	SS	REG	0	208S10741	EPA 6010	U	ZINC	91.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	ANTIMONY	0.12 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	ARSENIC	3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	BERYLLIUM	0.15 MG/KG	B		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	CADMIUM	2.9 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	CHROMIUM	23 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	COPPER	66.9 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	LEAD	15.5 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 7471	U	MERCURY	0.38 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	NICKEL	8.9 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	SELENIUM	3.8 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	SILVER	77.4 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	THALLIUM	0.26 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S31	SS	REG	0	208S10841	EPA 6010	U	ZINC	84.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	ANTIMONY	0.3 MG/KG	BN	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	ARSENIC	8.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	BERYLLIUM	0.31 MG/KG	B		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	CADMIUM	22 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	CHROMIUM	41 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	COPPER	326 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	LEAD	51.3 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 7471	U	MERCURY	0.35 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	NICKEL	20.9 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	SELENIUM	15.1 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	SILVER	84.8 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	THALLIUM	0.27 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S32	SS	REG	0	208S10941	EPA 6010	U	ZINC	354 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	ANTIMONY	0.12 MG/KG	UN	R	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	ARSENIC	4.9 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	BERYLLIUM	0.56 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	CADMIUM	1 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	CHROMIUM	15.2 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001

ANALYTICAL RESULTS --- CTO: 0208

Data retrieved from BEIDMS on 18-Mar-03 at 10:17 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	COPPER	22.7 MG/KG	N	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	LEAD	15.4 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 7471	U	MERCURY	0.03 MG/KG	*		000 REG	1/10/2001	1/15/2001	1/16/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	NICKEL	14.7 MG/KG	E	J	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	SELENIUM	0.94 MG/KG		U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	SILVER	10.9 MG/KG	*		000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	THALLIUM	0.25 MG/KG	U	U	000 REG	1/10/2001	1/18/2001	1/22/2001
EC10-S33	SS	REG	0	208S11041	EPA 6010	U	ZINC	59.7 MG/KG			000 REG	1/10/2001	1/18/2001	1/22/2001

User-Specified Query Criteria

Date Printed: 18-Mar-04

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

SAMPLE TYPE

FD

REG

SAMPLING EVENT

C043003

With the exception of SITE ID, the fields presented above represent fields the user accessed prior to performing the query. For the available fields that were not accessed, all of the possible criteria were considered.

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	Result Type	Date Information Collect	Prepare	Analyze
Pay Item : VOC + OXYGENATES														
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1,1,2-TETRACHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1,1-TRICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1,2,2-TETRACHLOROETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1,2-TRICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1-DICHLOROETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,1-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2,3-TRICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2,3-TRICHLOROPROPANE	2 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2,4-TRICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2,4-TRIMETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2-DIBROMO-3-CHLOROPROPANE	2 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2-DIBROMOETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2-DICHLOROBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2-DICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,2-DICHLOROPROPANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,3,5-TRIMETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,3-DICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,3-DICHLOROPROPANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1,4-DICHLOROBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	1-CHLOROHEXANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	2-CHLOROTOLUENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	4-CHLOROTOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BROMOBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BROMOCHLOROMETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BROMODICHLOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BROMOFORM	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	BUTANE, 2-METHOXY-2-METHYL-	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CARBON TETRACHLORIDE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CHLOROBENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CHLORODIBROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CHLOROFORM	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CHLOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CIS-1,2-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	CIS-1,3-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	DIBROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	DICHLORODIFLUOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	DIISOPROPYL ETHER	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	ETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	HEXACHLOROBUTADIENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	ISOPROPYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	M,P-XYLENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	METHYL TERT-BUTYL ETHER	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	METHYLENE CHLORIDE	5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	N-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	N-PROPYLBENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	NAPHTHALENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	O-XYLENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	P-ISOPROPYLTOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	PROPANE, 2-ETHOXY-2-METHYL-	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	SEC-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	SEC-DICHLOROPROPANE	1 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	STYRENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TERT-BUTYL ALCOHOL	100 UG/L	U	UJ	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TERT-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TETRACHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TRANS-1,2-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TRANS-1,3-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TRICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	TRICHLOROFLUOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW1	GW	REG		C043G12101	EPA 8260B	U	VINYL CHLORIDE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1,1,2-TETRACHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1,1-TRICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1,2,2-TETRACHLOROETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1,2-TRICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1-DICHLOROETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,1-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2,3-TRICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2,3-TRICHLOROPROPANE	2 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2,4-TRICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2,4-TRIMETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2-DIBROMO-3-CHLOROPROPANE	2 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	Result Type	Date Information Collect	Prepare	Analyze
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2-DIBROMOETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2-DICHLOROBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2-DICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,2-DICHLOROPROPANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,3,5-TRIMETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,3-DICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,3-DICHLOROPROPANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1,4-DICHLOROBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	1-CHLOROHEXANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	2-CHLOROTOLUENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	4-CHLOROTOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BROMOBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BROMOCHLOROMETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BROMODICHLOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BROMOFORM	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	BUTANE, 2-METHOXY-2-METHYL-	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CARBON TETRACHLORIDE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CHLOROBENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CHLORODIBROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CHLOROFORM	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CHLOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CIS-1,2-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	CIS-1,3-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	DIBROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	DICHLORODIFLUOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	DIISOPROPYL ETHER	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	ETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	HEXACHLOROBUTADIENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	ISOPROPYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	M,P-XYLENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	METHYL TERT-BUTYL ETHER	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	METHYLENE CHLORIDE	5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	N-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	N-PROPYLBENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	NAPHTHALENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	O-XYLENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	P-ISOPROPYLTOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	PROPANE, 2-ETHOXY-2-METHYL-	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	SEC-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	SEC-DICHLOROPROPANE	1 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	STYRENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TERT-BUTYL ALCOHOL	100 UG/L	U	UJ	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TERT-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TETRACHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TRANS-1,2-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TRANS-1,3-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TRICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	TRICHLOROFLUOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-MW4	GW	FD		C043G12201	EPA 8260B	U	VINYL CHLORIDE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1,1,2-TETRACHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1,1-TRICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1,2,2-TETRACHLOROETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1,2-TRICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1-DICHLOROETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,1-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2,3-TRICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2,3-TRICHLOROPROPANE	2 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2,4-TRICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2,4-TRIMETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2-DIBROMO-3-CHLOROPROPANE	2 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2-DIBROMOETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2-DICHLOROBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2-DICHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,2-DICHLOROPROPANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,3,5-TRIMETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,3-DICHLOROBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,3-DICHLOROPROPANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1,4-DICHLOROBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	1-CHLOROHEXANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	2-CHLOROTOLUENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	4-CHLOROTOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BROMOBENZENE	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BROMOCHLOROMETHANE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BROMODICHLOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BROMOFORM	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	BUTANE, 2-METHOXY-2-METHYL-	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CARBON TETRACHLORIDE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CHLOROBENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CHLORODIBROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CHLOROETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CHLOROFORM	0.3 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CHLOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CIS-1,2-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	CIS-1,3-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	DIBROMOMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	DICHLORODIFLUOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	DIISOPROPYL ETHER	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	ETHYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	HEXACHLOROBUTADIENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	ISOPROPYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	M,P-XYLENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	METHYL TERT-BUTYL ETHER	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	METHYLENE CHLORIDE	5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	N-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	N-PROPYLBENZENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	NAPHTHALENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	O-XYLENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

ANALYTICAL RESULTS --- CTO: C043

Data retrieved from BEIDMS on 18-Mar-04 at 10:56 AM

Facility: NAFEC
Site: 00010 SEWAGE STABILIZATION PONDS

Station ID	Sample Information Matrix	Type	Top Depth	Container ID	Method Code	Filter Code	Analyte Name	Results	Qualifiers Lab	Val	ResultType	Date Information Collect	Prepare	Analyze
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	P-ISOPROPYLTOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	PROPANE, 2-ETHOXY-2-METHYL-	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	SEC-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	SEC-DICHLOROPROPANE	1 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	STYRENE	0.4 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TERT-BUTYL ALCOHOL	100 UG/L	U	UJ	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TERT-BUTYLBENZENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TETRACHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TOLUENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TRANS-1,2-DICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TRANS-1,3-DICHLOROPROPENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TRICHLOROETHENE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	TRICHLOROFLUOROMETHANE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003
EC10-MW4	GW	REG		C043G12001	EPA 8260B	U	VINYL CHLORIDE	0.5 UG/L	U	U	000 REG	9/15/2003	9/23/2003	9/23/2003

APPENDIX D

HUMAN-HEALTH RISK SCREENING CRITERIA

TABLE OF CONTENTS

Section | Page

ACRONYMS/ABBREVIATIONS ..... D-iii

D1 HUMAN-HEALTH RISK SCREENING METHODOLOGY OVERVIEW D-1

D2 SELECTION OF CHEMICALS OF POTENTIAL CONCERN D-2

D2.1 Data Evaluation D-2

D2.2 Background Concentrations D-8

D3 RISK SCREENING PROCEDURE D-8

D4 APPLICATION OF CAL-EPA PRGs FOR CARCINOGENS D-21

D5 COPCs WITHOUT ASSIGNED PRGs D-21

D6 LEAD SCREENING D-21

D7 EXPOSURE ASSUMPTIONS OF THE SOIL PRGs D-22

D8 CHEMICALS WITH DETECTION LIMITS ABOVE THE PRG D-22

D9 REFERENCES D-22

TABLES

Table

D-1 List of Soil Samples Used in Risk Screening, Site 10, Pond Nos. 2 and 3 ..... D-3

D-2 Chemicals of Potential Concern in Soil, Site 10, Pond 2 ..... D-4

D-3 Chemicals of Potential Concern in Soil, Site 10, Pond 3 ..... D-6

D-4 Human-Health Risk Screening Results for Soil at Site 10, Pond 2 ..... D-9

D-5 Incremental Risk – Human-Health Risk Screening Results for Soil at Site 10, Pond 2 ..... D-13

Table | Page

D-6 Human-Health Risk Screening Results for Soil at Site 10, Pond 3 ..... D-15

D-7 Incremental Risk – Human-Health Risk Screening Results for Soil at Site 10, Pond 3 ..... D-19

ACRONYMS/ABBREVIATIONS

Cal-EPA	California Environmental Protection Agency
COPC	chemical of potential concern
IR	Installation Restoration (Program)
mg/kg	milligrams per kilogram
PRG	preliminary remediation goal
TPH	total petroleum hydrocarbons
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

This page left blank intentionally

Appendix D
HUMAN-HEALTH RISK SCREENING CRITERIA

This appendix presents the methodology used in the risk screening for the extended site investigation at Installation Restoration (IR) Program Site 10, Pond 2 and Pond 3, and tabulates the resultant risk estimates. The human-health risk screening methodology is presented in Section D1. Under the human-health risk screening, a quantitative screen was performed for the soil.

A screening risk assessment was performed to assess potential impacts from contaminants at Site 10, Pond Nos. 2 and 3, on human health. The screening risk assessment documents the hazards and provides information necessary for making risk management decisions concerning the necessity for or the selection of remedial alternatives. This appendix describes the approach used in the estimation of risk and the rational for the approach, and summarizes the risk screening results.

This risk assessment addresses chemicals in soil within Pond Nos. 2 and 3. Table D-1 lists the soil samples used. Groundwater samples were not originally collected because groundwater beneath Site 10 has been classified being of "no beneficial use" by the California Regional Water Quality Control Board. However, as a result of resolution of comments on the draft Extended Site Investigation Technical Memorandum, groundwater samples were collected in September 2003 from interior pond wells EC10-MW1 and EC10-MW4 and analyzed for volatile organic compounds (VOCs). This was to assess whether any VOCs were present in groundwater at concentrations that may contribute to indoor air VOC concentrations. No VOCs were reported above their detections limits. Surface water samples were not collected because the ponds are dry. There are no buildings on the ponds and no buildings will be constructed on the ponds in the foreseeable future.

Exposure conditions used in the risk screening are chosen to represent a maximum possible exposure. Use of these exposure conditions tends to overestimate risk. This effort to overestimate risk is deliberate; it provides risk managers a margin of safety when making cleanup decisions.

Although Site 10, Pond Nos. 2 and 3 are screened in this report for both an industrial and a residential land use, it should be noted that land use within Naval Air Facility El Centro is generally characterized as heavy industrial use. The current receptors are facility personnel.

D1 HUMAN-HEALTH RISK SCREENING METHODOLOGY OVERVIEW

The steps used in the risk screening include selection of the chemicals of potential concern (COPCs) and calculation of the health risks for the COPCs. The COPCs are selected from all chemicals detected in any soil sample. Chemicals that are required nutrients or have concentrations below natural background were not included as COPCs. COPCs in soil at Site 10, Pond Nos. 2 and 3, are listed in Tables D-2 and D-3, respectively.

The health risks are calculated using preliminary remediation goals (PRGs) published by United States Environmental Protection Agency (U.S. EPA) Region 9 (U.S. EPA 2000)

for residential and industrial soil. The PRGs account for exposure via ingestion of soil, inhalation of vapors or dust and absorption through dermal contact with chemicals in soil.

Cancer and noncancer risks have been quantified separately. For carcinogenic COPCs, the risks were calculated using both U.S. EPA PRGs and California Environmental Protection Agency (Cal-EPA) PRGs because there are differences between them. The uncertainty associated with chemicals with detection limits above their PRGs is discussed in Section D8.

The assessment of risk for lead is based on a comparison of maximum concentration of lead at each pond to both the Cal-EPA residential PRG of 150 milligrams per kilogram (mg/kg) and to the U.S. EPA industrial PRG of 750 mg/kg.

The results of the cancer, noncancer and lead soil risk screenings for Site 10, Pond Nos. 2 and 3 are presented in Tables D-4 through D-7.

D2 SELECTION OF CHEMICALS OF POTENTIAL CONCERN

COPCs are the chemicals used to characterize the risk. They are a subset of all chemicals detected in the analytical data collected from the ponds. Inorganic chemicals that are required nutrients are not included as COPCs. Chemicals with maximum concentrations below background are not included as COPCs. This section presents an overview of the data evaluation process that was used to select the COPCs for the human-health risk screening.

D2.1 Data Evaluation

Data collected during the extended site investigation and previous investigations were used to conduct the screening human-health risk assessment. All chemical analytical data obtained during the extended site field investigation were validated (10 percent at Level IV and 90 percent at Level III). All data were evaluated for the data quality indicators (precision, accuracy, representativeness, completeness, and comparability) as specified in the Guidance for Data Usability in Risk Assessment (U.S. EPA 1992). Data rejected during the evaluation process were not used in the human-health risk screening. All data used in the risk screening were analyzed by the fixed-base analytical laboratory. A list of samples used in the risk screening assessment is listed on Table D-1.

Following the validation process, COPCs were selected based on appropriate U.S. EPA guidance (U.S. EPA 1989). The data evaluation process began by listing all chemicals positively identified in soil. Essential nutritional elements of very low toxicity (i.e., calcium, iron, magnesium, potassium, or sodium) and tentatively identified compounds that were not identified at the structural level were eliminated as COPCs. Chemicals with maximum concentrations less than background were also eliminated as COPCs. Tables D-2 and D-3 present the COPCs for Site 10, Pond Nos. 2 and 3, respectively.

The total petroleum hydrocarbons (TPH) were not identified as risk screening COPCs. TPH is an estimate of the total concentration of petroleum hydrocarbons in a sample.

Table D-1
List of Soil Samples Used in Risk Screening
Site 10, Pond Nos. 2 and 3

Sampling Location	Sample ID	Sample Depth (feet)
POND 2		
EC10-B12	EC10-B12-S1-D1	1
EC10-B12	EC10-B12-S4-D5.5	5.5
EC10-B12	EC10-B12-S7-D21	21.5
EC10-B13	EC10-B13-S3-D4	4
EC10-B13	EC10-B13-S6-D9	9
EC10-B15	100S134	0.75
EC10-B15	100S135	2.75
EC10-B15	100S136	4.25
EC10-B18	100S503	0
EC10-B18	100S504	10.5
EC10-S29	208S106	0.5
EC10-S30	208S107	0.5
EC10-S30	208X10741	0.5
EC10-S31	208S108	0.5
EC10-S32	208S109	0.5
EC10-S33	208S110	0.5
POND 3		
EC10-B10	EC10-B10-S1-D1	1
EC10-B10	EC10-B10-S2-D4	3
EC10-B10	EC10-B10-S8-D13	13.5
EC10-B11	EC10-B11-S1-D1.5	1.5
EC10-B11	EC10-B11-S4-D6	6
EC10-B11	EC10-B11-S8-D15	15
EC10-B14	100S137	0.6
EC10-B14	100S138	2.6
EC10-B14	100S139	4.1
EC10-B19	100S505	0
EC10-B19	100S506	10.5
EC10-S24	208S101	0.5
EC10-S25	208S102	0.5
EC10-S26	208S103	0.5
EC10-S27	208S104	0.5
EC10-S28	208S105	0.5

Table D-2
Chemicals of Potential Concern in Soil, Site 10, Pond 2

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Statistical Background Concentration[a] (mg/kg)	Chemical of Potential Concern?
Metals							
7440-36-0	Antimony	EC10-B13-S6-D9	EC10-B13	9	0.52	0.68	No[b]
7440-38-2	Arsenic	208S109	EC10-S32	0.5	8.7	9.2	No[b]
7440-41-7	Beryllium	EC10-B13-S6-D9	EC10-B13	9	0.98	2.0	No[b]
7440-43-9	Cadmium	208S109	EC10-S32	0.5	22	2.2	Yes
18540-29-9	Chromium, hexavalent	208X10741	EC10-S30	0.5	4	NA	Yes
7440-47-3	Chromium, total	208S109	EC10-S32	0.5	41	19	Yes
7440-50-8	Copper	208S109	EC10-S32	0.5	326	22	Yes
7439-92-1	Lead	208S109	EC10-S32	0.5	51.3	17	Yes
7439-97-6	Mercury	208S108	EC10-S31	0.5	0.38	0.05	Yes
7440-02-0	Nickel	208S109	EC10-S32	0.5	20.9	20	Yes
7782-49-2	Selenium	208S109	EC10-S32	0.5	15.1	0.7	Yes
7440-22-4	Silver	208S109	EC10-S32	0.5	84.8	0.6	Yes
7440-28-0	Thallium	100S504	EC10-B18	10.5	0.23	0.3	No[b]
7440-66-6	Zinc	208S109	EC10-S32	0.5	354	70	Yes
Organics							
72-54-8	4,4'-DDD	208S108	EC10-S31	0.5	0.016	NA	Yes
72-55-9	4,4'-DDE	208S109	EC10-S32	0.5	0.11	NA	Yes
50-29-3	4,4'-DDT	100S503	EC10-B18	0	0.0005	NA	Yes
106-47-8	4-chloroaniline	208S107	EC10-S30	0.5	0.098	NA	Yes
309-00-2	Aldrin	208S108	EC10-S31	0.5	0.0033	NA	Yes
5103-71-9	alpha-chlordane	208S108	EC10-S31	0.5	0.063	NA	Yes
11097-69-1	Aroclor 1254	208S108	EC10-S31	0.5	0.48	NA	Yes
56-55-3	Benz(a)anthracene	208S108	EC10-S31	0.5	0.26	NA	Yes
50-32-8	Benzo(a)pyrene	208S108	EC10-S31	0.5	0.2	NA	Yes

(table continues)

Table D-2 (continued)

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Statistical Background Concentration[a] (mg/kg)	Chemical of Potential Concern?
205-99-2	Benzo(b)fluoranthene	208S108	EC10-S31	0.5	0.38	NA	Yes
191-24-2	Benzo(g,h,i)perylene	208S108	EC10-S31	0.5	0.13	NA	Yes
207-08-9	Benzo(k)fluoranthene	208S108	EC10-S31	0.5	0.16	NA	Yes
65-85-0	Benzoic acid	208S108	EC10-S31	0.5	0.32	NA	Yes
85-68-7	Butyl benzyl phthalate	208S110	EC10-S33	0.5	0.23	NA	Yes
218-01-9	Chrysene	208S108	EC10-S31	0.5	0.35	NA	Yes
57-12-5	Cyanide	208S109	EC10-S32	0.5	1.7	NA	Yes
60-57-1	Dieldrin	208S108	EC10-S31	0.5	0.14	NA	Yes
1031-07-8	Endosulfan sulfate	100S503	EC10-B18	0	0.002	NA	Yes
72-20-8	Endrin	208S108	EC10-S31	0.5	0.012	NA	Yes
7421-93-4	Endrin aldehyde	100S503	EC10-B18	0	0.002	NA	Yes
53494-70-5	Endrin ketone	208S108	EC10-S31	0.5	0.0048	NA	Yes
206-44-0	Fluoranthene	208S108	EC10-S31	0.5	0.27	NA	Yes
5103-74-2	gamma-chlordane	208S108	EC10-S31	0.5	0.12	NA	Yes
1024-57-3	Heptachlor epoxide	208S108	EC10-S31	0.5	0.0069	NA	Yes
193-39-5	Indeno(1,2,3-c,d)pyrene	208S108	EC10-S31	0.5	0.13	NA	Yes
10-02-2	Organic lead	EC10-B13-S6-D9	EC10-B13	9	0.28	0.42–0.67	No[b]
129-00-0	Pyrene	208S108	EC10-S31	0.5	0.24	NA	Yes
108-88-3	Toluene	EC10-B12-S4-D5.5	EC10-B12	5.5	0.041	NA	Yes

Notes:
[a] refer to Section D2.2 for information regarding the background concentrations
[b] the maximum on-site concentration is less than the background concentration

Acronyms/Abbreviations:
CAS – Chemical Abstracts Service
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
IR – Installation Restoration (Program)
mg/kg – milligrams per kilogram
NA – not applicable

Table D-3
Chemicals of Potential Concern in Soil, Site 10, Pond 3

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Statistical Background Concentration[a] (mg/kg)	Chemical of Potential Concern?
Metals							
7440-36-0	Antimony	EC10-B11-S4-D6	EC10-B11	6	0.48	0.68	No[b]
7440-38-2	Arsenic	100S505	EC10-B19	0	4	9.2	No[b]
7440-41-7	Beryllium	EC10-B11-S8-D15	EC10-B11	15	1	2.0	No[b]
7440-43-9	Cadmium	100S505	EC10-B19	0	3.08	2.2	Yes
7440-47-3	Chromium, total	208S102	EC10-S25	0.5	79.2	19	Yes
7440-50-8	Copper	208S102	EC10-S25	0.5	52.7	22	Yes
7439-92-1	Lead	100S505	EC10-B19	0	23.7	17	Yes
7439-97-6	Mercury	208S102	EC10-S25	0.5	0.19	0.05	Yes
7440-02-0	Nickel	208S103	EC10-S26	0.5	17.7	20	No[b]
7782-49-2	Selenium	100S505	EC10-B19	0	4	0.7	Yes
7440-22-4	Silver	100S505	EC10-B19	0	47.8	0.6	Yes
7440-28-0	Thallium	100S505	EC10-B19	0	0.18	0.3	No[b]
7440-66-6	Zinc	100S505	EC10-B19	0	105	70	Yes
Organics							
72-54-8	4,4'-DDD	208S102	EC10-S25	0.5	0.0056	NA	Yes
72-55-9	4,4'-DDE	208S102	EC10-S25	0.5	0.071	NA	Yes
5103-71-9	alpha-chlordane	100S505	EC10-B19	0	0.012	NA	Yes
11097-69-1	Aroclor 1254	208S102	EC10-S25	0.5	0.12	NA	Yes
11096-82-5	Aroclor 1260	100S505	EC10-B19	0	0.038	NA	Yes
205-99-2	Benzo(b)fluoranthene	208S101	EC10-S24	0.5	0.25	NA	Yes
191-24-2	Benzo(g,h,i)perylene	208S101	EC10-S24	0.5	0.076	NA	Yes
65-85-0	Benzoic acid	208S102	EC10-S25	0.5	0.12	NA	Yes
85-68-7	Butyl benzyl phthalate	208S103	EC10-S26	0.5	0.12	NA	Yes

(table continues)

Table D-3 (continued)

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Statistical Background Concentration[a] (mg/kg)	Chemical of Potential Concern?
218-01-9	Chrysene	208S101	EC10-S24	0.5	0.15	NA	Yes
57-12-5	Cyanide	EC10-B11-S8-D15	EC10-B11	15	0.5	NA	Yes
60-57-1	Dieldrin	100S505	EC10-B19	0	0.032	NA	Yes
7421-93-4	Endrin aldehyde	100S505	EC10-B19	0	0.003	NA	Yes
5103-74-2	gamma-chlordane	208S102	EC10-B1 and EC10-S25	0 0.5	0.017	NA	Yes
1024-57-3	Heptachlor epoxide	100S505	EC10-B19	0	0.002	NA	Yes
193-39-5	Indeno(1,2,3-c,d)pyrene	208S101	EC10-S24	0.5	0.072	NA	Yes
10-02-2	Organic lead	EC10-B11-S4-D6	EC10-B11	6	0.21	0.42–0.67	No[b]
108-88-3	Toluene	EC10-B11-S1-D1.5	EC10-B10 and EC10-B11	1 1.5	0.22	NA	Yes
10-03-7	Total phenols	EC10-B11-S4-D6	EC10-B11	6	0.2	NA	Yes

Notes:
[a] refer to Section D2.2 for information regarding the background concentrations
[b] the maximum on-site concentration is less than the background concentration

Acronyms/Abbreviations:
CAS – Chemical Abstracts Service
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
IR – Installation Restoration (Program)
mg/kg – milligrams per kilogram
NA – not applicable

Depending on the type of fuel released and the degree of weathering that occurred, the TPH concentrations were made of different quantities of different hydrocarbons with different levels of toxicity. Because of this variability, a health-based PRG was not developed for TPH. Instead, the risk screening was conducted on the components of hydrocarbons (e g., benzo[a]pyrene) when these were identified.

D2.2 Background Concentrations

Statistical estimates of background concentrations were used in two ways. First, the statistical background concentration was compared to the maximum concentration of the chemical detected in soil. Chemicals with concentrations below background were not included as COPCs. For Site 10, Pond Nos. 2 and 3, six chemicals (antimony, arsenic, beryllium, nickel, thallium, and organolead) were detected at concentrations below background and were not included as COPCs.

Second, the background concentrations for the COPCs were included in the risk calculations. Metals are natural components of the earth's crust. Some of the metals are considered carcinogenic and, therefore, could present a cancer risk at naturally occurring (background) concentrations. Release of a carcinogenic metal to an environment where the metal already existed does not create a potential risk but adds to any existing risk. A background risk was calculated for COPCs with background concentrations. This calculation is explained in Section D3.

Background concentrations for metals were identified from sample results that represent soil conditions that have not been affected by site operations. Background concentrations used to estimate human-health risk from exposure to metals in soil at background concentrations are shown in Tables 2-1 and 2-2 of the main document.

D3 RISK SCREENING PROCEDURE

The specific screening procedure used was recommended by U.S. EPA Region 9 (U.S. EPA 2000) and is described below.

- The COPCs were matched to the respective PRG values and were evaluated as three groups. The first group was composed of those COPCs with cancer-based PRG values; the second was composed of the COPCs with noncancer hazard-based PRG values; the third was composed of COPCs with PRGs based on saturation or ceiling limits in soil. PRGs in the third group were coded "sat" or "max" in the published table of PRGs. Note that a COPC can have both a cancer- and noncancer-based PRG.
- The ratio of the maximum reported chemical concentration and cancer-/noncancer-based PRG was calculated for each COPC.
- The ratio of each carcinogen was multiplied by 1×10^{-6} to obtain a cancer risk estimate.
- The cancer risk estimates were summed to obtain an estimate of total cancer risk.
- The background cancer risk was calculated for COPCs detected in the background and have statistical estimates of the concentration in background.

CAS No	Analyte Name	Sample II	Cancer PRG Value ıdustrial Soil (mg/kg)	Industrial Carcinogenic Risk	Noncancer PRG Value Industrial Soil (mg/kg)	Industrial Hazard Index
Metals						
7440-43-9	Cadmium[a]	208S109	3.0E+03	7E-09	8.1E+02	3E-02
18540-29-9	Chromium, hexavalent[a]	208X1074	6.4E+01	6E-08	6.1E+03	7E-04
7440-47-3	Chromium, total	208S109	4.5E+02	9E-08		NA
7440-50-8	Copper	208S109		NA	7.6E+04	4E-03
7439-92-1	Lead	208S109		NA		NA
7439-97-6	Mercury	208S108		NA	6.1E+02	6E-04
7440-02-0	Nickel[a]	208S109		NA	4.1E+04	5E-04
7782-49-2	Selenium	208S109		NA	1.0E+04	2E-03
7440-22-4	Silver	208S109		NA	1.0E+04	8E-03
7440-66-6	Zinc[b]	208S109		NA		NA
CLASS SUM				2E-07		4E-02
Organics						
72-54-8	4,4'-DDD	208S108	1.7E+01	9E-10		NA
72-55-9	4,4'-DDE	208S109	1.2E+01	9E-09		NA
50-29-3	4,4'-DDT	100S503	1.2E+01	4E-11	7.3E+02	7E-07
106-47-8	4-chloroaniline	208S107		NA	3.5E+03	3E-05
309-00-2	Aldrin	208S108	1.5E-01	2E-08	2.6E+01	1E-04
5103-71-9	alpha-Chlordane	208S108	1.1E+01	6E-09	6.7E+02	9E-05
11097-69-1	Aroclor 1254	208S108	1.0E+00	5E-07	1.4E+01	3E-02
56-55-3	Benz(a)anthracene	208S108	2.9E+00	9E-08		NA
50-32-8	Benzo(a)pyrene	208S108	2.9E-01	7E-07		NA
205-99-2	Benzo(b)fluoranthene	208S108	2.9E+00	1E-07		NA
191-24-2	Benzo(g,h,i)perylene	208S108		NA	5.4E+04	2E-06
207-08-9	Benzo(k)fluoranthene[a]	208S108	2.9E+01	6E-09		NA
65-85-0	Benzoic acid[b]	208S108		NA		NA
85-68-7	Butylbenzyl phthalate[b]	208S110		NA		NA
218-01-9	Chrysene[a]	208S108	2.9E+02	1E-09		NA
57-12-5	Cyanide	208S109		NA	3.5E+01	5E-02
60-57-1	Dieldrin	208S108	1.5E-01	9E-07	4.4E+01	3E-03
1031-07-8	Endosulfan sulfate	100S503		NA	5.3E+03	4E-07
72-20-8	Endrin[c]	208S108		NA	2.6E+02	5E-05
7421-93-4	Endrin aldehyde	100S503		NA	2.6E+02	8E-06
53494-70-5	Endrin ketone	208S108		NA	2.6E+02	2E-05
206-44-0	Fluoranthene	208S108		NA	3.0E+04	9E-06
5103-74-2	gamma-Chlordane	208S108	1.1E+01	1E-08	6.7E+02	2E-04
1024-57-3	Heptachlor epoxide	208S108	2.7E-01	3E-08	1.1E+01	6E-04
193-39-5	Indeno(1,2,3-c,d)pyrene	208S108	2.9E+00	4E-08		NA
129-00-0	Pyrene[c]	208S108		NA	5.4E+04	4E-06
108-88-3	Toluene[b]	EC10-B12-S4-I		NA		NA
CLASS SUM				2E-06		9E-02
Total Cancer Risk and Hazard				3E-06		1E-01

(table continues)

Table D-4 (continued)

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Soil Sa Conce PRG (m
Metals						
7440-66-6	Zinc	208S109	EC10-S32	0 5	354	1
Organics						
65-85-0	Benzoic acid	208S108	EC10-S31	0.5	0.32	
85-68-7	Butyl benzyl phthalate	208S110	EC10-S33	0.5	0.23	
108-88-3	Toluene	EC10-B12-S4-D5 5	EC10-B12	5 5	0 041	5

Notes:

[a] a Cal-modified PRG is available for this compound

[b] the noncancer industrial PRG for zinc is based on the 'max'; the noncancer residential and industrial PRGs for benzoic acid are base the noncancer industrial PRG for butyl benzyl phthalate is based on the 'max"; the noncancer residential and industrial PRGs for tolu the "sat"; where "max" equals the ceiling limit and "sat" equals the soil saturation limit

[c] pyrene was used as a surrogate for benzo(g h i)perylene based on chemical similarity; endosulfan was used as a surrogate for endos on chemical similarity; endrin was used as a surrogate for endrin aldehyde and endrin ketone based on chemical similarity

Acronyms/Abbreviations:

Cal-Modified – California-modified
CAS – Chemical Abstracts Service
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
mg/kg – milligrams per kilogram
NA – not applicable; cancer risk or hazard quotient cannot be calculated because a PRG is not available and no surrogate compound h
PRG – preliminary remediation goal

CAS No.	Analyte Name	Sample ID	Station	Industrial Carcinogenic Risk	Background Industrial Carcinogenic Risk	Incremental Industrial Carcinogenic Risk	Industrial Hazard Index	Background Industrial Hazard Index
Metals								
7440-43-9	Cadmium	208S109	EC10-S32	7E-09	7E-10	7E-09	3E-02	3E-03
18540-29-9	Chromium, hexavalent	208X10741	EC10-S30	6E-08		6E-08	7E-04	
7440-47-3	Chromium, total	208S109	EC10-S32	9E-08	4E-08	5E-08	NA	NA
7440-50-8	Copper	208S109	EC10-S32	NA	NA	NA	4E-03	3E-04
7439-92-1	Lead	208S109	EC10-S32	NA	NA	NA	NA	NA
7439-97-6	Mercury	208S108	EC10-S31	NA	NA	NA	6E-04	8E-05
7440-02-0	Nickel	208S109	EC10-S32	NA	NA	NA	5E-04	5E-04
7782-49-2	Selenium	208S109	EC10-S32	NA	NA	NA	2E-03	7E-05
7440-22-4	Silver	208S109	EC10-S32	NA	NA	NA	8E-03	6E-05
7440-66-6	Zinc	208S109	EC10-S32	NA	NA	NA	NA	NA
CLASS SUM				2E-07	4E-08	1E-07	4E-02	4E-03
Organics								
72-54-8	4,4'-DDD	208S108	EC10-S31	9E-10		9E-10	NA	
72-55-9	4,4'-DDE	208S109	EC10-S32	9E-09		9E-09	NA	
50-29-3	4,4'-DDT	100S503	EC10-B18	4E-11		4E-11	7E-07	
106-47-8	4-chloroaniline	208S107	EC10-S30	NA		NA	3E-05	
309-00-2	Aldrin	208S108	EC10-S31	2E-08		2E-08	1E-04	
5103-71-9	alpha-Chlordane	208S108	EC10-S31	6E-09		6E-09	9E-05	
11097-69-1	Aroclor 1254	208S108	EC10-S31	5E-07		5E-07	3E-02	
56-55-3	Benz(a)anthracene	208S108	EC10-S31	9E-08		9E-08	NA	
50-32-8	Benzo(a)pyrene	208S108	EC10-S31	7E-07		7E-07	NA	
205-99-2	Benzo(b)fluoranthene	208S108	EC10-S31	1E-07		1E-07	NA	
191-24-2	Benzo(g,h,i)perylene	208S108	EC10-S31	NA		NA	2E-06	
207-08-9	Benzo(k)fluoranthene	208S108	EC10-S31	6E-09		6E-09	NA	
65-85-0	Benzoic acid	208S108	EC10-S31	NA		NA	NA	
85-68-7	Butylbenzyl phthalate	208S110	EC10-S33	NA		NA	NA	
218-01-9	Chrysene	208S108	EC10-S31	1E-09		1E-09	NA	
57-12-5	Cyanide	208S109	EC10-S32	NA		NA	5E-02	
60-57-1	Dieldrin	208S108	EC10-S31	9E-07		9E-07	3E-03	
1031-07-8	Endosulfan sulfate	100S503	EC10-B18	NA		NA	4E-07	
72-20-8	Endrin	208S108	EC10-S31	NA		NA	5E-05	
7421-93-4	Endrin aldehyde	100S503	EC10-B18	NA		NA	8E-06	
53494-70-5	Endrin ketone	208S108	EC10-S31	NA		NA	2E-05	
206-44-0	Fluoranthene	208S108	EC10-S31	NA		NA	9E-06	
5103-74-2	gamma-Chlordane	208S108	EC10-S31	1E-08		1E-08	2E-04	
1024-57-3	Heptachlor epoxide	208S108	EC10-S31	3E-08		3E-08	6E-04	
193-39-5	Indeno(1,2,3-c,d)pyrene	208S108	EC10-S31	4E-08		4E-08	NA	
129-00-0	Pyrene	208S108	EC10-S31	NA		NA	4E-06	
108-88-3	Toluene	EC10-B12-S4-D5.5	EC10-B12	NA		NA	NA	
CLASS SUM				2E-06	0E+00	2E-06	9E-02	0E+00
Total Cancer Risk and Hazard				3E-06	4E-08	3E-06	1E-01	4E-03

Acronyms/Abbreviations:

Cal-Modified – California-modified
CAS – Chemical Abstracts Service
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodi
DDT – dichlorodi
NA – not applical

Table D-6
Human-Health Risk Screening Results for Soil at Site 10, Pond 3

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Cancer PRG Value Residential Soil (mg/kg)	Cancer Cal-Modified PRG Value Residential Soil (mg/kg)	Residential Carcinogenic Risk	Residential Cal-Modified Carcinogenic Risk	Noncancer PRG Value Residential Soil (mg/kg)	Residential Hazard Index	Cancer PRG Value Industrial Soil (mg/kg)	Industrial Carcinogenic Risk	Noncancer PRG Value Industrial Soil (mg/kg)	Industrial Hazard Index
Metals															
7440-43-9	Cadmium[a]	100S505	EC10-B19	0	3.08	1 4E+03	9.0E+00	2.2E-09	3 4E-07	3 7E+01	8.3E-02	3.0E+03	1.0E-09	8 1E+02	3.8E-03
7440-47-3	Chromium, total	208S102	EC10-S25	0.5	79.2	2.1E+02	2.1E+02	3.8E-07	3.8E-07		NA	4 5E+02	1.8E-07		NA
7440-50-8	Copper	208S102	EC10-S25	0 5	52 7			NA	NA	2.9E+03	1 8E-02		NA	7.6E+04	6.9E-04
7439-92-1	Lead	100S505	EC10-B19	0	23.7			NA	NA		NA		NA		NA
7439-97-6	Mercury	208S102	EC10-S25	0.5	0.19			NA	NA	2.3E+01	8.3E-03		NA	6.1E+02	3 1E-04
7782-49-2	Selenium	100S505	EC10-B19	0	4			NA	NA	3.9E+02	1.0E-02		NA	1.0E+04	4 0E-04
7440-22-4	Silver	100S505	EC10-B19	0	47 8			NA	NA	3.9E+02	1.2E-01		NA	1.0E+04	4.8E-03
7440-66-6	Zinc[b]	100S505	EC10-B19	0	105			NA	NA	2.3E+04	4.6E-03		NA		NA
CLASS SUM								3.8E-07	7.2E-07		2.5E-01		1.8E-07		1.0E-02
Organics															
72-54-8	4,4'-DDD	208S102	EC10-S25	0.5	0.0056	2.4E+00	2 4E+00	2.3E-09	2 3E-09		NA	1.7E+01	3.3E-10		NA
72-55-9	4,4'-DDE	208S102	EC10-S25	0 5	0 071	1 7E+00	1.7E+00	4.2E-08	4.2E-08		NA	1.2E+01	5.9E-09		NA
5103-71-9	alpha-Chlordane	100S505	EC10-B19	0	0 012	1.6E+00	1.6E+00	7.5E-09	7.5E-09	3.5E+01	3.4E-04	1.1E+01	1.1E-09	6.7E+02	1.8E-05
11097-69-1	Aroclor 1254	208S102	EC10-S25	0.5	0.12	2.2E-01	2.2E-01	5.5E-07	5.5E-07	1.1E+00	1 1E-01	1.0E+00	1 2E-07	1 4E+01	8.6E-03
11096-82-5	Aroclor 1260	100S505	EC10-B19	0	0.038	2.2E-01	2.2E-01	1.7E-07	1.7E-07		NA	1.0E+00	3.8E-08		NA
205-99-2	Benzo(b)fluoranthene	208S101	EC10-S24	0.5	0.25	6 2E-01	6.2E-01	4.0E-07	4.0E-07		NA	2.9E+00	8.6E-08		NA
191-24-2	Benzo(g,h,i)perylene[c]	208S101	EC10-S24	0.5	0.076			NA	NA	2.3E+03	3.3E-05		NA	5.4E+04	1 4E-06
65-85-0	Benzoic acid[b]	208S102	EC10-S25	0.5	0.12			NA	NA		NA		NA		NA
85-68-7	Butylbenzyl phthalate[b]	208S103	EC10-S26	0.5	0.12			NA	NA	1.2E+04	1.0E-05		NA		NA
218-01-9	Chrysene[a]	208S101	EC10-S24	0 5	0.15	6 2E+01	6.1E+00	2.4E-09	2.5E-08		NA	2.9E+02	5.2E-10		NA
57-12-5	Cyanide	EC10-B11-S8-D15	EC10-B11	15	0 5			NA	NA	1.1E+01	4 5E-02		NA	3.5E+01	1.4E-02
60-57-1	Dieldrin	100S505	EC10-B19	0	0.032	3.0E-02	3 0E-02	1.1E-06	1 1E-06	3.1E+00	1.0E-02	1.5E-01	2 1E-07	4.4E+01	7.3E-04
7421-93-4	Endrin aldehyde[c]	100S505	EC10-B19	0	0.003			NA	NA	1.8E+01	1.7E-04		NA	2.6E+02	1.2E-05
5103-74-2	gamma-Chlordane	208S102	EC10-S25	0 5	0.017	1.6E+00	1.6E+00	1.1E-08	1 1E-08	3.5E+01	4.9E-04	1.1E+01	1.5E-09	6.7E+02	2.5E-05
1024-57-3	Heptachlor epoxide	100S505	EC10-B19	0	0 002	5.3E-02	5.3E-02	3.8E-08	3.8E-08	7.9E-01	2 5E-03	2.7E-01	7 4E-09	1.1E+01	1 8E-04
193-39-5	Indeno(1,2,3-c,d)pyrene	208S101	EC10-S24	0 5	0 072	6 2E-01	6.2E-01	1.2E-07	1.2E-07		NA	2.9E+00	2.5E-08		NA
108-88-3	Toluene[b]	EC10-B11-S1-D1.5	EC10-B11	1.5	0.22			NA	NA		NA		NA		NA
10-03-7	Total phenols[b]	EC10-B11-S4-D6	EC10-B11	6	0 2			NA	NA	3 7E+04	5 4E-06		NA		NA
CLASS SUM								2.4E-06	2.4E-06		1.7E-01		5.0E-07		2.4E-02
Total Cancer Risk and Hazard								2 8E-06	3 1E-06		4 2E-01		6 8E-07		3 4E-02

