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NWS EARLE
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HALLIBURTON NUS
Environmental Corporation

INTERNAL CORRESPONDENCE

C-51-4-2-131

TO: RICHARD GORRELL **DATE:** MAY 1, 1992

FROM: ROY COHEN **COPIES:** D. A. SCHEIB

SUBJECT: ORGANIC DATA VALIDATION - FULL TCL ORGANICS
NWS-EARLE, EARLE, NEW JERSEY
CASE NOs. NUS001 AND NUS002, SDG E-RB-0310

SAMPLES: 2/AQUEOUS/

E-RB-0310 E-TB-0310

19/SOIL/

E-S10-0006	E-S11-0006	E-S12-0006
E-S13-0006	E-SS10-0612	E-SS11-0612
E-SS12-0612	E-SS12D-0612	E-SS13-0612
E-SS1-0612	E-SS2-0612	E-SS3-0612
E-SS4-0612	E-SS5-0612	E-SS6-0612
E-SS7-0612	E-SS8-0612	E-SS9-0612

Introduction

Two (2) aqueous samples and ten (10) soil samples were analyzed for Target Compound List Organics (TCL) volatile organics. One of the aqueous samples and nine of the soil samples were analyzed for TCL semivolatile organic compounds; these nine soil samples also received TCL pesticide/PCB analyses. In addition, nine (9) other soil samples were analyzed for PCBs only.

The data from these organic analyses were evaluated using the following parameters:

* o Data completeness
* o Holding times
* o Gas chromatography/mass spectrometry (GC/MS) tuning and mass calibration
  o Initial and continuing calibrations
  o Laboratory and field blanks
  o Surrogate spike recoveries
  o Matrix spike/matrix spike duplicate (MS/MSD) recoveries
  o Internal standards performance
* o Field duplicate precision
  o Detection limits
* o Compound identification
* o Compound quantitation
  o Tentatively Identified Compounds (TICs)

The symbol (*) indicates that all quality control criteria were met for this parameter. Documentation of compliance for these parameters is provided in Appendix C (Regional Worksheets).

Problems affecting data quality are listed below, and the data spreadsheets presented in Appendix A (Qualified Analytical Results) summarize the validation qualifications.

Overview

One rinsate quality control blank (sample E-RB-0310) and one trip blank were submitted as part of the analytical data set. One field duplicate pair (samples E-SS12-0612 and E-SS12D-0612) was also included.

The samples were collected by HALLIBURTON NUS Environmental Corporation on March 10, 1992, and analyzed by ORTEK Environmental Laboratories under Naval Energy and Environmental Support Activity (NEESA) Level D Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using Contract Laboratory Program (CLP) Statement of Work (SOW) 1/91 analytical and reporting protocols.

Summary

Methylene chloride, acetone, 1,1,1-trichloroethane (1,1,1-TCEA), toluene, total xylenes, bis (2-ethylhexyl)phthalate (BEHP), and di-n-butyl phthalate (DNBP) were detected in the laboratory method blanks. All results for methylene chloride, acetone, BEHP and DNBP that were within ten times the highest associated blank value, and sample results for 1,1,1- TCEA, toluene, and total xylenes that were within five times the highest associated blank value have been qualified as false positives (artifacts of blank contamination). Affected results that are below the Contract Required Quantitation Limit (CRQL) have been replaced with the CRQL and coded [U(b)]; affected sample results above the CRQL have been coded [U(b)] when the values were within the validation action level range.

Benzene was detected in the rinsate blank. Several sample results were within the validation action level for this compound (which is set at five times this blank value), and are considered artifacts of blank contamination. Sample results below the CRQL were replaced with the CRQL, and coded [U(b)]; affected results above the CRQL have been coded [U(b)].

Methylene chloride was detected in the trip blank; all results have already been qualified on the basis of contamination noted in the method and rinsate blanks.

High percent differences (greater than 50 percent) were noted between the initial calibration average relative response factor (RRF) and the continuing calibration RRFs for carbon disulfide, 2-butanone, 4-chloroaniline, and hexachlorocyclopentadiene. Associated results and detection limits have been qualified as estimated [J(c)] and [UJ(c)]. The bias for these results cannot be determined.

High toluene surrogate recoveries occurred in two samples; these samples were re-analyzed with similar results. In the validator's professional opinion, the data from both analyses are of similar quality; the data presented on the attached spreadsheets for this sampling location represents the results and detection limits considered the most usable. To minimize the impacts from blank contamination, the lowest results of the initial and re-analysis results were reported for compounds that are within the validation action level range for blank contamination. Because QC data were similar, the higher of the initial and re-analysis results were reported for other compounds to present the user with the highest potential levels of contamination. All results and detection limits have been qualified [J(s)] and [UJ(s)]. A high recovery for the bromofluorobenzene surrogate occurred for one additional sample. The sample was not re-analyzed because the laboratory believed that a re-analysis would show the same matrix effect. All results and detection limits have been qualified as estimated [J(s)] and [UJ(s)]. A reliable direction of bias cannot be determined.

