



October 10, 1991

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NSWC PANAMA CITY
5090.3a

Commanding Officer
ATTN: Ken Barnes, Code 18225
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Charleston SC 29411-0068

SUBJECT: QA Data Report No. III
RCRA Facility Investigation (RFI),
Naval Coastal Systems Center (NCSC), Panama City, Fl
Navy CLEAN District I
Contract N62467-89-D-0317

Dear Ken:

Enclosed is a copy of the Quality Assurance (QA) Data Report No. III for RFI at NCSC Panama City, Fl. The Data Report includes the laboratory case narrative, ABB-ES data validation summary report, and copies of validated data sheets.

As per discussions (4 October 1991 meeting at ABB-ES) with the ABB-ES Quality Assurance officer, the data validation has been performed assuming the samples have not been preserved. Thus, some samples have been coded as 'estimated' based on the holding time criteria.

It should be noted that holding time criteria (due to preservation) will not apply for data evaluation because the preservative was added to the sample bottles, by the laboratory, before being shipped to the site. This information is documented in the field log maintained by ABB-ES and the bottle order form submitted by the analytical laboratory.

If you have any questions, comments, or suggestions regarding the contents or the format of the report, please call me at 904-656-1293. We look forward to working with you on the completion of this project.

Very truly yours,

ABB ENVIRONMENTAL SERVICES INC.


Rao V.R. Angara
Task Order Manager

cc: Peggy Layne, ABB-ES
J. McVoy, ABB-ES

ABB Environmental Services, Inc.

Case Narrative: SDG# T1013 Organics Data Package
Client: ABB Environmental Services, Inc.
Laboratory: Savannah Laboratories & Environmental Services, Inc.,
Tallahassee Division
Date: August 30, 1991

All analyses were performed by NEESA level C, using SW846 methods. The data package is divided into six fractions, each of which is discussed separately. A sample list containing EPA sample numbers, lab sample ID's, complete sample descriptions, dates sampled, dates received, and analyses requested is included following the case narrative. Reporting forms for GC volatiles and semivolatiles were adapted from existing CLP forms.

GC Volatiles by 8010/8020

1. There was no response for 2-chloroethylvinyl ether on any of the initial or continuing GC calibration standards. The manufacturer states on the package insert that the concentration of this compound in the standard is not guaranteed and that it may or may not be present. This compound has a history of responding intermittently. Therefore, all samples are flagged with the qualifiers "U" and "S" for 2-chloroethylvinyl ether, indicating that it was undetected and that there was no standard response.
2. Cis-1,3-dichloropropene was slightly out of the lower calibration control limit on all three continuing calibration standards. MTBE was slightly out of the upper limit on one of the standards and chloromethane was slightly high twice. The samples had no positive results for these compounds.

GC Volatiles by 8015

1. One compound, MEK, was slightly out of the upper calibration control limit on one of two continuing calibration standards. The only samples analyzed following this standard were the matrix spikes, which contained no MEK.

GC/MS Volatiles by 8240

No analysis or quality problems occurred.

GC Pesticides/PCB's by 8080

1. In three of seven continuing calibration standards, DDT was slightly out of the upper calibration control limit on both channels. Two other compounds were slightly high on one of seven standards.

GC Semivolatiles by 8100

No analysis or quality problems occurred.

GC/MS Semivolatiles by 8270

No analysis or quality problems occurred.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures(s).

Elizabeth L. Schneider 8/30/91
Elizabeth L. Schneider
QA Manager

Thomas L. Stephens
Thomas L. Stephens
Laboratory Director

ANALYTICAL SUMMARY FOR DATA VALIDATION*

**Panama City SDG #: T1013
METALS/INORGANICS**

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. All hold times have been met. Samples were not shipped to the laboratory from the field site within the contractually required 24 hours of sampling.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. No indication of sample preservation before shipment to laboratory.
2. Water samples are to be preserved with acid and the pH should be less than 2 pH units. Preservatives for soil samples are not required.

III. DILUTIONS

1. No dilutions were noted.

IV. METHOD BLANKS - FIELD BLANKS - EQUIPMENT RINSE

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. The analytical blank indicated the presence of iron. The concentration was less than the reporting detection limit.

2. Field Blanks were not submitted in this data package.

V. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration is still valid.

1. Initial Calibration:
All calibrations were within acceptable ranges.
2. Continuing Calibration:
All calibrations were within acceptable ranges.
3. The Lead correlation coefficient was less than .995

VI. ICP INTERFERENCE CHECK SAMPLE

Objective: To verify the interference and background correction factors.

Samples were analyzed within specified time and within Quality Control limits.

VII. LABORATORY CONTROL SAMPLE

Objective: To monitor of the overall performance of all steps in the analytical process, including the sample preparation.

The Laboratory Control Samples were within QC limits.

VIII. DUPLICATE SAMPLE ANALYSIS

Objective: To indicate the precision based on each sample matrix.

Duplicate responses measured by the Relative Percentage Difference were out of Quality Control limits for lead and zinc. Data flagging was not required.

IX. MATRIX SPIKE (MS) AND BLANK SPIKE (BS) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

1. Spike Recovery (%R) for Antimony was less than 75%. The results were less than the CRDL and therefore results were not flagged.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Lab Sample Number	175201		175202		175204	
QC Designation						
ABB-ES Sample Number	PCY-14-S9-XP2-XXX-01-XX		PCY-14-S9-XP3-XXX-01-XX		PCY-14-S9-XE2-XXX-01-XX	
X,Y Location						
Date Sampled	6/26/91		6/26/91		6/26/91	
Date Analyzed						
Units	Mg/Kg		Mg/Kg		Mg/Kg	
Compound (6010)						
ALUMINIUM	2520		1600		844	
ANTIMONY	5.4	UJ	6.4	UJ	6.5	UJ
BARIUM	1.1	U	1.2	U	1.3	U
ARSENIC	1.8	B	3.2	B	1.3	U
BERYLLIUM	0.54	U	0.64	U	0.65	U
CADMIUM	0.54	U	0.64	U	0.65	U
CALCIUM	219	B	583	B	83.7	B
CHROMIUM	2.1		3.2		1.3	U
COBALT	1.1	U	1.3	U	1.3	U
COPPER	2.7	U	3.2	U	3.2	U
IRON	1810		1450		657	
LEAD	3.4	J	17	J	3.2	J
MAGNESIUM	93	B	168	B	64.8	U
MANGANESE	4.8		6.8		3.4	
MERCURY	0.01	U	0.04		0.01	U
NICKEL	4.3	U	5	U	5.2	U
POTASSIUM	109	U	128	U	130	B
SELENIUM	0.55	U	0.59	U	0.64	U
SILVER	1.1	U	1.3	U	1.3	U
SODIUM	54.2	U	63.7	U	64.8	U
THALLIUM	1.1	U	1.2	U	1.3	U
VANADIUM	3.4	B	2.7	B	1.3	U
ZINC	3.7	J	15.3	J	3.4	J
TIN	5.4	U	6.4	U	6.5	U

Lab Sample Number	175205		175203		Preparation Blank
QC Designation					Laboratory Blank
ABB-ES Sample Number	PCY-14-SS-XE2-XXX-01-XD		PCY-14-SS-XE3-XXX-01-XX		
X,Y Location					
Date Sampled	6/26/91		6/26/91		
Date Analyzed					
Units	Mg/Kg		Mg/Kg		Mg/Kg
Compound (6010)					
ALUMINUM	1340		1700		40 U
ANTIMONY	8.5	UJ	5.5	UJ	10 U
BARIUM	1.2	U	1.2	U	2 U
ARSENIC	1.7	B	1.9	B	2 U
BERYLLIUM	0.65	U	0.55	U	1 U
CADMIUM	0.65	U	0.55	U	1 U
CALCIUM	218	B	108	B	100 U
CHROMIUM	1.6		1.6		2 U
COBALT	1.3	U	1.1	U	2 U
COPPER	3.2	U	2.7	U	6 U
IRON	1090		1160		11 B
LEAD	14.8	J	2.2	J	0.6 J
MAGNESIUM	80.9	B	92	B	100 U
MANGANESE	5.3		5.5		2 U
MERCURY	0.01	U	0.01	U	0.01 U
NICKEL	5.2	U	4.4	U	8 U
POTASSIUM	130	U	110	U	200 U
SELENIUM	0.62	U	0.6	U	1 U
SILVER	1.3	U	1.1	U	2 U
SODIUM	64.8	U	54.7	U	100 U
THALLIUM	1.2	U	1.2	U	2 U
VANADIUM	1.7	B	2.2	B	2 U
ZINC	7.8	J	2.2	UJ	4 UJ
TIN	6.5	U	5.5	U	10 U