(table continues)

Table D-6 (continued)

CAS No.	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Soil Saturation Concentration PRG Value (mg/kg)	Environmental Concentration Greater than Soil Saturation Nonrisk PRG	Soil Maximum Concentration PRG Value (mg/kg)	Environmental Concentration Greater than Soil Maximum Nonrisk PRG
Metals									
7440-66-6	Zinc	100S505	EC10-B19	0	105	NA	NA	1.0E+05	No
Organics									
65-85-0	Benzoic acid	208S102	EC10-S25	0.5	0.12	NA	NA	1 0E+05	No
85-68-7	Butylbenzyl phthalate	208S103	EC10-S26	0.5	0.12	NA	NA	1.0E+05	No
108-88-3	Toluene	EC10-B11-S1-D1 5	EC10-B11	1.5	0.22	5.2E+02	No	NA	NA
10-03-7	Total phenols	EC10-B11-S4-D6	EC10-B11	6	0 2	NA	NA	1 0E+05	No

Notes:

[a] a Cal-modified PRG is available for this compound

[b] the noncancer industrial PRG for zinc is based on the "max"; the noncancer residential and industrial PRGs for benzoic acid are based on the 'max"; the noncancer industrial PRG for butyl benzyl phthalate is based on the "max"; the noncancer residential and industrial PRGs for toluene are based on the "sat"; the noncancer industrial PRG for total phenols is based on the 'max"; where 'max" equals the ceiling limit and "sat" equals the soil saturation limit

[c] pyrene was used as a surrogate for benzo(g h i)perylene based on chemical similarity; endrin was used as a surrogate for endrin aldehyde based on chemical similarity

Acronyms/Abbreviations:

mg/kg – milligrams per kilogram

NA – not applicable; cancer risk or hazard quotient can not be calculated because a PRG is not available and no surrogate compound has been identified

PRG – preliminary remediation goal

Table D-7
Incremental Risk – Human-Health Risk Screening Results for Soil at Site 10, Pond 3

CAS No	Analyte Name	Sample ID	Station	Sample Depth (feet)	Maximum Detected Concentration (mg/kg)	Statistical Background Concentration (mg/kg)	Residential Carcinogenic Risk	Background Residential Carcinogenic Risk	Incremental Residential Carcinogenic Risk	Residential Cal-Modified Carcinogenic Risk	Background Residential Cal-Modified Carcinogenic Risk	Incremental Residential Cal-Modified Carcinogenic Risk	Residential Hazard Index	Background Residential Hazard Index	Industrial Carcinogenic Risk	Background Industrial Carcinogenic Risk	Incremental Industrial Carcinogenic Risk	Industrial Hazard Index	Background Industrial Hazard Index
Metals																			
7440-43-9	Cadmium	100S505	EC10-B19	0	3.08	2.2E+00	2.2E-09	1 6E-09	6.3E-10	3 4E-07	2.4E-07	9.8E-08	8.3E-02	5.9E-02	1 0E-09	7.3E-10	2.9E-10	3 8E-03	2.7E-03
7440-47-3	Chromium, total	208S102	EC10-S25	0.5	79.2	1.9E+01	3.8E-07	9.0E-08	2.9E-07	3.8E-07	9.0E-08	2.9E-07	NA	NA	1.8E-07	4.2E-08	1.3E-07	NA	NA
7440-50-8	Copper	208S102	EC10-S25	0.5	52.7	2.2E+01	NA	NA	NA	NA	NA	NA	1.8E-02	7.6E-03	NA	NA	NA	6.9E-04	2.9E-04
7439-92-1	Lead	100S505	EC10-B19	0	23.7	1.7E+01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-97-6	Mercury	208S102	EC10-S25	0.5	0.19	5 0E-02	NA	NA	NA	NA	NA	NA	8.3E-03	2.2E-03	NA	NA	NA	3.1E-04	8 2E-05
7782-49-2	Selenium	100S505	EC10-B19	0	4	7.0E-01	NA	NA	NA	NA	NA	NA	1.0E-02	1.8E-03	NA	NA	NA	4.0E-04	7.0E-05
7440-22-4	Silver	100S505	EC10-B19	0	47.8	6.0E-01	NA	NA	NA	NA	NA	NA	1.2E-01	1 5E-03	NA	NA	NA	4.8E-03	6.0E-05
7440-66-6	Zinc	100S505	EC10-B19	0	105	7.0E+01	NA	NA	NA	NA	NA	NA	4.6E-03	3.0E-03	NA	NA	NA	NA	NA
CLASS SUM							3.8E-07	9.2E-08	2.9E-07	7.2E-07	3.3E-07	3.8E-07	2.5E-01	7.6E-02	1.8E-07	4.3E-08	1.3E-07	1.0E-02	3.2E-03
Organics																			
72-54-8	4,4'-DDD	208S102	EC10-S25	0.5	0.0056	NA	2 3E-09		2 3E-09	2.3E-09		2.3E-09	NA		3.3E-10		3.3E-10	NA	
72-55-9	4,4'-DDE	208S102	EC10-S25	0.5	0.071	NA	4.2E-08		4.2E-08	4.2E-08		4.2E-08	NA		5.9E-09		5.9E-09	NA	
5103-71-9	alpha-Chlordane	100S505	EC10-B19	0	0 012	NA	7.5E-09		7.5E-09	7.5E-09		7.5E-09	3.4E-04		1 1E-09		1.1E-09	1.8E-05	
11097-69-1	Aroclor 1254	208S102	EC10-S25	0.5	0.12	NA	5.5E-07		5.5E-07	5 5E-07		5 5E-07	1 1E-01		1.2E-07		1.2E-07	8.6E-03	
11096-82-5	Aroclor 1260	100S505	EC10-B19	0	0 038	NA	1.7E-07		1 7E-07	1.7E-07		1.7E-07	NA		3.8E-08		3.8E-08	NA	
205-99-2	Benzo(b)fluoranthene	208S101	EC10-S24	0 5	0 25	NA	4.0E-07		4.0E-07	4.0E-07		4.0E-07	NA		8.6E-08		8.6E-08	NA	
191-24-2	Benzo(g,h,i)perylene	208S101	EC10-S24	0.5	0.076	NA	NA		NA	NA		NA	3 3E-05		NA		NA	1.4E-06	
65-85-0	Benzoic acid	208S102	EC10-S25	0.5	0.12	NA	NA		NA	NA		NA	NA		NA		NA	NA	
85-68-7	Butylbenzyl phthalate	208S103	EC10-S26	0 5	0.12	NA	NA		NA	NA		NA	1.0E-05		NA		NA	NA	
218-01-9	Chrysene	208S101	EC10-S24	0.5	0.15	NA	2.4E-09		2.4E-09	2.5E-08		2.5E-08	NA		5.2E-10		5.2E-10	NA	
57-12-5	Cyanide	EC10-B11-S8-D15	EC10-B11	15	0 5	NA	NA		NA	NA		NA	4 5E-02		NA		NA	1 4E-02	
60-57-1	Dieldrin	100S505	EC10-B19	0	0.032	NA	1.1E-06		1.1E-06	1.1E-06		1.1E-06	1.0E-02		2.1E-07		2.1E-07	7.3E-04	
7421-93-4	Endrin aldehyde	100S505	EC10-B19	0	0.003	NA	NA		NA	NA		NA	1 7E-04		NA		NA	1 2E-05	
5103-74-2	gamma-Chlordane	208S102	EC10-S25	0.5	0.017	NA	1.1E-08		1.1E-08	1.1E-08		1.1E-08	4 9E-04		1.5E-09		1.5E-09	2 5E-05	
1024-57-3	Heptachlor epoxide	100S505	EC10-B19	0	0.002	NA	3 8E-08		3 8E-08	3.8E-08		3 8E-08	2.5E-03		7.4E-09		7.4E-09	1.8E-04	
193-39-5	Indeno(1,2,3-c,d)pyrene	208S101	EC10-S24	0.5	0.072	NA	1.2E-07		1.2E-07	1.2E-07		1.2E-07	NA		2.5E-08		2.5E-08	NA	
108-88-3	Toluene	EC10-B11-S1-D1.5	EC10-B11	1 5	0.22	NA	NA		NA	NA		NA	NA		NA		NA	NA	
10-03-7	Total phenols	EC10-B11-S4-D6	EC10-B11	6	0.2	NA	NA		NA	NA		NA	5 4E-06		NA		NA	NA	
CLASS SUM							2.4E-06	0.0E+00	2.4E-06	2.4E-06	0.0E+00	2.4E-06	1.7E-01	0.0E+00	5.0E-07	0.0E+00	5.0E-07	2.4E-02	0.0E+00
Total Cancer Risk and Hazard							2 8E-06	9 2E-08	2 7E-06	3 1E-06	3 3E-07	2 8E-06	4 2E-01	7 6E-02	6 8E-07	4.3E-08	6.3E-07	3 4E-02	3.2E-03

Acronyms/Abbreviations:
- Cal-Modified – California-modified
- CAS – Chemical Abstracts Service
- DDD – dichlorodiphenyldichloroethane
- DDE – dichlorodiphenyldichloroethene
- NA – not applicable

An incremental cancer risk was calculated by subtracting the background cancer risk from the total cancer risk. Comparing on-site and background risks provides information useful to risk managers making decisions about selection of remedies.

- Cancer risks for each COPC are added together.
- The ratios for the noncarcinogens were summed to obtain an estimate of total chronic toxicity. These ratios are called hazard indices.

Tables D-4 and D-6 present the resultant cancer and noncancer residential and industrial risk estimates from exposure to the COPCs. These tables also present the COPCs at each site with nonrisk-based PRG values (COPCs with PRGs based on saturation or ceiling limits in soil). Tables D-5 and D-7 present the cancer risk estimates and hazard indices for background concentrations and for incremental risk.

Incremental risk was not calculated for the systemic toxicants because noncarcinogenic effects have thresholds. If the background concentration of a noncarcinogen does not produce an exposure level above the toxicity threshold, it poses no risk of adverse health effects. With noncarcinogenic effects it is necessary to estimate the likelihood of systemic effects presented by the total concentration (background plus the amount above background) and to use that estimate in decision making.

D4 APPLICATION OF CAL-EPA PRGs FOR CARCINOGENS

For eight chemicals, the published U.S. EPA Region 9 PRG table contains PRGs developed by Cal-EPA for chemicals in soil. Those chemicals are benzo(k)fluoranthene, cadmium, chrysene, hexavalent chromium, nickel, dibromodichloropropane, lead, and tetrachloroethene. The Cal-EPA PRG for each of those chemicals is lower (and thus more stringent) than the corresponding U.S. EPA PRG by a factor of four or more and is referred to as a "Cal-modified PRG." Cal-modified PRGs were used in addition to U.S. EPA Region 9 PRGs when COPCs with Cal-modified PRGs are present.

D5 COPCs WITHOUT ASSIGNED PRGs

PRGs were not developed for some of the COPCs. These chemicals were assigned the PRG of another chemical of similar structure (surrogates). Tables D-4 and D-6 identify the chemical surrogates for the COPCs without assigned PRGs.

D6 LEAD SCREENING

The assessment of the risk for lead occurred in a two step process. First, the maximum concentration of lead reported at Site 10, Pond Nos. 2 and 3, was compared to the Cal-EPA residential PRG of 150 mg/kg and the U.S. EPA industrial PRG of 750 mg/kg. For residential soils, the comparison is based on the residential Cal-modified PRG instead of the U.S. EPA PRG of 400 mg/kg because the Cal-modified PRG is lower and more stringent, rendering the approach conservative. Neither the Cal-EPA residential soil PRG or the U.S. EPA PRG for lead is exceeded at Site 10, Pond Nos. 2 and 3.

If there had been exceedances, the Cal-EPA pharmacokinetic model would have been used to estimate the blood lead concentration for a resident child and adult and compare these concentrations to the acceptable concentration of 10 micrograms per deciliter.

D7 EXPOSURE ASSUMPTIONS OF THE SOIL PRGs

The PRGs developed by U.S. EPA Region 9 for chemicals in residential and industrial soil are based on exposure by ingestion, inhalation of soil particles, inhalation of chemical vapors released to the atmosphere, and contact of soil with the skin. In risk assessment, these are considered to be the major routes of exposure to chemicals in soil.

PRGs were estimated by U.S. EPA Region 9 by integrating intake variables such as ingestion rate, body weight, and exposure duration with the risk level protective of human health. The intake variables used to develop the PRGs were based on U.S. EPA guidelines that assume a 90 to 95 percent upper-bound exposure scenario designed to address the behavior and activity patterns of receptor populations. The intent is to estimate the PRG on what is know as "reasonable maximum exposure." Use of PRGs, structured under these exposure conditions, tends to overestimate risk. This effort to overestimate risk is deliberate; it provides risk managers a margin of safety when making cleanup decisions.

D8 CHEMICALS WITH DETECTION LIMITS ABOVE THE PRG

There are chemicals for which the PRGs are below the practical detection limits achievable by analytical laboratories. In a screening risk assessment, this can introduce uncertainties that the cancer risk and hazard index calculations are underestimated.

For Site 10, eight chemicals (benzidine, benzo(a)pyrene, bis[2-chloroethyl]ether, dibenz[a,h]anthracene, hexachlorobenzene, hexavalent chromium, n-nitroso-di-n-propylamine, and organolead) that were not detected in one or both ponds, had detection limits above the U.S. EPA or Cal-modified residential PRG (Appendix D). Review of these chemicals indicates that only three are either likely to be present based on finding of the chemical in one of the ponds or similarity to other chemicals detected. These chemicals include hexavalent chromium, benzo(a)pyrene and dibenz(a,h)anthracene. The risk associated with half the detection limit for these chemicals is 5×10^{-6} (Cal-modified), 3×10^{-6}, and 3×10^{-6}, respectively. Thus, there is a potential for the overall risk to increase by 1×10^{-5}. Note that hexavalent chromium and benzo(a)pyrene were detected in Pond No. 2 at concentrations greater than half the detection limit and were included as COPCs, so the increased risk would only be associated with dibenz(a,h)anthracene.

D9 REFERENCES

United States Environmental Protection Agency. 1989. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual, Part A, Interim Final, EPA/540/1-89/002. Office of Emergency and Remedial Response. Washington DC. December.

———. 1992. Guidance for Data Usability in Risk Assessment.

———. 2000. Preliminary Residential California-Modified and Industrial Guidelines.

U.S. EPA. *See* United States Environmental Protection Agency.

This page left blank intentionally

APPENDIX E

DATA VALIDATION REPORTS

Appendix E
DATA VALIDATION REPORTS

Quality Assurance/Quality Control Summary

This section presents a summary of the quality assurance/quality control findings for the analytical data for surface soil sampling at Installation Restoration Program Site 10 Pond Numbers 2 and 3.

SEMIVOLATILE ORGANIC COMPOUNDS

No significant analytical problems were noted for the semivolatile organic compound (SVOC) analyses. None of the reported SVOC data points were qualified as unusable for method noncompliance as a result of the data validation process. bis(2-ethylhexyl) phthalate was reported in one of the method blanks associated with the analysis of the soil samples. All affected data points have been qualified accordingly. For additional information on the assessment of the volatile organic compound data, refer to Appendix E for the data validators' case narratives.

CHLORINATED PESTICIDES/POLYCHLORINATED BIPHENYLS

No significant problems were noted for the analyses for chlorinated pesticides and polychlorinated biphenyls. None of the reported data was qualified as unusable for any noncompliance issues for these analyses. For additional information on other qualified data, refer to Appendix E for the data validators' case narratives.

METALS

No significant analytical problems were noted for the metals analyses with the following exceptions. Low recovery (< 30 percent) of antimony in the matrix spike resulted in the reported nondetect results for this compound being rejected during the data validation process. None of the other reported metals data points were considered to be unusable for method noncompliance as a result of the data validation process. For additional information on the assessment of the metals data, refer to Appendix E for the data validators' case narratives.

ORGANIC LEAD

No significant problems were noted for the analyses for organic lead. None of the reported data was qualified as unusable for any noncompliance issues for these analyses. For additional information on other qualified data, refer to Appendix E for the data validators' case narratives.

HEXAVALENT CHROMIUM AND CYANIDE

No significant problems were noted for the analyses for hexavalent chromium and cyanide. None of the reported data was qualified as unusable for any noncompliance issues for these analyses. For additional information on other qualified data, refer to Appendix E for the data validators' case narratives.

This page left blank intentionally

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Bechtel Environmental
1230 Columbia Street, Suite 400
San Diego, CA 92101
Attn: Mr. James Jordan

February 28, 2001

Project Name : NAF El Centro
Project # : CTO 208

On February 22, 2001 the following data packages were received by Laboratory Data Consultants, Inc. from Bechtel Environmental. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 6020:

SDG #	Fraction
EC011, K2100230, 52800, 52751	Semivolatiles, Chlorinated Pesticides & PCBs, Metals, Hexavalent Chromium & Cyanide, Organic Lead, Dioxins/Dibenzofurans

The above SDGs were reviewed using Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- NFESC Special Publication SP-2056-ENV, Navy Installation Restoration Chemical Data Quality Manual, Naval Facilities Engineering Command, September 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

The data validators did utilize their professional judgement when evaluating the data to achieve the most complete and accurate assessment of the data. The data packages were reviewed according to the above stated validation procedures.

For GC/MS semivolatile analyses, the primary findings consisted of:

a) Continuing calibration factors exceeded acceptance criteria in SDG EC011. Since the laboratory met the protocol requirement, this finding should be considered advisory.

b) Bis(2-ethylhexyl)phthalate were detected in the method blanks. Since the laboratory met the protocol requirement, this finding should be considered advisory.

For chlorinated pesticides and PCB analyses, the primary findings consisted of:

a) 4,4'-DDE in samples 208S102 and 208S109, gamma-chlordane and alpha-chlordane in sample 208S107 and several compounds in sample 208S108 in SDG EC011 exceeded the calibration range. Since the laboratory met the protocol requirement, this finding should be considered advisory.

b) Data was qualified as unusable in dilutions by the validators in order to yield only one complete set of data for a given sample and eliminate redundant data.

For metal analyses, the primary findings consisted of:

a) Matrix spike percent recoveries exceeded acceptance criteria for antimony and copper in SDG EC011. The associated non-detected results for antimony were qualified unusable. Since the laboratory met the protocol requirement, this finding should be considered advisory.

b) ICP serial dilution percent difference exceeded acceptance criteria for cadmium and nickel in SDG EC011. Since the laboratory met the protocol requirement, this finding should be considered advisory.

c) Selenium were detected in the method blanks. Since the laboratory met the protocol requirement, this finding should be considered advisory.

For wet chemistry analyses, the primary findings consisted of:

a) Continuing calibration percent recoveries exceeded acceptance criteria in SDG EC011. The associated nondetect results for hexavalent chromium were qualified as unusable in this SDG.

b) Matrix spike percent recoveries exceeded acceptance criteria for cyanide in SDG E011. Since the laboratory met the protocol requirement, this finding should be considered advisory.

For dioxin/dibenzofuran analyses, the primary findings consisted of:

a) Routine calibration factors exceeded acceptance criteria in SDG 52800.

b) Matrix spike/matrix spike duplicate analyses were not performed for SDGs 52800 and 52751.

c) Laboratory control sample percent recoveries exceeded acceptance criteria for 2,3,4,7,8-PeCDF in SDG 52751

d) Internal standard areas exceeded acceptance criteria in several samples in SDG 52751.

e) Data was qualified as unusable in confirmations by the validators in order to yield only one complete set of data for a given sample and eliminate redundant data.

f) Several compounds were detected in the method blanks. Since the laboratory met the protocol requirement, this finding should be considered advisory.

For organic lead analyses, there were no significant findings observed.

In general, the data for all analyses appear usable with the limitations noted in the Data Validation Reports. Data validation flags were noted on the Laboratory Form 1s and included with each validation report.

Sincerely,

Richard M. Amano for
President/Principal Chemist

NAF El Centro, CTO 208
Data Validation Reports
LDC# 6020

Semivolatiles

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NAF El Centro, CTO 208

Collection Date: January 10, 2001

LDC Report Date: February 27, 2001

Matrix: Soil

Parameters: Semivolatiles

Validation Level: Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): EC011

Sample Identification

208S101
208S102
208S103
208S104
208S105
208S106
208S107
208S108
208S109
208S110
208S101MS
208S101DUP

Introduction

This data review covers 12 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable

N Presumptive evidence of presence of the constituent

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria

P Indicates the finding is related to a protocol/contractual deviation

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required

I. Technical Holding Times

All technical holding time requirements were met

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals

All ion abundance requirements were met

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs)

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria

Average relative response factors (RRF) for all semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
1/19/01	Benzidine	54.0	All samples in SDG EC011	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were greater than or equal to 0.05.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
SBLKD1	1/16/01	Bis(2-ethylhexyl)phthalate	620 ug/Kg	All samples in SDG EC011

Sample concentrations were compared to concentrations detected in the method blanks The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
208S101	Bis(2-ethylhexyl)phthalate	680 ug/Kg	680U ug/Kg
208S102	Bis(2-ethylhexyl)phthalate	770 ug/Kg	770U ug/Kg
208S103	Bis(2-ethylhexyl)phthalate	560 ug/Kg	560U ug/Kg
208S104	Bis(2-ethylhexyl)phthalate	710 ug/Kg	710U ug/Kg
208S105	Bis(2-ethylhexyl)phthalate	750 ug/Kg	750U ug/Kg
208S106	Bis(2-ethylhexyl)phthalate	830 ug/Kg	830U ug/Kg
208S107	Bis(2-ethylhexyl)phthalate	480 ug/Kg	480U ug/Kg
208S108	Bis(2-ethylhexyl)phthalate	1000 ug/Kg	1000U ug/Kg
208S109	Bis(2-ethylhexyl)phthalate	1200 ug/Kg	1200U ug/Kg
208S110	Bis(2-ethylhexyl)phthalate	320 ug/Kg	340U ug/Kg

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NAF El Centro, CTO 208
Semivolatiles - Data Qualification Summary - SDG EC011

SDG	Sample	Compound	Flag	A or P	Reason
EC011	208S101 208S102 208S103 208S104 208S105 208S106 208S107 208S108 208S109 208S110	Benzidine	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NAF El Centro, CTO 208
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG EC011

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
EC011	208S101	Bis(2-ethylhexyl)phthalate	680U ug/Kg	A
EC011	208S102	Bis(2-ethylhexyl)phthalate	770U ug/Kg	A
EC011	208S103	Bis(2-ethylhexyl)phthalate	560U ug/Kg	A
EC011	208S104	Bis(2-ethylhexyl)phthalate	710U ug/Kg	A
EC011	208S105	Bis(2-ethylhexyl)phthalate	750U ug/Kg	A
EC011	208S106	Bis(2-ethylhexyl)phthalate	830U ug/Kg	A
EC011	208S107	Bis(2-ethylhexyl)phthalate	480U ug/Kg	A
EC011	208S108	Bis(2-ethylhexyl)phthalate	1000U ug/Kg	A
EC011	208S109	Bis(2-ethylhexyl)phthalate	1200U ug/Kg	A
EC011	208S110	Bis(2-ethylhexyl)phthalate	340U ug/Kg	A

NAF El Centro, CTO 208
Data Validation Reports
LDC# 6020

Chlorinated Pesticides & PCBs

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NAF El Centro, CTO 208

Collection Date: January 10, 2001

LDC Report Date: February 27, 2001

Matrix: Soil

Parameters: Chlorinated Pesticides & PCBs

Validation Level: Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): EC011

Sample Identification

208S101
208S102
208S103
208S104
208S105
208S106
208S107
208S108
208S109
208S110
208S102DL
208S107DL
208S108DL
208S109DL
208S104MS
208S104MSD

Introduction

This data review covers 16 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A and 8082 for Chlorinated Pesticides and PCBs.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature

Blank results are summarized in Section V

Field duplicates are summarized in Section XIV

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method

The percent relative standard deviations (%RSD) were less than or equal to 20 0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15 0% QC limits.

The individual 4,4'-DDT and Endrin breakdowns were less than 15 0%

V. Blanks

Method blanks were reviewed for each matrix as applicable No chlorinated pesticide or PCB contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and Reported CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
208S102 208S109	4 4 -DDE	Sample result exceeded calibration range	Reported result should be within calibration range	J (all detects)	A
208S107	gamma-Chlordane alpha-Chlordane	Sample result exceeded calibration range	Reported result should be within calibration range.	J (all detects) J (all detects)	A
208S108	gamma-Chlordane alpha-Chlordane Dieldrin 4,4'-DDE Aroclor-1254	Sample result exceeded calibration range.	Reported result should be within calibration range	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

Raw data were not reviewed for this SDG

XIII. Overall Assessment of Data

The overall assessment of data was acceptable with the following exceptions:

Sample	Compound	Finding	Flag	A or P
208S102 208S109	4 4 -DDE	For database purposes this compound was rejected.	R	A
208S102DL 208S109DL	All TCL compounds except 4 4 -DDE	For database purposes this compound was rejected.	R	A
208S107	gamma-Chlordane alpha-Chlordane	For database purposes these compounds were rejected	R R	A
208S107DL	All TCL compounds except gamma-Chlordane alpha-Chlordane	For database purposes these compounds were rejected.	R	A
208S108	gamma-Chlordane alpha-Chlordane Dieldrin 4 4'-DDE Aroclor-1254	For database purposes this compound was rejected	R R R R R	A
208S108DL	All TCL compounds except gamma-Chlordane alpha-Chlordane Dieldrin 4 4'-DDE Aroclor-1254	For database purposes this compound was rejected	R	A

Data flags are summarized at the end of this report.

XIV. Field Duplicates

No field duplicates were identified in this SDG

XV. Field Blanks

No field blanks were identified in this SDG.

NAF El Centro, CTO 208
Chlorinated Pesticides & PCBs - Data Qualification Summary - SDG EC011

SDG	Sample	Compound	Flag	A or P	Reason
EC011	208S102 208S109	4 4 -DDE	J (all detects)	A	Compound quantitation and CRQLs
EC011	208S107	gamma-Chlordane alpha-Chlordane	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
EC011	208S108	gamma-Chlordane alpha-Chlordane Dieldrin 4 4'-DDE Aroclor-1254	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
EC011	208S102 208S109	4 4 -DDE	R	A	Overall assessment of data
EC011	208S102DL 208S109DL	All TCL compounds except 4,4 -DDE	R	A	Overall assessment of data
EC011	208S107	gamma-Chlordane alpha-Chlordane	R R	A	Overall assessment of data
EC011	208S107DL	All TCL compounds except gamma-Chlordane alpha-Chlordane	R	A	Overall assessment of data
EC011	208S108	gamma-Chlordane alpha-Chlordane Dieldrin 4 4'-DDE Aroclor-1254	R R R R R	A	Overall assessment of data
EC011	208S108DL	All TCL compounds except gamma-Chlordane alpha-Chlordane Dieldrin 4 4'-DDE Aroclor-1254	R	A	Overall assessment of data

NAF El Centro, CTO 208
Chlorinated Pesticides & PCBs - Laboratory Blank Data Qualification Summary - SDG EC011

No Sample Data Qualified in this SDG

NAF El Centro, CTO 208
Data Validation Reports
LDC# 6020

Metals

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NAF El Centro, CTO 208

Collection Date: January 10, 2001

LDC Report Date: February 27, 2001

Matrix: Soil

Parameters: Metals

Validation Level: Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): EC011

Sample Identification

208S101
208S102
208S103
208S104
208S105
208S106
208S107
208S108
208S109
208S110
208S101MS
208S101DUP

Introduction

This data review covers 12 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010 and 7000 for Metals The metals analyzed were Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Cadmium Chromium Lead Nickel Selenium Zinc	0.030 mg/Kg 0.420 mg/Kg 0.180 mg/Kg 0.130 mg/Kg 0.180 mg/Kg 3.090 mg/Kg	All samples in SDG EC011
ICB/CCB	Antimony Cadmium Chromium Nickel Selenium	1.6 ug/L 0.3 ug/L 2.8 ug/L 1.3 ug/L 3.1 ug/L	All samples in SDG EC011

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
208S103	Selenium	1.2 mg/Kg	1.2U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
208S105	Selenium	1 1 mg/Kg	1 1U mg/Kg
208S106	Selenium	1 5 mg/Kg	1 5U mg/Kg
208S110	Selenium	0 94 mg/Kg	0.94U mg/Kg

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
208S101MS (All samples in SDG EC011)	Antimony	20 4 (75-125)	J (all detects) R (all non-detects)	A
208S101MS (All samples in SDG EC011)	Copper	127 4 (75-125)	J (all detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable Results were within QC limits

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
208S101L	Cadmium Nickel	33.6 (≤10) 10.1 (≤10)	All samples in SDG EC011	J (all detects) J (all detects)	A

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

No field blanks were identified in this SDG.

NAF El Centro, CTO 208
Metals - Data Qualification Summary - SDG EC011

SDG	Sample	Analyte	Flag	A or P	Reason
EC011	208S101 208S102 208S103 208S104 208S105 208S106 208S107 208S108 208S109 208S110	Antimony	J (all detects) R (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
EC011	208S101 208S102 208S103 208S104 208S105 208S106 208S107 208S108 208S109 208S110	Copper	J (all detects)	A	Matrix spike analysis (%R)
EC011	208S101 208S102 208S103 208S104 208S105 208S106 208S107 208S108 208S109 208S110	Cadmium Nickel	J (all detects) J (all detects)	A	ICP serial dilution (%D)

NAF El Centro, CTO 208
Metals - Laboratory Blank Data Qualification Summary - SDG EC011

SDG	Sample	Analyte	Modified Final Concentration	A or P
EC011	208S103	Selenium	1 2U mg/Kg	A
EC011	208S105	Selenium	1 1U mg/Kg	A
EC011	208S106	Selenium	1 5U mg/Kg	A
EC011	208S110	Selenium	0 94U mg/Kg	A

NAF El Centro, CTO 208
Data Validation Reports
LDC# 6020

Hexavalent Chromium & Cyanide

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NAF El Centro, CTO 208

Collection Date: January 10, 2001

LDC Report Date: February 27, 2001

Matrix: Soil

Parameters: Hexavalent Chromium and Cyanide

Validation Level: Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): EC011

Sample Identification

208S101
208S102
208S103
208S104
208S105
208S106
208S107
208S108
208S109
208S110
208S101MS
208S101DUP
208S105MS
208S105MSD

Introduction

This data review covers 14 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium and EPA SW 846 Method 9012 for Cyanide

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit

J Indicates an estimated value

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/2/01	ICV	Hexavalent chromium	25 (90-110)	All samples in SDG EC011	J (all detects) R (all non-detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
208S101MS (All samples in SDG EC011)	Cyanide	34 (50-150)	J (all detects) UJ (all non-detects)	A

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Sample Result Verification

Raw data were not reviewed for this SDG.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

VIII. Field Blanks

No field blanks were identified in this SDG.

NAF El Centro, CTO 208
Wet Chemistry - Data Qualification Summary - SDG EC011

SDG	Sample	Analyte	Flag	A or P	Reason
EC011	208S101 208S102 208S103 208S104 208S105 208S106 208S107 208S108 208S109 208S110	Hexavalent chromium	J (all detects) R (all non-detects)	P	Continuing calibration (%R)
EC011	208S101 208S102 208S103 208S104 208S105 208S106 208S107 208S108 208S109 208S110	Cyanide	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)

NAF El Centro, CTO 208
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG EC011

No Sample Data Qualified in this SDG

NAF El Centro, CTO 208
Data Validation Reports
LDC# 6020

Organic Lead

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NAF El Centro, CTO 208

Collection Date: January 10, 2001

LDC Report Date: February 27, 2001

Matrix: Soil

Parameters: Organic Lead

Validation Level: Level III

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2100230

Sample Identification

208S101
208S102
208S103
208S104
208S105
208S106
208S107
208S108
208S109
208S110
208S101MS
208S101DUP

Introduction

This data review covers 12 soil samples listed on the cover sheet. The analyses were per California DOHS LUFT Method for Organic Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required

I. Technical Holding Times

All technical holding time requirements were met

The chain-of-custodies were reviewed for documentation of cooler temperatures All cooler temperatures met validation criteria

II. Calibration

An initial calibration was performed

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs No organic lead contaminants were found above the reporting limit in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not utilized in this SDG

V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits of 75-125%.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable Relative percent differences (RPD) were within QC limits

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

IX. Field Blanks

No field blanks were identified in this SDG.

NAF El Centro, CTO 208
Organic Lead - Data Qualification Summary - SDG K2100230

No Sample Data Qualified in this SDG

NAF El Centro, CTO 208
Organic Lead - Laboratory Blank Data Qualification Summary - SDG K2100230

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Bechtel Environmental
1230 Columbia Street, Suite 400
San Diego, CA 92101
Attn: Mr. James Jordan

May 16, 2001

Project Name : NAF El Centro
Project # : CTO 208

On May 10, 2001 the following data package was received by Laboratory Data Consultants, Inc. from Bechtel Environmental. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 6426:

SDG #	Fraction
EC013	Hexavalent Chromium

The above SDG was reviewed using Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- NFESC Special Publication SP-2056-ENV, Navy Installation Restoration Chemical Data Quality Manual, Naval Facilities Engineering Command, September 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

The data validators did utilize their professional judgement when evaluating the data to achieve the most complete and accurate assessment of the data. The data packages were reviewed according to the above stated validation procedures.

For hexavalent chromium analyses, the primary findings consisted of:

a) A blank was not used to establish the calibration curve.

b) Matrix spike/matrix spike duplicate percent recoveries and relative percent difference exceeded acceptance criteria for hexavalent chromium in SDG EC013. Since the laboratory met the protocol requirement, this finding should be considered advisory

In general, the data for all analyses appear usable with the limitations noted in the Data Validation Reports. Data validation flags were noted on the Laboratory Form 1s and included with each validation report.

Sincerely,

Richard M. Amano
President/Principal Chemist

Attachment 1

LDC #6426 (Bechtel/NAF El Centro, CTO 208)

LDC	SDG#	DATE REC'D	DATE DUE	CRVI (7196A)																																	
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	EC013	5-10-01	5-24-01	0	12																																
Total				0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NAF El Centro, CTO 208
Data Validation Reports
LDC# 6426

Hexavalent Chromium

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NAF El Centro, CTO 208

Collection Date: April 26, 2001

LDC Report Date: May 16, 2001

Matrix: Soil

Parameters: Hexavalent Chromium

Validation Level: Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): EC013

Sample Identification

208X101
208X102
208X103
208X104
208X105
208X106
208X107
208X108
208X109
208X110
208X101MS
208X101MSD

Introduction

This data review covers 12 soil samples listed on the cover sheet. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG EC013	Hexavalent chromium	A blank was not used to establish the calibration curve	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
208X101MS/MSD (All samples in SDG EC013)	Hexavalent chromium	28 (50-150)	-	97 (≤30)	J (all detects) UJ (all non-detects)	A

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Sample Result Verification

Raw data were not reviewed for this SDG.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

NAF El Centro, CTO 208
Hexavalent Chromium - Data Qualification Summary - SDG EC013

SDG	Sample	Analyte	Flag	A or P	Reason
EC013	208X101 208X102 208X103 208X104 208X105 208X106 208X107 208X108 208X109 208X110	Hexavalent chromium	None	P	Initial calibration
EC013	208X101 208X102 208X103 208X104 208X105 208X106 208X107 208X108 208X109 208X110	Hexavalent chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)(RPD)

NAF El Centro, CTO 208
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG EC013

No Sample Data Qualified in this SDG

NAF El Centro, CTO 208
Hexavalent Chromium - Field Blank Data Qualification Summary - SDG EC013

No Sample Data Qualified in this SDG

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X101
SDG No. : EC012 Lab Sample ID: 0104590-01
Matrix : SOIL Date Received: 04/27/01

Analyte	Result	Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2. U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ (8,9)

5/16/01

1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X102

SDG No. : EC012 Lab Sample ID: 0104590-02

Matrix : SOIL Date Received: 04/27/01

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2.	U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ(8,9)

FORM I - INO 5/16/01 9/94

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X103
SDG No. : EC012 Lab Sample ID: 0104590-03
Matrix : SOIL Date Received: 04/27/01

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2.	U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ (8,9)

FORM I - INO 5/16/01 9/94

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No : EC012
Matrix : SOIL

Sample ID : 208X104
Lab Sample ID: 0104590-04
Date Received: 04/27/01

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2.	U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ (8,9)

5/16/01

4.

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X105
SDG No. : EC012 Lab Sample ID: 0104590-05
Matrix : SOIL Date Received: 04/27/01

Analyte	Result	Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2. U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ (8,9)

5/16/01

1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X106

SDG No : EC012 Lab Sample ID: 0104590-06

Matrix : SOIL Date Received: 04/27/01

Analyte	Result	Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2. U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ(8,9)

FORM I - INO 9/94

5/16/01

1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X107

SDG No. : EC012 Lab Sample ID: 0104590-07

Matrix : SOIL Date Received: 04/27/01

Analyte	Result	Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	4.	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

J(8,9)

FORM I - INO 9/94

5/16/01

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No : EC012
Matrix : SOIL

Sample ID : 208X108
Lab Sample ID: 0104590-08
Date Received: 04/27/01

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2.	U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ(8,9)

5/16/01

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X109
SDG No. : EC012 Lab Sample ID: 0104590-09
Matrix : SOIL Date Received: 04/27/01

Analyte	Result	Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2. U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ(8,9)

5/16/01

1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : 208X110

SDG No : EC012 Lab Sample ID: 0104590-10

Matrix : SOIL Date Received: 04/27/01

Analyte	Result	Units	Prepped	Analyzed	Limit	Method
Chromium, Hexavalent	2. U	mg/kg DB	05/02/01	05/02/01	2.	3060A/7196A

UJ (8,9)

FORM I - INO 9/94

5/16/01

LDC #: 6426A28
SDG #: EC013
Laboratory: Laucks Testing Laboratories

VALIDATION COMPLETENESS WORKSHEET

X Level III ___ Level C

Date: 05/11/10
Page: 1 of 1
Reviewer: MH
2nd Reviewer: ✓

METHOD: Hexavalent chromium (EPA SW 846 Method 7196A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 04/26/01
IIa.	Initial calibration	SW	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	SW	
IVb.	Laboratory control samples	A	LCS
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

X All soil

1	208R101	11	X 208R101MS	21		31	
2	208R102	12	X 208R101MSD	22		32	
3	208R103	13	PB	23		33	
4	208R104	14		24		34	
5	208R105	15		25		35	
6	208R106	16		26		36	
7	208R107	17		27		37	
8	208R108	18		28		38	
9	208R109	19		29		39	
10	208R110	20		30		40	

Notes:

LDC #: 6426A28
SDG #: EC013

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of 1
Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Inorganics, EPA Method 7196A

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?
(Y) N N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% ?
(Y) N N/A Are all correlation coefficients ≥0.995 ?