Lab Sample Number	17524S		17524DS		175203D
QC Designation	Matrix Spike		Matrix Spike Duplicate		Laboratory Duplicate
ABB-ES Sample Number	PCY-14-SS-XE2-XXX-01-XX		PCY-14-SS-XE2-XXX-01-XX		PCY-14-SS-XE3-XXX-01-XX
X,Y Location					
Date Sampled	6/26/91		6/26/91		6/26/91
Date Analyzed					
Units	Mg/Kg		Mg/Kg		Mg/Kg
Compound (6010)					
ALUMINIUM	1150		1130		1703.9
ANTIMONY	50		42.9		5.4 U
BARIUM	5.7		5.5		1.2 U
ARSENIC	262		264		2.0 B
BERYLLIUM	6.2		6.3		0.54 U
CADMIUM	6.3		6.4		0.54 U
CALCIUM	95.5	B	84.5	B	109 B
CHROMIUM	27		27.3		1.8
COBALT	66		66.4		1.1 U
COPPER	30.8		31.1		2.74 U
IRON	782		779		1172
LEAD	6.2		6.3		1.7
MAGNESIUM	64.8	U	64.8	U	91.5 B
MANGANESE	69.3		70		5.5
MERCURY	0.05		0.06		0.0095 U
NICKEL	64.9		66		4.38 U
POTASSIUM	130	U	130	U	109.6 U
SELENIUM	1.1		1.2		0.6 U
SILVER	7		7.2		1.1 U
SODIUM	64.8	U	64.8	U	54.83 U
THALLIUM	6.4		6.3		1.2 U
VANADIUM	65.5		66.5		2.3 B
ZINC	67.5		68.4		2.2
TIN	6.5	U	6.5	U	5.4 U

ANALYTICAL SUMMARY FOR DATA VALIDATION *

PANAMA CITY SDG #: T1013

EPA 8010/ 8020 - ORGANICS

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. Samples were shipped to the laboratory from the field site within the contractually required 24 hours of sampling.
2. Samples were analyzed within holding times.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. The Chain of Custody did not indicate the addition of preservatives.
2. Samples were analyzed within 7 days of sampling.

III. METHOD BLANKS - TRIP BLANKS - EQUIPMENT BLANK

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. The equipment blanks for this sample set were not submitted and analyzed.
2. Trip Blanks were within acceptable limits. The trip blank indicated no contamination occurred during sample shipment.
3. Laboratory Blanks analyzed on July 3, 1991, indicated the presence of methylene chloride and toluene. However those levels were below the minimum reporting limits.

IV. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration are still valid.

1. Initial Calibration

Criteria: All %RSD must be less than or equal to 20%.

- a. Compounds that exceeded limits were: 1,1,1-Trichloroethane, Carbon Tetrachloride, Bromodichloromethane, 2-Chloroethylvinylether, Dibromomethane, 1,1,1,2-Tetrachloroethane, 1,2,3-Trichloropropane, and Bromobenzene. All associated quantitative results were considered estimates.

2. Continuing Calibration-Not Applicable

Criteria: All PERCENTAGE must be less than 15%.

- a. Compounds that exceeded limits were: Cis-1,3-Dichloropropene, Chloromethane, and 1,2-Dichloroethene (total). All associated quantitative results were considered estimates.

V. SURROGATE

Objective: To determine the effects of sample matrix analytical performance and the laboratories spiking activities. All samples were spiked with surrogate compounds.

1. Surrogate recoveries for Bromochloromethane, 1,1,1-Trifluorotoluene, and Fluorobenzene, for both 8010 and 8020 methods, were within acceptable limits.

VI. DUPLICATE SAMPLE ANALYSIS

Objective: To indicate the precision based on each sample matrix.

1. The Relative Percentage Difference QC limit were not exceed on samples

VII. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD) AND BLANK SPIKE (BS)/ BLANK SPIKE DUPLICATE (BSD) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

The Relative Percentage Difference of the MSD sample was within acceptable limits.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Lab Sample Number	175201		175202		175204	
QC Designation						
ABB-ES Sample Number	PCY-14-88-XF2-XXX-01-XX		PCY-14-88-XF3-XXX-01-XX		PCY-14-88-XE2-XXX-01-XX	
X,Y Location						
Date Sampled	6/28/91		6/28/91		6/26/91	
Date Analyzed	7/3/91		7/3/91		7/3/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8010 & 8020)						
CHLOROMETHANE	5	U	5	U	5	U
BROMOMETHANE	5	U	5	U	5	U
VINYL CHLORIDE	5	U	5	U	5	U
CHLOROETHANE	5	U	5	U	5	U
METHYLENE CHLORIDE	5	U	5	U	5	U
TRICHLOROFLUROMETHANE	5	U	5	U	5	U
1,1-DICHLOROETHENE	5	U	5	U	5	U
1,1-DICHLOROETHANE	5	U	5	U	5	U
1,2-DICHLOROETHENE	5	U	5	U	5	U
CHLOROFORM	5	U	5	U	5	U
1,2-DICHLOROETHANE	5	U	5	U	5	U
1,1,1-TRICHLOROETHANE	5	U	5	U	5	U
CARBON TETRACHLORIDE	5	U	5	U	5	U
BROMODICHLOROMETHANE	5	U	5	U	5	U
1,2-DICHLOROPROPANE	5	U	5	U	5	U
CIS-1,3-DICHLOROPROPENE	5	U	5	U	5	U
TRICHLOROETHENE	5	U	5	U	5	U
DIBROMOCHLOROMETHANE	5	U	5	U	5	U
1,1,2-TRICHLOROETHANE	5	U	5	U	5	U
2-CHLOROETHYL VINYLETHER	53	UJ	53	UJ	52	UJ
TRANS-1,3-DICHLOROPROPEN	5	U	5	U	5	U
BROMOFORM	27	U	27	U	26	U
TETRACHLOROETHENE	5	U	5	U	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	5	U	5	U
DIBROMOMETHANE	27	U	27	U	26	U
1,1,1,2-TETRACHLOROETHANE	5	U	5	U	5	U
1,2,3-TRICHLOROPROPANE	5	U	5	U	5	U
1-CHLOROHEXANE	5	U	5	U	5	U
BROMOBENZENE	5	U	5	U	5	U
CHLOROTOLUENE	5	U	5	U	5	U
BENZENE	5	U	5	U	5	U
TOLUENE	5	U	5	U	5	U
CHLOROBENZENE	5	U	5	U	5	U
ETHYLBENZENE	5	U	5	U	5	U
XYLENE (TOTAL)	5	U	5	U	5	U
1,3-DICHLOROENZENE	5	U	5	U	5	U
1,2-DICHLOROENZENE	5	U	5	U	5	U
1,4-DICHLOROENZENE	5	U	5	U	5	U

Lab Sample Number	175205		175203		175208	
QC Designation					Trip Blank	
ABB-ES Sample Number	PCY-14-88-XE2-XXX-01-XD		PCY-14-88-XE3-XXX-01-XX			
X,Y Location						
Date Sampled	6/28/91		6/28/91		6/28/91	
Date Analyzed	7/3/91		7/3/91		7/2/91	
Units	ug/Kg		ug/Kg		ug/L	
COMPOUND (8010 & 8020)						
CHLOROMETHANE	5	U	5	U	1	U
BROMOMETHANE	5	U	5	U	1	U
VINYL CHLORIDE	5	U	5	U	1	U
CHLOROETHANE	5	U	5	U	1	U
METHYLENE CHLORIDE	5	U	5	U	1	U
TRICHLOROFLUROMETHANE	5	U	5	U	1	U
1,1-DICHLOROETHENE	5	U	5	U	1	U
1,1-DICHLOROETHANE	5	U	5	U	1	U
1,2-DICHLOROETHENE	5	U	5	U	1	U
CHLOROFORM	5	U	5	U	1	U
1,2-DICHLOROETHANE	5	U	5	U	1	U
1,1,1-TRICHLOROETHANE	5	U	5	U	1	U
CARBON TETRACHLORIDE	5	U	5	U	1	U
BROMODICHLOROMETHANE	5	U	5	U	1	U
1,2-DICHLOROPROPANE	5	U	5	U	1	U
CIS-1,3-DICHLOROPROPENE	5	U	5	U	1	U
TRICHLOROETHENE	5	U	5	U	1	U
DIBROMOCHLOROMETHANE	5	U	5	U	1	U
1,1,2-TRICHLOROETHANE	5	U	5	U	1	U
2-CHLOROETHYLVINYLETHER	53	UJ	53	UJ	10	U
TRANS-1,3-DICHLOROPROPEN	5	U	5	U	1	U
BROMOFORM	27	U	27	U	5	U
TETRACHLOROETHENE	5	U	5	U	1	U
1,1,2,2-TETRACHLOROETHANE	5	U	5	U	1	U
DIBROMOMETHANE	27	U	27	U	5	U
1,1,1,2-TETRACHLOROETHANE	5	U	5	U	1	U
1,2,3-TRICHLOROPROPANE	5	U	5	U	1	U
1-CHLOROHEXANE	5	U	5	U	1	U
BROMOBENZENE	5	U	5	U	1	U
CHLOROTOLUENE	5	U	5	U	1	U
BENZENE	5	U	5	U	1	U
TOLUENE	1	UJ	5	U	1	U
CHLOROBENZENE	5	U	5	U	1	U
ETHYLBENZENE	5	U	5	U	1	U
XYLENE (TOTAL)	5	U	5	U	1	U
1,3-DICHLOROBENZENE	5	U	5	U	1	U
1,2-DICHLOROBENZENE	5	U	5	U	1	U
1,4-DICHLOROBENZENE	5	U	5	U	1	U

Lab Sample Number	VBLKW1A	VBLKW2A	VBLKS1A	VBLKW1AMS
QC Designation	Laboratory Blank	Laboratory Blank	Laboratory Blank	Blank Spike
ABB-ES Sample Number				
X,Y Location				
Date Sampled				
Date Analyzed	7/1/91	7/1/91	7/3/91	7/1/91
Units	ug/L	ug/L	ug/Kg	ug/L
COMPOUND (8010 & 8020)				
CHLOROMETHANE	1 U	1 U	5 U	1 U
BROMOMETHANE	1 U	1 U	5 U	1 U
VINYL CHLORIDE	1 U	1 U	5 U	1 U
CHLOROETHANE	1 U	1 U	5 U	1 U
METHYLENE CHLORIDE	1 U	1 U	5 U	1 U
TRICHLOROFLUROMETHANE	1 U	1 U	5 U	1 U
1,1-DICHLOROETHENE	1 U	1 U	5 U	
1,1-DICHLOROETHANE	1 U	1 U	5 U	1 U
1,2-DICHLOROETHENE	1 U	1 U	5 U	1 U
CHLOROFORM	1 U	1 U	5 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	5 U	1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	5 U	1 U
CARBON TETRACHLORIDE	1 U	1 U	5 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	5 U	1 U
1,2-DICHLOROPROPANE	1 U	1 U	5 U	1 U
CIS-1,3-DICHLOROPROPENE	1 U	1 U	5 U	1 U
TRICHLOROETHENE	1 U	1 U	5 U	
DIBROMOCHLOROMETHANE	1 U	1 U	5 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	5 U	1 U
2-CHLOROETHYLVINYLETHER	10 UJ	10 UJ	50 UJ	10 UJ
TRANS-1,3-DICHLOROPROPEN	1 U	1 U	5 U	1 U
BROMOFORM	5 U	5 U	25 U	5 U
TETRACHLOROETHENE	1 U	1 U	5 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	5 U	1 U
DIBROMOMETHANE	5 U	5 U	25 U	5 U
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	5 U	1 U
1,2,3-TRICHLOROPROPANE	1 U	1 U	5 U	1 U
1-CHLOROHEXANE	1 U	1 U	5 U	1 U
BROMOBENZENE	1 U	1 U	5 U	1 U
CHLOROTOLUENE	1 U	1 U	5 U	1 U
BENZENE	1 U	1 U	5 U	
TOLUENE	1 U	1 U	0.3 J	
CHLOROBENZENE	1 U	1 U	5 U	
ETHYLBENZENE	1 U	1 U	5 U	1 U
XYLENE (TOTAL)	1 U	1 U	5 U	1 U
1,3-DICHLOROBENZENE	1 U	1 U	5 U	1 U
1,2-DICHLOROBENZENE	1 U	1 U	5 U	1 U
1,4-DICHLOROBENZENE	1 U	1 U	5 U	1 U

Lab Sample Number	VBLKW1AMSD	175204MS	175204MSD
QC Designation	Blank Spike Duplicate	Matrix Spike	Matrix Spike Duplicate
ABB-ES Sample Number		PCY-14-88-XE2-XXX-01-XX	PCY-14-88-XE2-XXX-01-XX
X,Y Location			
Date Sampled			
Date Analyzed	7/1/91	7/3/91	7/3/91
Units	ug/L	ug/Kg	ug/Kg
COMPOUND (8010 & 8020)			
CHLOROMETHANE	1 U	5 U	5 U
BROMOMETHANE	1 U	5 U	5 U
VINYL CHLORIDE	1 U	5 U	5 U
CHLOROETHANE	1 U	5 U	5 U
METHYLENE CHLORIDE	1 U	5 U	5 U
TRICHLOROFLUROMETHANE	1 U	5 U	5 U
1,1-DICHLOROETHENE			
1,1-DICHLOROETHANE	1 U	5 U	5 U
1,2-DICHLOROETHENE	1 U	5 U	5 U
CHLOROFORM	1 U	5 U	5 U
1,2-DICHLOROETHANE	1 U	5 U	5 U
1,1,1-TRICHLOROETHANE	1 U	5 U	5 U
CARBON TETRACHLORIDE	1 U	5 U	5 U
BROMODICHLOROMETHANE	1 U	5 U	5 U
1,2-DICHLOROPROPANE	1 U	5 U	5 U
CIS-1,3-DICHLOROPROPENE	1 U	5 U	5 U
TRICHLOROETHENE			
DIBROMOCHLOROMETHANE	1 U	5 U	5 U
1,1,2-TRICHLOROETHANE	1 U	5 U	5 U
2-CHLOROETHYL VINYLETHER	10 U	52 UJ	52 UJ
TRANS-1,3-DICHLOROPROPEN	1 U	5 U	5 U
BROMOFORM	5 U	28 U	28 U
TETRACHLOROETHENE	1 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	1 U	5 U	5 U
DIBROMOMETHANE	5 U	28 U	28 U
1,1,1,2-TETRACHLOROETHANE	1 U	5 U	5 U
1,2,3-TRICHLOROPROPANE	1 U	5 U	5 U
1-CHLOROHEXANE	1 U	5 U	5 U
BROMOBENZENE	1 U	5 U	5 U
CHLOROTOLUENE	1 U	5 U	5 U
BENZENE			
TOLUENE			
CHLOROENZENE			
ETHYLBENZENE	1 U	5 U	5 U
XYLENE (TOTAL)	1 U	5 U	5 U
1,3-DICHLOROENZENE	1 U	5 U	5 U
1,2-DICHLOROENZENE	1 U	5 U	5 U
1,4-DICHLOROENZENE	1 U	5 U	5 U

ANALYTICAL SUMMARY FOR DATA VALIDATION *

PANAMA CITY SDG #: T1013

EPA 8015 - ORGANICS

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. Samples were shipped to the laboratory from the field site within the contractually required 24 hours of sampling.
2. The hold times for unpreserved non-halogenated aromatic volatiles are 7 days. If preserved with HCL and stored at 4 °C, a 14 day hold time applies.
3. Samples (175201, 175208, 175202, 175204, 175205, 175203), were not analyzed within the 7 day hold time for unpreserved samples.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. The Chain of Custody did not indicate the addition of preservatives.

III. METHOD BLANKS / TRIP BLANKS / EQUIPMENT BLANK

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. The equipment blanks for this sample set were not submitted and analyzed.
2. Trip Blanks were within acceptable limits. The trip blank indicated no contamination occurred during sample shipment.
3. Laboratory Blanks analyzed on July 2, 1991, indicated the presence of 4-Methyl-2-pentanone (MIBK). However those levels were below the minimum reporting limits.

IV. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration is still valid.

1. Initial Calibration:
 - a. For all sample reviewed, the relative percent difference was exceeded for Ethanol, Diethyl Ether, 2-Butanone (MEK). Consequently, all quantitative results were estimated.
2. Continuing Calibration:
 - a. MEK exceeded continuing calibration limits. All associated quantitative results were considered estimated.

V. SURROGATE

Objective: To determine the effects of sample matrix analytical performance and the laboratories spiking activities. All samples are spiked with surrogate compounds.

1. Surrogate recoveries were within QC limits.

VI. DUPLICATE SAMPLE ANALYSIS

Objective: To indicate the precision based on each sample matrix.