LEVEL IV/D ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recaluculation Worksheet for recalulations.
Y N (N/A) Was a balance check conducted prior to the TDS analysis.?
Y N (N/A) Was the titrant normality checked?

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualifications
1	05/02/01	ICAL	Cr^{6+}	No Blank in ICAL	All	none/P

Comments:

LDC #: 6426A28
SDG #: EC013

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Inorganics, EPA Method 7196A

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A — Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A — Were matrix spike percent recoveries (%R) within the control limits of ~~75-125%~~ Lab limit. If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A — Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ~~≤35%~~ Lab limits for soil samples?

LEVEL IV ONLY:

Y N N/A — Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	11/12	Soil	Cr6+	28 (50-150)		97 (≤30)	All	~~J/R/A~~ J/UJ/A

Comments:

APPENDIX F

SURVEY DATA

Appendix F
SURVEY DATA

Site 10
Ponds Nos. 2 and 3
Survey Data

Station ID	Northing[a]	Easting[b]	Elevation[c]	Units
EC10-B11A	1885681.45	6736233.83	-52.75	FT
EC10-B13A	1885691.31	6735922.36	-51.95	FT
EC10-B14	1885681.19	6736166.51	-52.74	FT
EC10-B15	1885681.56	6735910.58	-51.87	FT
EC10-B16	1885450.39	6735850.21	-51.69	FT
EC10-B17	1885451.31	6736165.84	-53.45	FT
EC10-B18	1885727.46	6735740.6	-52.01	FT
EC10-B19	1885728.22	6736277.12	-52.11	FT
EC10-B20	1885555.82	6735734.19	-51.60	FT
EC10-B21	1885458.7	6735993.24	-52.70	FT
EC10-B22	1885563.6	6736260.73	-52.13	FT
EC10-B23	1885305.92	6736304.71	-42.46	FT
EC10-S23	1885362.8	6736286.67	-50.72	FT
EC10-S24	1885683.545	6736042.788	-52.32	FT
EC10-S25	1885647.893	6736077.058	-53.38	FT
EC10-S26	1885722.283	6736136.426	-52.90	FT
EC10-S27	1885648.797	6736235.915	-52.70	FT
EC10-S28	1885691.343	6736270.066	-52.67	FT
EC10-S29	1885697.031	6735729.13	-52.37	FT
EC10-S30	1885626.123	6735799.539	-52.14	FT
EC10-S31	1885627.935	6735948.043	-51.46	FT
EC10-S32	1885741.654	6735888.234	-51.59	FT
EC10-S33	1885742.046	6735818.017	-51.76	FT
INLET PIPE (POND2)	1885621.918	6735748.609	-47.00	FT
INLET PIPE (POND3)	1885685.519	6736036.791	-51.16	FT

Notes:
[a] North American Vertical Datum 1988 (NAVD 1988)
[b] North American Datum 1983 (NAD 1983)
[c] relative to mean lower low water

Acronym/Abbreviation:
FT -- foot

This page left blank intentionally

APPENDIX G

SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

TABLE OF CONTENTS

Section | Page

ACRONYMS/ABBREVIATIONS ..... G-v

G1 PROBLEM FORMULATION G-2

G1.1 Facility Location and Site Description G-2

G1.2 Ecological Setting G-2

G1.2.1 Ecological Habitats at Site 10 ..... G-6

G1.2.2 Special-Status Species G-6

G1.3 Identification of Chemicals of Potential Ecological Concern G-8

G1.4 Contaminant Fate and Transport G-12

G1.4.1 Factors Influencing Fate and Transport G-12

G1.4.2 Properties of Analyte Groups G-12

G1.5 Exposure Pathway Analysis G-13

G1.6 Conceptual Site Model G-13

G2 ECOTOXICITY OF COPECs G-14

G3 EXPOSURE ESTIMATES G-15

G4 RISK ESTIMATION G-27

G4.1 Risk Estimation Hazard Quotient-Low G-28

G4.2 Risk Estimation Hazard Quotient-High G-28

G5 UNCERTAINTY ANALYSIS G-31

G5.1 Chemical of Potential Ecological Concern Selection G-35

G5.2 Exposure Pathways G-35

G5.3 Endpoint Receptor Selection G-35

G5.4 Exposure Model G-35

G5.5 Exposure Estimates G-35

G5.6 Bioavailability G-36

G5.7 Selected Toxicity Reference Values G-36

Section | Page

G5.8 Risk Characterization G-37

G6 ECOLOGICAL RISK ASSESSMENT CONCLUSIONS G-37

G7 REFERENCES G-38

FIGURES

Figure

G-1 Site Location Map G-3

G-2 One-Mile Vicinity of Site G-5

TABLES

Table

G-1 Special-Status Species Occurring or Potentially Occurring in the Habitats of Site 10 ..... G-7

G-2 Summary of Soil COPECs for Site 10 (All Ponds) G-9

G-3 Representative Wildlife Receptor Species for Site 10 ..... G-15

G-4 Mammal Toxicity Reference Values – Low G-16

G-5 Avian Toxicity Reference Values – Low G-18

G-6 Receptor-Specific Toxicity Reference Values G-21

G-7 K_{ow} and Bioaccumulation Factors for Site 10 COPECs G-23

G-8 Representative Mammal Wildlife Receptor Species G-25

G-9 Representative Avian Wildlife Receptor Species G-26

G-10 Hazard Quotients – Low for Site 10 ..... G-29

G-11 Hazard Quotients – Low for Site 10 Exposure Scenario Using NAF El Centro Background Concentrations G-31

Table of Contents

Table		Page
G-12	Mammal Toxicity Reference Values – High	G-32
G-13	Avian Toxicity Reference Values – High	G-33
G-14	Hazard Quotients – High for Site 10	G-34
G-15	Summary of Hazard Quotients and Hazard Indices	G-38

This page left blank intentionally

ACRONYMS/ABBREVIATIONS

BAF	bioaccumulation factor
bgs	below ground surface
BJC	Bechtel Jacobs Company LLC
BNI	Bechtel National, Inc.
BTAG	Biological Technical Assistance Group
Cal/EPA	California Environmental Protection Agency
CDFG	California Department of Fish and Game
CLEAN	Comprehensive Long-Term Environmental Action Navy
COPEC	chemical of potential ecological concern
CTO	contract task order
DON	Department of the Navy
EFA-West	Engineering Field Activity, West
EPC	exposure point concentration
ERA	ecological risk assessment
ESI	extended site investigation
HI	hazard index
HQ	hazard quotient
HSDB	Hazardous Substances Data Bank
IARC	International Agency for Research on Cancer
IR	Installation Restoration (Program)
IRIS	Integrated Risk Information System
LOAEL	lowest observed adverse effects level
MBA	Microbiological Associates
Mooney Associates	Brian F. Mooney Associates
NAF	Naval Air Facility
NOAEL	no observed adverse effects level
NTP	National Toxicology Program
ORNL	Oak Ridge National Laboratory
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
SVOC	semivolatile organic compound

TRV	toxicity reference value
UCL	upper confidence limit
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

Appendix G
SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

A screening-level ecological risk assessment (ERA) was conducted to estimate the potential impacts of the chemicals reported in soil samples from Installation Restoration Program Site 10, Former Sewage Stabilization Ponds, at Naval Air Facility (NAF) El Centro, California The screening-level ERA is Tier 1 of the Navy policy for conducting ERAs (DON 1999a, 2001) and uses existing data and conservative assumptions for contaminant exposure to determine whether additional work is warranted The Navy policy is consistent with the United States Environmental Protection Agency (U.S. EPA) Ecological Risk Assessment Guidance for Superfund (U.S. EPA 1997a) and analogous to Steps 1 and 2 of the Superfund guidance, which also result in a screening-level ERA

The state of California also has prepared guidance documents pertaining to ERAs (Cal/EPA 1996a,b). The Navy Tier 1 process is similar to the first two components of the California process (Scoping Assessment and Phase I Predictive Assessment). Following the process for ERAs described in the Navy policy (DON 1999a, 2001) is expected to provide an approach consistent with the California process.

Within Navy Tier 1, the primary objective of Step 1 is to determine whether complete exposure pathways exist between chemicals and selected ecological receptors at Site 10. In Step 2, risks are estimated for those chemicals for which complete pathways were identified. At the conclusion of Tier 1, a risk management decision is made regarding site status. There are three possible outcomes of the Tier 1 screening-level ERA.

- Site 10 conditions pose an acceptable risk, and no further action is warranted.
- Site 10 conditions pose a potentially unacceptable risk that requires additional evaluation with a Tier 2 baseline ERA
- Site conditions pose a potentially unacceptable risk and accelerated site remediation is warranted

This ERA used exposure estimates that were adjusted to reflect site-specific exposure point concentrations (EPCs) and representative receptor characteristics such as body weight, diet composition, and site-use factors. Use of these factors is described in Step 3a of the Navy's ERA process.

This ERA is intended to present a conservative risk characterization. Where site-specific data were unavailable, conservative assumptions were used to assure that the ecological risk would not be underestimated. Use of these conservative assumptions may, however, contribute to an overestimation of risk. Therefore, potential risks identified in this ERA should not be interpreted to mean that a risk actually exists.

To provide guidance regarding the next phase of the risk assessment process, additional discussion is provided based on uncertainties of the exposure and effects estimates.

G1 PROBLEM FORMULATION

The problem formulation evaluates site characteristics, chemicals of potential ecological concern (COPECs), fate and transport factors for the COPECs, ecological habitats and representative organisms, threatened and endangered species, and potential exposure pathways between the COPECs and the ecological receptors.

G1.1 Facility Location and Site Description

NAF El Centro is located in Imperial Valley approximately 7 miles northwest of El Centro and 85 miles east of San Diego, California (Figure G-1). Ground surface elevation at the facility is generally flat at 45 feet below mean sea level. Depth to groundwater ranges from approximately 6 feet below ground surface (bgs) at the southeast corner to approximately 40 feet bgs at the northwest corner of the facility (DON 1999b).

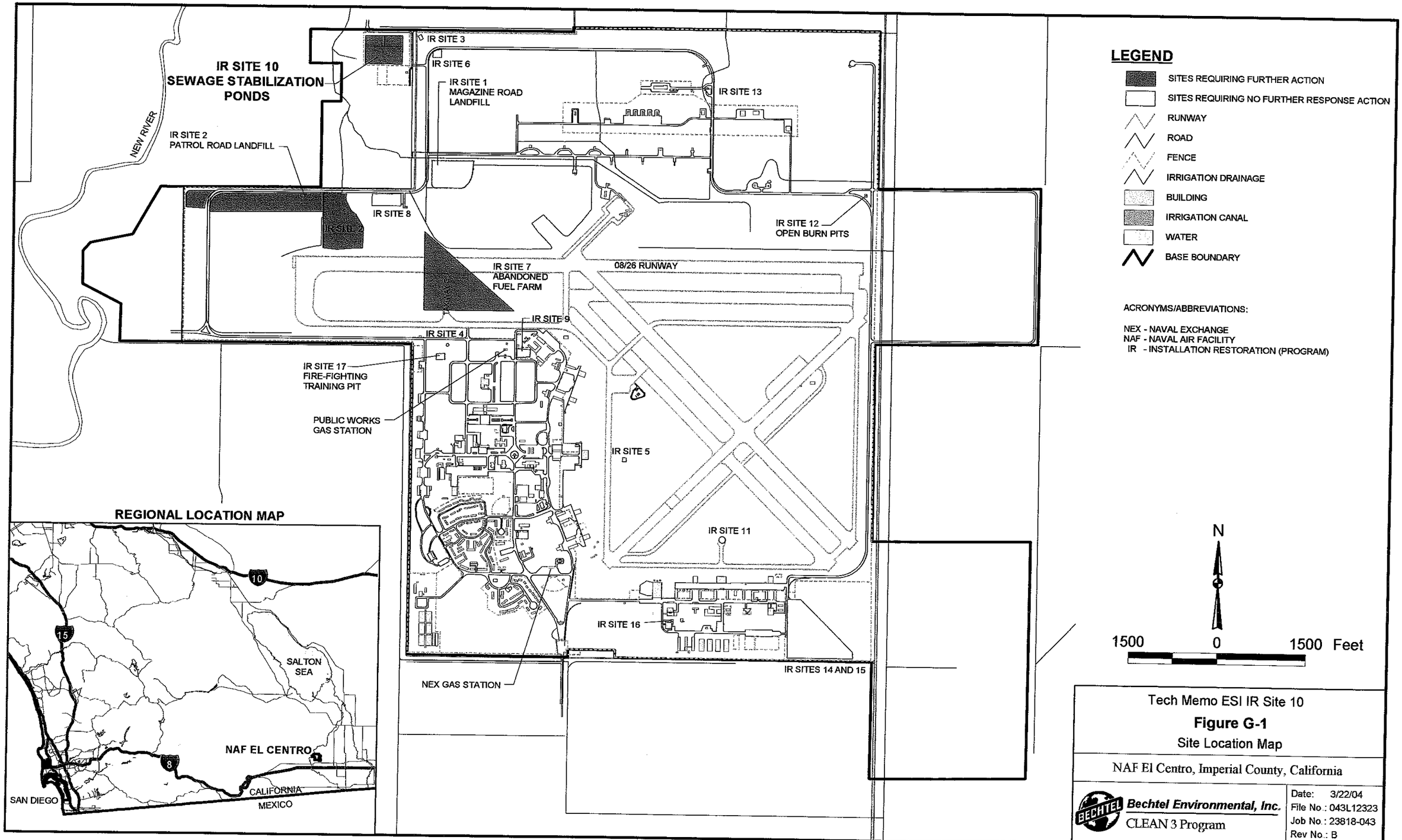
Site 10, which covers an area of approximately 6 acres, is located in the far northwest corner of NAF El Centro along the facility boundary and north of the current sewage treatment plant. The site includes three currently dry sewage stabilization ponds connected in sequence by pipe conduits.

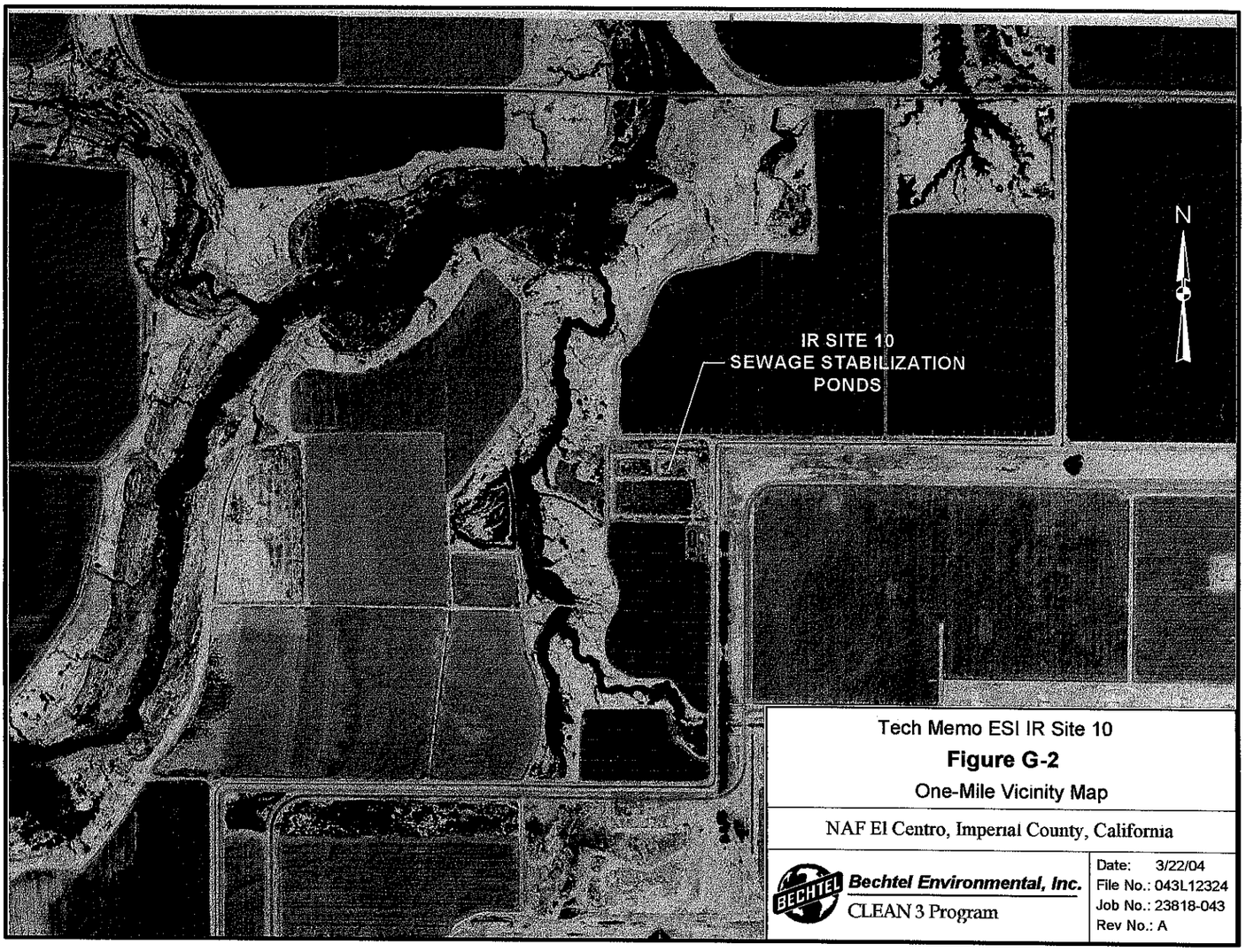
Each pond has an unlined soil bottom and is enclosed by soil berms that support a dirt road. Scattered vegetation is present in the pond bottoms and along the berms. The pond bottoms are approximately 2 feet below grade and the berms extend 6 to 8 feet above grade. For this ERA, the soils of the three pond bottoms were considered a single unit. Pond 1 is the largest and is 560 by 245 feet (3.15 acres or 1.27 hectares) at the bottom. Pond 2 is 248 by 126 feet (0.72 acres or 0.29 hectares) and Pond 3 is 256 by 126 feet (0.74 acres or 0.30 hectares) at the bottoms. The combined area of the three pond bottoms represents an area of 4.61 acres (or 1.86 hectares).

The stabilization ponds functioned as the only sewage treatment for the base from the 1940s until 1976. Domestic and industrial sewage flowed into Pond 1, where most solids settled out. When Pond 1 was full, effluent flowed into Ponds 2 and 3, then to the New River. The accumulated sludge has not been removed from these ponds.

G1.2 Ecological Setting

This section describes ecological habitats; representative organisms; and special-status species in the vicinity of Site 10. The habitat description is based on information presented in documentation about California wildlife habitats and vegetation (CDFG 2001; Mayer and Laudenslayer, Jr. 1988; Sawyer and Keeler-Wolf 1995). Ecological habitats occurring within a 1-mile vicinity of Site 10 (Figure G-2) are included in the discussion below, as specified by California Environmental Protection Agency (1996b). Information presented here is summarized from descriptions provided in the draft ecological scoping assessment for NAF El Centro (BNI 1997).


IR SITE 10
SEWAGE STABILIZATION
PONDS
NEW RIVER
IR SITE 2
PATROL ROAD LANDFILL
IR SITE 3
IR SITE 6
IR SITE 1
MAGAZINE ROAD
LANDFILL
IR SITE 13
IR SITE 8
IR SITE 12
OPEN BURN PITS
IR SITE 7
ABANDONED
FUEL FARM
08/26 RUNWAY
IR SITE 9
IR SITE 4
IR SITE 17
FIRE-FIGHTING
TRAINING PIT
PUBLIC WORKS
GAS STATION
IR SITE 5
IR SITE 11
IR SITE 16
IR SITES 14 AND 15
NEX GAS STATION
REGIONAL LOCATION MAP
SALTON
SEA
NAF EL CENTRO
SAN DIEGO
CALIFORNIA
MEXICO
LEGEND
SITES REQUIRING FURTHER ACTION
SITES REQUIRING NO FURTHER RESPONSE ACTION
RUNWAY
ROAD
FENCE
IRRIGATION DRAINAGE
BUILDING
IRRIGATION CANAL
WATER
BASE BOUNDARY
ACRONYMS/ABBREVIATIONS:
NEX - NAVAL EXCHANGE
NAF - NAVAL AIR FACILITY
IR - INSTALLATION RESTORATION (PROGRAM)
N
1500
0
1500 Feet
Tech Memo ESI IR Site 10
Figure G-1
Site Location Map
NAF El Centro, Imperial County, California
Bechtel Environmental, Inc.
CLEAN 3 Program
Date: 3/22/04
File No.: 043L12323
Job No.: 23818-043
Rev No.: B



Tech Memo ESI IR Site 10

Figure G-2

One-Mile Vicinity Map

NAF El Centro, Imperial County, California

Bechtel Environmental, Inc.
CLEAN 3 Program

Date: 3/22/04
File No.: 043L12324
Job No.: 23818-043
Rev No.: A

G1.2.1 ECOLOGICAL HABITATS AT SITE 10

The area in the vicinity of Site 10 is primarily an alkali desert scrub habitat with characteristic vegetation occurring in varying densities among the surface debris. Predominant vegetation includes, *Atriplex canescens* (four-wing salt bush), *Suaeda torreyana* (Torrey sea-blite, also known as inkweed, iodine weed, and bush seepweed), and *Tamarix ramosissima* (saltcedar tamarisk). Smaller herbaceous species include, *Heliotropium curassavicum* ssp. *oculatum* (salt heliotrope), *Sida hederacea* (alkali mallow), and *Chenopodium* sp. (goosefoot). Desert scrub habitat, characterized by the predominance of *Larrea tridentate* (creosote bush), is likely to occur in the vicinity. Evidence of rabbit, rodents, and lizards has been reported at Site 10.

Barren habitat occurs on NAF El Centro as buildings, roadways, parking lots, and runways. Barren habitat generally offers little habitat value to wildlife.

Urban habitat occurs on NAF El Centro southeast of Site 10. Urban habitat generally supports few wildlife species due to human disturbances and limited vegetation. Vegetation includes grass lawns and ornamental shrubs and trees.

Cropland habitat is extensively present throughout the Imperial Valley and in the areas adjacent to Site 10. These agricultural areas represent a habitat that is used by opportunistic and human-tolerant species. Most cropland habitat is used for production of alfalfa, hay, and Bermuda grass.

The New River, located west of Site 10, represents a desert riparian habitat. The New River consists primarily of flows from municipal and industrial wastewater, and agricultural and urban runoff. Vegetation occurring along the banks of the New River includes *T. ramosissima* (saltcedar tamarisk), *Arundo donax* (giant reed), and *Prosopis glandulosa* (mesquite tree).

Mammals that have been observed at NAF El Centro include coyote, desert cottontail rabbits, black-tailed jackrabbits, round-tail squirrels, and skunks. Evidence or observation of rodents has been recorded for kangaroo rats, deer mice, gophers, and harvest mice. NAF El Centro along with the entire Imperial Valley is within a significant avian flyway used by many bird species. As a result, the list of birds occurring at or in the vicinity of NAF El Centro is extensive. Only a few species, such as the black-throated sparrow, are year-round residents of the desert scrub habitats. Reptiles and amphibians that may occur in the desert scrub habitats include western whiptail lizard, side-blotched lizard, flat-tailed horned lizard, rattlesnake, gopher snake, and various toads and frogs.

G1.2.2 SPECIAL-STATUS SPECIES

Table G-1 lists special-status species with classifications such as threatened, endangered, or of-special-concern by state or federal agencies and are known to occur or have potential to occur in the habitats in the vicinity of Site 10 (CDFG 2002a,b,c,d). The likelihood of these species occurring at or in the vicinity of NAF El Centro is summarized

Table G-1
Special-Status Species Occurring or Potentially Occurring in the Habitats of Site 10

Scientific Name	Common Name	Status
Fish		
Cyprinodon macularius	Desert pupfish	FE/SE
Reptiles		
Coleonyx switaki	Barefoot gecko	ST
Gopherus agassizii	Desert tortoise	FT/ST
Phrynosoma mcalli	Flat-tailed horned lizard	FPT/CSC
Uma notata	Colorado Desert fringe-toed lizard	CSC
Birds		
Athene cunicularia	Burrowing owl	FSC/CSC
Buteo swainsoni	Swainson's hawk	FSC/ST
Circus cyaneus	Northern harrier	CSC
Elanus leucurus	White-tailed kite	FSC/CFP
Empidonax traillii	Willow flycatcher	SE
Falco mexicanus	Prairie falcon	CSC
Falco peregrinus anatum	American peregrine falcon	FSC/SE
Polioptila melanura	Black-tailed gnatcatcher	AUD
Rallus longirostris yumanensis	Yuma clapper rail	FE/ST
Riparia riparia	Bank swallow	FSC/ST
Toxostoma lecontei	Le Conte's thrasher	FSC/CSC
Mammals		
Ovis canadensis nelsoni	Nelson's bighorn sheep (also: Peninsular bighorn sheep)	FE/ST
Puma (=Felis) concolor brownie	Yuma mountain lion	CSC

Acronyms/Abbreviations:
AUD – Audubon Society's Watch List for California
CFP – California Department of Fish and Game – fully protected
CSC – California species of special concern
FE – federally listed – endangered
FPT – federal proposed – threatened
FSC – federal species of special concern
FT – federally listed – threatened
SE – California State listed – endangered
ST – California State listed – threatened

from a previous ecological scoping assessment (BNI 1997) and environmental impact report (Mooney Associates 1993).

No special-status plant species are expected to occur in the Site 10 area due to the significant habitat disruption that is characteristic of the Imperial Valley in general. Nearly 100 years of agricultural activities in the valley have essentially eliminated the natural vegetation.

Desert pupfish are found in many of the drainage and irrigation channels throughout the Imperial Valley. The reptiles (i.e., barefoot gecko, desert tortoise, flat-tailed horned lizard, and Colorado Desert fringe-toed lizard) have not been reported in the vicinity of Site 10. However, the barefoot gecko, desert tortoise, and flat-tailed horned lizard could potentially occur at the site because these species generally occur in desert scrub habitats. The Colorado Desert fringe-toed lizard is unlikely to occur at the site because this species prefers the loose sands of the dune habitats.

Several special-status bird species may occur within the vicinity of Site 10. Sea birds, shore birds, and ducks are generally not included since they prefer aquatic areas and are unlikely to occur at the site. The Yuma clapper rail, bank swallow, and willow flycatcher prefer habitats close to water and may occur in the area of the New River. Resident special-status birds of the desert scrub habitat include black-tailed gnatcatcher and Le Conte's thrasher. Predatory birds, raptors, constitute the majority of the special-status birds potentially occurring at or near Site 10.

Two special-status mammals may potentially occur at desert scrub habitats such as Site 10: Nelson's bighorn sheep (including the distinct subspecies Peninsular bighorn sheep) and Yuma mountain lion. Both of these mammals require large territories and are very sensitive to human activities and are, therefore, unlikely to occur in the vicinity of the site.

G1.3 Identification of Chemicals of Potential Ecological Concern

Using analytical data collected during this and previous investigations, COPECs were identified in Site 10 soil. Only data from soil samples collected from the surface to 6 feet bgs were used (Cal/EPA 1998) Each soil sample had been analyzed for a variety of compounds based on depth and other site-specific factors. The type of analyses performed included metals, cyanide, semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs). All compounds not reported above the detection limit were eliminated as COPECs. Inorganic compounds (antimony, beryllium, and thallium) for which the maximum detected concentration was not greater than background threshold value were also eliminated as COPECs. A summary of the soil COPECs information for Site 10 is presented in Table G-2.

Since groundwater is generally deep, approximately 22 to 37 feet bgs (BNI 2001), exposure pathways to ecological receptors were considered incomplete.

Table G-2
Summary of Soil COPECs for Site 10 (All Ponds)
(units in milligrams per kilogram)

Analyte	Minimum Detection	Maximum Detection	Median	Mean	Standard Deviation	Background Threshold Value	Number of Positive Detections	Number of Samples	Frequency of Detection (%)	Exposure Point Concentration	Basis for Exposure Point Concentration
Antimony	0.03	0.47	0.26	0.23	0.10	0.68	8	25	32	NE	< Background
Arsenic	0.51	10	2.85	3.13	2.04	6.3	34	34	100	3.7	Bootstrap
Beryllium	0.15	0.95	0.63	0.57	0.18	1.1	34	34	100	NE	< Background
Cadmium	0.37	59	1.33	5.71	12.03	2.2	34	34	100	9.1	Bootstrap
Chromium, Total	3.7	463	11.85	32.85	75.14	19	46	46	100	51	Bootstrap
Hexavalent Chromium	4	4	1.00	1.13	0.64		1	22	5	1.4	Bootstrap
Copper	3.2	696	24.35	84.73	158.74	22	34	34	100	130	Bootstrap
Lead	3.7	172	15.40	23.80	35.65	17	34	34	100	34	Bootstrap
Mercury	0.02	2	0.05	0.32	0.90	0.05	18	34	53	0.57	Bootstrap
Nickel	5	35.6	13.70	13.95	6.25	20	34	34	100	16	Bootstrap
Selenium	1	19	0.58	2.88	4.62	0.7	15	34	44	4.2	Bootstrap
Silver	0.24	446	11.75	44.75	88.49	0.6	32	34	94	69	Bootstrap
Thallium	0.18	0.23	0.14	0.16	0.04	0.3	6	16	38	NE	< Background
Zinc	16.5	1370	59.30	161.22	297.89	70	34	34	100	240	Bootstrap
Cyanide	0.2	1.7	0.25	0.33	0.31	NA	5	26	19	0.43	Bootstrap
Aroclor 1254	0.078	0.89	0.09	0.15	0.23	NA	6	16	38	0.25	Bootstrap
Aroclor 1260	0.038	0.278	0.02	0.06	0.09	NA	4	16	25	0.093	Bootstrap
4,4′-DDD	0.0004	0.202	0.00	0.02	0.05	NA	5	16	31	0.036	Bootstrap
4,4′-DDE	0.0036	0.125	0.02	0.03	0.04	NA	16	23	70	0.048	Bootstrap
4,4′-DDT	0.0005	0.009	0.00	0.00	0.00	NA	2	16	13	0.0038	Bootstrap
alpha-BHC	0.002	0.003	0.00	0.00	0.00	NA	2	16	13	0.0028	Bootstrap

(table continues)

Table G-2 (continued)

Analyte	Minimum Detection	Maximum Detection	Median	Mean	Standard Deviation	Background Threshold Value	Number of Positive Detections	Number of Samples	Frequency of Detection (%)	Exposure Point Concentration	Basis for Exposure Point Concentration
beta-BHC	0.004	0.004	0.00	0.00	0.00	NA	1	16	6	0.0032	Bootstrap
alpha-chlordane	0.0024	0.19	0.00	0.02	0.05	NA	11	16	69	0.041	Bootstrap
gamma-chlordane	0.002	0.27	0.01	0.03	0.07	NA	14	16	88	0.061	Bootstrap
Heptachlor	0.002	0.002	0.00	0.00	0.00	NA	1	16	6	0.002	Maximum
Heptachlor epoxide	0.002	0.0069	0.00	0.00	0.00	NA	2	16	13	0.0035	Bootstrap
Aldrin	0.0033	0.0033	0.00	0.00	0.00	NA	1	16	6	0.0033	Maximum
Dieldrin	0.003	0.14	0.01	0.02	0.03	NA	14	16	88	0.033	Bootstrap
Endosulfan sulfate	0.0008	0.002	0.00	0.00	0.00	NA	2	16	13	0.002	Maximum
Endrin	0.003	0.012	0.00	0.00	0.00	NA	2	16	13	0.0046	Bootstrap
Endrin aldehyde	0.002	0.026	0.00	0.01	0.01	NA	5	16	31	0.0085	Bootstrap
Endrin ketone	0.0048	0.0048	0.00	0.00	0.00	NA	1	10	10	0.0025	Bootstrap
Benzo(a) anthracene	0.26	0.26	0.18	0.18	0.03	NA	1	10	10	0.20	Bootstrap
Benzo(a)pyrene	0.2	0.2	0.18	0.18	0.01	NA	1	10	10	0.18	Bootstrap
Benzo(b) fluoranthene	0.25	0.38	0.18	0.20	0.07	NA	2	10	20	0.24	Bootstrap
Benzo(g,h,i) perylene	0.076	0.13	0.18	0.16	0.03	NA	2	10	20	0.13	Maximum
Benzo(k) fluoranthene	0.16	0.16	0.18	0.17	0.00	NA	1	10	10	0.16	Maximum

(table continues)

Table G-2 (continued)

Analyte	Minimum Detection	Maximum Detection	Median	Mean	Standard Deviation	Background Threshold Value	Number of Positive Detections	Number of Samples	Frequency of Detection (%)	Exposure Point Concentration	Basis for Exposure Point Concentration
Chrysene	0.15	0.35	0.18	0.19	0.06	NA	2	10	20	0.22	Bootstrap
Fluoranthene	0.27	0.27	0.18	0.18	0.03	NA	1	10	10	0.20	Bootstrap
Indeno(1,2,3-cd)pyrene	0.072	0.13	0.18	0.16	0.03	NA	2	10	20	0.13	Maximum
Pyrene	0.24	0.24	0.18	0.18	0.02	NA	1	10	10	0.19	Bootstrap
Benzoic acid	0.074	2.3	0.35	0.43	0.50	NA	6	17	35	0.63	Bootstrap
2-Nitrophenol	0.19	0.19	0.18	0.14	0.04	NA	1	17	6	0.16	Bootstrap
4-Chloroaniline	0.082	0.098	0.18	0.16	0.04	NA	2	10	20	0.098	Maximum
Butylbenzyl phthalate	0.12	0.23	0.18	0.18	0.03	NA	2	10	20	0.19	Bootstrap
di-n-butyl phthalate	0.18	0.18	0.18	0.14	0.04	NA	1	17	6	0.16	Bootstrap
Acetone	0.8	0.8	0.05	0.20	0.29	NA	1	8	13	0.36	Bootstrap
Methylene chloride	0.05	0.05	0.06	0.04	0.02	NA	1	18	6	0.049	Bootstrap
4-Methyl-2-pentanone	0.05	0.05	0.03	0.09	0.17	NA	1	8	13	0.05	Maximum
Toluene	0.02	0.22	0.02	0.05	0.07	NA	9	18	50	0.070	Bootstrap

Acronyms/Abbreviations:
- BHC – benzene hexachloride
- COPEC – chemical of potential ecological concern
- DDD – dichlorodiphenyldichloroethane
- DDE – dichlorodiphenyldichloroethene
- DDT – dichlorodiphenyltrichloroethane
- NA – not available
- NE – not established

G1.4 Contaminant Fate and Transport

Fate and transport describes the processes by which contaminants are altered or transferred between media. Some of the processes influence contaminant transport between media and describe the eventual fate of the contaminants, while others directly influence the bioavailability and toxicity of contaminants.

G1.4.1 FACTORS INFLUENCING FATE AND TRANSPORT

The fate and transport of inorganic and organic contaminants in soil is influenced by physical, chemical, and biological factors, often acting in combination. Although soil is often considered to be a sink for many classes of anthropogenic contaminants, the fate and transport factors can modify contaminant chemical form or properties. Therefore, fate and transport factors can be used to understand the potential transfer of contaminants in the soil to other media (e.g., the surface water or atmosphere) or biota.

Physical processes influencing contaminant fate and transport include diffusion (i.e., random movement of molecules), erosion, and transport of soil by wind.

Chemical processes include various chemical reactions. Acid-base reactions affect the contaminant chemical form; precipitation reactions can result in sequestering of contaminants with carbonates, hydrous oxides, and sulfides; and oxidation-reduction reactions can alter the chemical form or speciation of a contaminant. Sorption reactions affect bioavailability and toxicity and are dependent on how hydrophobic/hydrophilic the contaminants are and how likely the contaminants are to be sorbed to soil particles. In addition, volatilization, hydrolysis, photolysis, and ligand complexation can affect persistence and properties of contaminants

Biological processes also may affect contaminant fate and transport. Biotransformation is a chemical reaction occurring within an organism whereby the contaminant chemical form is altered. Bioaccumulation is the process in which contaminants are transferred from the atmosphere, water, or soil to biota

G1.4.2 PROPERTIES OF ANALYTE GROUPS

Metals vary widely in chemical form and properties. They differ from organic compounds as they will not degrade in the environment, many occur naturally in soil, and a few are essential nutrients for living organisms. The fate of metals in the environment is primarily dependent on sorption, oxidation-reduction conditions, chemical speciation, complexation, biotransformation, and bioaccumulation. Metals occurring in soil may be sorbed to the particles (silt and clay size), bound in a ligand complex, bound in a precipitate (sulfides), or may exist in a free ionic state. Organisms can easily bioaccumulate available metals.

Polynuclear aromatic hydrocarbons (PAHs) are composed of various combinations of fused benzene rings. Properties of PAH compounds vary with molecular weight. Generally, the higher molecular weight compounds are less mobile and less toxic than the lower molecular weight compounds. PAHs in the atmosphere, water, or soil and

sediment become associated with particulate material. PAHs in soil may transfer to plants or other biota. Environmental degradation occurs by chemical oxidation, photooxidation, and biological transformations. Soil-bound PAHs can persist for an extended time. Biological transformation is likely the final fate of PAHs.

PCBs are a group of aromatic hydrocarbon compounds with various patterns of chlorine substitution on the biphenyl structure. Properties of PCB compounds vary with the amount of chlorine substitution. Generally, PCBs with the higher number of chlorines are less mobile than the PCBs with fewer chlorines. PCBs in the atmosphere, water, and soil become associated with particulate material. Volatilization occurs for PCBs with few substituted chlorines. PCBs in soil may transfer to plants or other biota. PCBs are very lipophilic and will bioaccumulate and biomagnify in the food chain. Environmental degradation occurs by photochemical breakdown and biological transformations. Soil-bound PCBs can persist for an extended time.

VOCs in soil will rapidly volatilize to the atmosphere. Degradation in the atmosphere is compound specific, ranging from a slow process to a rapid process due to photooxidation. Adsorption to soil and bioconcentration are not significant processes.

G1.5 Exposure Pathway Analysis

Exposure pathway analysis evaluates the potential for contact between the chemical compounds reported in Site 10 soil and the ecological receptors that are representative of the ecosystem at or potentially at the site.

Exposure of terrestrial organisms to the chemical compounds in site soil is considered a potential occurrence that may occur by direct contact, inhalation, incidental soil ingestion, or ingestion of food items that have absorbed site contaminants. Exposure by ingestion is assumed to be greater than exposure by direct (e.g., dermal) contact or inhalation, which are not readily estimated or evaluated for ecological receptors. Therefore, direct contact and inhalation exposures for terrestrial receptors will not be evaluated in this risk assessment.

Exposure of organisms to the site groundwater was considered an incomplete pathway due to the depth of the groundwater.

G1.6 Conceptual Site Model

The conceptual site model integrates the component evaluations of the problem formulation. The presence of metals, pesticides, PAHs, SVOCs, PCBs, and VOCs in soil has been reported at Site 10. Several ecological habitats and associated organisms occur in the vicinity of the site.

Fate and transport mechanisms that provide for potential exposure of terrestrial organisms to COPECs exist. Soil COPECs listed for Site 10 maintain generally stable concentrations by bonding to soil particles and materials. Soil COPECs may migrate along soil-erosion accumulation pathways and may bioaccumulate in local biota. Transfer of soil COPECs to the biota of lower trophic levels, such as vegetation,

invertebrates, and small mammals is estimated with bioaccumulation factors (BAFs). Transfer to biota of higher trophic orders, such as predators, is estimated using receptor-specific exposure factors.

The exposure pathway analysis indicates that there are no potentially complete exposure pathways for ecological receptors to contact groundwater. Therefore, this screening-level ERA evaluates birds and mammals of the major terrestrial trophic levels (Table G-3). The cottontail rabbit is modeled to represent small, mostly herbivorous mammals that are primary food items for predators. The deer mouse is modeled to represent small, mostly invertebrate-feeding mammals that are primary food items for predators. The coyote is modeled to represent larger, mostly carnivorous mammals that are primary predators in the habitat. The mourning dove is modeled to represent small birds that are primarily herbivorous. The American robin is modeled to represent small birds that feed primarily on terrestrial invertebrates. The American kestrel is modeled to represent the avian predators (raptors) that are primarily carnivores.

G2 ECOTOXICITY OF COPECs

The COPECs were evaluated with ecotoxicity estimates. These values were preferentially based on a no-effect level for chronic exposures and sublethal effects.