1. The Relative Percentage Difference QC limit were exceed on samples

VII. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD) AND BLANK SPIKE (BS)/ BLANK SPIKE DUPLICATE (BSD) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

The MS and MSD percent recoveries of Diethyl ether and 4-Methyl-2-pentanone exceeded acceptable limits.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Lab Sample Number	175201	175202	175204
QC Designation			
ABB-ES Sample Number	PGY-14-88-XF2-XXX-01-XX	PGY-14-88-XF3-XXX-01-XX	PGY-14-88-XE2-XXX-01-XX
X,Y Location			
Date Sampled	6/26/91	6/26/91	6/26/91
Date Analyzed	7/8/91	7/8/91	7/9/91
Units	ug/Kg	ug/Kg	ug/Kg
COMPOUND (8015)			
ETHANOL	5300 U	5300 U	5200 U
DIETHYL ETHER	530 U	530 U	520 U
2-BUTANONE	53 U	53 U	52 U
4-METHYL-2-PENTANONE	530 U	530 U	520 U

Lab Sample Number	175205		175203		175208	
QC Designation					Trip Blank	
ABB-ES Sample Number	PCY-14-88-XE2-XXX-01-XD		PCY-14-88-XE3-XXX-01-XX			
X,Y Location						
Date Sampled	6/26/91		6/26/91		6/26/91	
Date Analyzed	7/9/91		7/8/91		7/2/91	
Units	ug/Kg		ug/Kg		ug/L	
COMPOUND (8015)						
ETHANOL	5200	U	5300	U	1000	U
DIETHYL ETHER	520	U	530	U	100	U
2-BUTANONE	52	U	53	U	10	U
4-METHYL-2-PENTANONE	520	U	530	U	100	U

Lab Sample Number	VBLKW1	VBLKW2	VBLKS1
QC Designation	Laboratory Blank	Laboratory Blank	Laboratory Blank
ABB-ES Sample Number			
X,Y Location			
Date Sampled			
Date Analyzed	7/2/91	7/8/91	7/8/91
Units	ug/L	ug/L	ug/Kg
COMPOUND (8015)			
ETHANOL	1000 U	1000 U	5000 U
DIETHYL ETHER	100 U	100 U	500 U
2-BUTANONE	10 U	10 U	50 U
4-METHYL-2-PENTANONE	1 UJ	100 U	500 U

Lab Sample Number	VBLKS2	VBLKS3	VBLKW1MS
QC Designation	Laboratory Blank	Laboratory Blank	Blank Spike
ABB-ES Sample Number			
X,Y Location			
Date Sampled			
Date Analyzed	7/1/91	7/10/91	7/2/91
Units	ug/Kg	ug/Kg	ug/L
COMPOUND (8015)			
ETHANOL	5000 U	5000 U	1000 U
DIETHYL ETHER	500 U	500 U	
2-BUTANONE	50 U	50 U	10 U
4-METHYL-2-PENTANONE	500 U	500 U	

Lab Sample Number	VBLKW1AMSD	VBLKS2MS	VBLKS2MSD	175204MS
QC Designation	Blank Spike Duplicate	Blank Spike	Blank Spike Duplicate	Matrix Spike
ABB-ES Sample Number				PCY-14-68-XE2-XXX-01-XX
X,Y Location				
Date Sampled				
Date Analyzed	7/3/91	7/9/91	7/9/91	7/10/91
Units	ug/L	ug/Kg	ug/Kg	ug/Kg
COMPOUND (8015)				
ETHANOL	1000 U	5000 U	5000 U	5200 U
DIETHYL ETHER				
2-BUTANONE	10 U	50 U	50 U	52 U
4-METHYL-2-PENTANONE				

Lab Sample Number	175204MSD
QC Designation	Matrix Spike Duplicate
ABB-ES Sample Number	PCY-14-88-XE2-XXX-01-XX
X,Y Location	
Date Sampled	
Date Analyzed	7/10/91
Units	ug/Kg
COMPOUND (8015)	

ETHANOL	5200	U
DIETHYL ETHER		
2-BUTANONE	52	U
4-METHYL-2-PENTANONE		

ANALYTICAL SUMMARY FOR DATA VALIDATION*

Panama City#: T1013
Pesticides/PCBs--ORGANICS
EPA 8080

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. The extraction hold time criteria for water pesticides/PCBs are 7 days from sampling and 14 days for soil samples. Extraction hold times are within 40 days to analysis.

2. The chain of custody did not indicate the addition of preservatives.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. The Chain of Custody did not indicate the addition of preservatives as related to the presence of free or combined chlorine.

III. METHOD BLANKS - FIELD BLANKS - RINSATE BLANKS

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. Field QC samples were not submitted for pesticide analysis.

IV. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration is still valid.

1. Initial Calibration:

All calibrations were within acceptable ranges.

2. Continuing Calibration:

a. 4,4' DDT, Endosulfan II, and Methoxychlor exceeded upper control limits of 15% D. All associated positive samples are considered estimated. All calibrations were within acceptable ranges.

V. SURROGATE

Objective: To determine the effects of sample matrix analytical performance and the laboratories spiking activities. All samples are spiked with surrogate compounds.

VI. DUPLICATE SAMPLE ANALYSIS

Objective: To indicate the precision based on each sample matrix.

All relative percent percent recoveries were within limits.

VII. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD) AND BLANK SPIKE (BS)/ BLANK SPIKE DUPLICATE (BSD) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

All Matrix Spikes recoveries and Matrix Spikes Duplicate recoveries were within acceptable ranges.

VIII. COMMENTS:

This data set is considered estimated due to sample extraction criteria.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Lab Sample Number	175201		175202		175204	
QC Designation						
ABB-ES Sample Number	PCY-14-S8-XF2-XXX-01-XX		PCY-14-S8-XF3-XXX-01-XX		PCY-14-S8-XE2-XXX-01-XX	
X,Y Location						
Date Sampled	6/26/91		6/26/91		6/26/91	
Date Analyzed	8/18/91		8/18/91		8/19/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8080)						
ALPHA-BHC	20	U	20	U	39	U
BETA-BHC	20	U	20	U	39	U
DELTA-BHC	9.7	UJ	20	U	6.1	UJ
GAMMA-BHC	20	U	20	U	39	U
HEPTACHLOR	20	U	61		18	UJ
ALDRIN	20	U	20	U	39	U
HEPTACHLOR EPOXIDE	41	U	2.4	UJ	3.9	UJ
ENDOSULFAN I	41	U	41	U	78	U
DIELDRIN	41	U	41		150	
4,4'-DDE	41	U	41	U	78	U
ENDRIN	41	U	41	U	78	U
ENDOSULFAN II	100	U	100	U	190	U
4,4'-DDD	41	U	41	U	78	U
ENDOSULFAN SULFATE	160	U	160	U	310	U
4,4'-DDT	100	U	100	U	180	U
METHOXYCHLOR	810	U	810	U	1600	U
ENDRIN KETONE	160	U	160	U	310	U
ALPHA-CHLORDANE	200	U	27		52	
GAMMA-CHLORDANE	200	U	78		72	
TOXAPHENE	1600	U	1600	U	3100	U
AROCLOR-1016	810	U	810	U	1600	U
AROCLOR-1221	810	U	810	U	1600	U
AROCLOR-1232	810	U	810	U	1600	U
AROCLOR-1242	810	U	810	U	1600	U
AROCLOR-1248	810	U	810	U	1600	U
AROCLOR-1254	810	U	810	U	1600	U
AROCLOR-1260	810	U	810	U	1600	U

Lab Sample Number	175205		175203		PBLKS	
QC Designation	Duplicate				Laboratory Blank	
ABB-ES Sample Number	PCY-14-S8-XE2-XXX-01-XD		PCY-14-S8-XE3-XXX-01-XX			
X,Y Location						
Date Sampled	6/28/91		6/28/91			
Date Analyzed	7/3/91		8/18/91		8/17/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8080)						
ALPHA-BHC	20	U	4	U	2	U
BETA-BHC	20	U	4	U	2	U
DELTA-BHC	20	U	1.8	UJ	2	U
GAMMA-BHC	20	U	4	U	2	U
HEPTACHLOR	4.9	UJ	4	U	2	U
ALDRIN	20	U	4	U	2	U
HEPTACHLOR EPOXIDE	9.1	UJ	8	U	4	U
ENDOSULFAN I	41	U	8	U	4	U
DIELDRIN	45		8	U	4	U
4,4'-DDE	41	U	8	U	4	U
ENDRIN	41	U	8	U	4	U
ENDOSULFAN II	100	U	20	U	10	U
4,4'-DDD	41	U	8	U	4	U
ENDOSULFAN SULFATE	180	U	32	U	16	U
4,4'-DDT	100	U	20	U	10	U
METHOXYCHLOR	800	U	160	U	80	U
ENDRIN KETONE	160	U	32	U	16	U
ALPHA-CHLORDANE	16	UJ	4	U	2	U
GAMMA-CHLORDANE	23		4	U	2	U
TOXAPHENE	1600	U	320	U	160	U
AROCLOR-1016	800	U	160	U	80	U
AROCLOR-1221	800	U	160	U	80	U
AROCLOR-1232	800	U	160	U	80	U
AROCLOR-1242	800	U	160	U	80	U
AROCLOR-1248	800	U	160	U	80	U
AROCLOR-1254	800	U	160	U	80	U
AROCLOR-1260	800	U	160	U	80	U

Lab Sample Number	PBLKSMS	PBLKSMSD	175204MS	175204MSD
QC Designation	Blank Spike	Blank Spike Duplicate	Matrix Spike	Matrix Spike Duplicate
ABB-ES Sample Number			PCY-14-88-XE2-XXX-01-	PCY-14-88-XE2-XXX-01-XX
X,Y Location				
Date Sampled				
Date Analyzed	8/18/91	8/18/91	8/19/91	8/19/91
Units	ug/L	ug/L	ug/Kg	ug/Kg
COMPOUND (8080)				
ALPHA-BHC	30 U	30 U	39 U	39 U
BETA-BHC	30 U	30 U	39 U	39 U
DELTA-BHC	30 U	30 U	39 U	39 U
GAMMA-BHC				
HEPTACHLOR				
ALDRIN				
HEPTACHLOR EPOXIDE	60 U	60 U	3.5 UJ	3.3 UJ
ENDOSULFAN I	60 U	60 U	78 U	78 U
DIELDRIN				
4,4'-DDE	60 U	60 U	78 U	78 U
ENDRIN				
ENDOSULFAN II	150 U	150 U	190 U	190 U
4,4'-DDD	60 U	60 U	78 U	78 U
ENDOSULFAN SULFATE	240 U	240 U	310 U	310 U
4,4'-DDT				
METHOXYCHLOR	1200 U	1200 U	1600 U	1600 U
ENDRIN KETONE	240 U	240 U	310 U	310 U
ALPHA-CHLORDANE	30 U	30 U	46	42
GAMMA-CHLORDANE	30 U	30 U	63	57
TOXAPHENE	2400 U	2400 U	3100 U	3100 U
AROCLOR-1016	1200 U	1200 U	1600 U	1600 U
AROCLOR-1221	1200 U	1200 U	1600 U	1600 U
AROCLOR-1232	1200 U	1200 U	1600 U	1600 U
AROCLOR-1242	1200 U	1200 U	1600 U	1600 U
AROCLOR-1248	1200 U	1200 U	1600 U	1600 U
AROCLOR-1254	1200 U	1200 U	1600 U	1600 U
AROCLOR-1280	1200 U	1200 U	1600 U	1600 U

ANALYTICAL SUMMARY FOR DATA VALIDATION *

PANAMA CITY SDG #: 19013
ORGANICS - PNA
EPA 8100

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. All hold times have been met. Samples were shipped to the laboratory from the field site within the contractually required 24 hours of sampling.
2. All samples were extracted within the required 14 day hold time. Samples were analyzed within the required 40 days after extraction.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. The Chain of Custody did not indicate the addition of preservatives.

III. METHOD BLANKS - EQUIPMENT BLANK

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. No samples were qualified nor exceeded quality control limits.
2. Equipment blanks were not submitted with this SDG.

IV. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration is still valid.

1. Initial Calibration:
All calibrations were within acceptable ranges.
2. Continuing Calibration:
All calibrations were within acceptable ranges.

V. SURROGATE

Objective: To determine the effects of sample matrix analytical performance and the laboratories spiking activities. All samples are spiked with surrogate compounds.

1. The acceptance criteria for 2-Fluorobiphenyl on SOIL samples using continuous extraction procedure was 30 to 130 percent.
2. All samples were within acceptable surrogate limits.

VII. DUPLICATE SAMPLE ANALYSIS

Objective: To indicate the precision based on each sample matrix.

1. The Relative Percentage Difference QC limit were exceed on samples

VIII. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD) AND BLANK SPIKE (BS) / BLANK SPIKE DUPLICATE (BSD) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

1. The soil Relative Percentage Differences were within acceptable limits.

X. COMMENTS:

The method used cannot adequately resolve the following four pairs of compounds: anthracene and phenanthrene; chrysene and benzo (a) anthracene; benzo (b) fluoranthene and benzo (k) fluoranthene; and dibenzo (a,h) anthracene and indeno (1,2,3-cd) pyrene. These compounds are considered to be estimates due to inconclusive quantitations of one compound and or the other detected.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Lab Sample Number	175201		175202		175204	
QC Designation						
ABB-ES Sample Number	PCY-14-SS-XF2-XXX-01-XX		PCY-14-SS-XF3-XXX-01-XX		PCY-14-SS-XE2-XXX-01-XX	
X,Y Location						
Date Sampled	6/26/91		6/26/91		6/26/91	
Date Analyzed	7/30/91		7/30/91		7/30/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8100)						
NAPHTHALENE	200	U	200	U	190	U
2-METHYLNAPHTHALENE	200	U	200	U	190	U
1-METHYLNAPHTHALENE	200	U	200	U	190	U
ACENAPHTHYLENE	200	U	200	U	190	U
ACENAPHTHENE	200	U	200	U	190	U
FLUORENE	200	U	200	U	190	U
PHENANTHRENE	200	U	200	U	670	U
ANTHRACENE	200	U	200	U	190	U
FLUORANTHENE	200	U	200	U	700	U
PYRENE	200	U	200	U	580	
BENZO(a)ANTHRACENE	200	U	200	U	470	J
CHRYSENE	200	U	200	U	470	J
BENZO(b)FLUROANTHENE	200	U	200	U	400	J
BENZO(k)FLUROANTHENE	200	U	200	U	400	J
BENZO(A)PYRENE	200	U	200	U	230	
IDENO(1,2,3-cd)PYRENE	200	U	200	U	100	UJ
DIBENZO(a,h)ANTHRACENE	200	U	200	U	100	UJ
BENZO(ghi)PERYLENE	200	U	200	U	80	J

Lab Sample Number	175205	175203	SBLKS
QC Designation			Laboratory Blank
ABB-ES Sample Number	PCY-14-S8-XE2-XXX-01-XD	PCY-14-S8-XE3-XXX-01-XX	
X,Y Location			
Date Sampled	6/28/91	6/28/91	
Date Analyzed	7/30/91	7/30/91	7/29/91
Units	ug/Kg	ug/Kg	ug/L
COMPOUND (8100)			
NAPHTHALENE	200 U	200 U	200 U
2-METHYLNAPHTHALENE	200 U	200 U	200 U
1-METHYLNAPHTHALENE	200 U	200 U	200 U
ACENAPHTHYLENE	200 U	200 U	200 U
ACENAPHTHENE	200 U	200 U	200 U
FLUORENE	200 U	200 U	200 U
PHENANTHRENE	200 U	200 U	200 U
ANTHRACENE	200 U	200 U	200 U
FLUORANTHENE	200 U	200 U	200 U
PYRENE	200 U	200 U	200 U
BENZO(a)ANTHRACENE	200 U	200 U	200 U
CHRYSENE	200 U	200 U	200 U
BENZO(b)FLUROANTHENE	200 U	200 U	200 U
BENZO(k)FLUROANTHENE	200 U	200 U	200 U
BENZO(A)PYRENE	200 U	200 U	200 U
IDENO(1,2,3-cd)PYRENE	200 U	200 U	200 U
DIBENZO(a,h)ANTHRACENE	200 U	200 U	200 U
BENZO(ghi)PERYLENE	200 U	200 U	200 U

Lab Sample Number	175204MS	175204MSD
QC Designation	Matrix Spike	Matrix Spike Duplicate
ABB-ES Sample Number	PCY-14-88-XE2-XXX-01-XX	PCY-14-88-XE2-XXX-01-XX
X,Y Location		
Date Sampled	06/24/91	06/24/91
Date Analyzed	7/29/91	7/3/91
Units	ug/Kg	ug/Kg

COMPOUND (8100)

COMPOUND (8100)					
NAPHTHALENE					
2-METHYLNAPHTHALENE	190	U	190	U	
1-METHYLNAPHTHALENE	190	U	190	U	
ACENAPHTHYLENE	190	U	190	U	
ACENAPHTHENE					
FLUORENE					
PHENANTHRENE	280		300		
ANTHRACENE	290	U	190	U	
FLUORANTHENE	400		440		
PYRENE					
BENZO(a)ANTHRACENE	3700	J	4100	J	
CHRYSENE	3700	J	4100	J	
BENZO(b)FLUROANTHENE	220	J	250	J	
BENZO(k)FLUROANTHENE	220	J	250	J	
BENZO(A)PYRENE	190	U	190	U	
IDENO(1,2,3-cd)PYRENE	190	U	190	U	
DIBENZO(a,h)ANTHRACENE	190	U	190	U	
BENZO(ghi)PERYLENE	190	U	190	U	

ANALYTICAL SUMMARY FOR DATA VALIDATION

PANAMA CITY SDG #: T1013
EPA 8240 - VOLATILE ORGANICS

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. Samples not were shipped to the laboratory from the field site within the contractually required 24 hours of sampling.
2. The hold times for unpreserved volatiles are 7 days. Water samples have a 14 day hold time with the addition of HCL and sodium thiosulfate in the presence of residual chlorine.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. The Chain of Custody did not indicate the addition of preservatives.