The COPECs identified in soil are known, or suspected, to cause various adverse responses in terrestrial wildlife. Toxicity reference values (TRVs) have been summarized by the Navy and the U.S. EPA Region 9 Biological Technical Assistance Group (BTAG) (EFA-West 1998) and recommended by California Environmental Protection Agency (Cal/EPA) (2000). Wildlife TRVs are presented as an upper and lower estimate of effects thresholds. The TRV-low, based on no-observed-adverse-effects-level (NOAEL) data, represents a threshold below which no adverse effects are expected. The TRV-high, based on an approximate midpoint of the range of effects levels, represents a threshold above which adverse effects are likely to occur.

Mammal TRVs are listed in Table G-4 and avian TRVs are listed in Table G-5. For compounds without a Navy-BTAG TRV, a TRV was selected from scientific literature. If literature-based values were based on acute or subchronic effects (i.e., not based on chronic effects), a factor of 0.1 was used to convert them to chronic values. If literature-based values were based on lowest observed adverse effects level (LOAEL) or lethal dose 50 (dose lethal to 50 percent of the animals) (i.e., not based on no-effect levels), a factor of 0.1 was used to convert them to NOAEL values. Where avian TRVs were not available for three SVOCs (benzoic acid, 2-nitrophenol, and 4-chloroaniline) and three VOCs (methylene chloride, 4-methyl-2-pentanone, and toluene), the mammal TRV was used with an additional adjustment factor of 0.1. If a chemical-specific TRV was not available for a particular COPEC, a surrogate chemical was selected.

The literature-based TRVs were used to represent species-specific TRVs for the ecological receptors (Table G-6). If the difference between the body weight of the TRV test species (usually a standard laboratory animal) and the selected ecological receptor for

Table G-3
Representative Wildlife Receptor Species for Site 10

Representative Wildlife Receptor	Body Weight (kg)	Reference
Cottontail rabbit	0.895	Ingles, L.G. 1941. (as cited in Cal/Ecotox) mean adult male and female data
Deer mouse	0.0184	Hayes, J.P. 1989 (as cited in Cal/Ecotox) mean adult male and female data
Coyote	11.2	Cypher, B.L. 1995. (as cited in Cal/Ecotox) mean adult male and female data
Mourning dove	0.125	Cowan, J.B. 1952. (as cited in Cal/Ecotox) mean adult male and female from California
American robin	0.0804	Clench & Leberman. 1978. Wheelwright. 1986 (as cited in U.S. EPA 1993) mean adult male and female, breeding and nonbreeding
American kestrel	0.111	Roest, A.I. 1957. (as cited in Cal/Ecotox) mean adult male and female data

Acronym/Abbreviation:
kg – kilogram

the site was more than two orders of magnitude, the receptor TRV was adjusted for the difference in sensitivity (Cal/EPA 1999). An allometric adjustment was used for mammal and avian species (Sample and Arenal 1999) based on body weights of the test species described in the scientific literature. Scaling factors presented by Sample and Arenal (1999) indicate that mammalian sensitivity increases with increased body weight, and avian sensitivity increases with decreased body weight:

For mammals: $TRV_{wildlife} = NOAEL_{test} * (BW_{test}/BW_{wildlife})^{[1-0.94]}$

For birds: $TRV_{wildlife} = NOAEL_{test} * (BW_{test}/BW_{wildlife})^{[1-1.2]}$

where

$TRV_{wildlife}$ = TRV value for wildlife species
$NOAEL_{test}$ = NOAEL for test species
BW_{test} = body weight for test species
$BW_{wildlife}$ = body weight for wildlife species

G3 EXPOSURE ESTIMATES

Exposure estimates represent the quantity of COPECs to which the representative ecological receptors are exposed. The wildlife exposure estimates were based on an ingestion exposure pathway and were developed from reported soil concentrations for Site 10 COPECs. Exposure estimates are expressed as a daily dose for ingestion

Table G-4
Mammal Toxicity Reference Values – Low

Analyte	TRV (mg/kg-day)	Species	Body Weight (kg)	R[a]	Reference
Arsenic	0.32	Rat	0.332	R2	Schroeder et al. 1968
Cadmium	0.06	Mouse	0.0322	R2	Webster 1988
Chromium, total[b]	3.28	Rat	0.35	R1	MacKenzie et al. 1958
Hexavalent chromium[b]	3.28	Rat	0.35	R1	MacKenzie et al. 1958
Copper	2.67	Mouse	0.03	R2	Pocino et al. 1991
Lead	1	Rat	0.5506	R5	Fowler et al. 1980
Mercury	0.25	Rat	0.1875	R2	Khera & Trabacova 1973
Nickel	0.133	Rat	0.2486	R2	Smith et al. 1993
Selenium	0.05	Rat	0.1865	R2	Harr et al. 1966
Silver	32.86	Rat	0.35		Matuk et al. 1981
Zinc	9.6	Mouse	0.0255	R2	Aughey et al. 1977
Cyanide	68.7	Rat	0.273	R1	Tewe & Maner 1981
Aroclor 1254	0.36	Mouse	0.02062	R2	Simmons & McKee 1992
Aroclor 1260[c]	0.36	Mouse	0.02062	R2	Simmons & McKee 1992
4,4′-DDD	0.8	Rat	0.32	R2	Fitzhugh 1948
4,4′-DDE	0.8	Rat	0.32	R2	Fitzhugh 1948
4,4′-DDT	0.8	Rat	0.32	R2	Fitzhugh 1948
alpha-BHC[d]	0.05	Rat	0.176	R2	Naishtein & Leibovich 1971
beta-BHC[d]	0.05	Rat	0.176	R2	Naishtein & Leibovich 1971
alpha-Chlordane[e]	4.58	Mouse	0.03	R1	Keplinger et al. 1968
gamma-Chlordane[e]	4.58	Mouse	0.03	R1	Keplinger et al. 1968
Heptachlor	0.129	Rat	0.1	R2	Shain et al. 1977
Heptachlor epoxide[f]	0.129	Rat	0.1	R2	Shain et al. 1977
Aldrin	0.02	Rat	0.35	R1	Treon & Cleveland 1955
Dieldrin	0.02	Rat	0.35	R1	Treon & Cleveland 1955
Endosulfan sulfate[g]	0.15	Rat	0.35	R1	Dikshith et al. 1984
Endrin	0.092	Mouse	0.03	R1	Good & Ware 1969
Endrin aldehyde[h]	0.092	Mouse	0.03	R1	Good & Ware 1969
Endrin ketone[h]	0.092	Mouse	0.03	R1	Good & Ware 1969
Benzo(a)anthracene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Benzo(a)pyrene	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Benzo(b)fluoranthene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Benzo(g,h,i)perylene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967

(table continues)

Table G-4 (continued)

Analyte	TRV (mg/kg-day)	Species	Body Weight (kg)	R[a]	Reference
Benzo(k)fluoranthene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Chrysene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Fluoranthene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Indeno(1,2,3-cd)pyrene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Pyrene[i]	1.31	Mouse	0.0305	R2	Neal & Rigdon 1967
Benzoic acid	4	Mouse	0.0305	R3	Shtenberg & Ignat'ev 1970
2-Nitrophenol	3.34	Rat	0.35	R4	Lewis 1996
4-Chloroaniline	2	Rat	0.35	R4	IARC 1993
Butylbenzyl phthalate	159	Rat	0.35	R3	NTP 1985
di-n-butyl phthalate[j]	550	Mouse	0.03	R2	Lamb et al 1987
Acetone	10	Rat	0.35	R1	U.S. EPA 1986
Methylene chloride	5.85	Rat	0.35	R1	NCA 1982
4-Methyl-2-pentanone	25	Rat	0.35	R1	MBA 1986
Toluene	26	Mouse	0.03	R1	Nawrot & Staples 1979

Notes:

[a] The sources reviewed to compile the information presented in this table are the following:
- R1 – Sample et al. 1996
- R2 – EFA-West 1998 and Cal/EPA 2000
- R3 – IRIS
- R4 – ToxNet HSDB
- R5 – Cal/EPA 2002

[b] chemical surrogate hexavalent chromium was used
[c] chemical surrogate Aroclor 1254 was used
[d] chemical surrogate gamma-BHC (Lindane) was used
[e] chemical surrogate chlordane was used
[f] chemical surrogate heptachlor was used
[g] chemical surrogate endosulfan was used
[h] chemical surrogate endrin was used
[i] chemical surrogate benzo(a)pyrene was used
[j] chemical surrogate di-n-octylphthalate was used

Acronyms/Abbreviations:
- BHC – benzene hexachloride
- DDD – dichlorodiphenyldichloroethane
- DDE – dichlorodiphenyldichloroethene
- DDT – dichlorodiphenyltrichloroethane
- kg – kilogram
- mg/kg-day – milligrams per kilogram per day
- R – reference
- TRV – toxicity reference value

Table G-5
Avian Toxicity Reference Values – Low

Analyte	TRV (mg/kg-day)	Species	Body Weight (kg)	R[a]	Reference
Arsenic	5.5	Mallard	1.1722	R2	Stanley et al. 1994
Cadmium	0.078	Mallard	0.7985	R2	Cain et al 1983
Chromium, total[b]	1	Black duck	1.25	R1	Haseltine et al. 1985
Hexavalent chromium[b]	1	Black duck	1.25	R1	Haseltine et al 1985
Copper	2.3	Broiler chick	0.639	R2	Norvell et al 1975
Lead	0.014	Japanese quail	0.0935	R2	Edens et al 1976
Mercury	0.039	Mallard	1	R2	Heinz 1974
Nickel	1.38	Mallard	0.61375	R2	Cain & Pafford 1981
Selenium	0.23	Mallard	1.1077	R2	Heinz et al 1989
Silver	178	Mallard	1	R3	U.S. EPA 1997b
Zinc	17.2	Mallard	0.955	R2	Gasaway & Buss 1972
Cyanide	0.04	American kestrel	0.12	R3	Wiemeyer et al 1986
Aroclor 1254	0.088	Chicken	0.8	R2	Platonow & Reinhart 1973
Aroclor 1260[c]	0.088	Chicken	0.8	R2	Platonow & Reinhart 1973
4,4′-DDD	0.009	Pelican	3.5	R2	Anderson et al 1975
4,4′-DDE	0.009	Pelican	3.5	R2	Anderson et al. 1975
4,4′-DDT	0.009	Pelican	3.5	R2	Anderson et al. 1975
alpha-BHC[d]	0.56	Quail	0.15	R1	Vos et al 1971
beta-BHC[d]	0.56	Quail	0.15	R1	Vos et al. 1971
alpha-Chlordane[e]	2.14	Blackbird	0.064	R1	Stickel et al. 1983
gamma-Chlordane[e]	2.14	Blackbird	0.064	R1	Stickel et al. 1983
Heptachlor	0.065	Coturnix quail	0.1[f]	R3	Hill & Carmardese 1986
Heptachlor epoxide[g]	0.065	Coturnix quail	0.1[f]	R3	Hill & Carmardese 1986
Aldrin[h]	0.077	Barn owl	0.466	R1	Mendenhall et al. 1983
Dieldrin	0.077	Barn owl	0.466	R1	Mendenhall et al. 1983
Endosulfan sulfate[i]	10	Partridge	0.4	R1	Abiola 1992
Endrin	0.01	Screech owl	0.181	R1	Fleming et al. 1982
Endrin aldehyde[j]	0.01	Screech owl	0.181	R1	Fleming et al. 1982
Endrin ketone[j]	0.01	Screech owl	0.181	R1	Fleming et al. 1982
Benzo(a)anthracene[k]	1.01	Blackbirds	0.074[l]		Schafer et al 1983

(table continues)

Table G-5 (continued)

Analyte	TRV (mg/kg-day)	Species	Body Weight (kg)	R[a]	Reference
Benzo(a)pyrene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Benzo(b)fluoranthene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Benzo(g,h,i)perylene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Benzo(k)fluoranthene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Chrysene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Fluoranthene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Indeno(1,2,3-cd)pyrene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Pyrene[k]	1.01	Blackbirds	0.074[l]		Schafer et al. 1983
Benzoic acid	0.4[m]	Mouse		R4	Shtenberg & Ignat'ev 1970
2-Nitrophenol	0.334[m]	Rat		R5	Lewis 1996
4-Chloroaniline	0.2[m]	Rat		R5	IARC 1993
Butylbenzyl phthalate[n]	0.11	Ringed dove	0.155	R1	Peakall 1974
di-n-butyl phthalate	0.11	Ringed dove	0.155	R1	Peakall 1974
Acetone	52	Coturnix quail	0.1[f]	R3	Hill & Carmardese 1986
Methylene chloride	0.585[m]	Rat		R1	NCA 1982
4-Methyl-2-pentanone	2.5[m]	Rat		R1	MBA 1986
Toluene	2.6[m]	Mouse		R1	Nawrot & Staples 1979

Notes:

[a] The sources reviewed to compile the information presented in this table are the following:
- R1 – Sample et al. 1996
- R2 – EFA-West 1998 and Cal/EPA 2000
- R3 – U.S. EPA 1999
- R4 – IRIS
- R5 – ToxNet (HSDB)

[b] chemical surrogate trivalent chromium was used
[c] chemical surrogate Aroclor 1254 was used
[d] chemical surrogates BHC mixed isomers were used
[e] chemical surrogate chlordane was used
[f] body weight 0.1 kg assumed for coturnix quail was used
[g] chemical surrogate heptachlor was used
[h] chemical surrogate dieldrin was used
[i] chemical surrogate endosulfan was used
[j] chemical surrogate endrin was used
[k] chemical surrogate acenaphthene was used
[l] red-winged blackbird body weight from Beletsky (1996)
[m] avian TRV estimated from mammal TRV * 0.1
[n] chemical surrogate di-n-butylphthalate was used

(table continues)

Table G-5 (continued)

Acronyms/Abbreviations:
BHC – benzene hexachloride
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
kg – kilogram
mg/kg-day – milligrams per kilogram per day
R – reference
TRV – toxicity reference value

EPCs were calculated for each COPEC using the 95 percent upper confidence limit (UCL) of the average measured chemical concentration. For this project, the 95 percent UCL of the mean was calculated using the standard bootstrap method (Singh et al. 1997). The maximum chemical concentration was used as the EPC whenever the calculated 95 percent UCL was higher than the maximum. The EPC for each COPEC is presented in Table G-2.

Bootstrapping is a computer-based procedure for assigning measures of accuracy to statistical estimates (Efron and Tibshirani 1993). The original data set is sampled a large number of times to form new data sets, which are known as bootstrap samples. The standard bootstrap method uses the standard deviation of the bootstrap samples, the Z-statistic, and the mean of the original data to estimate the 95 percent UCL of the mean. The 95 percent UCL was calculated as the average of three bootstrap trials, where each trial generated 100,000 bootstrap samples.

Tissue residue concentrations of the COPECs in prey species upon which the predator species feed were estimated with soil-to-plant, soil-to-invertebrate, and soil-to-small-mammal bioaccumulation factors (Table G-7).

Soil-to-plant BAF values for some inorganic COPECs were developed at Oak Ridge National Laboratory (ORNL). Median values were selected from Bechtel Jacobs Company LLC (1998) and Efroymson et al. (2001). A BAF value for cyanide was not available; therefore, a BAF value of 1 was assumed. Soil-to-plant BAF values for organic COPECs were estimated using Equation 5 of Travis and Arms (1988):

$$\text{Log Soil-to-Plant BAF}_{\text{ORGANICS}} = 1.588 - (0.578 * \text{Log } K_{ow})$$

where

K_{ow} – octanol-water partition coefficient

Soil-to-invertebrate BAF values for some inorganic COPECs were developed at ORNL. Median values were selected from Sample et al. (1998a). A BAF value for cyanide was not available; therefore, a BAF value of 1 was assumed. BAF values for pesticides and PCBs were selected from median values presented by Sample et al. (1998a). BAF values for PAHs were selected from Beyer and Stafford (1993). BAF values were

Table G-6
Receptor-Specific Toxicity Reference Values
(units in milligrams per kilogram per day)

Analyte	Cottontail Rabbit	Deer Mouse	Coyote	Mourning Dove	American Robin	American Kestrel
Arsenic	3.2E-1	3.2E-1	3.2E-1	5.5E+0	5.5E+0	5.5E+0
Cadmium	6.0E-2	6.0E-2	4.2E-2	7.8E-2	7.8E-2	7.8E-2
Chromium, total	3.3E+0	3.3E+0	3.3E+0	1.0E+0	1.0E+0	1.0E+0
Hexavalent chromium	3.3E+0	3.3E+0	3.3E+0	1.0E+0	1.0E+0	1.0E+0
Copper	2.7E+0	2.7E+0	1.9E+0	2.3E+0	2.3E+0	2.3E+0
Lead	1.0E+0	1.0E+0	1.0E+0	1.4E-2	1.4E-2	1.4E-2
Mercury	2.5E-1	2.5E-1	2.5E-1	3.9E-2	3.9E-2	3.9E-2
Nickel	1.3E-1	1.3E-1	1.3E-1	1.4E+0	1.4E+0	1.4E+0
Selenium	5.0E-2	5.0E-2	5.0E-2	2.3E-1	2.3E-1	2.3E-1
Silver	3.3E+1	3.3E+1	3.3E+1	1.8E+2	1.8E+2	1.8E+2
Zinc	9.6E+0	9.6E+0	6.7E+0	1.7E+1	1.7E+1	1.7E+1
Cyanide	6.9E+1	6.9E+1	6.9E+1	4.0E-2	4.0E-2	4.0E-2
Aroclor 1254	3.6E-1	3.6E-1	2.5E-1	8.8E-2	8.8E-2	8.8E-2
Aroclor 1260	3.6E-1	3.6E-1	2.5E-1	8.8E-2	8.8E-2	8.8E-2
4,4′-DDD	8.0E-1	8.0E-1	8.0E-1	9.0E-3	9.0E-3	9.0E-3
4,4′-DDE	8.0E-1	8.0E-1	8.0E-1	9.0E-3	9.0E-3	9.0E-3
4,4′-DDT	8.0E-1	8.0E-1	8.0E-1	9.0E-3	9.0E-3	9.0E-3
alpha-BHC	5.0E-2	5.0E-2	5.0E-2	5.6E-1	5.6E-1	5.6E-1
beta-BHC	5.0E-2	5.0E-2	5.0E-2	5.6E-1	5.6E-1	5.6E-1
alpha-Chlordane	4.6E+0	4.6E+0	3.2E+0	2.1E+0	2.1E+0	2.1E+0
gamma-Chlordane	4.6E+0	4.6E+0	3.2E+0	2.1E+0	2.1E+0	2.1E+0
Heptachlor	1.3E-1	1.3E-1	9.7E-2	6.5E-2	6.5E-2	6.5E-2
Heptachlor epoxide	1.3E-1	1.3E-1	9.7E-2	6.5E-2	6.5E-2	6.5E-2
Aldrin	2.0E-2	2.0E-2	2.0E-2	7.7E-2	7.7E-2	7.7E-2
Dieldrin	2.0E-2	2.0E-2	2.0E-2	7.7E-2	7.7E-2	7.7E-2
Endosulfan sulfate	1.5E-1	1.5E-1	1.5E-1	1.0E+1	1.0E+1	1.0E+1
Endrin	9.2E-2	9.2E-2	6.4E-2	1.0E-2	1.0E-2	1.0E-2
Endrin aldehyde	9.2E-2	9.2E-2	6.4E-2	1.0E-2	1.0E-2	1.0E-2
Endrin ketone	9.2E-2	9.2E-2	6.4E-2	1.0E-2	1.0E-2	1.0E-2
Benzo(a)anthracene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzo(a)pyrene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzo(b)fluoranthene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0

(table continues)

Table G-6 (continued)

Analyte	Cottontail Rabbit	Deer Mouse	Coyote	Mourning Dove	American Robin	American Kestrel
Benzo(g,h,i)perylene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzo(k)fluoranthene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Chrysene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Fluoranthene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Indeno(1,2,3-cd)pyrene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Pyrene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzoic acid	4.0E+0	4.0E+0	2.8E+0	4.0E-1	4.0E-1	4.0E-1
2-Nitrophenol	3.3E+0	3.3E+0	3.3E+0	3.3E-1	3.3E-1	3.3E-1
4-Chloroaniline	2.0E+0	2.0E+0	2.0E+0	2.0E-1	2.0E-1	2.0E-1
Butylbenzyl phthalate	1.6E+2	1.6E+2	1.6E+2	1.1E-1	1.1E-1	1.1E-1
di-n-butyl phthalate	5.5E+2	5.5E+2	3.9E+2	1.1E-1	1.1E-1	1.1E-1
Acetone	1.0E+1	1.0E+1	1.0E+1	5.2E+1	5.2E+1	5.2E+1
Methylene chloride	5.9E+0	5.9E+0	5.9E+0	5.9E-1	5.9E-1	5.9E-1
4-Methyl-2-pentanone	2.5E+1	2.5E+1	2.5E+1	2.5E+0	2.5E+0	2.5E+0
Toluene	2.6E+1	2.6E+1	1.8E+1	2.6E+0	2.6E+0	2.6E+0

Acronyms/Abbreviations:
BHC – benzene hexachloride
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane

unavailable for other SVOC COPECs; therefore, a BAF value of 1 was assumed. Soil-to-invertebrate BAF values for VOCs were estimated using an equation presented by Southworth et al. (1978):

$$\text{Log Soil-to-Invertebrate } BAF_{VOC} = (0.819 * \text{Log } K_{ow}) - 1.146$$

Soil-to-small-mammal BAF values for some inorganic COPECs were developed at ORNL. Median values were selected from Sample et al. (1998b). A BAF value for cyanide was not available; therefore, a BAF value of 1 was assumed. Soil-to-small-mammal BAF values for organic COPECs were estimated using the median value for tetrachlorodibenzo-p-dioxins from Sample et al. (1998b).

Exposure factors for mammals (Table G-8) and birds (Table G-9) were selected from available scientific literature, such as U.S. EPA's Wildlife Exposure Handbook (U.S. EPA 1993) and Cal/Ecotox database (Cal/EPA 2002).

Table G-7
K_{ow} and Bioaccumulation Factors for Site 10 COPECs
(bioaccumulation factor units in kilograms soil per kilograms biota [plant, invertebrate, small mammal] [dry weight])

Analyte	Log K_{ow}	Soil-to-Plant	Soil-to-Invertebrate	Soil-to-Mammal
Arsenic	NA	3.8E-2[a]	2.2E-1[b]	2.5E-3[c]
Cadmium	NA	5.9E-1[a]	7.7E+0[b]	3.3E-1[c]
Chromium, total	NA	4.1E-2[a]	3.1E-1[b]	8.5E-2[c]
Hexavalent chromium	NA	4.1E-2[a]	3.1E-1[b]	8.5E-2[c]
Copper	NA	1.2E-1[a]	5.2E-1[b]	2.0E-1[c]
Lead	NA	3.9E-2[a]	2.7E-1[b]	1.1E-1[c]
Mercury	NA	6.5E-1[a]	1.7E+0[b]	5.4E-2[c]
Nickel	NA	1.8E-2[a]	1.1E+0[b]	2.5E-1[c]
Selenium	NA	6.7E-1[a]	9.9E-1[b]	1.6E-1[c]
Silver	NA	1.4E-2[a]	2.0E+0[b]	4.0E-3[c]
Zinc	NA	3.7E-1[a]	3.2E+0[b]	7.7E-1[c]
Cyanide	NA	1.0E+0[d]	1.0E+0[d]	1.0E+0[d]
Aroclor 1254	7.0E+0	3.6E-3[e]	6.7E+0[b]	1.1E+0[c]
Aroclor 1260	8.3E+0	6.4E-4[e]	6.7E+0[b]	1.1E+0[c]
4,4′-DDD	5.9E+0	1.6E-2[e]	6.7E+0[b]	1.1E+0[c]
4,4′-DDE	6.0E+0	1.3E-2[e]	6.7E+0[b]	1.1E+0[c]
4,4′-DDT	6.8E+0	4.6E-3[e]	6.7E+0[b]	1.1E+0[c]
alpha-BHC	4.3E+0	1.3E-1[e]	6.7E+0[b]	1.1E+0[c]
beta-BHC	4.3E+0	1.3E-1[e]	6.7E+0[b]	1.1E+0[c]
alpha-Chlordane	6.3E+0	9.3E-3[e]	6.7E+0[b]	1.1E+0[c]
gamma-Chlordane	6.3E+0	9.3E-3[e]	6.7E+0[b]	1.1E+0[c]
Heptachlor	5.9E+0	1.6E-2[e]	6.7E+0[b]	1.1E+0[c]
Heptachlor epoxide	4.6E+0	9.0E-2[e]	6.7E+0[b]	1.1E+0[c]
Aldrin	6.8E+0	4.9E-3[e]	6.7E+0[b]	1.1E+0[c]
Dieldrin	5.5E+0	2.7E-2[e]	6.7E+0[b]	1.1E+0[c]
Endosulfan sulfate	3.6E+0	3.0E-1[e]	6.7E+0[b]	1.1E+0[c]
Endrin	5.5E+0	2.7E-2[e]	6.7E+0[b]	1.1E+0[c]
Endrin Aldehyde	4.8E+0	6.5E-2[e]	6.7E+0[b]	1.1E+0[c]
Endrin ketone	5.0E+0	5.1E-2[e]	6.7E+0[b]	1.1E+0[c]
Benzo(a)anthracene	5.5E+0	2.5E-2[e]	2.7E-1[f]	1.1E+0[c]
Benzo(a)pyrene	6.1E+0	1.1E-2[e]	3.4E-1[f]	1.1E+0[c]
Benzo(b)fluoranthene	6.1E+0	1.1E-2[e]	2.1E-1[f]	1.1E+0[c]

(table continues)

Table G-7 (continued)

Analyte	Log K_{ow}	Soil-to-Plant	Soil-to-Invertebrate	Soil-to-Mammal
Benzo(g,h,i)perylene	6.7E+0	5.2E-3[e]	1.5E-1[f]	1.1E+0[c]
Benzo(k)fluoranthene	6.1E+0	1.1E-2[e]	2.1E-1[f]	1.1E+0[c]
Chrysene	5.5E+0	2.5E-2[e]	4.4E-1[f]	1.1E+0[c]
Fluoranthene	4.9E+0	5.5E-2[e]	3.7E-1[f]	1.1E+0[c]
Indeno(1,2,3-cd)pyrene	6.7E+0	5.2E-3[e]	4.1E-1[f]	1.1E+0[c]
Pyrene	4.9E+0	5.5E-2[e]	3.9E-1[f]	1.1E+0[c]
Benzoic acid	1.9E+0	3.2E+0[e]	1.0E+0[d]	1.1E+0[c]
2-Nitrophenol	1.8E+0	3.6E+0[e]	1.0E+0[d]	1.1E+0[c]
4-Chloroaniline	1.8E+0	3.4E+0[e]	1.0E+0[d]	1.1E+0[c]
Butylbenzyl phthalate	4.8E+0	6.2E-2[e]	1.0E+0[d]	1.1E+0[c]
di-n-butyl phthalate	4.6E+0	8.4E-2[e]	1.0E+0[d]	1.1E+0[c]
Acetone	-2.4E-1	5.3E+1[e]	4.5E-2[g]	1.1E+0[c]
Methylene chloride	1.3E+0	6.5E+0[e]	8.9E-1[g]	1.1E+0[c]
4-Methyl-2-pentanone	1.2E+0	8.3E+0[e]	6.4E-1[g]	1.1E+0[c]
Toluene	2.5E+0	1.3E+0[e]	8.6E+0[g]	1.1E+0[c]

Notes:
[a] BJC 1998, Efroymson et al. 2001
[b] Sample et al. 1998a
[c] Sample et al. 1998b
[d] assumed value
[e] Travis & Arms 1988 (eq 5)
[f] Beyer and Stafford 1993
[g] Southworth et al. 1978

Acronyms/Abbreviations:
BHC – benzene hexachloride
COPEC – chemical of potential ecological concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
kg – kilogram
K_{ow} – octal-water partition coefficient
NA – not applicable

Table G-8
Representative Mammal Wildlife Receptor Species

Exposure Factor	Cottontail Rabbit	Deer Mouse	Coyote
Body weight, kg	0 895[a]	0.0184[b]	11.2[c]
Ingestion rate, kg food/day dw	0 0808[d]	0.00321[e]	0.501[e]
Fractional intake, soil	0 02[f]	0 05[g]	0.028[h]
Fractional intake, plant	1[i]	0 25[i]	0[i]
Fractional intake, invertebrate	0[i]	0 75[i]	0.25[i]
Fractional intake, small mammal	0[i]	0[i]	0.75[i]
Home range, hectares	3 1[j]	0 091[k]	1,570[l]
Site-use factor (Site area 1 86 hectares)	0 58	1.0	0 0012

Notes:
[a] Ingles, L.G. 1941
[b] Hayes, J.P. 1989
[c] Cypher, B.L. 1995
[d] Nagy 1987; allometric equation for herbivorous mammals (ingestion rate g dw/day = $0.577*BW^{0.727}$), BW units as g; divide by 1,000 for kg dw/day
[e] Nagy 1987; allometric equation for all mammals (ingestion rate g dw/day= $0.235*BW^{0.822}$), BW units as g; divide by 1,000 for kg dw/day
[f] Beyer et al. 1994; woodchuck < 2 percent
[g] Beyer et al. 1994; midpoint of two prairie dog values
[h] Beyer et al 1994; red fox 2.8 percent
[i] assumed value
[j] U.S. EPA 1993; mean of values shown
[k] Storer et al. 1944; (as cited in Cal/Ecotox) mean adult male and female
[l] Bounds and Shaw 1997; as cited in Cal/Ecotox

Acronyms/Abbreviations:
BW – body weight
dw – dry weight
g – grams
kg – kilogram

Table G-9
Representative Avian Wildlife Receptor Species

Exposure Factor	Mourning Dove	American Robin	American Kestrel
Body weight, kg	0.125[a]	0.0804[b]	0.111[c]
Ingestion rate, kg food/day dw	0.0150[d]	0.01128[d]	0.0139[d]
Fractional intake, soil	0.093[e]	0.104[f]	0.0035[g]
Fractional intake, plant	1[h]	0.25[h]	0[h]
Fractional intake, invertebrate	0[h]	0.75[h]	0.25[h]
Fractional intake, small mammal	0[h]	0[h]	0.75[h]
Home range, hectares	1,000[i]	11[j]	109.4[k]
Site-use factor (Site area 1.86 hectares)	0.0019	0.17	0.017

Notes:
- [a] Cowan, J.B. 1952
- [b] Clench and Leberman 1978, Wheelwright 1986
- [c] Roest, A.I. 1957
- [d] Nagy 1987; allometric equation for all birds (ingestion rate kg dw/day = $0.0582*BW^{0.651}$)
- [e] Beyer et al. 1994; wild turkey
- [f] Beyer et al. 1994; American woodcock
- [g] Pascoe et al. 1996; 0.35 percent for bald eagle
- [h] assumed value
- [i] Tomlinson et al. 1960 (CA WHRS) 10 km^2
- [j] Weatherhead and McRae 1990, as cited in U.S. EPA 1993; Haldeman et al. 1973, Gaines 1974, Haldeman et al. 1973, as cited in Zeiner et al. 1990; Knupp et al. 1977, as cited in Sallabanks and James 1999; mean of five cited values
- [k] Balgooyen 1976; (as cited in Cal/Ecotox) adult male and female

Acronyms/Abbreviations:
- BW – body weight
- CA WHRS – California Wildlife Habitat Relationships System
- dw – dry weight
- kg – kilogram
- km^2 – square kilometers

Exposure dose was calculated with the following formula for each receptor and COPEC:

$$\text{Dose} = \frac{\sum_{k}^{i=1}[C * BAF_i * IR * FI_i * AE * SUF]}{BW}$$

where

Dose = daily dose of COPEC per wildlife receptor; value is expressed as mg/kg_{BW}-day
C = concentration in soil using EPC; expressed as $mg_{CHEMICAL}/kg_{SOIL}$ dw
BAF_i = soil-to-biota bioaccumulation factor, expressed as kg_{SOIL} dw / kg_{BIOTA} dw
IR = receptor specific ingestion rate, expressed as quantity of food (weight) per day, kg_{FOOD} dw/ day
FI_i = receptor specific fractional intake rate for each ingested item (including soil, and plant and animal food items); dietary composition
AE = chemical-specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species; value has no units; value assumed at 1
SUF = site-use factor, receptor specific; value has no units
i, k = identifier and number of ingested media types (i.e., soil, food types)
BW = body weight of the animal, expressed as kg_{BW}

Exposure factors for the terrestrial wildlife ingestion pathway, ingestion rate, body weight, and site-use factors are specific for each ecological receptor evaluated. Fractional intake (the dietary component) is specific for each receptor and ingested item (e.g., food type). Gastrointestinal assimilation efficiency (bioavailability) is specific to each receptor, ingested medium, and chemical compound. For this screening-level ERA, conservative assumptions were used for assimilation efficiency (value set to 1). The receptors were assumed to experience no reduction in bioavailability.

A refined exposure estimate was prepared by using mean (or best estimate) body weight values for the representative receptors and site-use factors based on home range values.

G4 RISK ESTIMATION

The risk estimation for terrestrial wildlife receptors is estimated by the hazard quotient (HQ) reported to one significant figure, obtained by dividing the exposure dose estimate by the TRV as follows:

$$HQ = \frac{DOSE}{TRV}$$

where

HQ = hazard quotient
DOSE = daily exposure dose for a COPEC (mg/kg-day)
TRV = toxicity reference value (mg/kg-day)

Hazard Index (HI) values were calculated to assess the potential for cumulative effects from multiple COPECs having similar modes of action. The HI values were calculated as the sum of all of the individual HQ values for a group of COPECs (e.g., metals, PCBs).

The risk estimation for each COPEC is evaluated based on a representative HQ that represents the maximum HQ among the representative ecological receptors.

G4.1 Risk Estimation Hazard Quotient-Low

Table G-10 lists the HQ-low (based on TRV-low) values for each COPEC and receptor. The majority of the HQ-low values are less than 1, indicating that those COPECs are unlikely to represent an ecological risk for the modeled terrestrial wildlife. Seven compounds, cadmium, copper, lead, nickel, selenium, zinc, and dieldrin, are presented with HQ-low values equal to or exceeding 1, indicating potential ecological risk. In addition, the hazard indices for metals and pesticides exceed 1.

A risk estimate was prepared based on background concentrations (Table G-11) to compare the HQ-low values from Site 10 to background HQ-low values. The representative HQ-low values for five COPECs (cadmium, lead, nickel, selenium, and zinc) equaled or exceeded 1. The HQ-low for nickel is the same for the background concentrations as it is for Site 10.

The maximum HQ-low value was for cadmium (HQ 200), which exceeded the background HQ-low by a factor of 5. The HQ-low values for lead (HQ 20), selenium (HQ 10), and zinc (HQ 10) are 10 or greater and exceed the background HQ-low by factors of 2, 5, and 3, respectively. The copper HQ-low is 4 and exceeds the background HQ-low by a factor of 6. The HI for metals is 200.

The HI value for pesticides (HI 2) slightly exceeds 1 and background data are not available for comparison. None of the HQ-low values for pesticide compounds exceed 1.

The most sensitive of the representative ecological receptors were the deer mouse and American robin, both representing organisms that feed on invertebrates. HQ-low values exceeding 1 indicate the potential for adverse growth or reproductive effects to these organisms.

G4.2 Risk Estimation Hazard Quotient-High

An upper bound of the risk estimate was prepared from a less conservative TRV, the TRV-high. Several TRV-high values are summarized by the Navy and the U.S. EPA Region 9 BTAG (EFA-West 1998), and are recommended by Cal/EPA (2000). The TRV-high, based on an approximate midpoint of the range of effects levels, represents a threshold above which adverse effects are likely to occur (Tables G-12 and G-13).

Table G-14 lists the HQ-high (based on TRV-high) for each COPEC and receptor. The only HQ-high value that exceeds 1 is the deer mouse risk estimate for cadmium, indicating the potential for adverse growth and reproductive effects to occur.

Table G-10
Hazard Quotients – Low for Site 10

Analyte	Cottontail Rabbit (HQ)	Deer Mouse (HQ)	Coyote (HQ)	Mourning Dove (HQ)	American Robin (HQ)	American Kestrel (HQ)	Maximum (HQ)
Arsenic	4E-2	5E-1	5E-5	2E-5	4E-3	9E-5	5E-1
Cadmium	**5E+0**[a]	**2E+2**[a]	3E-2	2E-2	**2E+1**[a]	5E-1	**2E+2**[a]
Chromium, total	5E-2	8E-1	1E-4	2E-3	4E-1	2E-2	8E-1
Hexavalent chromium	1E-3	2E-2	4E-6	4E-5	1E-2	4E-4	2E-2
Copper	4E-1	**4E+0**[a]	1E-3	3E-3	7E-1	3E-2	**4E+0**[a]
Lead	1E-1	**2E+0**[a]	3E-4	7E-2	**2E+1**[a]	8E-1	**2E+1**[a]
Mercury	8E-2	6E-1	6E-5	2E-3	5E-1	1E-2	6E-1
Nickel	2E-1	**2E+1**[a]	3E-3	3E-4	2E-1	1E-2	**2E+1**[a]
Selenium	**3E+0**[a]	**1E+1**[a]	2E-3	3E-3	4E-1	1E-2	**1E+1**[a]
Silver	4E-3	6E-1	6E-5	9E-6	2E-2	4E-4	6E-1
Zinc	5E-1	**1E+1**[a]	3E-3	1E-3	9E-1	4E-2	**1E+1**[a]
Cyanide	3E-4	1E-3	3E-7	3E-3	3E-1	2E-2	3E-1
Aroclor 1254	8E-4	6E-1	1E-4	6E-5	3E-1	1E-2	6E-1
Aroclor 1260	3E-4	2E-1	5E-5	2E-5	1E-1	6E-3	2E-1
4,4′-DDD	8E-5	4E-2	6E-6	1E-4	5E-1	2E-2	5E-1
4,4′-DDE	1E-4	5E-2	8E-6	1E-4	6E-1	3E-2	6E-1
4,4′-DDI	6E-6	4E-3	6E-7	9E-6	5E-2	2E-3	5E-2
alpha-BHC	5E-4	5E-2	8E-6	3E-7	6E-4	3E-5	5E-2
beta-BHC	5E-4	6E-2	8E-6	3E-7	7E-4	3E-5	6E-2
alpha-Chlordane	1E-5	8E-3	2E-6	4E-7	2E-3	1E-4	8E-3
gamma-Chlordane	2E-5	1E-2	3E-6	7E-7	3E-3	2E-4	1E-2
Heptachlor	3E-5	1E-2	3E-6	7E-7	4E-3	2E-4	1E-2
Heptachlor epoxide	2E-4	2E-2	5E-6	2E-6	7E-3	3E-4	2E-2
Aldrin	2E-4	1E-1	2E-5	9E-7	5E-3	2E-4	1E-1
Dieldrin	4E-3	**1E+0**[a]	2E-4	1E-5	5E-2	2E-3	**1E+0**[a]
Endosulfan sulfate	2E-4	1E-2	2E-6	2E-8	2E-5	1E-6	1E-2
Endrin	1E-4	4E-2	9E-6	1E-5	6E-2	2E-3	6E-2
Endrin aldehyde	4E-4	8E-2	2E-5	3E-5	1E-1	4E-3	1E-1
Endrin ketone	1E-4	2E-2	5E-6	8E-6	3E-2	1E-3	3E-2
Benzo(a)anthracene	4E-4	7E-3	1E-5	5E-6	1E-3	4E-4	7E-3
Benzo(a)pyrene	2E-4	7E-3	1E-5	4E-6	2E-3	3E-4	7E-3
Benzo(b)fluoranthene	3E-4	7E-3	1E-5	5E-6	1E-3	4E-4	7E-3

(table continues)

Table G-10 (continued)

Analyte	Cottontail Rabbit (HQ)	Deer Mouse (HQ)	Coyote (HQ)	Mourning Dove (HQ)	American Robin (HQ)	American Kestrel (HQ)	Maximum (HQ)
Benzo(g,h,i)perylene	1E-4	3E-3	6E-6	3E-6	7E-4	2E-4	3E-3
Benzo(k)fluoranthene	2E-4	4E-3	8E-6	4E-6	1E-3	3E-4	4E-3
Chrysene	4E-4	1E-2	1E-5	6E-6	2E-3	4E-4	1E-2
Fluoranthene	6E-4	9E-3	1E-5	7E-6	2E-3	4E-4	9E-3
Indeno(1,2,3-cd)pyrene	1E-4	6E-3	7E-6	3E-6	1E-3	2E-4	6E-3
Pyrene	6E-4	9E-3	1E-5	6E-6	2E-3	4E-4	9E-3
Benzoic acid	3E-2	4E-2	1E-5	1E-3	6E-2	4E-3	6E-2
2-Nitrophenol	9E-3	1E-2	3E-6	4E-4	2E-2	1E-3	2E-2
4-Chloroaniline	9E-3	1E-2	3E-6	4E-4	2E-2	1E-3	2E-2
Butylbenzyl phthalate	5E-6	2E-4	7E-8	6E-5	4E-2	4E-3	4E-2
di-n-butyl phthalate	2E-6	4E-5	2E-8	6E-5	3E-2	3E-3	3E-2
Acetone	1E-1	8E-2	2E-6	8E-5	2E-3	1E-5	1E-1
Methylene chloride	3E-3	3E-3	5E-7	1E-4	5E-3	2E-4	5E-3
4-Methyl-2-pentanone	9E-4	9E-4	1E-7	4E-5	1E-3	4E-5	1E-3
Toluene	2E-4	3E-3	6E-7	9E-6	4E-3	2E-4	4E-3
HI[b] – metals	**9E+0**[a]	**2E+2**[a]	3E-2	1E-1	**4E+1**[a]	**1E+0**[a]	**2E+2**[a]
HI[b] – PCB	1E-3	8E-1	2E-4	8E-5	5E-1	2E-2	8E-1
HI[b] – pesticide	7E-3	**2E+0**[a]	3E-4	3E-4	**1E+0**[a]	6E-2	**2E+0**[a]
HI[b] – PAHs	3E-3	6E-2	9E-5	4E-5	1E-2	3E-3	6E-2
HI[b] – SVOCs	4E-2	7E-2	2E-5	2E-3	2E-1	1E-2	2E-1
HI[b] – VOCs	1E-1	9E-2	3E-6	3E-4	1E-2	4E-4	1E-1

Notes:
[a] boldface indicates hazard quotient or hazard index values ≥ 1
[b] HI is the sum of the analyte-specific HQ values presented in each column

Acronyms/Abbreviations:
BHC – benzene hexachloride
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
HI – hazard index
HQ – hazard quotient
PAH – polynuclear aromatic hydrocarbon
PCB – polychlorinated biphenyl
SVOC – semivolatile organic compound
VOC – volatile organic compound

Table G-11
Hazard Quotients – Low for Site 10 Exposure Scenario Using NAF El Centro Background Concentrations

Analyte	Background Threshold Value (mg/kg)	Cottontail Rabbit (HQ)	Deer Mouse (HQ)	Coyote (HQ)	Mourning Dove (HQ)	American Robin (HQ)	American Kestrel (HQ)	Maximum (HQ)
Arsenic	6.3	6E-2	8E-1	9E-5	3E-5	8E-3	1E-4	8E-1
Cadmium	2.2	**1E+0**[a]	**4E+1**[a]	6E-3	4E-3	**4E+0**[a]	1E-1	**4E+1**[a]
Chromium, total	19	2E-2	3E-1	5E-5	6E-4	2E-1	6E-3	3E-1
Copper	22	6E-2	7E-1	2E-4	5E-4	1E-1	6E-3	7E-1
Lead	17	5E-2	8E-1	2E-4	4E-2	**9E+0**[a]	4E-1	**9E+0**[a]
Mercury	0.05	7E-3	5E-2	5E-6	2E-4	5E-2	1E-3	5E-2
Nickel	20	3E-1	**2E+1**[a]	4E-3	4E-4	3E-1	1E-2	**2E+1**[a]
Selenium	0.7	5E-1	**2E+0**[a]	3E-4	5E-4	7E-2	2E-3	**2E+0**[a]
Silver	0.6	3E-5	5E-3	5E-7	8E-8	1E-4	4E-6	5E-3
Zinc	70	1E-1	**3E+0**[a]	8E-4	4E-4	3E-1	1E-2	**3E+0**[a]
HI[b] – metals		**2E+0**[a]	**7E+1**[a]	1E-2	4E-2	**1E+1**[a]	6E-1	**7E+1**[a]

Notes:
[a] boldface indicates hazard quotient or hazard index values ≥ 1
[b] HI is the sum of the analyte-specific HQ values presented in each column

Acronyms/Abbreviations:
HI – hazard index
HQ – hazard quotient
mg/kg – milligrams per kilogram
NAF – Naval Air Facility

G5 UNCERTAINTY ANALYSIS

Some uncertainties are inherent in the risk assessment process, while other uncertainties result from limitations of the studies upon which the assessment is based. It is important to identify the sources and effects of uncertainty in the risk assessment to provide defensible hazard assessments and impact evaluations and to minimize subjective interpretation of the nature and degree of potential hazards posed by the COPECs. Most assumptions are intentionally conservative so that the risk assessment more likely overestimates, rather than underestimates, the potential hazard for ecological receptors. Assumptions must be made in exposure and risk assessment when values are unknown or when multitudes of values are possible. The qualitative effects of the major assumptions in this risk assessment are discussed in the following subsections.