III. METHOD BLANKS / TRIP BLANKS / EQUIPMENT BLANK

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. The Trip blank indicated no contamination occurred during sample transport. The results were less than the reporting limits.
2. The analytical blanks were less than the reporting limit.

IV. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration is still valid.

1. Initial Calibration:
All calibrations were within acceptable ranges.
2. Continuing Calibration:
All calibrations were within acceptable ranges.

V. GC/MS TUNE AND MASS CALIBRATION

Objective: To ensure mass resolution, identification and, to some degree, and sensitivity.

All criterion was met for volatiles.

VI. SURROGATE

Objective: To determine the effects of sample matrix analytical performance and the laboratories spiking activities. All samples are spiked with surrogate compounds.

1. Surrogate recoveries were within the required QC limits.

VII. DUPLICATE SAMPLE ANALYSIS

Objective: To indicate the precision based on each sample matrix.

1. The Relative Percentage Difference QC limit were not exceed.

VIII. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD) AND BLANK SPIKE (BS)/ BLANK SPIKE DUPLICATE (BSD) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

The Relative Percent Difference of the MSD sample was within acceptable limits.

X. INTERNAL standard (IS) AREA PERFORMANCE

Objective: To ensure that GC/MS sensitivity and response are stable during every run.

The volatile internal standard performance were within QC limits

XI. COMMENTS:

1. Tentatively Identified Compounds were not requested.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Sample Number	175201		175202		175204	
QC Designation						
ABB-ES Sample Number	PCY-14-S8-XP2-XXX-01-XX		PCY-14-S8-XP3-XXX-01-XX		PCY-14-S8-XE2-XXX-01-XX	
X,Y Location						
Date Sampled	6/28/91		6/28/91		6/28/91	
Date Analyzed	7/8/91		7/8/91		7/8/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8240)						
CHLOROMETHANE	11	U	11	U	10	U
BROMOMETHANE	11	U	11	U	10	U
VINYL CHLORIDE	11	U	11	U	10	U
CHLOROETHANE	11	U	11	U	10	U
METHYLENE CHLORIDE	5	U	5	U	5	U
ACETONE	11	U	11	U	10	U
CARBON DISULFIDE	5	U	5	U	5	U
1,1-DICHLOROETHENE	5	U	5	U	5	U
1,1-DICHLOROETHANE	5	U	5	U	5	U
1,2-DICHLOROETHENE	5	U	5	U	5	U
CHLOROFORM	5	U	5	U	5	U
1,2-DICHLOROETHANE	5	U	5	U	5	U
2-BUTANONE	11	U	11	U	10	U
1,1,1-TRICHLOROETHANE	5	U	5	U	5	U
CARBON TETRACHLORIDE	5	U	5	U	5	U
VINYL ACETATE	11	U	11	U	10	U
BROMODICHLOROMETHANE	5	U	5	U	5	U
1,2-DICHLOROPROPANE	5	U	5	U	5	U
CIS-1,3-DICHLOROPROPENE	5	U	5	U	5	U
TRICHLOROETHENE	5	U	5	U	5	U
DIBROMOCHLOROMETHANE	5	U	5	U	5	U
1,1,2-TRICHLOROETHANE	5	U	5	U	5	U
BENZENE	5	U	5	U	5	U
TRANS-1,3-DICHLOROPROPEN	5	U	5	U	5	U
BROMOFORM	5	U	5	U	5	U
4-METHYL-2-PENTANONE	11	U	11	U	10	U
2-HEXANONE	11	U	11	U	10	U
TETRACHLOROETHENE	5	U	5	U	5	U
1,1,1,2-TETRACHLOROETHANE	5	U	5	U	5	U
TOLUENE	3	UJ	4	UJ	5	U
CHLOROBENZENE	5	U	5	U	5	U
ETHYLBENZENE	5	U	5	U	5	U
STYRENE	5	U	5	U	5	U
XYLENE (TOTAL)	5	U	5	U	5	U

Sample Number	175205	175203	175208
QC Designation			Trip Blank
ABB-ES Sample Number	PCY-14-88-XE2-XXX-01-XD	PCY-14-88-XE3-XXX-01-XX	
X,Y Location			
Date Sampled	6/28/91	6/28/91	6/28/91
Date Analyzed	7/8/91	7/8/91	7/8/91
Units	ug/Kg	ug/Kg	ug/L
COMPOUND (8240)			
CHLOROMETHANE	10 U	11 U	10 U
BROMOMETHANE	10 U	11 U	10 U
VINYL CHLORIDE	10 U	11 U	10 U
CHLOROETHANE	10 U	11 U	10 U
METHYLENE CHLORIDE	5 U	5 U	5 U
ACETONE	10 U	11 U	10 U
CARBON DISULFIDE	5 U	5 U	5 U
1,1-DICHLOROETHENE	5 U	5 U	5 U
1,1-DICHLOROETHANE	5 U	5 U	5 U
1,2-DICHLOROETHENE	5 U	5 U	5 U
CHLOROFORM	5 U	5 U	5 U
1,2-DICHLOROETHANE	5 U	5 U	5 U
2-BUTANONE	10 U	11 U	10 U
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U
CARBON TETRACHLORIDE	5 U	5 U	5 U
VINYL ACETATE	10 U	11 U	10 U
BROMODICHLOROMETHANE	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	5 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U
TRICHLOROETHENE	5 U	5 U	5 U
DIBROMOCHLOROMETHANE	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U
BENZENE	5 U	5 U	5 U
TRANS-1,3-DICHLOROPROPEN	5 U	5 U	5 U
BROMOFORM	5 U	5 U	5 U
4-METHYL-2-PENTANONE	10 U	11 U	10 U
2-HEXANONE	10 U	11 U	10 U
TETRACHLOROETHENE	5 U	5 U	5 U
1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U
TOLUENE	5 U	5 U	5 U
CHLOROENZENE	5 U	5 U	5 U
ETHYLBENZENE	5 U	5 U	5 U
STYRENE	5 U	5 U	5 U
XYLENE (TOTAL)	5 U	5 U	5 U

Sample Number	VBLK-W1	VBLK-S1	175204MS	175204MSD
QC Designation	Laboratory Blank	Laboratory Blank	Matrix Spike	Matrix Spike Duplicate
ABB-ES Sample Number			PCY-14-88-XE2-XXX-01-XX	PCY-14-88-XE2-XXX-01-XX
X,Y Location				
Date Sampled			6/26/91	6/26/91
Date Analyzed	7/8/91	7/8/91	7/8/91	7/8/91
Units	ug/L	ug/Kg	ug/Kg	ug/Kg
COMPOUND (9240)				
CHLOROMETHANE	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U
ACETONE	10 U	10 U	10 U	10 U
CARBON DISULFIDE	5 U	5 U	5 U	5 U
1,1-DICHLOROETHENE	5 U	5 U		
1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U
1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U
CHLOROFORM	5 U	5 U	5 U	5 U
1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U
2-BUTANONE	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U
CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U
VINYL ACETATE	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U
TRICHLOROETHENE	5 U	5 U		
DIBROMOCHLOROMETHANE	5 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U
BENZENE	5 U	5 U		
TRANS-1,3-DICHLOROPROPEN	5 U	5 U	5 U	5 U
BROMOFORM	5 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	5 U	5 U	5 U	5 U
1,1,1,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U
TOLUENE	5 U	5 U		
CHLOROBENZENE	5 U	5 U		
ETHYLBENZENE	5 U	5 U	5 U	5 U
STYRENE	5 U	5 U	5 U	5 U
XYLENE (TOTAL)	5 U	5 U	5 U	5 U

ANALYTICAL SUMMARY FOR DATA VALIDATION*

PANAMA CITY SDG #: T1013
EPA 8270 - ORGANICS

I. HOLD TIMES

Objective: To ascertain the validity of results from sample collection to time of analysis as described in 40 CFR 136 (Clean Water Act) Volume 49, Number 209. Waters hold times will be applied to soil samples.

1. Samples not were shipped to the laboratory from the field site within the contractually required 24 hours of sampling.
2. The hold times for unpreserved semi-volatiles are 7 days for water and 14 days for soils to extractions and 40 day after to extraction. Sample analyzed in the data set were soils.

II. SAMPLE PRESERVATION

Objective: To minimize analyte degradation from the point of sampling to analysis with the addition of chemical preservatives and pH adjustments.

1. The Chain of Custody did not indicate the addition of preservatives. Water preservatives are required to be used for soils.

III. METHOD BLANKS / TRIP BLANKS / EQUIPMENT BLANK

Objective: To determine the existence and magnitude of contamination problems. The criterion for evaluating blanks applies to any blank associated with the samples.

1. The analytical blanks were less than the reporting limit.
 - a. Di-n-butylphthalate was found in the method blank and in the samples. Phthalates are common elasticizers which can be found in laboratory gloves. Sample results associated with this compound were below flagging limits.
2. Field QC blanks were not submitted in this data package.

IV. CALIBRATIONS

Objective: To ensure that the instruments are capable of producing acceptable quantitative data. Initial calibration demonstrates that the instruments are capable of acceptable of acceptable performance at the beginning of the analytical run, and continuing calibration verification documents that the initial calibration is still valid.

1. Initial Calibration:
All calibrations were within acceptable ranges.
2. Continuing Calibration:
All calibrations were within acceptable ranges.

V. GC/MS TUNE AND MASS CALIBRATION

Objective: To ensure mass resolution, identification and, to some degree, and sensitivity.

All soil semi-volatiles Tune and Mass Calibration criterion were within QC limits.

VI. SURROGATE

Objective: To determine the effects of sample matrix analytical performance and the laboratories spiking activities. All samples are spiked with surrogate compounds.

1. All soil semi-volatiles surrogate recoveries were within QC limits.

VII. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD) AND BLANK SPIKE (BS)/ BLANK SPIKE DUPLICATE (BSD) SAMPLE ANALYSES

Objective: To provide information on the effects of each sample matrix on the digestion and the applicability of the analytical method to the sample matrix. Blank spike provides information on the effects of the method and the reproducibility of the analyte irrespective of the matrix.

The MS/MSD recoveries were within QC limits.

VIII. INTERNAL standard (IS) AREA PERFORMANCE

Objective: To ensure that GC/MS sensitivity and response are stable during every run.

The semi-volatile internal standard performance were within QC limits

IX. COMMENTS:

1. Tentatively Identified Compounds were not requested.

* This data package was validated according to the "Quality Assurance in Environmental Analysis," Naval Energy and Environmental Support Activity, October 1990 and the "Assessment of RCRA Environmental Data Quality," Office of Solid Waste. Draft June 1988.

Sample Number	175201		175202		175204	
QC Designation						
ABB-ES Sample Number	PCY-14-S9-XF2-XXX-01-XX		PCY-14-S9-XF3-XXX-01-XX		PCY-14-S9-XE2-XXX-01-XX	
X,Y Location						
Date Sampled	6/26/91		6/26/91		6/26/91	
Data Analyzed	7/19/91		7/19/91		7/21/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8270)						
PHENOL	330	U	330	U	320	U
BIS(2-CHLOROETHYL)ETHER	330	U	330	U	320	U
2-CHLOROPHENOL	330	U	330	U	320	U
1,3-DICHLOROBENZENE	330	U	330	U	320	U
1,4-DICHLOROBENZENE	330	U	330	U	320	U
BENZYL ALCOHOL	330	U	330	U	320	U
1,2-DICHLOROBENZENE	330	U	330	U	320	U
2-METHYLPHENOL	330	U	330	U	320	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	330	U	320	U
4-METHYLPHENOL	330	U	330	U	320	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	330	U	320	U
HEXACHLOROETHANE	330	U	330	U	320	U
NITROBENZENE	330	U	330	U	320	U
ISOPHORONE	330	U	330	U	320	U
2-NITROPHENOL	330	U	330	U	320	U
2,4-DIMETHYLPHENOL	330	U	330	U	320	U
BENZOIC ACID	1700	U	1700	U	1600	U
BIS(2-CHLOROETHOXY)METHANE	330	U	330	U	320	U
2,4-DICHLOROPHENOL	330	U	330	U	320	U
1,2,4-TRICHLOROBENZENE	330	U	330	U	320	U
NAPHTHALENE	330	U	330	U	320	U
4-CHLOROANILINE	330	U	330	U	320	U
HEXACHLOROBUTADIENE	330	U	330	U	320	U
4-CHLORO-3-METHYLPHENOL	330	U	330	U	320	U
2-METHYLNAPHTHALENE	330	U	330	U	320	U
HEXACHLOROCYCLOPENTADIEN	330	U	330	U	320	U
2,4,6-TRICHLOROPHENOL	330	U	330	U	320	U
2,4,5-TRICHLOROPHENOL	1700	U	1700	U	1600	U
2-CHLORONAPHTHALENE	330	U	330	U	320	U
2-NITROANILINE	1700	U	1700	U	1600	U
DIMETHYLPHTHALATE	330	U	330	U	320	U
ACENAPHTHYLENE	330	U	330	U	320	U
2,6-DINITROTOLUENE	330	U	330	U	320	U
3-NITROANILINE	1700	U	1700	U	1600	U
ACENAPHTHENE	330	U	330	U	320	U
2,4-DINITROPHENOL	1700	U	1700	U	1600	U
4-NITROPHENOL	1700	U	1700	U	1600	U
DIBENZOFURAN	330	U	330	U	320	U
2,4-DINITROTOLUENE	330	U	330	U	320	U
DIETHYLPHTHALATE	330	U	330	J	320	U
4-CHLOROPHENYL-PHENYLETHE	330	U	330	U	320	U
FLUORENE	330	U	330	U	320	U
4-NITROANILINE	1700	U	1700	U	1600	U
4,6-DINITRO-2-METHYLPHENOL	1700	U	1700	U	1600	U
N-NITROSODIPHENYLAMINE (1)	330	U	330	U	320	U
4-BROMOPHENYL-PHENYLETHE	330	U	330	U	320	U
HEXACHLOROBENZENE	330	U	330	U	320	U
PENTACHLOROPHENOL	1700	U	1700	U	1600	U
PHENANTHRENE	330	U	20	UJ	100	UJ
ANTHRACENE	330	U	330	U	320	U
DI-N-BUTYLPHTHALATE	470	B	270	BJ	320	BJ
FLUORANTHENE	330	U	44	UJ	170	UJ
PYRENE	330	U	35	UJ	140	UJ

Sample Number	175201	175202	175204
QC Designation			
ABB-ES Sample Number	PCY-14-S9-XF2-XXX-01-XX	PCY-14-S9-XF3-XXX-01-XX	PCY-14-S9-XE2-XXX-01-XX
X,Y Location			
Date Sampled	6/26/91	6/26/91	6/26/91
Data Analyzed	7/19/91	7/19/91	7/21/91
Units	ug/Kg	ug/Kg	ug/Kg
COMPOUND (8270)			
BUTYLBENZYLPHthalate	330 U	330 U	320 U
3,3'-DICHlorobenzidine	670 U	670 U	650 U
BENZO(a)ANTHRACENE	330 U	330 U	78 UJ
CHRySENE	330 U	330 U	90 UJ
BIS(2-ETHYLHEXYL)PHthalate	330 U	15 UJ	28 UJ
DI-N-OCTYLPHthalate	330 U	330 U	320 U
BENZO(b)FLUORANTHENE	330 U	37 UJ	89 UJ
BENZO(k)FLUORANTHENE	330 U	20 UJ	78 UJ
BENZO(a)PYRENE	330 U	27 UJ	57 UJ
INDENO(1,2,3-cd)PYRENE	330 U	330 U	620 UJ
DIBENZ(a,h)ANTHRACENE	330 U	330 U	320 U
BENZO(g,h,i)PERYLENE	330 U	330 U	52 UJ