Table G-12
Mammal Toxicity Reference Values – High

Analyte	TRV (mg/kg-day)	Species	Body Weight (kg)	R[a]	Reference
Cadmium	2.64	Mouse	0.03141	R2	Schroeder & Mitchner 1971
Copper	631.58	Mouse	0.0247	R2	Hebert et al 1993
Lead	240.64	Mouse	0.0187	R2	Wise 1981
Nickel	31.6	Rat	0.2486	R2	Smith et al. 1993
Selenium	1.21	Mouse	0.0246	R2	Schroeder & Mitchner 1971
Zinc	411.43	Rat	0.175	R2	Schlicker & Cox 1968
4,4′-DDD	16	Rat	0.32	R2	Clement & Okey 1974
4,4′-DDE	16	Rat	0.32	R2	Clement & Okey 1974
4,4′-DDT	16	Rat	0.32	R2	Clement & Okey 1974
alpha-BHC[b]	3.75	Mouse	0.024	R2	Sircar & Lahiri 1989
beta-BHC	2	Rat	0.35	R1	Van Velsen et al. 1986
alpha-Chlordane[c]	9.2	Mouse	0.03	R1	Keplinger et al. 1968
gamma-Chlordane[c]	9.2	Mouse	0.03	R1	Keplinger et al. 1968
Heptachlor	6.8	Rat	0.204	R2	Narotsky et al. 1995
Heptachlor epoxide[d]	6.8	Rat	0.204	R2	Narotsky et al. 1995
Aldrin	1	Rat	0.065	R2	Paul et al 1992
Dieldrin[e]	1	Rat	0.065	R2	Paul et al 1992
Endosulfan sulfate[f]	0.92	Mouse	0.03	R1	Good & Ware 1969
Endrin	0.92	Mouse	0.03	R1	Good & Ware 1969
Endrin aldehyde[f]	0.92	Mouse	0.03	R1	Good & Ware 1969
Endrin ketone[f]	0.92	Mouse	0.03	R1	Good & Ware 1969

Notes:
[a] the sources reviewed to compile the information presented in this table are the following:
R1 – Sample et al. 1996
R2 – EFA-West 1998 and Cal/EPA 2000
[b] chemical surrogate gamma-BHC was used
[c] chemical surrogate chlordane was used
[d] chemical surrogate heptachlor was used
[e] chemical surrogate aldrin was used
[f] chemical surrogate endrin was used

Acronyms/Abbreviations:
BHC – benzene hexachloride
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
kg – kilogram
mg/kg-day – milligrams per kilogram per day
R – reference
TRV – toxicity reference value

Table G-13
Avian Toxicity Reference Values – High

Analyte	TRV (mg/kg-day)	Species	Body Weight (kg)	R[a]	Reference
Cadmium	10.43	Mallard	0.084	R2	Richardson et al. 1974
Copper	52.26	Broiler chick	0.409	R2	Jensen & Maurice 1978
Lead	8.75	Chicken	0.8	R2	Edens & Garlich 1983
Nickel	55.16	Mallard	0.58	R2	Cain & Pafford 1981
Selenium	0.93	Mallard	1.1077	R2	Heinz et al. 1989
Zinc	172	Mallard	0.955	R2	Gasaway & Buss 1972
4,4′-DDD[b]	0.6	Mallard	1	R2	Heath et al 1969
4,4′-DDE	0.6	Mallard	1	R2	Heath et al 1969
4,4′-DDT	1.5	Mallard	1	R2	Heath et al 1969
alpha-BHC[c]	20	Mallard	1	R1	Chakravarty & Lahiri 1986
beta-BHC[c]	20	Mallard	1	R1	Chakravarty & Lahiri 1986
alpha-chlordane[d]	10.7	Blackbird	0.064	R1	Stickel et al. 1983
gamma-chlordane[d]	10.7	Blackbird	0.064	R1	Stickel et al. 1983
Heptachlor[e]	0.77[f]	Barn owl	0.466	R1	Mendenhall et al. 1983
Heptachlor epoxide[e]	0.77[f]	Barn owl	0.466	R1	Mendenhall et al. 1983
Aldrin[e]	0.77[f]	Barn owl	0.466	R1	Mendenhall et al. 1983
Dieldrin	0.77[f]	Barn owl	0.466	R1	Mendenhall et al. 1983
Endosulfan sulfate [e]	0.77[f]	Barn owl	0.466	R1	Mendenhall et al. 1983
Endrin	0.1	Screech owl	0.181	R1	Fleming et al. 1982
Endrin aldehyde[g]	0.1	Screech owl	0.181	R1	Fleming et al. 1982
Endrin ketone[g]	0.1	Screech owl	0.181	R1	Fleming et al. 1982

Notes:
[a] the sources reviewed to compile the information presented in this table are the following:
R1 – Sample et al. 1996
R2 – EFA-West 1998 and Cal/EPA 2000
[b] chemical surrogate DDE was used
[c] chemical surrogate gamma-BHC was used
[d] chemical surrogate chlordane was used
[e] chemical surrogate dieldrin was used
[f] avian TRV-high estimated from Avian TRV-low * 10
[g] chemical surrogate endrin was used

(table continues)

Table G-13 (continued)

Acronyms/Abbreviations:
BHC – benzene hexachloride
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethene
DDT – dichlorodiphenyltrichloroethane
kg – kilogram
mg/kg-day – milligrams per kilogram per day
R – reference
TRV – toxicity reference value

Table G-14
Hazard Quotients – High for Site 10

Analyte	Cottontail Rabbit (HQ)	Deer Mouse (HQ)	Coyote (HQ)	Mourning Dove (HQ)	American Robin (HQ)	American Kestrel (HQ)	Maximum (HQ)
Cadmium	1E-1	**4E+0**[a]	6E-4	1E-4	1E-1	4E-3	**4E+0**[a]
Copper	1E-3	2E-2	5E-6	1E-4	3E-2	1E-3	3E-2
Lead	4E-4	6E-3	2E-6	1E-4	3E-2	1E-3	3E-2
Nickel	1E-3	7E-2	1E-5	7E-6	6E-3	3E-4	7E-2
Selenium	1E-1	6E-1	1E-4	8E-4	1E-1	4E-3	6E-1
Zinc	1E-2	3E-1	4E-5	1E-4	9E-2	4E-3	3E-1
HI[b] – metals	3E-1	**5E+0**[a]	7E-4	2E-3	5E-1	2E-2	**5E+0**[a]
HI[b] – pesticides	2E-4	7E-2	1E-5	1E-5	4E-2	2E-3	7E-2

Notes:
[a] boldface indicates hazard quotient or hazard index values ≥ 1
[b] HI is the sum of the analyte-specific HQ values presented in each column

Acronyms/Abbreviations:
HI – hazard index
HQ – hazard quotient

G5.1 Chemical of Potential Ecological Concern Selection

Some uncertainty always exists in the selection of COPECs for a site. It is assumed for this ERA that sample procedures and analytical methods adhered to standard protocols and that the COPECs were reported appropriately. The soil data included analytical results from approximately 34 samples for inorganic compounds and 16 samples for organic compounds, which would not likely underestimate the number of COPECs.

G5.2 Exposure Pathways

Exposure by direct (e.g., dermal) contact and inhalation cannot be readily estimated or evaluated for ecological receptors. Little data regarding these two exposure pathways are available (site-specific and/or in the scientific literature). Exposure by ingestion is assumed to be greater than exposure by direct contact or inhalation and therefore was the exposure pathway taken into account for this ERA. It is possible that exposures to COPECs at the site may have been underestimated for the selected receptors; however, the ingestion routes tend to be the significant drivers of exposures. Because it is impossible to account for all exposures by all receptors, this may lead to an underestimation of hazard for the selected receptors.

G5.3 Endpoint Receptor Selection

Uncertainty surrounds the selection of endpoints appropriate for the site because it is not feasible to evaluate all species and communities potentially at risk. The ecological endpoints selected for evaluation represent the broadest possible range of receptors (including special-status ecological receptors) that could be addressed with sufficient certainty to provide a basis for regulatory decision-making. Because of the wide range of ecological receptors selected for this ERA, it is unlikely that the hazard would be underestimated for all the receptors potentially present at the site.

G5.4 Exposure Model

There are a number of caveats in the applicability, relevance, and usage of the exposure model for terrestrial and aquatic-dependent wildlife. The life histories of the prey species are of critical importance for understanding their relationship to the site and their potential exposure to contaminated media at the site. The model used in this assessment assumed that prey species would be in contact with only the soils at Site 10.

The model also assumed that the EPC for each COPEC reported in soil would be consistent throughout the site area. The EPC estimates a reasonable exposure value based on available data. EPC values likely balance the potential for under- or over-estimating the exposure.

G5.5 Exposure Estimates

Potential hazards of chemical exposures to the selected receptors are subject to uncertainty as a result of the simplifying assumptions used to estimate exposure.

Exposure estimates for the soil COPECs were based on statistical estimates of soil concentrations, which should neither over- nor underestimate the exposure.

Exposure parameters for the selected receptors were average intake rates for food items and average body weights derived from the literature. Actual intake rates for the selected receptors may be greater or smaller than those used in the ERA, resulting in either an over- or underestimation of potential exposures to site COPECs. Furthermore, assumptions regarding ingested food items by the selected receptors were restrictive (e.g., wildlife receptor consumes only a specific representative food item at the site) and did not account for a probably varied diet, resulting in a likely overestimation of risk.

Bioaccumulation factors were used to estimate exposures of wildlife through the ingestion of contaminated prey. The bioaccumulation factors were taken from a review of scientific literature. Site-specific bioaccumulation factors may be over- or underestimated by the generalized values.

There are uncertainties associated with how extensively a receptor will use a site. For this ERA, it was assumed that receptors would forage for a portion of time at the site, based on average foraging ranges published in the literature. Actual foraging rates for the selected receptors are unknown, which may lead to either an over- or underestimation of hazard for those receptors.

G5.6 Bioavailability

Because of the paucity of data on the amount that a chemical or compound may be bioavailable at any one site, the food chain modeling assumed a 100 percent bioavailability for all COPECs, compared to reference literature toxicity values. Exposure estimation assumed that COPECs were completely bioavailable (which is unlikely under natural conditions at the site), resulting in an overestimation of hazard.

G5.7 Selected Toxicity Reference Values

Uncertainties surrounding TRV extrapolation include the evaluation of potential effects on special-status species and consideration of the bioavailability and toxicity for the forms of the COPECs present at the site. Uncertainty in the use of TRVs to estimate wildlife toxicity includes the following functions:

- extrapolation from acute or subchronic exposure to chronic exposure duration
- extrapolation from a more toxicologically sensitive species than a selected receptor
- extrapolation from LOAEL to NOAEL
- extrapolation across species of varying taxonomic relatedness, feeding habits, and body size
- extrapolation to special-status species
- consideration of bioavailability, assimilation, and relative toxicity for the forms of chemicals used in toxicity testing versus forms occurring in nature

The risk assessment implemented adjustment factors when these conditions were encountered to minimize the likelihood of underestimating the risk.

G5.8 Risk Characterization

In general, the ERA is more likely to overestimate rather than underestimate the actual hazard of adverse ecological effects at the site because of the conservative nature of the assumptions used For COPECs with estimated exposures less than the toxicity benchmark values, the probability of significant ecological hazard is very low. Potential risk from chemical exposures that exceed the toxicity benchmark values cannot be eliminated from consideration; however, marginal exceedances of the benchmark values would suggest that significant levels of risk at the population or community level are not likely.

G6 ECOLOGICAL RISK ASSESSMENT CONCLUSIONS

This screening-level ERA with refined exposure estimates indicates that potential risk exists for representative wildlife. The potential for ecological risk is unlikely (HQ-low < 1) for exposure to most of the COPECs. Potential ecological risk is indicated by the screening-level ERA for receptor exposure primarily to cadmium. Site 10 HQ-low and HQ-high values and background HQ-low values are summarized in Table G-15.

Six metals and one pesticide were reported with HQ-low values greater than or equal to 1, indicating the potential for ecological risk. However, nickel showed an HQ-low value that was the same as the HQ-low for the background concentration, representing a potential risk equivalent to background. Pesticides showed a negligible potential risk with an HI value of 2. Due to the conservative factors included in the risk estimate, it is likely that these organic compounds represent a condition of negligible ecological risk Only cadmium showed an HQ-high value that exceeded 1, indicating it is the principal COPEC.

Based on the results of this screening-level ERA, the chemical concentrations at Site 10 may represent a condition of ecological risk. COPECs include cadmium, copper, lead, selenium, and zinc. These COPECs are present at the site at concentrations that represent potential adverse growth and reproductive effects to small mammals and birds that feed on invertebrates.

A Tier 2 baseline ERA may be implemented to provide site-specific exposure and effects data, or a site remediation may be implemented to reduce the potential risk to the ecological receptors The potential risk will be sufficiently reduced if the site exposure characterization is no greater than the background characterization or the exposure characterization represents an HQ of 1.

Table G-15
Summary of Hazard Quotients and Hazard Indices

Analyte	Background Concentration (HQ-Low)	NAF El Centro Site 10 (HQ-Low)	NAF El Centro Site 10 (HQ-High)
Cadmium	**4E+1**[a]	**2E+2**[a]	**4E+0**[a]
Copper	7E-1	**4E+0**[a]	3E-2
Lead	**9E+0**[a]	**2E+1**[a]	3E-2
Nickel	**2E+1**[a]	**2E+1**[a]	7E-2
Selenium	**2E+0**[a]	**1E+1**[a]	6E-1
Zinc	**3E+0**[a]	**1E+1**[a]	3E-1
HI[b] – metals	**7E+1**[a]	**2E+2**[a]	**5E+0**[a]
HI[b] – pesticides	NA	**2E+0**[a]	7E-2

Notes:
[a] boldface indicates hazard quotient or hazard index values ≥ 1
[b] HI is the sum of the analyte-specific HQ values presented in each column

Acronyms/Abbreviations:
HI – hazard index
HQ – hazard quotient
NA – not available

G7 REFERENCES

Abiola, F. A. 1992. Ecotoxicity of organochloride insecticides: effects of endosulfan on birds reproduction and evaluation of its induction effects in partridge, Perdix perdix L. *Rev. Vet. Med. 143*:443–450.

Anderson, D W., R.W. Risebrough, L A. Woods, Jr., L.R. De Weese, and W G. Edgecomb. 1975. Brown pelicans: improved reproduction off the southern California coast. *Science 190*:806–808.

Aughey, E., L. Grant, B L. Furman, and W.F. Dryden. 1977. The effects of oral zinc supplementation in the mouse. *Journal of Comparative Pathology*. Vol: *87*:1–14.

Balgooyen, T.G. 1976. Behavior and ecology of the American Kestrel in the Sierra Nevada of California. *Univ. Calif. Publ. Zool. 103*:1–87.

Bechtel Jacobs Company LLC. 1998. Empirical Models for the Uptake of Chemicals from Soil by Plants. BJC/OR -133. Prepared for U.S. Department of Energy, Office of Environmental Management.

Bechtel National, Inc. 1997. Draft Ecological Scoping Assessment, Naval Air Facility El Centro, California. CTO-0150/0032. October.

———. 2001. Semiannual Groundwater Monitoring Report, IR Sites 2, 7, and 10, Naval Air Facility El Centro, El Centro, California. October.

Beletsky, L. D. 1996. The Red-winged Blackbird: The Biology of a Strongly Polygamous Songbird. pp. 31-34. Academic Press, Harcourt Brace and Co., Publishers, London. As cited in ERDC/CERL TR-02-6 of ACOE.

Beyer, W.N., E. Conner, and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *J. Wildl. Manage.* *58*:375–382.

Beyer, W.N., and C. Stafford. 1993. Survey and evaluation of contaminants in earthworms and soils from dredged materials at confined disposal facilities in the Great Lakes region. *Environ. Monit. Assess.* *24*:151–165.

BJC. *See* Bechtel Jacobs Company LLC.

BNI. *See* Bechtel National, Inc.

Bounds, D.L. and W.W. Shaw. 1997. Movements of suburban and rural coyotes at Saguaro National Park, Arizona. *Southwest. Nat.* *42*:94–121.

Brian F. Mooney Associates. 1993. Environmental Impact Report for the County of Imperial General Plan. Volume 1. Final Program. Prepared for County of Imperial Planning Department, El Centro, California. SCH #93011023.

Cain, B.W. and E.A. Pafford. 1981. Effects of dietary nickel on survival and growth of mallard ducklings. *Archives of Environmental Contamination and Toxicology.* *10*:737–745.

Cain, B.W., L. Sileo, J.C. Franson, and J. Moore. 1983. Effects of dietary cadmium on mallard ducklings. *Environmental Research.* *32*:286–297.

Cal/Ecotox. *See* Cal/EPA 2002

Cal/EPA. *See* California Environmental Protection Agency.

California Department of Fish and Game. 2001. California Wildlife Habitat Relationships System. Wildlife Habitats. http://www.dfg.ca.gov/whdab/html/wildlife_habitats.html. 11 April.

———. 2002a. State and Federally Listed Endangered, Threatened, and Rare Plants of California. Habitat Conservation Division. Wildlife and Habitat Data Analysis Branch. California Natural Diversity Database. October. http://www.dfg.ca.gov/whdab/.

———. 2002b. Special Vascular Plants, Bryophytes, and Lichens List. Habitat Conservation Division. Wildlife and Habitat Data Analysis Branch. California Natural Diversity Database. Biannual Publication, Mimeo. 141 pp. July. http://www.dfg.ca.gov/whdab/.

———. 2002c. State and Federally Listed Endangered and Threatened Animals of California. Habitat Conservation Division. Wildlife and Habitat Data Analysis Branch. California Natural Diversity Database. July. http://www.dfg.ca.gov/whdab/

———. 2002d. Special Animals. Habitat Conservation Division. Wildlife and Habitat Data Analysis Branch. California Natural Diversity Database. July. http://www.dfg.ca.gov/whdab/.

California Environmental Protection Agency. 1996a. Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities, Part A: Overview. State of California, California Environmental Protection Agency, Department of Toxic Substances Control. 04 July.

———. 1996b. Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities, Part B: Scoping Assessment. State of California, California Environmental Protection Agency, Department of Toxic Substances Control. 04 July.

———. 1998. HERD ERA Note Number 1: Depth of soil samples used to set exposure point concentration for burrowing mammals and burrow-dwelling birds in an ecological risk assessment. State of California, California Environmental Protection Agency, Department of Toxic Substances Control, Human and Ecological Risk Division. 15 May.

———. 1999. HERD ERA Note Number 2: Calculation of a Range of Intakes for Vertebrate Receptors in a Phase I Predictive Assessment for Use With EPA Region IX BTAG Toxicity Reference Doses (TRVs) to Obtain a Range of Hazard Quotients. State of California, California Environmental Protection Agency, Department of Toxic Substances Control, Human and Ecological Risk Division. 09 June.

———. 2000. HERD ERA Note Number 4: Use of Navy/U.S. Environmental Protection Agency (U.S. EPA) Region 9 Biological Technical Assistance Group (BTAG) Toxicity Reference Values (TRVs) for Ecological Risk Assessment. State of California, California Environmental Protection Agency, Department of Toxic Substances Control, Human and Ecological Risk Division. 08 December.

———. 2002. California Wildlife Exposure Factor and Toxicity Database (Cal/Ecotox). http://www.oehha.ca.gov/cal_ecotox/default.htm. Internet site accessed 25 September.

CDFG. *See* California Department of Fish and Game.

Chakravarty, S., and P. Lahiri. 1986. Effect of lindane on eggshell characteristics and calcium level in the domestic duck. *Toxicology*. *42*: 245–258.

Clement, J.G., and A.B. Okey. 1974. Reproduction in female rats born to DDT-treated parents. *Bulletin of Environmental Contamination and Toxicology*. *12*:373–377.

Clench, M.H., and R. C. Leberman. 1978. Weights of 151 species of Pennsylvania birds analyzed by month, age, and sex. *Bull. Carnegie Mus. Nat. Hist.*

Cowan, J.B. 1952. Life history and productivity of a population of western mourning doves in California. *Calif. Fish Game*. *38*(4):505–521.

Cypher, B.L. 1995. Coyote morphometric characteristics and mass dynamics in the San Joaquin Valley, California. *Southwest. Nat.* *40*:360–365.

Department of the Navy. 1999a. Chief of Naval Operations. Memorandum: Navy Policy for Conducting Ecological Risk Assessments. 05 April.

———. 1999b. Naval Air Facility El Centro, California Environmental Restoration Program 1999. http://www.efdsw.navfac.navy.mil/Environmental/pdf/elcentro.pdf.

———. 2001. Navy Guidance for Conducting Ecological Risk Assessments. http://web.ead.anl.gov/ecorisk/process/pdf/index.cfm Revised 30 January.

Dikshith, T. S. S., R. B. Raizada, M. K. Srivastava, and B. S. Kaphalia. 1984. Response of rats to repeated oral administration of endosulfan. *Ind. Health. 22*:295–304.

DON. *See* Department of the Navy.

Edens, F.W., E. Benton, S.J. Bursian, and G.W. Morgan. 1976. Effects of dietary lead on reproductive performance in Japanese quail, *Coturnix coturnix japonica. Toxicology and Applied Pharmacology. 38*:307–314.

Edens, F.W. and J.D. Garlich. 1983. Lead-induced egg production decrease in leghorn and Japanese quail hens. *Poultry Science. 62*:1757–1763.

EFA-West. *See* Engineering Field Activity, West.

Efron, B., and R.T. Tibshirani. 1993. *An Introduction to the Bootstrap*. New York: Chapman and Hall.

Efroymson, R.A., B.E. Sample, and G.W. Suter II. 2001. Uptake of inorganic chemicals from soil by plant leaves: regressions of field data. *Environmental Toxicology and Chemistry. 20*(11):2561–2571.

Engineering Field Activity, West. 1998. Development of Toxicity Reference Values for Conducting Ecological Risk Assessment at Naval Facilities in California, Interim Final. Engineering Field Activity, West, Naval Facilities Engineering Command, United States Navy, San Bruno, California.

Fitzhugh, O.G. 1948. Use of DDT insecticides on food products. *Ind. Eng. Chem. 40*:704–705.

Fleming, W. J., M. A. Ross McLane, and E. Cromartie. 1982. Endrin decreases screech owl productivity. *J. Wildl. Manage. 46*:462–468.

Fowler, B.A., C.A. Kimmel, J.S. Woods, E.E. McConnell, and L.D. Grant. 1980. Chronic low-level lead toxicity in the rat. III. An integrated assessment of long-term toxicity with special reference to the kidney. *Toxicol Appl Pharmacol. 56*(1):59–77.

Gaines, D. 1974. A new look at the nesting riparian avifauna of the Sacramento Valley, California. *West. Birds. 5*:61–80.

Gasaway, W.C. and I.O. Buss. 1972. Zinc toxicity in the mallard duck. *Journal of Wildlife Management. 36*(4):1107–1117.

Good, E. E., and G. W. Ware. 1969. Effects of insecticides on reproduction in the laboratory mouse, IV. Endrin and Dieldrin. *Toxicol. Appl. Pharmacol. 14*:201–203.

Haldeman, J.R., R.P. Balda, and S.W. Carothers. 1973 Breeding birds of a ponderosa pine forest and a fir, pine, aspen forest in the San Francisco Mountain area, Arizona. In S.W. Carothers, J.R. Haldeman, R.P. Balda, eds. Breeding Birds of the San Francisco Mountain Area and the White Mountains, Arizona. Mus. North. Ariz Tech. Ser. 12. 54 pp.

Harr, J.R., J.F. Bone, I.J. Tinsley, P.H. Weswig, and R.S. Yamamoto. 1966. Selenium Toxicity in Rats. Symposium: Selenium in Biomedicine, 1st International Symposium. Oregon State University.

Haseltine, S.D., L. Sileo, D.J. Hoffman, and B.D. Mulhern. 1985. Effects of chromium on reproduction and growth in black ducks. Unpublished data. As cited in: Sample, B., D. Opresko, and G. Suter (1996).

Hayes, J.P. 1989. Field and maximal metabolic rates of deer mice (Peromyscus maniculatus) at low and high altitudes. *Physiol. Zool.* *62*(3):732–744.

Hazardous Substances Data Bank (HSDB). Part of the Toxicology Data Network (TOXNET), an integrated system of toxicology and environmental health databases. National Library of Medicine. http://www.nlm.nih.gov/pubs/factsheets/tehipfs.html.

Heath, R.G., J.W. Spann, and J.F. Kreitzer. 1969. Marked DDE impairment of mallard reproduction in controlled studies. *Nature.* *224*: 47–48.

Hebert, C.D., M.R. Elwell, G.S. Travlos, C.J. Fitz, and J.R. Bucher. 1993. Subchronic toxicity of cupric sulfate administered in drinking water and feed to rats and mice. *Fundamental and Applied Toxicology.* *21*:461–475.

Heinz, G.H. 1974. Effects of low dietary levels of methyl mercury on mallard reproduction. *Bulletin of Environmental Contamination and Toxicology.* *11*:386–392.

Heinz, G.H., D.J. Hoffman, and L.G. Gold. 1989. Impaired reproduction of mallards fed an organic form of selenium. *J. Wildl. Mgmt.* *53*:418–428.

Hill, E.F., and M.B. Camardese. 1986. Lethal Dietary Toxicities of Environmental Contaminants and Pesticides to Coturnix. Fish and Wildlife Service. Technical Report 2.

HSDB. *See* Hazardous Substances Data Bank.

IARC. *See* International Agency for Research on Cancer.

Ingles, L.G. 1941. Natural history observations on the Audubon cottontail. *J. Mammal.* *22*:227–250.

Integrated Risk Information System. United States Environmental Protection Agency Database of Human Health Effects. http://www.epa.gov/iriswebp/iris/index.html.

International Agency for Research on Cancer. 1993. Monographs on the evaluation of the carcinogenic risk of chemicals to man. *IARC.* *57*:312.

IRIS. *See* Integrated Risk Information System.

Jensen, L.S. and D.V. Maurice. 1978. Effect of methionine on copper-induced growth depression and gizzard erosion. *Poultry Science.* *57*:1530–1532

Keplinger, M.L., W.B. Deichman, and F. Sala. 1968. Effects of pesticides on reproduction in mice. *Ind. Med. Surg.* *37*:525.

Khera, K.S., and S.A. Tabacova. 1973. Effects of methylmercuric chloride on the progeny of mice and rats treated before or during gestation. *Food and Cosmetics Toxicology.* *11*(2):245–254.

Knupp, D.M., R.B. Owen, Jr., and J.B. Dimond. 1977. Reproductive biology of the American robin in northern Maine. *Auk.* *94*:80–85.

Lamb, J.C., R.E. Chapin, J. Teague, A.D. Lawton, and J.R. Reel. 1987. Reproductive effects of four phthalic acid esters in the mouse. *Toxicology and Applied Pharmacology.* *88*:255–269.

Lewis, R.J. 1996. Sax's Dangerous Properite of Industrial Material. 9th Ed. Volumes 1–3. New York: Van Nostrand Reinhold.

MacKenzie, R.D., R.U. Byerrum, C.F. Decker, C.A. Hoppert, and R.F. Langham. 1958. Chronic toxicity studies, II. Hexavalent and trivalent chromium administered in drinking water to rats. *Am. Med. Assoc. Arch. Ind. Health.* *18*:232–234.

Matuk, Y., M. Ghosh, and C. McCulloch. 1981. Distribution of silver in the eyes and plasma proteins of the albino rat. *Canadian Journal of Ophthalmology.* *16*:145–150.

Mayer, K.E., and W.F. Laudenslayer, Jr. 1988. *A Guide to Wildlife Habitats of California.* State of California, The Resources Agency, Department of Forestry and Fire Protection. Sacramento, California. As revised: http://www.dfg.ca.gov/whdab/html/wildlife_habitats.html

MBA. *See* Microbiological Associates.

Mendenhall, V.M., E.E. Klaas, and M.A.R. McLane. 1983. Breeding success of barn owls (Tyto alba) fed low levels of DDE and dieldrin. *Arch. Environ. Contam. Toxicol.* *12*:235–240.

Microbiological Associates. 1986. Subchronic toxicity of methyl isobutyl ketone in Sprague-Dawley rats. Study No. 5221.0. Preliminary report to Research Triangle Institute, Research Triangle Park, North Carolina.

Mooney Associates. *See* Brian F. Mooney Associates.

Nagy, K.A. 1987. Field metabolic rate and food requirement scaling in mammals and birds. *Ecol. Monogr.* *57*:111–128.

Naishtein, S.Y., and D.L. Leibovich. 1971. Effect of small doses of DDT and lindane and their mixture on sexual function and embryogenesis in rats. *Hyg. Sanit.* *36*:190–195.

Narotsky, M.G., E.A. Weller, V.M. Chinchilli, and R.J. Kavlock. 1995. Nonadditive developmental toxicity in mixtures of trichloroethylene, di-2-ethylhexyl phthalate, and heptachlor in a 5 × 5 × 5 design. *Fundamental and Applied Toxicology.* 27: 203–216.

Nawrot, P.S., and R.E. Staples. 1979. Embryofetal toxicity and teratogenicity of benzene and toluene in the mouse. *Teratology*. *19*:41a.

NCA (National Coffee Association). 1982. 24-month chronic toxicity and oncogenicity study of methylene chloride in rats. Final Report. Vienna, Virginia: Hazelton Laboratories, Inc.

Neal, J., and R.H. Rigdon. 1967. Gastric tumors in mice fed benzo(a)pyrene: a quantitative study. *Texas Reports on Biology and Medicine*. *13*(4):553–557, *25*(4):553–557.

NTP. *See* National Toxicology Program.

National Toxicology Program. 1983. Teratologic evaluation of phenol in CD rats and mice. Report prepared by the Research Triangle Institute, Research Triangle Park, North Carolina. NTIS PB83-247726.

———. 1985. Twenty-six week subchronic study and modified mating trial in F344 rats. Butylbenzyl phthalate. Final Report. Project No. 12307-02, -03. Hazelton Laboratories America, Inc. Unpublished study. Cited in U.S. EPA IRIS for oral reference dose.

Norvell, M.J., D.A. Gable and M.C. Thomas. 1975. Effects of feeding high levels of various copper salts to broiler chickens. University of Missouri, Environmental Trace Substance Center and Extension division. Proceedings of University of Missouri 9th annual conference on Trace substances in Environmental Health. Memorial Union, University of Missouri-Columbia, Columbia, Missouri. pp. 457–463.

Pascoe, G.A., R.J. Blanchet, and G. Linder. 1996. Food chain analysis of exposures and risks to wildlife at a metals-contaminated wetland. *Archives of Environmental Contamination and Toxicology*. *30*:306–318.

Paul, V., E. Balasubramaniam, S. Sheela, and M.S. Krishnamoorthy. 1992. Effects of endosulfan and aldrin on muscle coordination and conditioned avoidance response in rats. *Pharmacology and Toxicology*. *71*:254–257.

Peakall, D.B. 1974. Effects of di-n-butylphthalate and di-2-ethylhexylphthalate on the eggs of ring doves. *Bulletin of Environmental Contamination and Toxicology*. *12*:698–702.

Platonow, N.S., and B.L. Reinhart. 1973. The effect of polychlorinated biphenyls Aroclor 1254 on chicken egg production fertility and hatchability. *Canadian Journal of Comparative Medicine*. *37*:341–346.

Pocino, M., L. Baute, and I. Malave. 1991. Influence of the oral administration of excess copper on the immune response. *Fundamental and Applied Toxicology*. *16*:249–256.

Richardson, M.E., and M.R. Spivey Fox. 1974. Dietary cadmium and enteropathy in the Japanese quail. *Laboratory Investigation*. *31*(6):722–731.

Roest, A.I. 1957. Notes on the American sparrow hawk. *Auk*. *74*(1):1–19.

Sallabanks, R., and F. C. James. 1999. American Robin (Turdus migratorius). In *The Birds of North America*, No. 462 (A. Poole and F. Gill, eds.). Philadelphia, Pennsylvania: The Birds of North America, Inc.

Sample, B.E., and C.A. Arenal. 1999. Allometric models for interspecies extrapolation for wildlife toxicity data. *Bulletin of Environmental Contamination and Toxicology*. *62*:653–663.

Sample, B., D. Opresko, and G. Suter, II. 1996. Toxicological benchmarks for wildlife: 1996 Revision. Prepared for U.S. Department of Energy by Environmental Sciences Division, Oak Ridge National Laboratory. Oak Ridge, Tennessee. ES/ER/TM-86/R3.

Sample, B.E., J. Beauchamp, R.A. Efroymson, G.W. Suter II, and T.L. Ashwood. 1998a. Development and Validation of Bioaccumulation Models for Earthworms. ES/ER/TM-220. Prepared for U.S. Department of Energy Office of Environmental Management by Lockheed Martin Energy Systems, Inc.

Sample, B.E., J. Beauchamp, R.A. Efroymson, and G.W. Suter II. 1998b. Development and Validation of Bioaccumulation Models for Small Mammals. ES/ER/TM-219. Prepared for U.S. Department of Energy Office of Environmental Management by Lockheed Martin Energy Systems, Inc.

Sawyer, J.O., and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, California.

Schafer, E.W., Jr., W.A. Bowles, Jr., and J. Hurlbut. 1983. The acute oral toxicity, repellency, and hazard potential of 998 chemicals to one or more species of wild and domestic birds. *Archives of Environmental Contamination and Toxicology*. *12*: 355–382.

Schlicker, S.A., and D.H. Cox. 1968. Maternal dietary zinc, and development and zinc, iron, and copper content of the rat fetus. *J. Nutr.* *95*:287–294.

Schroeder, H.A., M. Kanisawa, D.V. Frost, and M. Mitchener. 1968. Germanium, tin, and arsenic in rats: effects on growth, survival, pathological lesions and life span. *Journal of Nutrition*. *96*:37–45.

Schroeder, H.A., and M. Mitchner. 1971. Toxic effects of trace elements on the reproduction of mice and rats. *Archives of Environmental Health*. *23*:102–106.

Shain, S.A., J.C. Shaeffer, and R.W. Boesel. 1977. The effect of chronic ingestion of selected pesticides upon rat ventral prostate homeostasis. *Toxicology and Applied Pharmacology*. *40*:115–130.

Shtenberg, A.J., and A.D. Ignat'ev. 1970. Toxicological evaluation of some combinations of food preservatives. *Food Cosmet. Toxicol.* *8*(4):369–380.

Simmons, G.J., and M.J. McKee. 1992. Alkoxyresorufin metabolism in white-footed mice at relevant environmental concentrations of Aroclor 1254. *Fundamental and Applied Toxicology*. *19*:446–452.

Singh, A.K., A. Singh, and M. Engelhardt. 1997. The Lognormal Distribution in Environmental Applications. U.S. EPA, Office of Research and Development. Technology Support Center Issue. EPA/600/R-97/006.

Sircar, S, and P. Lahiri. 1989. Lindane (gama-HCH) causes reproductive failure and fetotoxicity in mice. *Toxicology*. *59*:171–177.

Smith, M.K., E.L. George, J.A. Stober, H.A. Feng, and G.L. Kimmel. 1993. Perinatal toxicity associated with nickel chloride exposure. *Environmental Research*. *61*:200–211.

Southworth, G.R., J.J. Beauchamp, and P.K. Schmieder. 1978. Bioaccumulation potential of polycyclic aromatic hydrocarbons in *Daphnia pulex*. *Water Research*. *12*:973–977.

Stanley, T.R., Jr., J.W. Spann, G.J. Smith, and R. Rosscoe. 1994. Main and interactive effects of arsenic and selenium on mallard reproduction and duckling growth and survival. *Archives of Environmental Contamination and Toxicology*. *26*:444–451.

Stickel, L. F., W. H. Stickel, R. A. Dyrland, and D. L. Hughes. 1983. Oxychlordane, HCS-3260, and nonachlor in birds: lethal residues and loss rates. *J. Toxicol. Environ. Health*. *12*:611–622.

Storer, T.I., F.C. Evans, and F.G. Palmer. 1944. Some rodent populations in the Sierra Nevada of California. Ecol. Monogr. *14*(2):166–192.

Tewe, O. O., and J. H. Maner. 1981. Long-term and carry-over effect of dietary inorganic cyanide (KCN) in the life cycle performance and metabolism of rats. *Toxicol. Appl. Pharmacol*. *58*:1–7.

Tomlinson, R. E., H. M. Wight, and T. S. Baskett. 1960. Migrational homing, local movement, and mortality of mourning doves in Missouri. Trans. North Am. Wildl. and Nat Resour. Conf. *25*:253–267.

Travis, C., and A. Arms. 1988. Bioconcentration of organics in beef, milk, and vegetation. *Environ. Sci. Technol*. *22*(3).

Treon, J. F., and F. P. Cleveland. 1955. Toxicity of certain chlorinated hydrocarbon insecticides for laboratory animals, with special reference to aldrin and dieldrin. *Ag. Food Chem*. *3*:402–408.

United States Environmental Protection Agency. 1986. *90-day Gavage Study in Albino Rats Using Acetone*. U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC.

———. 1993. *Wildlife Exposure Factors Handbook*. Volume 1. EPA/600/R-93/187a. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC.

———. 1997a. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final. EPA/540/R-97/006. OSWER 9285.7-25. June.

———. 1997b. Aquatic Toxicity Information Retrieval Database (AQUIRE). Office of Research and Development, National Health and Environmental Effects Research Laboratory, Mid-Continent Ecology Division. January. (as cited in U.S. EPA 1999).

———. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Office of Solid Waste and Emergency Response. EPA530/D-99/001A. August.

U.S. EPA. *See* U.S. Environmental Protection Agency.

Van Velsen, F.L., L.H. Danse, F.X. Van Leeuwen, J.A. Dormans, and M.J. Van Logten. 1986. The subchronic oral toxicity of the beta-isomer of hexachlorocyclohexane in rats. *Fund. Appl. Toxicol.* *6*:697–712.

Vos, J.G., H.L. Van Der Maas, A. Musch, and E. Ram. 1971. Toxicity of hexachlorobenzene in Japanese quail with special reference to porphyria, liver damage, reproduction, and tissue residues. *Toxicol. Appl. Pharmacol.* *18*:944–957.

Weatherhead, P.J., and S.B. McRae. 1990. Brood care in American robins: implications for mixed reproductive strategies by females. *Animal Behavior.* *39*:1179–1188.

Webster, W.S. 1988. Chronic cadmium exposure during pregnancy in the mouse: influence of exposure levels on the fetal and maternal uptake. *Journal of Toxicology and Environmental Health.* *24*:183–192.

Wheelwright, N.T. 1986. The diet of American robins: an analysis of U.S. Biological Survey records. *Auk.* *103*:710–725.

Wiemeyer, S.N., E.F. Hill, J.W. Carpenter, and A.J. Krynitsky. 1986. Acute oral toxicity of sodium cyanide in birds. *Journal of Wildlife Diseases.* *22*:538–546.

Wise, A. 1981. Protective action of calcium phytate against acute lead toxicity in mice. *Bulletin of Environmental Contamination & Toxicology.* *27*:630–633.

Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White (eds.). 1990. California's Wildlife, Volume II: Birds. State of California, Department of Fish and Game. Sacramento, California.

This page left blank intentionally

APPENDIX H

RESPONSES TO COMMENTS

RESPONSES TO COMMENTS

RESPONSE TO ADDITIONAL COMMENTS

Originator:	**Isaac Hirbawi, Project Manager** **Office of Military Facilities** **Department of Toxic Substances Control**
Date:	**December 8, 2003**
Pages:	**1**

Originator:	**Patty W. Wong-Yim, Ph. D.** **Staff Toxicologist, Human and Ecological Risk Division** **Department of Toxic Substances Control**
Date:	**December 8, 2003**
Pages:	**43**

RESPONSE TO ORIGINAL COMMENTS

Originator:	**Isaac Hirbawi, Project Manager** **Office of Military Facilities** **Department of Toxic Substances Control**
Date:	**September 10, 2001**
Pages:	**4**

Originator:	**Marie T. McCrink, RG, CH** **Site Mitigation Branch, Geologic Services Unit,** **Department of Toxic Substances Control**
Date:	**September 7, 2001**
Pages:	**1**

RESPONSE TO ADDITIONAL COMMENTS
DRAFT TECHNICAL MEMORANDUM,
EXTENDED SITE INVESTIGATION IR SITE 10, POND NOS. 2 AND 3
NAVAL AIR FACILITY, EL CENTRO

Originator: Isaac Hirbawi, Project Manager Office of Military Facilities Department of Toxic Substances Control **To:** NAF El Centro **Date:** December 8, 2003	**CLEAN 3 Program** **Contract No. N68711-95-D-7526** **CTO-0043/0054** **File Code: 0232**
COMMENTS **COMMENT 1:** The Department of Toxic Substances Control (DTSC) has completed its review of the above-referenced document dated July 2001, for IR Site 10, Ponds # 2 and # 3, Former Sewer Stabilization Ponds and submitted comments on September 10, 2001. The Navy responded to our initial comments on October 12, 2001 requesting concurrence with the No Further Action (NFA) recommendation, and removal of the two ponds from the IR Program limiting them to industrial use only. At present, DTSC cannot concur with the Navy's recommendation of NFA. At a minimum, a land restriction is needed to restrict the use of these areas to industrial. As such, the Navy needs to evaluate these restrictions against the nine criteria in the National Contingency Plan. These restrictions, which are considered by DTSC as remedial alternatives, need to be documented in a legal decision document such as a Remedial Action Plan. DTSC is submitting additional comments from our Human and Ecological Risk Division (HERD). Please provide detailed responses to HERD's comments and include any data necessary to support your responses. According to NAFEC's recent budget proposals, Site 10 – Pond # 1 is scheduled for a removal action (RA) in 2007. If the NAFEC team agrees on further action for either Pond # 2 or Pond # 3, then one RA would be conducted for all of Site 10 in 2007. We are looking forward to working with you to expedite the removal activities at NAFEC.	***RESPONSES*** **RESPONSE 1:** Acknowledged. The HERD comments and Navy responses are included in a separate table included with these responses to comments. The recommendation in the ESI Tech Memo will be revised to indicate that Ponds 2 and 3 will be included in the Engineering Evaluation/Cost Analysis (EE/CA), which will evaluate all of IR Site 10 to determine the area that may be subject to removal. It will also state that it is likely that no further action will be required for one or both of Ponds 2 and 3, based on the low risk values resulting from the conservative human-health and ecological risk screening.

Note:
* These responses may identify proposed changes to the subject document text, tables, and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BEI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

RESPONSE TO ADDITIONAL COMMENTS
DRAFT TECHNICAL MEMORANDUM,
EXTENDED SITE INVESTIGATION IR SITE 10, POND NOS. 2 AND 3
NAVAL AIR FACILITY, EL CENTRO

Originator:	**Patty W. Wong-Yim, Ph. D.** **Staff Toxicologist, Human and Ecological Risk Division** **Department of Toxic Substances Control**	**CLEAN 3 Program** **Contract No. N68711-95-D-7526** **CTO-0043/0054** **File Code: 0232**
To:	**NAF El Centro**	
Date:	**December 8, 2003**	

GENERAL COMMENTS	***RESPONSES***
COMMENT 1: **Scope of Review:** HERD has primarily confined its review of the document to those sections concerning risk assessment and toxicology.	**RESPONSE 1:** Comment acknowledged.
COMMENT 2: **Chemistry Data and Quality Assurance:** We assume any sampling of environmental media, analytical chemistry data, and quality assurance procedures described and summarized in the Draft Technical Memorandum were adequately reviewed by OMF regional staff. If deficiencies or data gaps were encountered with respect to adequacy for risk assessment, these are noted in our comments.	**RESPONSE 2:** Comment acknowledged.
COMMENT 3: **Project Description:** The draft technical memorandum reviewed here is intended to present information to support the proposed NFRAP recommendation of IR Site 10, Ponds 2 and 3, Naval Air Facility El Centro, Imperial County, California. The recommendation was based on the past and current surface soil investigations, which suggest Ponds 2 and 3 exhibit risk estimates within an acceptable range of values.	**RESPONSE 3:** Comment acknowledged. It should be noted that the screening human-health risk estimates, presented in the draft Extended Site Investigation (ESI) Technical Memorandum (Tech Memo), were based on all past and current soil samples, including subsurface soil samples. The text will be revised to clarify this. In addition, a screening ecological risk assessment and associated results will be included in the final Tech Memo. The recommendations will be revised to indicate that Ponds 2 and 3 will be included in the Engineering Evaluation/Cost Analysis (EE/CA), which will evaluate IR Site 10 in its entirety to determine the area(s) that may be subject to removal. It will also state that it is likely that no further action will be required for one or both of Ponds 2 and 3, based on the low risk values resulting from the conservative human-health and ecological risk screening.
COMMENT 4: **Risk Assessment Methodology:** The draft technical memorandum includes a human health risk assessment, which is the focus of our review. A total of 10 surface soil samples (0.5 feet depth) at Ponds 2 and 3 (5 samples from each pond) were analyzed for the presence of semivolatile organic compounds	**RESPONSE 4:** As indicated in response to General Comment 3, the human-health risk screening was based on the maximum reported results from past and current soil-sampling events, which included surface and subsurface soil samples. The 10 surface soil samples and results referred to in the reviewers comment

Originator:	**Patty W. Wong-Yim, Ph. D.** **Staff Toxicologist, Human and Ecological Risk Division** **Department of Toxic Substances Control**	**CLEAN 3 Program** **Contract No. N68711-95-D-7526** **CTO-0043/0054** **File Code: 0232**
To:	**NAF El Centro**	
Date:	**December 8, 2003**	

(SVOCs), organochlorine pesticides, PCBs, metals, organolead, hexavalent chromium and cyanide. Thirty-seven COPCs (including 10 metals and 27 organic chemicals) and 26 COPCs (including 8 metals and 18 organic chemicals) were identified at Ponds 2 and 3, respectively. Total cancer risks and hazard indices were assessed for both Ponds 2 and 3 under both residential and industrial scenario by comparison of exposure point concentration to the Region IX PRG values and the Cal-Modified PRG values. No data on volatile organic compounds (VOCs) in soil nor groundwater contamination was reported.	pertain to the ESI sampling event only. As specified in the ESI field sampling plan (BNI 2000), surface soil samples collected during the ESI were not analyzed for VOCs because VOCs were not expected to be present in surface soil; the ponds had not been used in several years and it was believed that any VOCs that may have been present at the surface would have volatilized under the exceptionally arid site conditions. However, the discussion of COPCs that follows in the reviews comment pertains to results from all investigations conducted to date. The lists of COPCs for the two ponds (BNI 2001, Tables D-4 through D-7) include VOC results from previous investigations. A discussion of VOC soil results for Site 10, as they may contribute to indoor air VOC concentrations, will be presented in the Tech Memo. Subsequent to the soil sampling event, groundwater samples were collected from two Site 10 monitoring wells in September 2003 and analyzed for VOCs using U.S. EPA Method 8260C. No VOCs were detected in these samples. See response to Specific Comment 10 for more detailed information.
COMMENT 5: **Ecological Risk Assessment and Other Criteria:** According to the draft technical memorandum, no complete exposure pathway to ecological receptors exists in Ponds 2 and 3. As a result, no ecological risk is evaluated in the report.	**RESPONSE 5:** Comment noted. See response to General Comment 6C.
COMMENT 6: **Major Concerns:** **6a) Exclusive surface soil sampling:** The report contains only the recent extended investigations of surface soil samples (0.5 feet depth) at Ponds 2 and 3. The total cancer risks and the hazard indices were determined and summarized in Table D4-D7. The ponds provided the only sewage treatment to the NAF until 1976, but no information was provided concerning the estimate length of operation for this sewage facility. The climate is arid with	**RESP0ONSE 6:** **6a)** The screening human-health risk estimates (presented in Tables D-4 through D-7) were based on the maximum reported concentrations from all past and current soil-sampling events and include results from all sample depths (surface and subsurface). Therefore, the cancer risks and hazard indices are not underestimated. The text will be revised to clarify this. The ponds received domestic and industrial sewage from the 1940s to 1976.

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

high temperature exceeding 115 degrees Fahrenheit. Under the high temperature extreme and the lack of information on the history of this sewage facility, the surface soil contamination levels may not be the true representation for subsurface chemical levels. As a result, without addition information from subsurface soil samples the total cancer risks and hazard indices at Ponds 2 and 3 can be under estimated.	The text will be revised to include this information.
6b) Groundwater sampling: Although the report stated groundwater monitoring is being performed at Site 10 (page 2-2, last paragraph, Section 2.5), presence of VOCs in groundwater was not identified in this report. No data is presented in the report to demonstrate the extent of the soil contamination, especially only surface soil samples were collected at Site 10. A previous draft data gaps study report (BNI, 1997) stated the presence of "low concentrations of trihalomethane and several priority pollutant metals" in groundwater samples on site, however detailed analytical data were absent. In addition, the groundwater at Site 10 moves toward the New River and the sewage flow terminated into the New River. Possible contamination of the groundwater and the New River are not evaluated in the report. As a result, potential exposure of industrial workers to groundwater in future constructions at the site is not evaluated. HERD recognizes that the water quality of the river is poor, but potential contamination of groundwater seeping to the New River should be characterized.	**6b)** Groundwater monitoring is currently being performed upgradient and downgradient of Site 10. The Decision Rules outlined in the Data Quality Objectives for the monitoring were as follows: "If COC concentrations indicate stable or decreasing trends, then a recommendation will be made to either reduce the monitoring frequency or discontinue monitoring; but if COC concentrations indicate increasing trends, then continued monitoring will be recommended. If monitoring indicates that COC concentrations exceeding MCLs are migrating off-site, then evaluation for further action will be recommended. If monitoring results indicate contaminant migration off-site, then further action will include evaluating risk to potential groundwater seeps." Because COC concentrations indicate stable trends when compared to sampling rounds from 1996 to present, it will be recommended that groundwater monitoring be discontinued. In addition, no VOCs were reported in groundwater during sampling events conducted in 2001 and 2002. A summary of current and historical groundwater data will be included in the final Tech Memo. The potential for Site 10 groundwater contaminants to seep to the New River, characterized in an evaluation of groundwater data against surface water quality criteria for freshwater aquatic life, will also be included in the final Tech Memo. A summary of this screening is attached to these responses to comments (Attachment 1). The results of the screening are discussed below in response to General Comment 6c. All soil sample locations for surface and subsurface samples collected during

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

	the hydrogeologic assessment (HA), data gaps study (DGS), and ESI are shown on Figure 2-1 in the Tech Memo. The sample depths and corresponding analytical results for these investigations are presented on Tables 2-1, 2-2, and 4-1. The maximum analyte concentrations from all surface and subsurface soil samples collected during these investigations were used in the screening human-health risk assessment.
6c) Ecological assessment: According to a previous report (BNI, 1997), the New River provides the primary source of refuge for wildlife in Imperial Valley. The burrowing owl and the flat-tailed horned lizard were identified in the area. Potential exposure to ecological receptors at the New River is not addressed in this report. In the October 16, 1998 teleconference with HERD, the Navy agreed to submit a work plan and conduct a Phase I predictive ecological risk assessment for Site 10. As previously recommended by HERD (June 4, 1998 memorandum to Richard Hubbell), further ecological risk assessment at Site 10 should be evaluated. Chemical exposure of ecological receptors to soil at Site 10 and surface discharge of groundwater should be assessed.	**6c)** A Phase I predictive ecological risk assessment with refined exposure point concentrations (95% UCL of the arithmetic mean) will be performed and included in the final Tech Memo. A brief summary of the ecological risk assessment, including tables, is attached to these responses to comments (Attachment 2). As discussed above in response to General Comment 6b, the current and historical groundwater data were screened against surface water quality criteria for freshwater aquatic life (see Attachment 1). A review of current and historical groundwater elevation contour maps suggests groundwater flowing downgradient from Site 10 may discharge to potential seeps along a section of the new River located approximately 2,500 feet north-northwest of Site 10. The following screening is considered conservative because analyte concentrations in surface water at potential seepage points would be lower than in groundwater due to the attenuation effects of fate and transport processes such as dispersion and degradation. The following analytes, reported in groundwater at concentrations exceeding screening criteria, are not expected to be present in surface water at concentrations presenting an unacceptable ecological risk as discussed below. • Butyl benzyl phthalate – reported in 4 of 11 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 2. • Cadmium – reported in 4 of 18 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 3. Also reported in

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

upgradient well sample at a concentration near screening level.

- Copper – reported in 6 of 18 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 2. Also reported in background and upgradient wells. Concentration in sample from upgradient well was approximately 26 times concentration from on-site well.
- Cyanide – reported in 1 of 11 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 23. However, only reported once in 1991 and not reported during subsequent sampling of downgradient wells.
- Iron – reported in 4 of 9 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by a factor of approximately 10. Also reported in background and upgradient wells. Concentration in sample from upgradient well was approximately 10 times concentration from on-site well.
- Selenium – reported in 7 of 18 samples analyzed; all at concentrations exceeding screening criteria by approximately 2 to 8 times. Also reported in background and upgradient wells at concentrations exceeding screening criteria by approximately 7 and 45 times. Selenium concentrations at IR Site 10 are likely related to region-wide selenium patterns. Colorado River water is used to irrigate agriculture in the Imperial Valley. Water draining to the Colorado River from parts of Utah, Colorado, and New Mexico contains selenium. There is no local geological source of selenium in the Imperial Valley (Seiler 1995, 1997). Evaporative concentration of the irrigation water in the soil leads to accumulation of selenium in the soil (U.S. BR 1998). Selenium contamination in the valley is due to the selenium load of the irrigation water supply, which originates in the upper reaches of the Colorado River (CRWQCB-CR 2002). In addition, selenium concentrations were not detected above the reporting limit in over 60% of the samples.

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

	• Silver – reported in 2 of 18 samples analyzed. Reported in one sample at a concentration exceeding screening criteria. Exceeded screening criteria by less than a factor of 4. Also reported in upgradient well at half the screening level.
6d) Judgmental sampling: As stated in the report, soil samples were collected around areas closed to the inlet pipe at each pond and at shallow areas where samples were not previously collected. At Pond 3, samples EC10-S24 and EC10-S25, located closely to the inlet pipe, contributed significantly to the COPCs identified. Whereas at Pond 2, samples EC10-S30 and EC10-S31, not in close proximity with the inlet pipe, contributed significantly to the COPCs (especially the organic chemicals). No soil sample was collected within 50 feet of the inlet pipe in Pond 2. This may be likely location for accumulation of COPCs. The total cancer risk and hazard index for Pond 2 derived in the report may be under estimated.	**6d)** Survey data for the Pond 2 inlet pipe and sample locations were used to calculate the distance between them. The nearest sample location, EC10-S30, is 51 feet from the Pond 2 inlet pipe. The sample location on Figure 2-1 appears to be further from the Pond 2 inlet pipe because the figure does not show the width of the berms and dirt road that separates the ponds. Survey data for the pond inlet pipes and the samples collected during the ESI are included in Appendix F of the Tech Memo (BNI 2001). However, the station IDs for the two pond inlet pipes were erroneously transposed. This will be corrected in the final Tech Memo. As noted in the comment, samples were collected from locations near the two inlet pipes and from surface soil where samples were not previously collected. In addition, as described in Section 3.7 of the Tech Memo, samples were collected from depressions (low areas) in the bottom of the ponds where COPCs would have been likely to accumulate (BNI 2001). Based on the above, the judgmental sampling at Site 10 is considered adequate for risk screening purposes.
SPECIFIC COMMENTS	***RESPONSES***
COMMENT 1:	**RESPONSE 1:**
Page 2-5 and 2-7, Table 2-1 and 2-2 missing: Historical Data for Ponds 2 and 3 are missing. Due to the fact that the current investigation is based on the previous investigations, it is important to review the reported historical data.	It is agreed that the historical data are important to this investigation. It was intended that Tables 2-1 and 2-2 be included in the draft Tech Memo copy that was submitted to DTSC for review. These tables will be included in the final Tech Memo.
COMMENT 2:	**RESPONSE 2:**
Page 4-3, Table 4-1; Page 4-8, Table 4-2; Page 5-4, Table 5-1; Page D-11, Table D-4: According to the report, the maximum hexavalent chromium	Due to laboratory errors for hexavalent chromium, the results for the original samples collected 10 January 2001 (Container IDs 208S10141 through

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

reported is 4 mg/kg with sample EC10-S30. All the corresponding calculations for Pond 2 were performed with 4 mg/kg. However, data from the Analytical Results on page 39 of 44, Appendix C show that the highest hexavalent chromium at Pond 2 is 39 mg/kg with sample EC10-S33. Coincidentally, the hexavalent chromium at Pond 3 is reported as ND in Table 4-1, whereas 10 mg/kg are reported with samples EC10-S24 and EC10-S26 in the Analytical Results on page 39 of 44, Appendix C. As a result, the total cancer risk and hazard index were determined without considering hexavalent chromium at Pond 3. Due to these discrepancies, the total cancer risks and hazard indices for Ponds 2 and 3 are under estimated.	208S10141) were rejected during data assessment. On 26 April 2001, samples from the same sample locations, which had been marked with stakes, were recollected (Container IDs 208X10141 through 208X10141) and analyzed for hexavalent chromium. The hexavalent chromium results for these new samples are valid and were correctly used in the human-health risk screening. The Analytical Results table in Appendix C will be corrected to show "R" as the review qualifier for the rejected results. Please note that the Analytical Results table in Appendix C was regenerated and printed from the CLEAN environmental database. A larger font is used so the Analytical Results table consists of more pages, but no other information has been changed.
COMMENT 3: **Page 4-3, Table 4-1:** Background threshold value of metals are summarized and compared to levels in soil samples. However, information on statistical representation of the background values should be noted in the footnote, as whether the background values represent the average values or the 95% upper confidence limit of the arithmetic means.	**RESPONSE 3:** Background threshold values for metals are based on 95th percentiles. Organolead background threshold values are based on the range of detected values in ambient samples (collected from 1.5 to 9.5 feet below ground surface) described in the DGS report (BNI 1998). Footnotes with this information will be added to Table 4-1.
COMMENT 4: **Page 4-3, Table 4-1:** The California-modified residential PRG value of 150 mg/kg for lead should be used, instead of 400 mg/kg.	**RESPONSE 4:** The California-modified residential PRG value for lead has been corrected to 150 mg/kg on Table 4-1. This PRG value was used for the risk assessment presented in Section 5. The application of California-modified residential PRG values for carcinogens and the lead screening are described in detail in Appendix D, Sections D4 and D6 (BNI 2001).
COMMENT 5: **Page 5-1, Section 5.1; Page 5-9, Section 5.2:** Organic lead is not a naturally occurring chemical, it should not be eliminated as a COPC based on its presence below background levels. However, according to the Analytical Results on page 39 of 44, Appendix C, and page 4-8, Table 4-1, no detectable level of organic lead was found in any of the soil samples.	**RESPONSE 5:** Organolead concentrations in samples collected from background locations (collected from 1.5 to 9.5 feet below ground surface) were reported at 0.42 and 0.67 mg/kg in 2 of 11 samples [18 percent] (BNI 1998). Organolead was reported twice during the HA (Ogden 1992) (0.21 mg/kg in the 6-foot sample collected from boring EC10-B11 and 0.28 mg/kg in the 9-foot sample collected from boring EC10-B13) (Tables 2-1 and 2-2, BNI

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

	2001). These concentrations did not exceed the organolead background concentrations presented in the final DGS (Table 4-2, BNI 1998). These two locations were resampled during the DGS (EC10-B11A at a depth of 4.5 to 6.5 and EC10-B13A at a depth of 7.5 to 9.5 feet) (BNI 1998) and analyzed for organolead. The two new samples did not contain organolead concentrations above the reporting limit. Based on the resampling results and low frequency of detection (2 of 27 samples from the 0- to 10-foot range and 0 of 9 samples from depths greater than 10 feet), organolead concentrations are considered to be not representative of site conditions. Therefore, organolead was not included as a COPC due to the inability to reproduce the historical results, the low frequency of detection, and the reported concentrations being less than the values reported from background samples. Text will be added to the final Tech Memo explaining this further.
COMMENT 6: **Page 5-4, Table 5-1; Page 5-11, Table 5-2:** The industrial cancer risk and the residential hazard quotient for each chemical should be shown in these tables, even though the total risk or hazard index is below the target risk/hazard level.	**RESPONSE 6:** Tables 5-1 and 5-2 will be revised to include cancer risk estimates and hazard quotients for the compounds included on these tables. To review cancer risk estimates and hazard quotients for all compounds evaluated, see Appendix D, Tables D-4 through D-7.
COMMENT 7: **Page 5-9, Last paragraph (Section 5.2.1):** The maximum lead concentration of 23.7 mg/kg should be at Pond 3, instead of Pond 2.	**RESPONSE 7:** The text will be corrected to read as follows "The maximum reported lead concentration (23.7 mg/kg) at Pond No. 3 was below the residential PRG of 150 mg/kg."
COMMENT 8: **Page 5-14, Last paragraph (Section 5.3.3):** List the 8 chemicals that were not reported in one or both ponds at Site 10 due to reporting limits above the U.S. EPA or California-modified residential PRG.	**RESPONSE 8:** The 8 chemicals (benzidine, benzo(a)pyrene, bis[2-chloroethyl]ether, dibenz[a,h]anthracene, hexachlorobenzene, hexavalent chromium, n-nitroso-di-n-propylamine, and organolead) that were not reported in one or both ponds, that had reporting limits above the U.S. EPA or California-modified residential PRGs will be listed in the text.

Originator:	**Patty W. Wong-Yim, Ph. D.** **Staff Toxicologist, Human and Ecological Risk Division** **Department of Toxic Substances Control**	**CLEAN 3 Program** **Contract No. N68711-95-D-7526** **CTO-0043/0054** **File Code: 0232**
To:	**NAF El Centro**	
Date:	**December 8, 2003**	

COMMENT 9:

Page 6-1, Last paragraph: Risks in the range of 10^{-4} to 10^{-6} are in the *risk management range* where the risk managers reach a decision on an appropriate risk within the range of risk. HERD does not agree that all risks less than 10^{-4} necessarily represents acceptable risks. The National Contingency Plan (NCP) point of departure is 10^{-6} when determining whether a human receptor is "at risk" as per Risk Assessment Guidance for Superfund (RAGS) Volume I – Human Health Evaluation Model (US EPA, 1989) and Part B, Development of Risk-Based Preliminary Remediation Goals (PRGs) (US EPA, 1991). As Stated in 40 CFR 300.430: "*For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound life time cancer risk to an individual between 10^{-4} to 10^{-6} using information on the relationship between dose and response. The 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure.*" The 10^{-6} risk level is the point of departure. Acceptable risk levels are generally between 10^{-4} and 10^{-6}, however the actual level of acceptable risk is a site-specific risk management decision. Therefore, in concordance with the NCP, 10^{-6} is the point of departure for acceptable risk in the health risk assessment.

RESPONSE 9:

This paragraph will be revised to state "Pond 2 and Pond 3 exhibit risk estimates within the generally acceptable range of values (i.e., within the risk management range)." The text will also be revised to include the results of the ecological risk screening and will indicate that Pond 2 and Pond 3 will be included in the Site 10 EE/CA, currently planned to address COPCs in surface soil at Pond 1. A determination will then be made if the removal area should extend to one or both of these ponds. The text will also state that due to the conservative nature of the human-health and ecological risk screening presented in Section 5, it is likely that no further action may be required for one or both of the ponds.

COMMENT 10:

Page 6-1, Section 6: A discussion of hazard indices of Ponds 2 and 3 should also be included, especially because the residential hazard index for Pond 2 is 2. Further calculations of the hazard index according to specific target organs of toxicity should be included. The residential hazard index of 2 suggests potential risk to human receptors exposed to the surface soil of Pond 2. HERD does not agree with the conclusions of no significant risk to human health under a residential scenario and no significant risk to human health under an industrial scenario without groundwater monitoring results. Hence HERD does not support the recommendation for NFRAP in the reports.

RESPONSE 10:

A discussion of hazard indices will be added to Section 6. However, this is a human-health risk screening and the hazard indices will not be presented according to specific target organs in the Tech Memo.

For groundwater, only VOCs, as they may contribute to indoor air VOC concentrations, would be applicable to the risk evaluation under the residential and industrial exposure scenarios because groundwater is present at depths ranging from 18 to 39 feet below ground surface and is designated as not being a source of drinking water. During the HA (Ogden 1992), four on-site monitoring wells were installed (EC10-MW1, EC10-MW2, EC10-MW4, and EC10-MW5). Samples from three of these wells (EC10-MW5

Originator: Patty W. Wong-Yim, Ph. D.
Staff Toxicologist, Human and Ecological Risk Division
Department of Toxic Substances Control

To: NAF El Centro

Date: December 8, 2003

CLEAN 3 Program
Contract No. N68711-95-D-7526
CTO-0043/0054
File Code: 0232

	was dry) were analyzed for several analyte groups, including VOCs. With the exception of chloroform (reported at 3 micrograms per liter [µg/L]) and bromodichloromethane (reported at 1 µg/L), both reported in one well (EC10-MW4), no other VOCs were reported. To determine the current VOC concentrations in groundwater beneath the site, samples were collected again in September 2003 from in-pond wells EC10-MW1 and EC10-MW4 and analyzed for VOCs. No VOCs were detected in these samples. Therefore, it is not necessary to evaluate the vapor intrusion pathway from groundwater. For the vapor intrusion pathway from soil, historical VOC data were reviewed and toluene was the only reported VOC. The Johnson and Ettinger Model for Subsurface Vapor Intrusion into Buildings (U.S. EPA 2003) was used to calculate an indoor air concentration using the maximum reported toluene concentration (220 micrograms per kilogram [µg/kg]). The model was also used to reverse-calculate an acceptable risk-based soil concentration. The calculated Site 10 indoor air and maximum reported concentrations for toluene in soil were 4.86 micrograms per cubic meter (µg/m^3) and 220 µg/kg, respectively. When compared to the acceptable threshold indoor air (416 µg/m^3) and risk-based soil (19,000 µg/kg) concentrations, the Site 10 toluene concentrations are nearly two orders of magnitude lower, and do not contribute significantly to the overall Site 10 risk. Therefore, it is not necessary to include the vapor intrusion pathway from soil in the human-health screening risk evaluation. The Tech Memo will be revised to include this discussion.
COMMENT 11: **Appendix E, Data Validation Report, Dioxin/Dibenzofuran:** No data on dioxin/dibenzofuran is presented in the report.	**RESPONSE 11:** Dioxins/dibenzofurans were not analyzed for in soil samples during this investigation. This paragraph was inadvertently included and will be deleted for the final Tech Memo.

Note:

* These responses may identify proposed changes to the subject document text, tables, and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BEI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

References:

Bechtel National, Inc. 1998. Final Data Gaps Study Report, Naval Air Facility, El Centro, California. March.

——— 2000. Draft Field Sampling Plan for Extended Site Investigation at IR Site 10, Pond Nos. 2 and 3, Naval Air Facility El Centro, California. October.

——— 2001. Draft Technical Memorandum, Extended Site Investigation, IR Site 10, Pond Nos. 2 and 3, Naval Air Facility El Centro, Imperial County, California. July.

California Regional Water Quality Control Board, Colorado River Region. 2002. Water Quality Control Plan – Colorado River Basin Region 7 (Basin Plan). http://www.swrcb.ca.gov/rwqcb7/documents/RB7Plan.pdf

CRWQCB-CR. See California Regional Water Quality Control Board, Colorado River Region.

Ogden Environmental Energy Services. 1992. Final Hydrogeologic Assessment (HA) Report, Site 10 Sewage Stabilization Ponds, Volumes I and II, Engineering Services for Installation Restoration Studies, Naval Air Facility El Centro, California. May.

Seiler, R.L. 1995. Prediction of Areas Where Irrigation Drainage May Induce Selenium Contamination of Water. Journal of Environmental Quality 24(5):973-979.

Seiler, R.L. 1997. Methods to Identify Areas Susceptible to Irrigation-Induced Selenium Contamination in the Western United States. U.S. Department of the Interior, U.S. Geological Survey. Fact Sheet FS-038-97. http://water.usgs.gov/pubs/FS/FS-038-97

United States Bureau of Reclamation. 1998. The Source, Transport, and Fate of Selenium and Other Contaminates in Hydrological and Biological Cycles of the Salton See Area. U.S. Bureau of Reclamation, Salton Sea /Lower Colorado Study. http://www.sci.sdsu.edu/salton/USBR Salton Sea Study.html

United States Environmental Protection Agency. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion Into Buildings (provides instructions on the use of the vapor transport model that originally was developed by P. Johnson and R. Ettinger in 1991 and subsequently modified by U.S. EPA in 1998, 2001, and again in November 2002). June.

U.S. BR. *See* United States Bureau of Reclamation.

U.S. EPA. *See* United States Environmental Protection Agency.

Attachments:

Attachment 1-- Summary of Surface Water Screening
Attachment 2 -- Brief Summary – NAF El Centro, IR Site 10 Screening Level Ecological Risk Assessment

ATTACHMENT 1

Summary of Surface Water Screening
Maximum Historical Groundwater Concentrations Reported in On-Site and Downgradient Wells Exceeding Screening Criteria [a]
(Units in ug/L)

ANALTE		Butyl benzyl phthalate	Cadmium	Copper	Cyanide, total	Iron	Selenium	Silver
SCREENING CRITERION		3 [45]	6.2 [b (1, 142)]	29 [b (1, 142)]	5.2 [(142, 143)]	100 [(51)]	5.0 [(97, 142)]	3.7 [b (1, 142)]
On-Site Wells	EC10-MW1	—	—	—	—	—	31.6	—
	EC10-MW2	—	18	41.9	120	—	11	12.8
	EC10-MW4	—	—	—	—	—	10.9	—
	EC10-MW5	—	—	—	—	—	—	—
Downgradient Wells	EC10-MW7	—	—	—	—	—	40.9	—
	EC10-MW8	5 J	—	—	—	—	34.5	—
	EC-P7 [c]	—	—	—	—	958	16.5	—
Number Analyzed		11	18	18	11	9	18	18
Number Below Reporting Limit		7	14	12	10	5	11	16
Number Exceeding Criteria		1	1	1	1	1	7	1
MAXIMUM REPORTED CONCENTRATIONS IN BACKGROUND AND UPGRADIENT WELLS								
Background Well	EC10-MW3	ND	ND	4	ND	9.1	33.9	ND
Upgradient Well	EC10-MW6	ND	4 J	1090	ND	892	223	1.8 J

Analytes Reported During Historical Groundwater Sampling of On-Site and Downgradient Wells Not Exceeding Screening Criteria [a]
(Units in ug/L)

Analyte Name	Screening Criteria	Analyte Name	Screening Criteria
1,2-dichloroethylene	1160 [(27)]	Cobalt	NE
Aluminum	87 [(2, 62)]	Diesel	NE
Antimony	1600	Lead	6.2 [(1, 142)]
Arsenic	150 [(1, 142)]	Magnesium	NE
Barium	NE	Manganese	NE
Benzene	530	Nickel	170 [(1, 142)]
Beryllium	5.3	Potassium	NE
Bis(2-ethylhexyl)phthalate	41 [d (138)]	Sodium	NE
Bromodichloromethane	1100 [(20)]	Thallium	40
Calcium	NE	Toluene	1750
Chloroform	1240	Trichloroethene	4500
Chloromethane	1100 [(20)]	Vanadium	NE
Chromium	Chromium III - 480 [(1, 143)] Chromium VI - 11 [(1, 142)]	Zinc	380 [(1)]

Comparison Against Screening Criteria (continued)

Notes:

[a] screening criteria (Marshack 2001) from California Toxics Rule, continuous concentration (4-day average) If not established, screening criteria were selected as follows:

- California Toxics Rule, maximum concentration (1-hour average) divided by 10
- California Toxics Rule, instantaneous maximum divided by 10
- National Recommended Ambient Water Quality Criteria, continuous concentration (4-day average)
- National Recommended Ambient Water Quality Criteria, 24-hour average
- National Recommended Ambient Water Quality Criteria, maximum concentration (1-hour average) divided by 10
- National Recommended Ambient Water Quality Criteria, instantaneous maximum divided by 10
- National Recommended Ambient Water Quality Criteria, toxicity information (lowest observed effect level) – chronic
- National Recommended Ambient Water Quality Criteria, toxicity information (lowest observed effect level) – acute divided by 10

[b] criteria vary with water hardness, which ranged from 210,000 to 7,100,000 depending on the sample

[c] EC-P7 is a deep well located near EC10-MW7. The top of the EC-P7 screen interval begins approximately 19 feet below the bottom of the EC10-MW7 screen interval.

[d] solubility limit @ 25°C (Leyder and Boulanger 1983); can range from 1.1 and 1,200 µg/L (Staples et al 1997)

Screening Criteria Notes (Marshack 2001):

(1) Expressed as dissolved
(2) Expressed as total recoverable.
(20) For halomethanes.
(27) For dichloroethylenes.
(45) For sum of phthalate esters.
(51) From Reference 9, Marshack 2001
(62) For pH between 6.5 and 9.0.
(97) Expressed as total recoverable; this National Toxics Rule criterion applies to SF Bay through Susuin Bay and Sacramento-San Joaquin Delta, Salt Slough, Mud Slough (north), and San Joaquin River, Sack Dam to mouth of Merced River; does not apply to Grassland Water District, San Luis National Wildlife Refuge, and Los Banos State Wildlife Refuge; see Reference 23, Marshack 2001.
(138) Not toxic to aquatic organisms at or below the solubility limit of this chemical. Reference 26, Marshack 2001.
(142) Criteria do not apply to waters subject to water quality objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's 1986 Basin Plan. See Reference 17, Marshack 2001
(143) These criteria were promulgated for specific California waters in the National Toxics Rule, Reference 23, Marshack 2001.

Acronyms/Abbreviations:

— – not reported at concentrations above screening criterion
ND – not detected above reporting limit
NE -- not established

Reference:

Marshack 2000, includes updates through November 2001. A Compilation of Water Quality Goals. Prepared for California Environmental Protection Agency Regional Water Quality Control Board, Central Valley Region

ATTACHMENT 2

Brief Summary
NAF El Centro, IR Site 10
Screening Level Ecological Risk Assessment

A Phase I predictive ecological risk assessment (ERA), with refined exposure point concentrations (EPCs), was conducted to estimate the potential impacts of chemicals reported at Installation Restoration Site 10, Naval Air Facility (NAF) El Centro.

Special-Status Species. Table 1 lists special-status species occurring or potentially occurring in the habitats of Site 10.

COPECs. Compounds not reported above the detection limit were eliminated as chemicals of potential ecological concern (COPECs). Inorganic compounds for which the maximum detected concentration was not greater than background threshold value were eliminated as COPECS (antimony, beryllium, and thallium). A summary of the soil COPECs information for Site 10 is presented in Table 2. Data selected from soil samples of 0 – 6 ft depth.

Exposure. EPCs estimated by 95 upper confidence limits (UCLs) using standard bootstrap method. Exposure doses were calculated with the following formula for each receptor and COPEC:

$$\text{Dose} = \frac{\sum_{k}^{i=1}[C * BAF_i * IR * FI_i * AE * SUF]}{BW}$$

where

- Dose = daily dose of COPEC per wildlife receptor. Value is expressed as mg/kg_{BW}-day.
- C = concentration in soil using exposure point concentration. Expressed as $mg_{CHEMICAL}/kg_{SOIL}$ dw. (Table 2).
- BAF_i = soil-to-biota bioaccumulation factor, expressed as kg_{SOIL} dw/kg_{BIOTA} dw. (Table 7).
- IR = receptor specific ingestion rate, expressed as quantity of food (weight) per day, kg_{FOOD} dw/ day. (Tables 8 and 9).
- FI_i = receptor specific fractional intake rate for each ingested item (including soil, and plant and animal food items). Dietary composition. (Tables 8 and 9).
- AE = chemical specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species. Value has no units. Value assumed at 1.
- SUF = site use factor, receptor specific. Value has no units. (Tables 8 and 9).
- i, k = identifier and number of ingested media types (i.e., soil, food types).
- BW = body weight of the animal, expressed as kg_{BW}. (Table 3).

Effects. Toxicity reference value (TRVs) selected from Navy/U.S. EPA Region 9 Biological Technical Assistance Group or Oak Ridge National Laboratory documents (Table 4 and 5) Allometric adjustment if body weight differed more than 2 orders of magnitude (Table 6).

Risk Characterization. Hazard quotients (HQ) were calculated for each representative receptor for each COPEC (Table 10). If HQs based on TRV-Low exceeded 1, then HQs were also calculated based on TRV-High (Table 12, 13, and 14). Site HQs were compared to HQs based on background threshold values (Table 11 and 15).