Sample Number	175205		175203		SBLK01	
QC Designation					Laboratory Blank	
ABB-ES Sample Number	PCY-14-S9-XE2-XXX-01-XD		PCY-14-S9-XE3-XXX-01-XX			
X,Y Location						
Date Sampled	8/26/91		8/26/91			
Data Analyzed	7/19/91		7/21/91		7/19/91	
Units	ug/Kg		ug/Kg		ug/Kg	
COMPOUND (8270)						
PHENOL	330	U	330	U	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	330	U	330	U
2-CHLOROPHENOL	330	U	330	U	330	U
1,3-DICHLOROBENZENE	330	U	330	U	330	U
1,4-DICHLOROBENZENE	330	U	330	U	330	U
BENZYL ALCOHOL	330	U	330	U	330	U
1,2-DICHLOROBENZENE	330	U	330	U	330	U
2-METHYLPHENOL	330	U	330	U	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	330	U	330	U
4-METHYLPHENOL	330	U	330	U	330	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	330	U	330	U
HEXACHLOROETHANE	330	U	330	U	330	U
NITROBENZENE	330	U	330	U	330	U
ISOPHORONE	330	U	330	U	330	U
2-NITROPHENOL	330	U	330	U	330	U
2,4-DIMETHYLPHENOL	330	U	330	U	330	U
BENZOIC ACID	1700	U	1700	U	1700	U
BIS(2-CHLOROETHOXY)METHANE	330	U	330	U	330	U
2,4-DICHLOROPHENOL	330	U	330	U	330	U
1,2,4-TRICHLOROBENZENE	330	U	330	U	330	U
NAPHTHALENE	330	U	330	U	330	U
4-CHLOROANILINE	330	U	330	U	330	U
HEXACHLOROBUTADIENE	330	U	330	U	330	U
4-CHLORO-3-METHYLPHENOL	330	U	330	U	330	U
2-METHYLNAPHTHALENE	330	U	330	U	330	U
HEXACHLOROCYCLOPENTADIEN	330	U	330	U	330	U
2,4,6-TRICHLOROPHENOL	330	U	330	U	330	U
2,4,5-TRICHLOROPHENOL	1700	U	1700	U	1700	U
2-CHLORONAPHTHALENE	330	U	330	U	330	U
2-NITROANILINE	1700	U	1700	U	1700	U
DIMETHYLPHTHALATE	330	U	330	U	330	U
ACENAPHTHYLENE	330	U	330	U	330	U
2,6-DINITROTOLUENE	330	U	330	U	330	U
3-NITROANILINE	1700	U	1700	U	1700	U
ACENAPHTHENE	330	U	330	U	330	U
2,4-DINITROPHENOL	1700	U	1700	U	1700	U
4-NITROPHENOL	1700	U	1700	U	1700	U
DIBENZOFURAN	330	U	330	U	330	U
2,4-DINITROTOLUENE	330	U	330	U	330	U
DIETHYLPHTHALATE	330	U	330	U	330	U
4-CHLOROPHENYL-PHENYLETHE	330	U	330	U	330	U
FLUORENE	330	U	330	U	330	U
4-NITROANILINE	1700	U	1700	U	1700	U
4,6-DINITRO-2-METHYLPHENOL	1700	U	1700	U	1700	U
N-NITROSODIPHENYLAMINE (1)	330	U	330	U	330	U
4-BROMOPHENYL-PHENYLETHE	330	U	330	U	330	U
HEXACHLOROBENZENE	330	U	330	U	330	U
PENTACHLOROPHENOL	1700	U	1700	U	1700	U
PHENANTHRENE	330	U	330	U	330	J
ANTHRACENE	330	U	330	U	330	U
DI-N-BUTYLPHTHALATE	180	BJ	340	B	200	UJ
FLUORANTHENE	18	UJ	330	U	330	U
PYRENE	13	UJ	330	U	330	U

Sample Number	175205	175203	SBLK01
QC Designation			Laboratory Blank
ABB-ES Sample Number	PCY-14-98-XE2-XXX-01-XD	PCY-14-98-XE3-XXX-01-XX	
X,Y Location			
Date Sampled	6/26/91	6/26/91	
Date Analyzed	7/19/91	7/21/91	7/19/91
Units	ug/Kg	ug/Kg	ug/Kg
COMPOUND (8270)			
BUTYLBENZYLPHthalate	330 U	330 U	330 U
3,3'-DICHlorobenzidine	660 U	670 U	670 U
BENZO(a)ANThracene	330 U	330 U	330 U
CHRYSENE	330 U	330 U	330 U
BIS(2-ETHYLHEXYL)PHthalate	330 U	12 UJ	330 U
DI-N-OCTYLPHthalate	330 U	31 UJ	330 U
BENZO(b)FLUORANTHENE	330 U	330 U	330 U
BENZO(k)FLUORANTHENE	330 U	330 U	330 U
BENZO(a)PYRENE	330 U	330 U	330 U
INDENO(1,2,3-cd)PYRENE	330 U	330 U	330 U
DIBENZ(a,h)ANThracene	330 U	330 U	330 U
BENZO(g,h,i)PERYLENE	330 U	330 U	330 U

Sample Number	175204MS		175204MSD	
QC Designation	Matrix Spike		Matrix Spike Duplicate	
ABB-ES Sample Number	PCY-14-S9-XE2-XXX-01-XX		PCY-14-S9-XE2-XXX-01-X	
X,Y Location				
Date Sampled	06/26/91		06/26/91	
Data Analyzed	7/20/91		7/20/91	
Units	ug/Kg		ug/Kg	
COMPOUND (8270)				
PHENOL				
BIS(2-CHLOROETHYL)ETHER	320	U	320	U
2-CHLOROPHENOL				
1,3-DICHLOROBENZENE	320	U	320	U
1,4-DICHLOROBENZENE				
BENZYL ALCOHOL	320	U	320	U
1,2-DICHLOROBENZENE	320	U	320	U
2-METHYLPHENOL	320	U	320	U
BIS(2-CHLOROISOPROPYL)ETHER	320	U	320	U
4-METHYLPHENOL	320	U	320	U
N-NITROSO-DI-N-PROPYLAMINE				
HEXACHLOROETHANE	320	U	320	U
NITROBENZENE	320	U	320	U
ISOPHORONE	320	U	320	U
2-NITROPHENOL	320	U	320	U
2,4-DIMETHYLPHENOL	320	U	320	U
BENZOIC ACID	1600	U	1600	U
BIS(2-CHLOROETHOXY)METHANE	320	U	320	U
2,4-DICHLOROPHENOL	320	U	320	U
1,2,4-TRICHLOROBENZENE				
NAPHTHALENE	320	U	320	U
4-CHLOROANILINE	320	U	320	U
HEXACHLOROBUTADIENE	320	U	320	U
4-CHLORO-3-METHYLPHENOL				
2-METHYLNAPHTHALENE	320	U	320	U
HEXACHLOROCYCLOPENTADIEN	320	U	320	U
2,4,6-TRICHLOROPHENOL	320	U	320	U
2,4,5-TRICHLOROPHENOL	1600	U	1600	U
2-CHLORONAPHTHALENE	320	U	320	U
2-NITROANILINE	1600	U	1600	U
DIMETHYLPHTHALATE	320	U	320	U
ACENAPHTHYLENE	320	U	320	U
2,6-DINITROTOLUENE	320	U	320	U
3-NITROANILINE	1600	U	1600	U
ACENAPHTHENE				
2,4-DINITROPHENOL	1600	U	1600	U
4-NITROPHENOL				
DIBENZOFURAN	320	U	320	U
2,4-DINITROTOLUENE				
DIETHYLPHTHALATE	320	U	320	U
4-CHLOROPHENYL-PHENYLETHE	320	U	320	U
FLUORENE	320	U	22	J
4-NITROANILINE	1600	U	1600	U
4,6-DINITRO-2-METHYLPHENOL	1600	U	1600	U
N-NITROSODIPHENYLAMINE (1)	320	U	320	U
4-BROMOPHENYL-PHENYLETHE	320	U	320	U
HEXACHLOROBENZENE	320	U	320	U
PENTACHLOROPHENOL				
PHENANTHRENE	120	UJ	310	UJ
ANTHRACENE	320	U	41	UJ
DI-N-BUTYLPHTHALATE	370	B	200	BJ
FLUORANTHENE	200	UJ	410	
PYRENE				

Sample Number	175204MS		175204MSD	
QC Designation	Matrix Spike		Matrix Spike Duplicate	
ABB-ES Sample Number	PCY-14-SS-XE2-XXX-01-XX		PCY-14-SS-XE2-XXX-01-X	
X,Y Location				
Date Sampled	06/26/91		06/26/91	
Date Analyzed	7/20/91		7/20/91	
Units	ug/Kg		ug/Kg	
COMPOUND (8270)				
BUTYLBENZYLPHthalate	14	UJ	320	U
3,3'-Dichlorobenzidine	650	U	650	U
BENZO(a)Anthracene	80	UJ	160	UJ
Chrysenes	93	UJ	180	UJ
BIS(2-ethylhexyl)phthalate	49	UJ	16	UJ
DI-N-octylphthalate	320	U	320	U
BENZO(b)fluoranthene	89	UJ	170	UJ
BENZO(k)fluoranthene	79	UJ	150	UJ
BENZO(a)pyrene	76	UJ	150	UJ
INDENO(1,2,3-cd)pyrene	56	UJ	110	UJ
DIBENZ(a,h)anthracene	320	U	320	U
BENZO(g,h,i)perylene	49	UJ	91	UJ