Table 1
Special-Status Species Occurring or Potentially Occurring in the Habitats of Site 10 NAF El Centro

Scientific Name	Common Name	Status
Fish		
Cyprinodon macularius	Desert pupfish	FE/SE
Reptiles		
Coleonyx switaki	Barefoot gecko	ST
Gopherus agassizii	Desert tortoise	FT/ST
Phrynosoma mcalli	Flat-tailed horned lizard	FPT/CSC
Uma notata	Colorado Desert fringe-toed lizard	CSC
Birds		
Athene cunicularia	Burrowing owl	FSC/CSC
Buteo swainsoni	Swainson's hawk	FSC/ST
Circus cyaneus	Northern harrier	CSC
Elanus leucurus	White-tailed kite	FSC/CFP
Empidonax traillii	Willow flycatcher	SE
Falco mexicanus	Prairie falcon	CSC
Falco peregrinus anatum	American peregrine falcon	FSC/SE
Polioptila melanura	Black-tailed gnatcatcher	AUD
Rallus longirostris yumanensis	Yuma clapper rail	FE/ST
Riparia riparia	Bank swallow	FSC/ST
Toxostoma lecontei	Le Conte's thrasher	FSC/CSC
Mammals		
Ovis canadensis nelsoni	Nelson's bighorn sheep (also: Peninsular bighorn sheep)	FE/ST
Puma (=Felis) concolor brownii	Yuma mountain lion	CSC

Acronyms/Abbreviations:
AUD – Audubon Society's Watch List for California
CFP – California Department of Fish and Game – Fully Protected
CSC – California special concern species
FE – Federally listed – endangered
FPT – Federal proposed – threatened
FSC – Federal special concern species
FT – Federally listed – threatened
SE – California State listed – endangered
ST – California State listed – threatened

Table 2
Summary of Soil COPECs for Site 10 (All Ponds)

Chemical (mg/kg)	Minimum Detection	Maximum Detection	Median	Mean	Standard Deviation	Background Threshold Value	Number of Positive Detections	Number of Samples	Frequency of Detection	Exposure Point Concentration	Basis for EPC
Antimony	0.03	0.47	0.26	0.23	0.10	0.68	8	25	32%	—	<Background
Arsenic	0.51	10	2.85	3.13	2.04	6.3	34	34	100%	3.7	Bootstrap
Beryllium	0.15	0.95	0.63	0.57	0.18	1.1	34	34	100%	—	<Background
Cadmium	0.37	59	1.33	5.71	12.03	2.2	34	34	100%	9.1	Bootstrap
Chromium, Total	3.7	463	11.85	32.85	75.14	19	46	46	100%	51	Bootstrap
Hexavalent Chromium	4	4	1.00	1.13	0.64	—	1	22	5%	1.4	Bootstrap
Copper	3.2	696	24.35	84.73	158.74	22	34	34	100%	130	Bootstrap
Lead	3.7	172	15.40	23.80	35.65	17	34	34	100%	34	Bootstrap
Mercury	0.02	2	0.05	0.32	0.90	0.05	18	34	53%	0.57	Bootstrap
Nickel	5	35.6	13.70	13.95	6.25	20	34	34	100%	16	Bootstrap
Selenium	1	19	0.58	2.88	4.62	0.7	15	34	44%	4.2	Bootstrap
Silver	0.24	446	11.75	44.75	88.49	0.6	32	34	94%	69	Bootstrap
Thallium	0.18	0.23	0.14	0.16	0.04	0.3	6	16	38%	—	<Background
Zinc	16.5	1370	59.30	161.22	297.89	70	34	34	100%	240	Bootstrap
Cyanide	0.2	1.7	0.25	0.33	0.31	—	5	26	19%	0.43	Bootstrap
PCB-1254	0.078	0.89	0.09	0.15	0.23	—	6	16	38%	0.25	Bootstrap
PCB-1260	0.038	0.278	0.02	0.06	0.09	—	4	16	25%	0.093	Bootstrap
4,4'-DDD	0.0004	0.202	0.00	0.02	0.05	—	5	16	31%	0.036	Bootstrap
4,4'-DDE	0.0036	0.125	0.02	0.03	0.04	—	16	23	70%	0.048	Bootstrap
4,4'-DDT	0.0005	0.009	0.00	0.00	0.00	—	2	16	13%	0.0038	Bootstrap
Alpha-BHC	0.002	0.003	0.00	0.00	0.00	—	2	16	13%	0.0028	Bootstrap
Beta-BHC	0.004	0.004	0.00	0.00	0.00	—	1	16	6%	0.0032	Bootstrap
Alpha-Chlordane	0.0024	0.19	0.00	0.02	0.05	—	11	16	69%	0.041	Bootstrap
Gamma-Chlordane	0.002	0.27	0.01	0.03	0.07	—	14	16	88%	0.061	Bootstrap
Heptachlor	0.002	0.002	0.00	0.00	0.00	—	1	16	6%	0.002	Maximum
Heptachlor Epoxide	0.002	0.0069	0.00	0.00	0.00	—	2	16	13%	0.0035	Bootstrap

Table 2 (continued)

Chemical (mg/kg)	Minimum Detection	Maximum Detection	Median	Mean	Standard Deviation	Background Threshold Value	Number of Positive Detections	Number of Samples	Frequency of Detection	Exposure Point Concentration	Basis for EPC
Aldrin	0.0033	0.0033	0.00	0.00	0.00	—	1	16	6%	0.0033	Maximum
Dieldrin	0.003	0.14	0.01	0.02	0.03	—	14	16	88%	0.033	Bootstrap
Endosulfan Sulfate	0.0008	0.002	0.00	0.00	0.00	—	2	16	13%	0.002	Maximum
Endrin	0.003	0.012	0.00	0.00	0.00	—	2	16	13%	0.0046	Bootstrap
Endrin Aldehyde	0.002	0.026	0.00	0.01	0.01	—	5	16	31%	0.0085	Bootstrap
Endrin Ketone	0.0048	0.0048	0.00	0.00	0.00	—	1	10	10%	0.0025	Bootstrap
Benzo(A)Anthracene	0.26	0.26	0.18	0.18	0.03	—	1	10	10%	0.20	Bootstrap
Benzo(A)Pyrene	0.2	0.2	0.18	0.18	0.01	—	1	10	10%	0.18	Bootstrap
Benzo(B)Fluoranthene	0.25	0.38	0.18	0.20	0.07	—	2	10	20%	0.24	Bootstrap
Benzo(GHI)Perylene	0.076	0.13	0.18	0.16	0.03	—	2	10	20%	0.13	Maximum
Benzo(K)Fluoranthene	0.16	0.16	0.18	0.17	0.00	—	1	10	10%	0.16	Maximum
Chrysene	0.15	0.35	0.18	0.19	0.06	—	2	10	20%	0.22	Bootstrap
Fluoranthene	0.27	0.27	0.18	0.18	0.03	—	1	10	10%	0.20	Bootstrap
Indeno(1,2,3-cd)Pyrene	0.072	0.13	0.18	0.16	0.03	—	2	10	20%	0.13	Maximum
Pyrene	0.24	0.24	0.18	0.18	0.02	—	1	10	10%	0.19	Bootstrap
Benzoic Acid	0.074	2.3	0.35	0.43	0.50	—	6	17	35%	0.63	Bootstrap
2-Nitrophenol	0.19	0.19	0.18	0.14	0.04	—	1	17	6%	0.16	Bootstrap
4-Chloroaniline	0.082	0.098	0.18	0.16	0.04	—	2	10	20%	0.098	Maximum
Butyl Benzyl Phthalate	0.12	0.23	0.18	0.18	0.03	—	2	10	20%	0.19	Bootstrap
Di-N-Butyl Phthalate	0.18	0.18	0.18	0.14	0.04	—	1	17	6%	0.16	Bootstrap
Acetone	0.8	0.8	0.05	0.20	0.29	—	1	8	13%	0.36	Bootstrap
Methylene Chloride	0.05	0.05	0.06	0.04	0.02	—	1	18	6%	0.049	Bootstrap
4-Methyl-2-Pentanone	0.05	0.05	0.03	0.09	0.17	—	1	8	13%	0.05	Maximum
Toluene	0.02	0.22	0.02	0.05	0.07	—	9	18	50%	0.070	Bootstrap

Acronyms/Abbreviations:
— – not available

Table 3
Representative Wildlife Receptor Species, NAF El Centro Site 10

Representative Wildlife Receptor	Body Weight (kg)	Reference
Cottontail Rabbit	0.895	Ingles, L.G. 1941. (as cited in Cal/Ecotox) mean adult male and female data
Deer Mouse	0.0184	Hayes, J.P. 1989. (as cited in Cal/Ecotox) mean adult male and female data
Coyote	11.2	Cypher, B.L. 1995. (as cited in Cal/Ecotox) mean adult male and female data
Mourning Dove	0.125	Cowan, J.B. 1952. (as cited in Cal/Ecotox) mean adult male and female from CA.
American Robin	0.0804	Clench & Leberman 1978, Wheelwright 1986. (as cited in U.S. EPA 1993) mean adult male and female, breeding and non-breeding.
American Kestrel	0.111	Roest, A.I. 1957 (as cited in Cal/Ecotox) mean adult male and female data

Acronyms/Abbreviations:
kg – kilogram
U.S. EPA – United States Environmental Protection Agency

Table 4
Mammal Toxicity Reference Values, Low (TRV–Low)

Compound	TRV (mg/kg-day)	Species	Body Weight (kg)	R	Reference
Arsenic	0.32	rat	0.332	R2	Schroeder et al. 1968
Cadmium	0.06	mouse	0.0322	R2	Webster 1988
Chromium, Total [1]	3.28	rat	0.35	R1	MacKenzie et al 1958
Hexavalent Chromium [1]	3.28	rat	0.35	R1	MacKenzie et al 1958
Copper	2.67	mouse	0.03	R2	Pocino et al 1991
Lead	1	rat	0.5506	R5	Fowler et al. 1980
Mercury	0.25	rat	0.1875	R2	Khera & Trabacova 1973
Nickel	0.133	rat	0.2486	R2	Smith et al 1993
Selenium	0.05	rat	0.1865	R2	Harr et al. 1966
Silver	32.86	rat	0.35		Matuk et al. 1981
Zinc	9.6	mouse	0.0255	R2	Aughey et al. 1977
Cyanide	68.7	rat	0.273	R1	Tewe & Maner 1981
PCB-1254	0.36	mouse	0.02062	R2	Simmons & McKee 1992
PCB-1260 [2]	0.36	mouse	0.02062	R2	Simmons & McKee 1992
4,4'-DDD	0.8	rat	0.32	R2	Fitzhugh 1948
4,4'-DDE	0.8	rat	0.32	R2	Fitzhugh 1948
4,4'-DDT	0.8	rat	0.32	R2	Fitzhugh 1948
Alpha-BHC [3]	0.05	rat	0.176	R2	Naishtein & Leibovich 1971
Beta-BHC [3]	0.05	rat	0.176	R2	Naishtein & Leibovich 1971
Alpha-Chlordane [4]	4.58	mouse	0.03	R1	Keplinger et al. 1968
Gamma-Chlordane [4]	4.58	mouse	0.03	R1	Keplinger et al. 1968
Heptachlor	0.129	rat	0.1	R2	Shain et al. 1977
Heptachlor Epoxide [5]	0.129	rat	0.1	R2	Shain et al 1977
Aldrin	0.02	rat	0.35	R1	Treon & Cleveland 1955
Dieldrin	0.02	rat	0.35	R1	Treon & Cleveland 1955
Endosulfan Sulfate [6]	0.15	rat	0.35	R1	Dikshith et al 1984
Endrin	0.092	mouse	0.03	R1	Good & Ware 1969
Endrin Aldehyde [7]	0.092	mouse	0.03	R1	Good & Ware 1969
Endrin Ketone [7]	0.092	mouse	0.03	R1	Good & Ware 1969
Benzo(A)Anthracene [8]	1.31	mouse	0.0305	R2	Neal & Rigdon 1967

Table 4 (continued)

Compound	TRV (mg/kg-day)	Species	Body Weight (kg)	R	Reference
Benzo(A)Pyrene	1 31	mouse	0 0305	R2	Neal & Rigdon 1967
Benzo(B)Fluoranthene [8]	1.31	mouse	0.0305	R2	Neal & Rigdon 1967
Benzo(GHI)Perylene [8]	1 31	mouse	0 0305	R2	Neal & Rigdon 1967
Benzo(K)Fluoranthene [8]	1.31	mouse	0 0305	R2	Neal & Rigdon 1967
Chrysene [8]	1 31	mouse	0.0305	R2	Neal & Rigdon 1967
Fluoranthene [8]	1.31	mouse	0 0305	R2	Neal & Rigdon 1967
Indeno(1,2,3-cd)Pyrene [8]	1 31	mouse	0.0305	R2	Neal & Rigdon 1967
Pyrene [8]	1.31	mouse	0.0305	R2	Neal & Rigdon 1967
Benzoic Acid	4	mouse	0.0305	R3	Shtenberg & Ignat'ev 1970
2-Nitrophenol	3.34	rat	0.35	R4	Lewis 1996
4-Chloroaniline	2	rat	0.35	R4	IARC 1993
Butyl Benzyl Phthalate	159	rat	0.35	R3	NTP 1985
Di-N-Butyl Phthalate [9]	550	mouse	0.03	R2	Lamb et al. 1987
Acetone	10	rat	0 35	R1	U.S. EPA 1986
Methylene Chloride	5 85	rat	0.35	R1	NCA 1982
4-Methyl-2-Pentanone	25	rat	0 35	R1	MBA 1986
Toluene	26	mouse	0.03	R1	Nawrot & Staples 1979

Notes:
R – References (review documents)
R1 – Sample et al. 1996, R2 –EFA-West (1998) and Cal/EPA (2000), R3 – IRIS, R4 – ToxNet HSDB, R5 – Cal/EPA (2002).

The following chemical surrogates were used:
1 – hexavalent chromium, 2 – Aroclor 1254, 3 – gamma-BHC (Lindane), 4 – chlordane, 5 – heptachlor, 6 – endosulfan, 7 – endrin, 8 – benzo(a)pyrene, 9 – di-n-octylphthalate

Table 5
Avian Toxicity Reference Values, Low (TRV-Low)

Compound	IRV (mg/kg-day)	Species	Body Weight (kg)	R	Reference
Arsenic	5.5	mallard	1.1722	R2	Stanley et al. 1994
Cadmium	0.078	mallard	0.7985	R2	Cain et al. 1983
Chromium, Total [1]	1	black duck	1.25	R1	Haseltine et al. 1985
Hexavalent Chromium [1]	1	black duck	1.25	R1	Haseltine et al. 1985
Copper	2.3	broiler chick	0.639	R2	Norvell et al. 1975
Lead	0.014	Japanese quail	0.0935	R2	Edens et al. 1976
Mercury	0.039	mallard	1	R2	Heinz 1974
Nickel	1.38	mallard	0.61375	R2	Cain & Pafford 1981
Selenium	0.23	mallard	1.1077	R2	Heinz et al. 1989
Silver	178	mallard	1	R3	U.S. EPA 1997
Zinc	17.2	mallard	0.955	R2	Gasaway & Buss 1972
Cyanide	0.04	American kestrel	0.12	R3	Wiemeyer et al. 1986
PCB-1254	0.088	chicken	0.8	R2	Platonow & Reinhart 1973
PCB-1260 [2]	0.088	chicken	0.8	R2	Platonow & Reinhart 1973
4,4'-DDD	0.009	pelican	3.5	R2	Anderson et al. 1975
4,4'-DDE	0.009	pelican	3.5	R2	Anderson et al. 1975
4,4'-DDT	0.009	pelican	3.5	R2	Anderson et al. 1975
Alpha-BHC [3]	0.56	quail	0.15	R1	Vos et al. 1971
Beta-BHC [3]	0.56	quail	0.15	R1	Vos et al. 1971
Alpha-Chlordane [4]	2.14	blackbird	0.064	R1	Stickel et al. 1983
Gamma-Chlordane [4]	2.14	blackbird	0.064	R1	Stickel et al. 1983
Heptachlor	0.065	coturnix quail	0.1 [C]	R3	Hill & Carmardese 1986
Heptachlor Epoxide [5]	0.065	coturnix quail	0.1 [C]	R3	Hill & Carmardese 1986
Aldrin [6]	0.077	barn owl	0.466	R1	Mendenhall et al. 1983
Dieldrin	0.077	barn owl	0.466	R1	Mendenhall et al. 1983
Endosulfan Sulfate [7]	10	partridge	0.4	R1	Abiola 1992
Endrin	0.01	screech owl	0.181	R1	Fleming et al. 1982
Endrin Aldehyde [8]	0.01	screech owl	0.181	R1	Fleming et al. 1982
Endrin Ketone [8]	0.01	screech owl	0.181	R1	Fleming et al. 1982

Table 5 (continued)

Compound	TRV (mg/kg-day)	Species	Body Weight (kg)	R	Reference
Benzo(A)Anthracene [9]	1.01	blackbirds	0.074 [D]		Schafer et al 1983
Benzo(A)Pyrene [9]	1.01	blackbirds	0.074 [D]		Schafer et al. 1983
Benzo(B)Fluoranthene [9]	1.01	blackbirds	0.074 [D]		Schafer et al. 1983
Benzo(GHI)Perylene [9]	1.01	blackbirds	0.074 [D]		Schafer et al 1983
Benzo(K)Fluoranthene [9]	1.01	blackbirds	0.074 [D]		Schafer et al. 1983
Chrysene [9]	1.01	blackbirds	0.074 [D]		Schafer et al 1983
Fluoranthene [9]	1.01	blackbirds	0.074 [D]		Schafer et al 1983
Indeno(1,2,3-cd)Pyrene [9]	1.01	blackbirds	0.074 [D]		Schafer et al. 1983
Pyrene [9]	1.01	blackbirds	0.074 [D]		Schafer et al. 1983
Benzoic Acid	0.4 [A]	mouse		R4	Shtenberg & Ignat'ev 1970
2-Nitrophenol	0.334 [A]	rat		R5	Lewis 1996.
4-Chloroaniline	0.2 [A]	rat		R5	IARC 1993.
Butyl Benzyl Phthalate [9]	0.11	ringed dove	0.155	R1	Peakall 1974
Di-N-Butyl Phthalate	0.11	ringed dove	0.155	R1	Peakall 1974
Acetone	52	coturnix quail	0.1 [C]	R3	Hill & Carmardese 1986
Methylene Chloride	0.585 [A]	rat		R1	NCA 1982
4-Methyl-2-Pentanone	2.5 [A]	rat		R1	MBA 1986
Toluene	2.6 [A]	mouse		R1	Nawrot & Staples 1979

Notes:
R – References (review documents)
R1 – Sample et al. 1996, R2 –EFA-West (1998) and Cal/EPA (2000), R3 – U.S. EPA 1999,
R4 – IRIS, R5 – TOXNET (HSDB).

The following chemical surrogates were used:
1 – trivalent chromium, 2 – Aroclor 1254, 3 – BHC mixed isomers, 4 – chlordane, 5 – heptachlor,
6 – dieldrin, 7 – endosulfan, 8 – endrin, 9 – acenaphthene, 9 – di-n-butylphthalate

A – Avian TRV estimated from Mammal TRV * 0.1
B – Body weight (Crocker et al. 2002)
C – Body weight 0.1 kg assumed for coturnix quail.
D – Red-winged blackbird body weight (Beletsky 1996)

Table 6
Receptor-Specific Toxicity Reference Values (TRVs)

Compound	Cottontail Rabbit (mg/kg-day)	Deer Mouse (mg/kg-day)	Coyote (mg/kg-day)	Mourning Dove (mg/kg-day)	American Robin (mg/kg-day)	American Kestrel (mg/kg-day)
Arsenic	3.2E-1	3.2E-1	3.2E-1	5.5E+0	5.5E+0	5.5E+0
Cadmium	6.0E-2	6.0E-2	4.2E-2	7.8E-2	7.8E-2	7.8E-2
Chromium, Total	3.3E+0	3.3E+0	3.3E+0	1.0E+0	1.0E+0	1.0E+0
Hexavalent Chromium	3.3E+0	3.3E+0	3.3E+0	1.0E+0	1.0E+0	1.0E+0
Copper	2.7E+0	2.7E+0	1.9E+0	2.3E+0	2.3E+0	2.3E+0
Lead	1.0E+0	1.0E+0	1.0E+0	1.4E-2	1.4E-2	1.4E-2
Mercury	2.5E-1	2.5E-1	2.5E-1	3.9E-2	3.9E-2	3.9E-2
Nickel	1.3E-1	1.3E-1	1.3E-1	1.4E+0	1.4E+0	1.4E+0
Selenium	5.0E-2	5.0E-2	5.0E-2	2.3E-1	2.3E-1	2.3E-1
Silver	3.3E+1	3.3E+1	3.3E+1	1.8E+2	1.8E+2	1.8E+2
Zinc	9.6E+0	9.6E+0	6.7E+0	1.7E+1	1.7E+1	1.7E+1
Cyanide	6.9E+1	6.9E+1	6.9E+1	4.0E-2	4.0E-2	4.0E-2
PCB-1254	3.6E-1	3.6E-1	2.5E-1	8.8E-2	8.8E-2	8.8E-2
PCB-1260	3.6E-1	3.6E-1	2.5E-1	8.8E-2	8.8E-2	8.8E-2
4,4'-DDD	8.0E-1	8.0E-1	8.0E-1	9.0E-3	9.0E-3	9.0E-3
4,4'-DDE	8.0E-1	8.0E-1	8.0E-1	9.0E-3	9.0E-3	9.0E-3
4,4'-DDT	8.0E-1	8.0E-1	8.0E-1	9.0E-3	9.0E-3	9.0E-3
Alpha-BHC	5.0E-2	5.0E-2	5.0E-2	5.6E-1	5.6E-1	5.6E-1
Beta-BHC	5.0E-2	5.0E-2	5.0E-2	5.6E-1	5.6E-1	5.6E-1
Alpha-Chlordane	4.6E+0	4.6E+0	3.2E+0	2.1E+0	2.1E+0	2.1E+0
Gamma-Chlordane	4.6E+0	4.6E+0	3.2E+0	2.1E+0	2.1E+0	2.1E+0
Heptachlor	1.3E-1	1.3E-1	9.7E-2	6.5E-2	6.5E-2	6.5E-2
Heptachlor Epoxide	1.3E-1	1.3E-1	9.7E-2	6.5E-2	6.5E-2	6.5E-2
Aldrin	2.0E-2	2.0E-2	2.0E-2	7.7E-2	7.7E-2	7.7E-2
Dieldrin	2.0E-2	2.0E-2	2.0E-2	7.7E-2	7.7E-2	7.7E-2
Endosulfan Sulfate	1.5E-1	1.5E-1	1.5E-1	1.0E+1	1.0E+1	1.0E+1
Endrin	9.2E-2	9.2E-2	6.4E-2	1.0E-2	1.0E-2	1.0E-2
Endrin Aldehyde	9.2E-2	9.2E-2	6.4E-2	1.0E-2	1.0E-2	1.0E-2
Endrin Ketone	9.2E-2	9.2E-2	6.4E-2	1.0E-2	1.0E-2	1.0E-2
Benzo(A)Anthracene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0

Table 6 (continued)

Compound	Cottontail Rabbit (mg/kg-day)	Deer Mouse (mg/kg-day)	Coyote (mg/kg-day)	Mourning Dove (mg/kg-day)	American Robin (mg/kg-day)	American Kestrel (mg/kg-day)
Benzo(A)Pyrene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzo(B)Fluoranthene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzo(GHI)Perylene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzo(K)Fluoranthene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Chrysene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Fluoranthene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Indeno(1,2,3-cd)Pyrene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Pyrene	1.3E+0	1.3E+0	9.2E-1	1.0E+0	1.0E+0	1.0E+0
Benzoic Acid	4.0E+0	4.0E+0	2.8E+0	4.0E-1	4.0E-1	4.0E-1
2-Nitrophenol	3.3E+0	3.3E+0	3.3E+0	3.3E-1	3.3E-1	3.3E-1
4-Chloroaniline	2.0E+0	2.0E+0	2.0E+0	2.0E-1	2.0E-1	2.0E-1
Butyl Benzyl Phthalate	1.6E+2	1.6E+2	1.6E+2	1.1E-1	1.1E-1	1.1E-1
Di-N-Butyl Phthalate	5.5E+2	5.5E+2	3.9E+2	1.1E-1	1.1E-1	1.1E-1
Acetone	1.0E+1	1.0E+1	1.0E+1	5.2E+1	5.2E+1	5.2E+1
Methylene Chloride	5.9E+0	5.9E+0	5.9E+0	5.9E-1	5.9E-1	5.9E-1
4-Methyl-2-Pentanone	2.5E+1	2.5E+1	2.5E+1	2.5E+0	2.5E+0	2.5E+0
Toluene	2.6E+1	2.6E+1	1.8E+1	2.6E+0	2.6E+0	2.6E+0

Acronyms/Abbreviations:
mg/kg-day – milligrams per kilogram per day

Table 7
K_{ow} and Bioaccumulation Factors for Site 10 COPECs

Compound	Log K_{ow}	Soil-to-Plant	R	Soil-to-Invert	R	Soil-to-Mammal	R
Arsenic	na	3.8E-2	a	2.2E-1	d	2.5E-3	g
Cadmium	na	5.9E-1	a	7.7E+0	d	3.3E-1	g
Chromium, Total	na	4.1E-2	a	3.1E-1	d	8.5E-2	g
Hexavalent Chromium	na	4.1E-2	a	3.1E-1	d	8.5E-2	g
Copper	na	1.2E-1	a	5.2E-1	d	2.0E-1	g
Lead	na	3.9E-2	a	2.7E-1	d	1.1E-1	g
Mercury	na	6.5E-1	a	1.7E+0	d	5.4E-2	g
Nickel	na	1.8E-2	a	1.1E+0	d	2.5E-1	g
Selenium	na	6.7E-1	a	9.9E-1	d	1.6E-1	g
Silver	na	1.4E-2	a	2.0E+0	d	4.0E-3	g
Zinc	na	3.7E-1	a	3.2E+0	d	7.7E-1	g
Cyanide	na	1.0E+0	e	1.0E+0	e	1.0E+0	e
PCB-1254	7.0E+0	3.6E-3	c	6.7E+0	d	1.1E+0	g
PCB-1260	8.3E+0	6.4E-4	c	6.7E+0	d	1.1E+0	g
4,4'-DDD	5.9E+0	1.6E-2	c	6.7E+0	d	1.1E+0	g
4,4'-DDE	6.0E+0	1.3E-2	c	6.7E+0	d	1.1E+0	g
4,4'-DDT	6.8E+0	4.6E-3	c	6.7E+0	d	1.1E+0	g
Alpha-BHC	4.3E+0	1.3E-1	c	6.7E+0	d	1.1E+0	g
Beta-BHC	4.3E+0	1.3E-1	c	6.7E+0	d	1.1E+0	g
Alpha-Chlordane	6.3E+0	9.3E-3	c	6.7E+0	d	1.1E+0	g
Gamma-Chlordane	6.3E+0	9.3E-3	c	6.7E+0	d	1.1E+0	g
Heptachlor	5.9E+0	1.6E-2	c	6.7E+0	d	1.1E+0	g
Heptachlor Epoxide	4.6E+0	9.0E-2	c	6.7E+0	d	1.1E+0	g
Aldrin	6.8E+0	4.9E-3	c	6.7E+0	d	1.1E+0	g
Dieldrin	5.5E+0	2.7E-2	c	6.7E+0	d	1.1E+0	g
Endosulfan Sulfate	3.6E+0	3.0E-1	c	6.7E+0	d	1.1E+0	g
Endrin	5.5E+0	2.7E-2	c	6.7E+0	d	1.1E+0	g
Endrin Aldehyde	4.8E+0	6.5E-2	c	6.7E+0	d	1.1E+0	g
Endrin Ketone	5.0E+0	5.1E-2	c	6.7E+0	d	1.1E+0	g
Benzo(A)Anthracene	5.5E+0	2.5E-2	c	2.7E-1	f	1.1E+0	g
Benzo(A)Pyrene	6.1E+0	1.1E-2	c	3.4E-1	f	1.1E+0	g

Table 7 (continued)

Compound	Log K_{ow}	Soil-to-Plant	R	Soil-to-Invert	R	Soil-to-Mammal	R
Benzo(B)Fluoranthene	6.1E+0	1.1E-2	c	2.1E-1	f	1.1E+0	g
Benzo(GHI)Perylene	6.7E+0	5.2E-3	c	1.5E-1	f	1.1E+0	g
Benzo(K)Fluoranthene	6.1E+0	1.1E-2	c	2.1E-1	f	1.1E+0	g
Chrysene	5.5E+0	2.5E-2	c	4.4E-1	f	1.1E+0	g
Fluoranthene	4.9E+0	5.5E-2	c	3.7E-1	f	1.1E+0	g
Indeno(1,2,3-cd)Pyrene	6.7E+0	5.2E-3	c	4.1E-1	f	1.1E+0	g
Pyrene	4.9E+0	5.5E-2	c	3.9E-1	f	1.1E+0	g
Benzoic Acid	1.9E+0	3.2E+0	c	1.0E+0	e	1.1E+0	g
2-Nitrophenol	1.8E+0	3.6E+0	c	1.0E+0	e	1.1E+0	g
4-Chloroaniline	1.8E+0	3.4E+0	c	1.0E+0	e	1.1E+0	g
Butyl Benzyl Phthalate	4.8E+0	6.2E-2	c	1.0E+0	e	1.1E+0	g
Di-N-Butyl Phthalate	4.6E+0	8.4E-2	c	1.0E+0	e	1.1E+0	g
Acetone	-2.4E-1	5.3E+1	c	4.5E-2	h	1.1E+0	g
Methylene Chloride	1.3E+0	6.5E+0	c	8.9E-1	h	1.1E+0	g
4-Methyl-2-Pentanone	1.2E+0	8.3E+0	c	6.4E-1	h	1.1E+0	g
Toluene	2.5E+0	1.3E+0	c	8.6E+0	h	1.1E+0	g

Notes:
Bioaccumulation Factor Units
kg soil/kg biota (plant, invertebrate, small mammal) (dry weight)

R – References
a – BJC (1998), Efroymson et al. (2001); b – Baes et al. (1984); c – Travis & Arms 1988 (eq 5);
d – Sample et al. (1998a); e – assumed value; f – Beyer and Stafford 1993;
g – Sample et al. (1998b); h – Southworth et al. 1978.

Acronym/Abbreviation:
na – not applicable

Table 8
Representative Mammal Wildlife Receptor Species

Exposure Factor	Cottontail Rabbit	Deer Mouse	Coyote
Body weight, kg A	0.895	0.0184	11.2
Ingestion rate, kg food/day dw	0 0808 C	0 00321 D	0.501 D
Fractional intake, soil	0.02 F	0.05 E	0 028 G
Fractional intake, plant	1 H	0.25 H	0 H
Fractional intake, invertebrate	0 H	0.75 H	0 25 H
Fractional intake, small mammal	0 H	0 H	0.75 H
Home range, hectares (ha)	3.1 K	0 091 J	1570 L
Site Use Factor (Site area 1 86 ha)	0.58	1.0	0.0012

Notes
A – See Table 3 for reference.
C – Nagy (1987) allometric equation for herbivorous mammals. (IR g dw/day= $0.577*BW^{0.727}$)), BW units as g. Divide by 1000 for kg dw/day.
D – Nagy (1987) allometric equation for all mammals. (IR g dw/day= $0.235*BW^{0.822}$)), BW units as g. Divide by 1000 for kg dw/day.
E – Beyer et al. 1994. Midpoint of two prairie dog vaules
F – Beyer et al. 1994 Woodchuck <2%.
G – Beyer et al. 1994. Red fox 2.8%.
H – Assumed value
J – Storer et al. 1944. (as cited in Cal/Ecotox) mean adult male and female.
K – U S. EPA 1993. Mean of values shown.
L – Bounds and Shaw (1997). (as cited in Cal/Ecotox).

Acronyms/Abbreviations:
dw – dry weight
ha – hectares
kg – kilogram

Table 9
Representative Avian Wildlife Receptor Species

Exposure Factor	Mourning Dove	American Robin	American Kestrel
Body weight, kg A	0 125	0 0804	0.111
Ingestion rate, kg food/day dw	0.0150 B	0 01128 B	0.0139 B
Fractional intake, soil	0.093 C	0.104 D	0 0035 E
Fractional intake, plant	1 F	0 25 F	0 F
Fractional intake, invertebrate	0 F	0.75 F	0.25 F
Fractional intake, small mammal	0 F	0 F	0 75 F
Home range, hectares (ha)	1000 G	11 H	109.4 J
Site Use Factor (Site area 1 86 ha)	0 0019	0.17	0 017

Notes
A – See Table 3 for reference
B – Nagy 1987 allometric equation for all birds (IR kg dw/day= 0 0582*$BW^{0.651}$))
C – Beyer et al. 1994 for wild turkey
D – Beyer et al. 1994 for American woodcock
E – Pascoe et al. 1996. 0.35% for bald eagle.
F – Assumed value
G – Tomlinson, R E., H.M. Wight, and T S Baskett. 1960 (CA WHRS) 10 km2
H – Weatherhead and McRae 1990, as cited in U S. EPA 1993; Haldeman et al. 1973, Gaines 1974, Haldeman et al. 1973, as cited in Zeiner et al. 1990; Knupp et al. 1977, as cited in Sallabanks and James 1999 Mean of 5 cited values.
J – Balgooyen 1976 (as cited in Cal/Ecotox) adult male and female.

Acronyms/Abbreviations:
dw – dry weight
ha – hectares
kg – kilogram

Table 10
Hazard Quotients – Low for Site 10

Compound	Cottontail Rabbit	Deer Mouse	Coyote	Mourning Dove	American Robin	American Kestrel	Maximum
Arsenic	4E-2	5E-1	5E-5	2E-5	4E-3	9E-5	5E-1
Cadmium	**5E+0**	**2E+2**	3E-2	2E-2	**2E+1**	5E-1	**2E+2**
Chromium, Total	5E-2	8E-1	1E-4	2E-3	4E-1	2E-2	8E-1
Hexavalent Chromium	1E-3	2E-2	4E-6	4E-5	1E-2	4E-4	2E-2
Copper	4E-1	**4E+0**	1E-3	3E-3	7E-1	3E-2	**4E+0**
Lead	1E-1	**2E+0**	3E-4	7E-2	**2E+1**	8E-1	**2E+1**
Mercury	8E-2	6E-1	6E-5	2E-3	5E-1	1E-2	6E-1
Nickel	2E-1	**2E+1**	3E-3	3E-4	2E-1	1E-2	**2E+1**
Selenium	**3E+0**	**1E+1**	2E-3	3E-3	4E-1	1E-2	**1E+1**
Silver	4E-3	6E-1	6E-5	9E-6	2E-2	4E-4	6E-1
Zinc	5E-1	**1E+1**	3E-3	1E-3	9E-1	4E-2	**1E+1**
Cyanide	3E-4	1E-3	3E-7	3E-3	3E-1	2E-2	3E-1
PCB-1254	8E-4	6E-1	1E-4	6E-5	3E-1	1E-2	6E-1
PCB-1260	3E-4	2E-1	5E-5	2E-5	1E-1	6E-3	2E-1
4,4'-DDD	8E-5	4E-2	6E-6	1E-4	5E-1	2E-2	5E-1
4,4'-DDE	1E-4	5E-2	8E-6	1E-4	6E-1	3E-2	6E-1
4,4'-DDT	6E-6	4E-3	6E-7	9E-6	5E-2	2E-3	5E-2
Alpha-BHC	5E-4	5E-2	8E-6	3E-7	6E-4	3E-5	5E-2
Beta-BHC	5E-4	6E-2	8E-6	3E-7	7E-4	3E-5	6E-2
Alpha-Chlordane	1E-5	8E-3	2E-6	4E-7	2E-3	1E-4	8E-3
Gamma-Chlordane	2E-5	1E-2	3E-6	7E-7	3E-3	2E-4	1E-2
Heptachlor	3E-5	1E-2	3E-6	7E-7	4E-3	2E-4	1E-2
Heptachlor Epoxide	2E-4	2E-2	5E-6	2E-6	7E-3	3E-4	2E-2
Aldrin	2E-4	1E-1	2E-5	9E-7	5E-3	2E-4	1E-1
Dieldrin	4E-3	1E+0	2E-4	1E-5	5E-2	2E-3	1E+0
Endosulfan Sulfate	2E-4	1E-2	2E-6	2E-8	2E-5	1E-6	1E-2
Endrin	1E-4	4E-2	9E-6	1E-5	6E-2	2E-3	6E-2
Endrin Aldehyde	4E-4	8E-2	2E-5	3E-5	1E-1	4E-3	1E-1
Endrin Ketone	1E-4	2E-2	5E-6	8E-6	3E-2	1E-3	3E-2
Benzo(A)Anthracene	4E-4	7E-3	1E-5	5E-6	1E-3	4E-4	7E-3

Table 10 (continued)

Compound	Cottontail Rabbit	Deer Mouse	Coyote	Mourning Dove	American Robin	American Kestrel	Maximum
Benzo(A)Pyrene	2E-4	7E-3	1E-5	4E-6	2E-3	3E-4	7E-3
Benzo(B)Fluoranthene	3E-4	7E-3	1E-5	5E-6	1E-3	4E-4	7E-3
Benzo(GHI)Perylene	1E-4	3E-3	6E-6	3E-6	7E-4	2E-4	3E-3
Benzo(K)Fluoranthene	2E-4	4E-3	8E-6	4E-6	1E-3	3E-4	4E-3
Chrysene	4E-4	1E-2	1E-5	6E-6	2E-3	4E-4	1E-2
Fluoranthene	6E-4	9E-3	1E-5	7E-6	2E-3	4E-4	9E-3
Indeno(1,2,3-cd)Pyrene	1E-4	6E-3	7E-6	3E-6	1E-3	2E-4	6E-3
Pyrene	6E-4	9E-3	1E-5	6E-6	2E-3	4E-4	9E-3
Benzoic Acid	3E-2	4E-2	1E-5	1E-3	6E-2	4E-3	6E-2
2-Nitrophenol	9E-3	1E-2	3E-6	4E-4	2E-2	1E-3	2E-2
4-Chloroaniline	9E-3	1E-2	3E-6	4E-4	2E-2	1E-3	2E-2
Butyl Benzyl Phthalate	5E-6	2E-4	7E-8	6E-5	4E-2	4E-3	4E-2
Di-N-Butyl Phthalate	2E-6	4E-5	2E-8	6E-5	3E-2	3E-3	3E-2
Acetone	1E-1	8E-2	2E-6	8E-5	2E-3	1E-5	1E-1
Methylene Chloride	3E-3	3E-3	5E-7	1E-4	5E-3	2E-4	5E-3
4-Methyl-2-Pentanone	9E-4	9E-4	1E-7	4E-5	1E-3	4E-5	1E-3
Toluene	2E-4	3E-3	6E-7	9E-6	4E-3	2E-4	4E-3
HI – Metals	**9E+0**	**2E+2**	3E-2	1E-1	**4E+1**	1E+0	**2E+2**
HI – PCB	1E-3	8E-1	2E-4	8E-5	5E-1	2E-2	8E-1
HI – Pesticide	7E-3	**2E+0**	3E-4	3E-4	1E+0	6E-2	**2E+0**
HI – PAH	3E-3	6E-2	9E-5	4E-5	1E-2	3E-3	6E-2
HI – SVOC	4E-2	7E-2	2E-5	2E-3	2E-1	1E-2	2E-1
HI – VOC	1E-1	9E-2	3E-6	3E-4	1E-2	4E-4	1E-1

Note:
boldface indicates hazard quotient values > 1

Table 11
Hazard Quotients – Low for NAF El Centro Background Concentrations

Compound	Cottontail Rabbit	Deer Mouse	Coyote	Mourning Dove	American Robin	American Kestrel	Maximum
Arsenic	6E-2	8E-1	9E-5	3E-5	8E-3	1E-4	8E-1
Cadmium	1E+0	**4E+1**	6E-3	4E-3	**4E+0**	1E-1	**4E+1**
Chromium, Total	2E-2	3E-1	5E-5	6E-4	2E-1	6E-3	3E-1
Copper	6E-2	7E-1	2E-4	5E-4	1E-1	6E-3	7E-1
Lead	5E-2	8E-1	2E-4	4E-2	**9E+0**	4E-1	**9E+0**
Mercury	7E-3	5E-2	5E-6	2E-4	5E-2	1E-3	5E-2
Nickel	3E-1	**2E+1**	4E-3	4E-4	3E-1	1E-2	**2E+1**
Selenium	5E-1	**2E+0**	3E-4	5E-4	7E-2	2E-3	**2E+0**
Silver	3E-5	5E-3	5E-7	8E-8	1E-4	4E-6	5E-3
Zinc	1E-1	**3E+0**	8E-4	4E-4	3E-1	1E-2	**3E+0**
HI – Metals	**2E+0**	**7E+1**	1E-2	4E-2	**1E+1**	6E-1	**7E+1**

Note:
boldface indicates hazard quotient values > 1

Table 12
Mammal Toxicity Reference Values, High (TRV–High)

Compound	IRV (mg/kg-day)	Species	Body Weight (kg)	R	Reference
Cadmium	2 64	mouse	0 03141	R2	Schroeder & Mitchner 1971
Copper	631 58	mouse	0.0247	R2	Hebert et al 1993
Lead	240.64	mouse	0.0187	R2	Wise 1981
Nickel	31.6	rat	0.2486	R2	Smith et al. 1993
Selenium	1 21	mouse	0.0246	R2	Schroeder & Mitchner 1971
Zinc	411.43	rat	0 175	R2	Schlicker & Cox 1968
4,4'-DDD	16	rat	0.32	R2	Clement & Okey 1974
4,4'-DDE	16	rat	0 32	R2	Clement & Okey 1974
4,4'-DDT	16	rat	0.32	R2	Clement & Okey 1974
Alpha-BHC [1]	3 75	mouse	0.024	R2	Sircar & Lahiri 1989
Beta-BHC	2	rat	0 35	R1	Van Velsen et al. 1986
Alpha-Chlordane [2]	9.2	mouse	0.03	R1	Keplinger et al. 1968
Gamma-Chlordane [2]	9 2	mouse	0.03	R1	Keplinger et al. 1968
Heptachlor	6.8	rat	0.204	R2	Narotsky et al. 1995
Heptachlor Epoxide [3]	6 8	rat	0.204	R2	Narotsky et al. 1995
Aldrin	1	rat	0 065	R2	Paul et al 1992
Dieldrin [4]	1	rat	0 065	R2	Paul et al 1992
Endosulfan Sulfate [5]	0 92	mouse	0.03	R1	Good & Ware 1969
Endrin	0.92	mouse	0 03	R1	Good & Ware 1969
Endrin Aldehyde [5]	0 92	mouse	0 03	R1	Good & Ware 1969
Endrin Ketone [5]	0.92	mouse	0.03	R1	Good & Ware 1969

Notes:
R -- References (review documents)
R1 – Sample et al 1996, R2 –EFA-West (1998) and Cal/EPA (2000)

The following chemical surrogates were used:
1 – gamma BHC, 2 – chlordane, 3 – heptachlor, 4 – aldrin, 5 – endrin

Acronyms/Abbreviations:
mg/kg -- milligrams per kilogram
TRV – toxicity reference value

Table 13
Avian Toxicity Reference Values, High (TRV-High)

Compound	TRV (mg/kg-day)	Species	Body Weight (kg)	R	Reference
Cadmium	10.43	mallard	0.084	R2	Richardson et al. 1974
Copper	52.26	broiler chick	0.409	R2	Jensen & Maurice 1978
Lead	8.75	chicken	0.8	R2	Edens & Garlich 1983
Nickel	55.16	mallard	0.58	R2	Cain & Pafford 1981
Selenium	0.93	mallard	1.1077	R2	Heinz et al. 1989
Zinc	172	mallard	0.955	R2	Gasaway & Buss 1972
4,4'-DDD [1]	0.6	mallard	1	R2	Heath et al 1969
4,4'-DDE	0.6	mallard	1	R2	Heath et al 1969
4,4'-DDT	1.5	mallard	1	R2	Heath et al 1969
Alpha-BHC [2]	20	mallard	1	R1	Chakravarty & Lahiri 1986
Beta-BHC [2]	20	mallard	1	R1	Chakravarty & Lahiri 1986
Alpha-Chlordane [3]	10.7	black-bird	0.064	R1	Stickel et al. 1983
Gamma-Chlordane [3]	10.7	black-bird	0.064	R1	Stickel et al. 1983
Heptachlor [4]	0.77 [A]	barn owl	0.466	R1	Mendenhall et al. 1983
Heptachlor Epoxide [4]	0.77 [A]	barn owl	0.466	R1	Mendenhall et al. 1983
Aldrin [4]	0.77 [A]	barn owl	0.466	R1	Mendenhall et al. 1983
Dieldrin	0.77 [A]	barn owl	0.466	R1	Mendenhall et al. 1983
Endosulfan Sulfate [4]	0.77 [A]	barn owl	0.466	R1	Mendenhall et al. 1983
Endrin	0.1	screech owl	0.181	R1	Fleming et al. 1982
Endrin Aldehyde [5]	0.1	screech owl	0.181	R1	Fleming et al. 1982
Endrin Ketone [5]	0.1	screech owl	0.181	R1	Fleming et al. 1982

Notes:
R – References (review documents)
R1 – Sample et al. 1996 R2 –EFA-West (1998) and Cal/EPA (2000)

The following chemical surrogates were used:
1 – DDE, 2 – gamma BHC 3 – chlordane, 4 – dieldrin, 5 – endrin

A – Avian TRV-High estimated from Avian TRV-Low * 10

Acronyms/Abbreviations:
TRV – toxicity reference value

Table 14
Hazard Quotients – High for Site 10

Compound	Cottontail Rabbit	Deer Mouse	Coyote	Mourning Dove	American Robin	American Kestrel	Maximum
Cadmium	1E-1	**4E+0**	6E-4	1E-4	1E-1	4E-3	**4E+0**
Copper	1E-3	2E-2	5E-6	1E-4	3E-2	1E-3	3E-2
Lead	4E-4	6E-3	2E-6	1E-4	3E-2	1E-3	3E-2
Nickel	1E-3	7E-2	1E-5	7E-6	6E-3	3E-4	7E-2
Selenium	1E-1	6E-1	1E-4	8E-4	1E-1	4E-3	6E-1
Zinc	1E-2	3E-1	4E-5	1E-4	9E-2	4E-3	3E-1
HI Metals	3E-1	**5E+0**	7E-4	2E-3	5E-1	2E-2	**5E+0**
HI Pesticdes	2E-4	7E-2	1E-5	1E-5	4E-2	2E-3	7E-2

Note:
boldface indicates hazard quotient values > 1

Table 15
Summary of Hazard Quotients and Hazard Indices

Compound	Background Concentration HQ-Low	NAF El Centro Site 10 HQ-Low	NAF El Centro Site 10 HQ-High
Hazard Quotients			
Cadmium	4E+1	2E+2	4E+0
Copper	7E-1	4E+0	3E-2
Lead	9E+0	2E+1	3E-2
Nickel	2E+1	2E+1	7E-2
Selenium	2E+0	1E+1	6E-1
Zinc	3E+0	1E+1	3E-1
Hazard Indices			
Metals	7E+1	2E+2	5E+0
Pesticides	na	2E+0	7E-2

Notes:
boldface indicates hazard quotient and hazard index values > 1

Acronyms/Abbreviations:
HQ – Hazard Quotient
na – not available

References.

Abiola, F.A. 1992. Ecotoxicity of organochloride insecticides: effects of endosulfan on birds reproduction and evaluation of its induction effects in partridge, Perdix perdix L. *Rev. Vet. Med.* 143: 443-450.

Anderson, D.W., R.W. Risebrough, L.A. Woods, Jr., L.R. De Weese, and W.G. Edgecomb. 1975. Brown pelicans: improved reproduction off the southern California coast. Science 190:806-808.

Aughey, E., L. Grant, B.L. Furman, and W.F. Dryden. 1977. The effects of oral zinc supplementation in the mouse. Journal of Comparative Pathology. Vol: 87:1-14.

Baes, C.F., R. Sharp, A. Sjoreen, and R. Shore. 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides Through Agriculture. Prepared for the U.S. Department of Energy. ORNL-5786.

Balgooyen, T.G. 1976. Behavior and ecology of the American Kestrel in the Sierra Nevada of California. Univ. Calif. Publ. Zool. 103:1-87.

Bechtel Jacobs Company LLC. 1998. Empirical Models for the Uptake of Chemicals from Soil by Plants. BJC/OR -133. Prepared for U.S. Department of Energy, Office of Environmental Management.

Beletsky, L.D. 1996. The Red-winged Blackbird: The Biology of a Strongly Polygamous Songbird. pp. 31-34. Academic Press, Harcourt Brace and Co., Publishers, London. as cited in ERDC/CERL TR-02-6 of ACOE.

Beyer, W.N., E. Conner, and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *J. Wildl. Manage. 58*:375-382

Beyer, W.N., and C. Stafford. 1993. Survey and evaluation of contaminants in earthworms and soils from dredged materials at confined disposal facilities in the Great Lakes region. *Environ. Monit. Assess.* 24:151-165

BJC. *See* Bechtel Jacobs Company LLC.

Bounds, D.L. and W.W. Shaw. 1997. Movements of suburban and rural coyotes at Saguaro National Park, Arizona. Southwest. Nat. 42:94-121.

Cain, B.W. and E.A. Pafford 1981. Effects of Dietary Nickel on Survival and Growth of Mallard Ducklings. Archives of Environmental Contamination and Toxicology. Vol. 10:737-745.

Cain, B.W., L. Sileo, J.C. Franson, and J. Moore. 1983. Effects of dietary cadmium on mallard ducklings. *Environmental Research*. 32:286-297

Cal/Ecotox. *See* Cal/EPA 2002

Cal/EPA. *See* California Environmental Protection Agency.

California Environmental Protection Agency. 2000. HERD ERA Note Number 4: Use of Navy/U.S. Environmental Protection Agency (U.S. EPA) Region 9 Biological Technical Assistance Group (BTAG) Toxicity Reference Values (TRVs) for Ecological Risk Assessment. State of California, California Environmental Protection Agency, Department of Toxic Substances Control, Human and Ecological Risk Division. 08 December.

——— 2002. California Wildlife Exposure Factor and Toxicity Database (Cal/Ecotox). http://www.oehha.ca.gov/cal_ecotox/default.htm. Internet site accessed September 25, 2002.

Chakravarty, S. and P. Lahiri. 1986. Effect of lindane on eggshell characteristics and calcium level in the domestic duck. *Toxicology*. 42: 245-258.

Clement, J.G. and A.B. Okey. 1974. "Reproduction in Female Rats Born to DDT-treated Parents." *Bulletin of Environmental Contamination and Toxicology*. Volume 12. Pages 373-377.

Clench, M.H.; Leberman, R.C. 1978. Weights of 151 species of Pennsylvania birds analyzed by month, age, and sex. Bull. Carnegie Mus. Nat. Hist.

Cowan, J.B. 1952. Life history and productivity of a population of western mourning doves in California. Calif. Fish Game. 38(4):505-521.

Crocker, D., A. Hart, J. Gurney, and C. McCoy. 2002. Project PN0908: Methods For Estimating Daily Food Intake of Wild Birds and Mammals. Final Report. Central Science Laboratory, Department for Environment, Food & Rural Affairs. United Kingdom.

Cypher, B.L. 1995. Coyote morphometric characteristics and mass dynamics in the San Joaquin Valley, California. Southwest. Nat. 40:360-365.

Dikshith, T.S.S., R.B. Raizada, M.K. Srivastava, and B.S. Kaphalia. 1984. Response of rats to repeated oral administration of endosulfan. *Ind. Health* 22: 295-304.

Edens, F.W., E. Benton, S.J. Bursian, and G.W. Morgan. 1976. Effects of dietary lead on reproductive performance in Japanese quail, *Coturnix coturnix japonica*. *Toxicology and Applied Phamracology*. 38:307-314.

Edens, F.W. and J.D. Garlich. 1983. "Lead-Induced Egg Production Decrease in Leghorn and Japanese Quail Hens." *Poultry Science*. Volume 62. Pages 1757-1763.

EFA-West. *See* Engineering Field Activity, West.

Efroymson, R.A., B.E. Sample, and G.W. Suter II. 2001. Uptake of Inorganic Chemicals from Soil by Plant Leaves: Regressions of Field Data. Environmental Toxicology and Chemistry 20(11):2561-2571.

Engineering Field Activity, West. 1998. Development of Toxicity Reference Values for Conducting Ecological Risk Assessment at Naval Facilities in California, Interim Final. Engineering Field Activity, West, Naval Facilities Engineering Command, United States Navy, San Bruno, California.

Fitzhugh, O.G. 1948. Use of DDT insecticides on food products. Ind. Eng. Chem. 40:704-705.

Fleming, W.J., M.A. Ross McLane, E. Cromartie. 1982. Endrin decreases screech owl productivity. *J. Wildl. Manage*. 46:462-468

Fowler, B.A., C.A. Kimmel, J.S. Woods, E.E. McConnell, L.D. Grant. 1980. Chronic low-level lead toxicity in the rat. III. An integrated assessment of long-term toxicity with special reference to the kidney. Toxicol Appl Pharmacol. 56(1):59-77.

Gaines, D. 1974. A new look at the nesting riparian avifauna of the Sacramento Valley, California. West. Birds 5:61-80.

Gasaway, W.C. and I.O. Buss. 1972. Zinc toxicity in the mallard duck. *Journal of Wildlife Management*. 36(4):1107-1117.

Good, E.E., and G.W. Ware. 1969. Effects of insecticides on reproduction in the laboratory mouse, IV. Endrin and Dieldrin. *Toxicol. Appl. Pharmacol.* 14: 201-203.

Haldeman, J.R., R.P. Balda, and S.W. Carothers. 1973. Breeding birds of a ponderosa pine forest and a fir, pine, aspen forest in the San Francisco Mountain area, Arizona. In S.W. Carothers, J.R. Haldeman, R.P. Balda, eds. Breeding Birds of the San Francisco Mountain Area and the White Mountains, Arizona. Mus. North. Ariz. Tech. Ser. 12. 54 pp.

Harr, J.R., J.F. Bone, I.J. Tinsley, P.H. Weswig, and R.S. Yamamoto. 1966. Selenium Toxicity in Rats. Symposium: Selenium in Biomedicine, 1st International Symposium. Oregon State University.

Haseltine, S.D.L. Sileo, D.J. Hoffman, and B.D. Mulhern. 1985. Effects of chromium on reproduction and growth in black ducks. Unpublished data. As cited in: Sample, B., D. Opresko, and G. Suter. 1996. Toxicological benchmarks for wildlife. 1996 Revision. Prepared for U.S. Department of Energy by Environmental Sciences Division, Oak Ridge National Laboratory. Oak Ridge, TN. ES/ER/TM-86/R3.

Hayes, J.P. 1989. Field and maximal metabolic rates of deer mice (Peromyscus maniculatus) at low and high altitudes. Physiol. Zool. 62(3):732-744.

Hazardous Substances Data Bank (HSDB). Part of the Toxicology Data Network (TOXNET), an integrated system of toxicology and environmental health databases. National Library of Medicine. http://www.nlm.nih.gov/pubs/factsheets/tehipfs.html

Heath, R.G., J.W. Spann, and J.F. Kreitzer. 1969. "Marked DDE Impairment of Mallard Reproduction in Controlled Studies." *Nature*. Volume 224. Pages 47-48.

Heinz, G.H. 1974. Effects of Low Dietary Levels of Methyl Mercury on Mallard Reproduction. Bulletin of Environmental Contamination and Toxicology. 11:386-392

Heinz, G.H., D.J. Hoffman, and L.G. Gold. 1989. Impaired reproduction of mallards fed an organic form of selenium. *J. Wildl. Mgmt.*:53:418-428.

Hebert, C.D., M.R. Elwell, G.S. Travlos, C.J. Fitz, and J.R. Bucher. 1993. Subchronic Toxicity of Cupric Sulfate Administered In Drinking Water and Feed to Rats and Mice. *Fundamental and Applied Toxicology*. 21:461-475.

Hill, E.F., and M.B. Camardese. 1986. Lethal Dietary Toxicities of Environmental Contaminants and Pesticides to Corturnix. Fish and Wildlife Service. Technical Report 2.

HSDB. *See* Hazardous Substances Data Bank.

IARC. *See* International Agency for Research on Cancer.

Ingles, L.G. 1941. Natural history observations on the Audubon cottontail. J. Mammal. 22:227-250

Integrated Risk Information System. United States Environmental Protection Agency Database of Human Health Effects. http://www.epa.gov/iriswebp/iris/index.html

International Agency for Research on Cancer. 1993. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. IARC 57:312.

IRIS. *See* Integrated Risk Information System.

Jensen, L.S. and D.V. Maurice. 1978. "Effect of Methionine on Copper-Induced Growth Depression and Gizzard Erosion." *Poultry Science* Volume 57. Pages 1530-1532.

Keplinger, M.L., W.B. Deichman, and F. Sala. 1968. Effects of pesticides on reproduction in mice. Ind. Med. Surg. 37:525.

Khera, K.S., and Tabacova, S.A. 1973. Effects of Methylmercuric Chloride on the Progeny of Mice and Rats Treated Before or During Gestation. *Food and Cosmetics Toxicology*. Volume 11, Number 2. Pages 245-254.

Knupp, D.M., R.B. Owen, Jr., and J.B. Dimond. 1977. Reproductive biology of the American Robin in northern Maine. Auk 94:80-85.

Lamb, J.C., R.E. Chapin, J. Teague, A.D. Lawton, and J.R. Reel. 1987. Reproductive effects of four phthalic acid esters in the mouse. *Toxicology and Applied Pharmacology 88*:255-269.

Lewis, R.J. 1996. Sax's Dangerous Properite of Industrial Mterial. 9th Ed. Volumes 1-3. Van Nostrand Reinhold. New York, NY.

MacKenzie, R.D., R.U. Byerrum, C.F. Decker, C.A. Hoppert, and R.F. Langham. 1958. Chronic toxicity studies, II. Hexavalent and trivalent chromium administered in drinking water to rats. *Am. Med. Assoc. Arch. Ind. Health*. 18: 232-234.

Matuk, Y., M. Ghosh, and C. McCulloch. 1981. Distribution of silver in the eyes and plasma proteins of the albino rat. *Canadian Journal of Ophthalmology* 16:145-150.

MBA. *See* Microbiological Associates.

Mendenhall, V.M., E.E. Klaas, and M.A.R. McLane. 1983. Breeding success of barn owls (Tyto alba) fed low levels of DDE and dieldrin. *Arch. Environ. Contam. Toxicol.* 12: 235-240.

Microbiological Associates. 1986. Subchronic toxicity of methyl isobutyl ketone in Sprague-Dawley rats. Study No. 5221.0. Preliminary report to Research Triangle Institute, Research Triangle Park, NC.

Nagy, K.A. 1987. Field metabolic rate and food requirement scaling in mammals and birds. *Ecol. Monogr. 57*:111--128

Naishtein, S.Y. and D.L. Leibovich. 1971. "Effect of Small Doses of DDT and Lindane and Their Mixture on Sexual Function and Embryogenesis in Rats." *Hyg. Sanit.* Volume 36. Pages 190-195.

Narotsky, M.G., E.A. Weller, V.M. Chinchilli, R.J. Kavlock. 1995. "Nonadditive Developmental Toxicity in Mixtures of Trichloroethylene, Di-2-ethylhexyl Phthalate, and Heptachlor in a 5 x 5 x 5 Design." *Fundamental and Applied Toxicology*. Volume 27. Pages 203-216.

Nawrot, P.S., and R.E. Staples. 1979. Embryofetal toxicity and teratogenicity of benzene and toluene in the mouse. *Teratology 19*:41a.

National Coffee Association. 1982. 24-month chronic toxicity and oncogenicity study of methylene chloride in rats. Final Report. Hazelton Laboratiores, Inc. Vienna VA.

NCA. *See* National Coffee Association.

Neal, J and R H. Rigdon. 1967. "Gastric Tumors in Mice Fed Benzo(a)pyrene: A Quantitative Study." *Texas Reports on Biology and Medicine*. Volume 13, Number 4. Pages 553-557; Volume 25, Number 4, Pages 553-557; Volume 25, Number 4. Pages 553-557.

NTP. *See* National Toxicology Program

National Toxicology Program. 1985. Twenty-six week subchronic study and modified mating trial in F344 rats. Butyl benzyl phthalate. Final Report. Project No. 12307-02, -03. Hazelton Laboratories America, Inc. Unpublished study. Cited in U S. EPA IRIS for oral reference dose.

Norvell, M.J., D.A. Gable and M.C. Thomas. 1975. Effects of feeding high levels of various copper salts to broiler chickens. University of Missouri, Environmental Trace Substance Center and Extension division. Proceedings of University of Missouri" 9th annual conference on Trace substances in Environmental Health. Memorial Union, University of Missouri-Columbia, Columbia, Missouri. Pages: 457-463.

Pascoe, G.A., R.J. Blanchet, and G. Linder. 1996. Food Chain Analysis of Exposures and Risks to Wildlife at a Metals-Contaminated Wetland. Archives of Environmental Contamination and Toxicology. 30:306-318.

Paul, V., E. Balasubramaniam, S. Sheela, and M.S. Krishnamoorthy. 1992. "Effects of Endosulfan and Aldrin on Muscle Coordination and Conditioned Avoidance Response in Rats." *Pharmacology and Toxicology*. Volume 71. Pages 254-257.

Peakall, D.B. 1974. Effects of di-n-butylphthalate and di-2-ethylhexylphthalate on the eggs of ring doves. *Bulletin of Environmental Contamination and Toxicology* 12:698-702.

Platonow, N.S. and B.L. Reinhart. 1973. The Effect of Polychlorinated Biphenyls Aroclor1254 on Chicken Egg Production Fertility and Hatchability. *Canadian Journal of Comparative Medicine*. 37:341-346.

Pocino, M., L. Baute and I. Malave. 1991. Influence of the oral administration of excess copper on the immune response. *Fundamental and Applied Toxicology*. 16:249-256

Richardson, M.E. and M.R. Spivey Fox. 1974. "Dietary Cadmium and Enteropathy in the Japanese Quail." *Laboratory Investigation*. Volume 31, Number 6. Pages 722-731.

Roest, A.I. 1957. Notes on the American sparrow hawk. Auk. 74(1):1-19.

Sallabanks, R. and F.C. James. 1999. American Robin (Turdus migratorius). In The Birds of North America, No. 462 (A.Poole and F. Gill, eds.) The Birds of North America, Inc. Philadelphia, PA.

Sample, B., D. Opresko, and G. Suter, II. 1996. Toxicological benchmarks for wildlife: 1996 Revision. Prepared for U S. Department of Energy by Environmental Sciences Division, Oak Ridge National Laboratory. Oak Ridge, TN. ES/ER/TM-86/R3

Sample, B.E., J. Beauchamp, R.A. Efroymson, G.W. Suter II, and T.L. Ashwood. 1998a. Development and Validation of Bioaccumulation Models for Earthworms. ES/ER/TM-220. Prepared for U S. Department of Energy Office of Environmental Management by Lockheed Martin Energy Systems, Inc.

Sample, B E., J. Beauchamp, R A. Efroymson, and G.W. Suter II 1998b. Development and Validation of Bioaccumulation Models for Small Mammals. ES/ER/TM-219. Prepared for U S Department of Energy Office of Environmental Management by Lockheed Martin Energy Systems, Inc.

Schafer, E.W., Jr., W.A. Bowles, Jr., and J. Hurlbut. 1983. The acute oral toxicity, repellency, and hazard potential of 998 chemicals to one or more species of wild and domestic birds. *Archives of Environmental Contamination and Toxicology*. 12: 355-382.

Schlicker, S.A. and D.H. Cox. 1968. Maternal dietary zinc, and development and zinc, iron, and copper content of the rat fetus J. Nutr. 95:287-294.

Schroeder, H.A., M. Kanisawa, D.V. Frost, and M. Mitchener. 1968. Germanium, Tin, and Arsenic in Rats: Effects on Growth, Survival, Pathological Lesions and Life Span. *Journal of Nutrition* 96:37-45.

Schroeder, H.A., and M. Mitchner. 1971. Toxic effects of trace elements on the reproduction of mice and rats. *Archives of Environmental Health* 23:102-106.

Shain, S.A., J.C. Shaeffer, and R.W. Boesel 1977. "The Effect of Chronic Ingestion of Selected Pesticides Upon Rat Ventral Prostate Homeostasis" *Toxicology and Applied Pharmacology*. Volume 40. Pages 115-130.

Shtenberg, A.J. and A.D. Ignat'ev. 1970. Toxicological evaluation of some combinations of food preservatives. *Food Cosmet. Toxicol.* 8(4): 369-380.

Simmons, G.J. and M.J. McKee. 1992 Alkoxyresorufin metabolism in white-footed mice at reevant environmental concentraions fo Aroclor 1254. *Fundamental and Applied Toxicology*. 19:446-452.

Sircar, S and P. Lahiri. 1989. "Lindane (gama-HCH) Causes Reproductive Failure and Fetotoxicity in Mice." *Toxicology*. Volume 59. Pages 171-177.

Smith, M.K., E.L. George, J.A. Stober, H.A. Feng, and G.L. Kimmel. 1993. Perinatal Toxicity associated with nickel chloride exposure. Environmental Research. Vol. 61:200-211.

Southworth, G.R., J.J. Beauchamp, and P.K. Schmieder. 1978. Bioaccumulation potential of polycyclic aromatic hydrocarbons in *Daphnia pulex*. *Water Research* *12*:973–977.

Stanley, T.R., Jr., J.W. Spann, G.J.Smith, R. Rosscoe. 1994. Main and Interactive Effects of Arsenic and Selenium on Mallard Reproduction and Duckling Growth and Survival. *Archives of Environmental Contamination and Toxicology*. 26:444-451.

Stickel, L.F., W.H. Stickel, R.A. Dyrland, and D.L. Hughes. 1983. Oxychlordane, HCS-3260, and nonachlor in birds: lethal residues and loss rates. *J. Toxicol. Environ. Health*. 12: 611-622.

Storer, T.I., F.C. Evans and F.G. Palmer. 1944. Some rodent populations in the Sierra Nevada of California. Ecol. Monogr. 14(2):166-192.

Tewe, O.O. and J.H. Maner. 1981 Long-term and carry-over effect of dietary inorganic cyanide (KCN) in the life cycle performance and metabolism of rats. *Toxicol. Appl. Pharmacol.* 58: 1-7.

Tomlinson, R.E., H.M. Wight, and T.S. Baskett. 1960. Migratonal homing, local movement, and mortality of mouring doves in Missouri. Trans. North Am. Wildl. and Nat Resour. Conf.: 25:253-267.

Travis, C., and A. Arms. 1988. Bioconcentration of organics in beef, milk, and vegetation. *Environ. Sci. Technol. Vol. 22*, No. 3.

Treon, J.F. and F.P. Cleveland. 1955. Toxicity of certain chlorinated hydrocarbon insecticides for laboratory animals, with special reference to aldrin and dieldrin. *Ag. Food Chem.* 3: 402-408.

United States Environmental Protection Agency. 1986. *90-day Gavage Study in Albino Rats Using Acetone.* U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC.

———. 1993. *Wildlife Exposure Factors Handbook.* Volume 1. EPA/600/R-93/187a. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC

———. 1997. Aquatic Toxicity Information Retrieval Database (AQUIRE). Office of Research and Development, National Health and Environmental Effects Research Laboratory, Mid-Continent Ecology Division. January. (as cited in U.S. EPA 1999).

———. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Office of Solid Waste and Emergency Response. EPA530/D-99/001A. August.

U.S. EPA. *See* U.S. Environmental Protection Agency.

Van Velsen, F.L., L.H.J.C. Danse, F.X.R. Van Leeuwen, J.A.M.A. Dormans, and M.J. Van Logten. 1986. The subchronic oral toxicity of the beta-isomer of hexachlorocyclohexane in rats. Fund. Appl. Toxicol. 6: 697-712.

Vos, J.G., H.L. Van Der Maas, A. Musch, and E. Ram. 1971. Toxicity of hexachlorobenzene in Japanese quail with special reference to porphyria, liver damage, reproduction, and tissue residues. *Toxicol. Appl. Pharmacol.* 18: 944-957.

Weatherhead, P.J. and S.B. McRae. 1990. Brood care in American robins: implications for mixed reproductive strategies by females. Animal Behavior 39: 1179-1188.

Webster, W.S. 1988. Chronic Cadmium Exposure During Pregnancy in the Mouse: Influence of Exposure Levels on the Fetal and Maternal Uptake. *Journal of Toxicology and Environmental health.* 24:183-192.

Wheelwright, N.T. 1986. The diet of American robins: an analysis of U.S. Biological Survey records. Auk 103: 710-725

Wiemeyer, S.N., E.F. Hill, J.W. Carpenter, and A.J. Krynitsky. 1986. Acute Oral Toxicity of Sodium Cyanide in Birds. *Journal of Wildlife Diseases.* 22:538-546

Wise, A. 1981. "Protective Action of Calcium Phytate Against Acute Lead Toxicity in Mice." *Bulletin of Environmental Contamination & Toxicology.* Volume 27. Pages 630-633

Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White (eds.). 1990. California's Wildlife, Volume II: Birds. State of California, Department of Fish and Game. Sacramento, California

RESPONSE TO COMMENTS
DRAFT TECHNICAL MEMORANDUM,
EXTENDED SITE INVESTIGATION IR SITE 10, POND NOS. 2 AND 3
NAVAL AIR FACILITY, EL CENTRO

Originator: Isaac Hirbawi, Project Manager Office of Military Facilities Department of Toxic Substances Control **To:** NAF El Centro **Date:** September 10, 2001	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0208/0167** **File Code: 0232**
COMMENTS **COMMENT 1:** **Section D6 – Lead Screening, Page D9.** Organolead was not identified as a chemical of concern (COC) in this report. Previous sampling at Pond 1 showed organolead concentrations of about 0.2 to 0.25 mg/kg which is 38 times higher than the level of potential concern for human health based on the residential PRG of 0.0065 mg/kg. Was an evaluation for the presence of organolead performed? Please clarify the reason for omitting organolead as a COC for Ponds 2 and 3.	***RESPONSES*** **RESPONSE 1:** Organolead was not identified as a COPC for Pond Nos. 2 and 3 because as stated in the first paragraph of Section D2.2 (Background Concentrations) on page D-8, none of the organolead results were above background. As the introductory paragraph of Section D2 (Selection of Chemicals of Potential Concern) indicates, chemicals with maximum concentrations below background are not included as COPCs. Organolead was not identified in any of the 10 samples analyzed for that constituent as part of the Extended Site Investigation (ESI). The ESI results are consistent with those reported for 14 samples collected from Pond Nos. 1 through 3 in 1997 as part of the data gaps study (BNI 1998). They are also generally consistent with the results reported for 12 samples collected from Pond Nos. 2 and 3 during the hydrogeologic assessment of Site 10 (Ogden 1992). Organolead was reported in two of those 12 samples, but as indicated in Tables D-2 and D-3 (pages D-5 and D-7 respectively), the 0.28 and 0.21 mg/kg concentrations were below the range of concentrations (0.42 to 0.67 mg/kg) reported for NAF El Centro background sample locations (BNI 1998).
COMMENT 2: **Section 3, Study Boundaries, Page 3-1.** This section states that the vertical extent of the investigation at Ponds 2 and 3 encompassed the upper 6 inches of soil? Please expand this paragraph to explain why only surface samples were taken	**RESPONSE 2:** The text of Section 3.4 (Study Boundaries) will be revised as follows. "The horizontal extent of the investigation encompassed Pond Nos. 2 and 3 within the bermed area. The vertical extent of the study is limited to the upper 6 inches of soil within the study site. Sampling was confined to the upper half-foot of soil because only limited data on surface soil conditions were collected during previous investigations and site-specific COPCs were expected to be most prevalent in shallow soil adjacent to the point of release at each sample location (i.e., wastewater/soil interface).
COMMENT 3: **Section 5.1.1, Risk Screening, Residential Land Use, Pond 2, Page 5-1.** The first paragraph states that the cancer risk due to background concentrations of cadmium and hexavalent chromium was estimated at $9x10^{-8}$ and $5x10^{-7}$ respectively. How were these background numbers derived?	**RESPONSE 3:** The $9x10^{-8}$ and $5x10^{-7}$ values do not represent the cancer risk due to background concentrations of cadmium and hexavalent chromium, respectively. Rather, these values represent the sum of the carcinogenic risks due to the background concentrations of metals, based on U.S. EPA Region 9 and California-modified residential PRGs, respectively.

Originator: Isaac Hirbawi, Project Manager Office of Military Facilities Department of Toxic Substances Control **To:** NAF El Centro **Date:** September 10, 2001	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0208/0167** **File Code: 0232**
	The $9x10^{-8}$ value represents the sum of the cancer risks (based on U.S. EPA PRGs) attributed to the background concentrations of cadmium and total chromium. By definition for the PRGs, hexavalent chromium (a carcinogen) is assumed to represent a part of the total chromium concentration in a ratio of 1:6 hexavalent versus trivalent chromium). From the entire suite of metals analyzed, cadmium and chromium were the only metals classified as carcinogens by U.S. EPA that were reported at concentrations above background in Pond No. 2 soil samples. Similarly, the $5x10^{-7}$ value represents the sum of the cancer risks (based on California-modified PRG values) attributed to the background concentrations of cadmium, chromium, and nickel (California classifies nickel as a carcinogen while U.S. EPA does not). The sentence which this comment addresses (second to last sentence of the first paragraph in Section 5.1.1) has been revised to present this information more clearly. The revised text will also reference Table D-5 in Appendix D, which summarizes the total, background, and incremental risks for each analyte, each class of analytes (i.e., metals, organics), and the combined risks from all classes at Pond No. 2. The procedure for deriving background cancer risk is discussed in Section D3 (Risk Screening Procedure) of Appendix D. Statistically-based background concentrations for many metals in soil at NAF El Centro were established as part of the data gaps study (BNI 1998). As indicated in the response to Comment No. 1, only those metals with reported sample concentrations exceeding their established background values were classified as COPCs for Pond Nos. 2 and 3 (see Tables D-2 and D-3 in Appendix D). For Pond No. 2, only cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, and zinc met that criterion. Of this metals subset, only cadmium and total chromium have carcinogenic U.S. EPA PRG values and only cadmium, total chromium, and nickel have carcinogenic California-modified PRG values. The total chromium cancer risk is attributed to the assumed hexavalent chromium fraction of the total chromium concentration as described above.

Originator: Isaac Hirbawi, Project Manager Office of Military Facilities Department of Toxic Substances Control **To:** NAF El Centro **Date:** September 10, 2001	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0208/0167** **File Code: 0232**
	Using the U.S. EPA residential PRGs as an example, the cancer risk due to background is calculated as follows. The background concentration of 2.2 mg/kg established for cadmium at NAF El Centro is divided by the corresponding U.S. EPA residential soil PRG of 1,400 mg/kg. The resulting ratio (.0016) is then multiplied by $1x10^{-6}$ to obtain the cancer risk estimate of $1.6x10^{-9}$ for background cadmium. For total chromium, the background concentration of 19 mg/kg is divided by the residential PRG of 210 mg/kg. The resulting ratio (0.0905) is multiplied by $1x10^{-6}$, yielding a cancer risk estimate of $9.05x10^{-8}$ that is attributed to the assumed hexavalent chromium fraction of the total chromium concentration. The cancer risk due to background is the sum of these two risk estimate values ($9.21x10^{-8}$), which when rounded becomes the $9x10^{-8}$ value cited in this comment.
COMMENT 4: **Section 5.1.1, Risk Screening, Residential Land Use, Pond 2, Page 5-1.** The second paragraph states that the maximum reported concentration for cadmium of 22 mg/kg was collected at sample location EC10-S32 at 0.5 feet. Table 4-2 has the maximum concentration of Cadmium listed under EC10-S29. Please correct this discrepancy.	**RESPONSE 4:** Table 4-2 has been revised to make it consistent with the data in Table 4-1 and the text of Section 5.1.1 on page 5-1, which indicate that the maximum cadmium concentration of 22 mg/kg was reported at sample location EC10-S32.
COMMENT 5: **Section 6, Conclusion and Recommendations, Page 6-1.** DTSC does not concur with the reports recommendation of "No further action" for both ponds. For Pond 2, the incremental cancer risk is $3x10^{-5}$ using the California-modified PRGs and the hazard index is 2. Therefore, further action is recommended for Pond 2. DTSC does concur with the NFA recommendation for Pond 3. The report does not indicate the future use of this area. Currently the area is not being used and a removal action is proposed for Pond 1. Therefore, DTSC recommends that Pond 2 surface soil removal action be performed in conjunction with Pond 1.	**RESPONSE 5:** Cancer and noncancer (hazard index) risk estimates based on U.S. EPA industrial PRGs, derived by conservatively using the maximum concentrations reported for each COPC, were $3x10^{-6}$ and 0.1, respectively. In accordance with DQO decision rules presented in Section 3 of the draft Technical Memorandum, the recommendation for Pond No. 2 has been revised to specify closure of the pond with no further action (NFA) beyond land use restrictions for industrial redevelopment only and transfer of the property from the IR Program. Although the cancer risk estimate of $3x10^{-6}$ is slightly above the industrial PRG threshold of $1x10^{-6}$, the DON risk estimate is still considered to satisfy the DQO for NFA closure with land use restrictions for industrial redevelopment only because using the maximum reported COPC

Originator: Isaac Hirbawi, Project Manager Office of Military Facilities Department of Toxic Substances Control **To:** NAF El Centro **Date:** September 10, 2001	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0208/0167** **File Code: 0232**
	concentrations may significantly overestimate the actual risk. Contaminant concentrations site wide are much lower than the maximum reported value. For example, using U.S. EPA industrial soil PRGs, 36 percent of the total cancer risk at Pond No. 2 was attributed to dieldrin, reported at a maximum concentration of 0.14 mg/kg. Dieldrin was only identified in four of the eight samples analyzed for pesticides and excluding the maximum concentration identified above, the remaining reported concentrations ranged from 0.006 to 0.036 mg/kg. Because the maximum reported concentration is approximately 4 times greater than the next highest reported concentration, it is clear that the risk estimated for dieldrin is a substantial overestimate. Since similar concentration distribution patterns apply to the other analytes identified as risk drivers for soil at Pond No. 2 under the industrial scenario, a risk estimate that more closely reflects overall concentration patterns would be much lower. The text of Sections 1 and 6 has also been revised to include information pertaining to future land use. That information, presented in Section 1.2 (Investigation Objective) of the draft Field Sampling Plan (BNI 2000), indicated that NAF El Centro wanted to regain use of the northern ponds (Nos. 2 and 3) for temporary wastewater storage or sludge drying. However, before the ponds could be returned to industrial use, it was necessary to have them closed and transferred out of the IR Program.

References:

Bechtel National, Inc. 1998. Final Data Gaps Study Report, Naval Air Facility, El Centro, California. March.

——— 2000. Draft Field Sampling Plan for Extended Site Investigation at IR Site 10, Pond Nos. 2 and 3, Naval Air Facility El Centro, California. October.

Ogden Environmental Energy Services. 1992. Final Hydrogeologic Assessment Report (HAR), Site 10 Sewage Stabilization Ponds, Volumes I and II, Engineering Services for Installation Restoration Studies, Naval Air Facility El Centro, California. May.

RESPONSE TO COMMENTS
DRAFT TECHNICAL MEMORANDUM,
EXTENDED SITE INVESTIGATION IR SITE 10, POND NOS. 2 AND 3
NAVAL AIR FACILITY, EL CENTRO

Originator: Marie T. McCrink, RG, CH Site Mitigation Branch, Geologic Services Unit, Department of Toxic Substances Control **To:** NAF El Centro **Date:** September 7, 2001	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0208/0167** **File Code: 0232**
COMMENTS **COMMENT 1:** **Figure 2-1 – Soil Sampling Locations.** One symbol is used to *indicate soil sample locations with samples <= 1ft.* The GSU found this symbol and its notation confusing. We suggest that the notation also indicate that these are the samples from the most recent soil samples collected during this extended SI. The other soil sample location notation clearly indicated that those samples were from previous investigations.	***RESPONSES*** **RESPONSE 1:** Figure 2-1 has been revised as suggested. The revised notation is as follows. Surface Soil Sample Locations EC10 – (S24 through S33) Extended Site Investigation (BNI 2001)
COMMENT 2: **Section 4 – Summary of Results.** This section summarizes the analytical results from the soil sampling conducted as part of this investigation. The GSU recommends that the summary of results also include a statement about the total number of soil samples collected, how many samples were collected from each pond, and a brief description of how the locations were chosen.	**RESPONSE 2:** A new paragraph (below) has been added to Section 4 providing the information requested in this comment. "A total of 10 surface soil (0 to 1 feet bgs) samples were collected during the ESI; five samples each from Pond Nos. 2 and 3. The sample locations within each pond were selected using a judgmental approach. The locations provide data for the area where the wastewater inlet pipe entered each pond, low areas (depressions) in each pond where COPCs would be expected to accumulate, and the areas in each pond where shallow soil had not been sampled previously."
COMMENT 3: **Section 6 – Conclusions and Recommendations.** The GSU finds that the additional characterization conducted in this extended SI is adequate to evaluate the question posed in the Data Quality Objectives, Step 2 – "Does surface soil contamination in Pond Nos. 2 and 3 pose an unacceptable risk to human health?"	**RESPONSE 3:** Comment noted.