Several single-peak pesticide results have been qualified as questionable, [Y]. Because of the lack of specificity of the electron capture detector, which can detect more than just halogenated compounds, results are often attributable to co-eluting interferences, which happen to possess retention times nearly identical with the components of interest. Hence, false positive results for target compounds can occur. In addition, there was no corroboration for the suspect compounds, i.e., no related or breakdown products were present, and there was no GC/MS confirmation. Further information would be necessary to determine if the results qualified with [Y] are actually present in the affected samples.

There was no recovery for the decachlorobiphenyl (DCB) surrogate in two samples; all PCB detection limits are qualified as unreliable [R(s)], and may be biased very low..

No recovery was obtained for the tetrachloro-meta-xylene (TCX) surrogate in one sample; positive results for pesticides are qualified as estimated [J(s)], detection limits for non-detected pesticide compounds have been qualified [UJ(s)]. The results and detection limits may be biased low.

For nearly all other pesticide analyses, the recoveries for both TCX and DCB were outside of the advisory quality control limits. The recoveries for TCX were generally above the QC limits, and the DCB recoveries were below the advisory QC limits. Positive results have been qualified as [J(s)], and not-detected results as [UJ(s)]. Detection limits for PCB compounds in particular may be biased low. In addition, detection limits for pesticides may be biased low in two of these samples where both TCX and DCB exhibited low recoveries.

All three volatile internal standard (IS) areas were below quality control limits in two samples; upon re-analysis, two IS areas were still below these limits. As discussed previously, the attached spreadsheets contain the most useful data; detection limits for compounds eluting before 2-butanone have been reported from the re-analysis because the area for the first IS was within acceptable limits. Consequently, all results and detection limits for compounds eluting after (and including) 2-butanone have been flagged [J(i])/[UJ(i)]. Because target compounds respond to possible matrix effects in a similar manner as the internal standards, no direction of bias can be inferred for positive results. (The internal standard method of calculation incorporates a recovery correction for associated target compounds.) However, detection limits may be biased low.

The laboratory claims that no semivolatile surrogate compounds were added to the initial analysis of one sample. The sample was re-analyzed with acceptable surrogate recoveries. Only the re-analysis results should be used for this sample (E-SS12D-0612RE), and these results are presented in the attached data summary spreadsheets.

Positive results for several compounds are qualified as estimated [J] since they are reported at concentrations below the CRQL.

No other problems were noted

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Data Validation" (2/88), as amended for use within USEPA Region III, and the NEESA document entitled "Sampling and Chemical Analysis Quality Assurance requirements for the Navy Installation Restoration Program". **The text of this report has been formulated to address only those problem areas affecting data quality.**

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NEESA Guidelines and the Quality Assurance Project Plan (QAPP)."

Roy Cohen

Roy Cohen

HALLIBURTON NUS Environmental Corporation
Data Validator

John Prepanowski, for

Debra. A. Scheib

HALLIBURTON NUS Environmental Corporation
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results.
2. Appendix B - Results as Reported by the Laboratory.
3. Appendix C - Results of all Tentatively Identified Compounds (TICs) which have been corrected to exclude analytical artifacts.
4. Appendix D - Regional Worksheets.
6. Appendix E - Support Documentation.

cc: D. Scheib

APPENDIX A

Qualified Analytical Results

Data Qualifi r K y:

J(s)	-	Positive result is considered to be approximate because of an out-of-control surrogate recovery
J(i)	-	Positive result is considered to be approximate because of low internal standard areas
J(c)	-	Positive result estimated because of a high percent difference between initial and continuing calibration RRFs.
U(b)	-	Result is considered not-detected because sample concentration was not greater than the level observed in blank(s) by the (5 X/10 X) factor required to consider the result confident.
UJ(s)	-	Detection limit is considered to be estimated because of an out-of-control surrogate recovery.
UJ(i)	-	Detection limit is considered estimated because of low areas for the associated internal standard
R(s)	-	Nondetected result is considered to be unreliable, possibly biased very low because of poor surrogate performance.
UJ(c)	-	Nondetected result is considered to be estimated because of high percent differences between initial and continuing calibration RRFs.
Y	-	Single-peak pesticide result could be a false positive. Further information required to verify presence.

SITE: NWS EARLE
CASE NO: NUS001
LABORATORY: ORTEK

SOLID PCB ANALYSES (ug/kg)

CLIENT ID:		E-SS1-0612	E-SS2-0612	E-SS3-0612	E-SS5-0612	E-SS4-0612	E-SS6-0612	E-SS7-0612	E-SS8-0612
LAB ID:		123282	123283	123284	123285	123286	123287	123288	123289
ANALYTE	CRQL								
aroclor-1016	16	18 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	18 UJ (s)	18 UJ (s)
aroclor-1221	34	37 UJ (s)	37 UJ (s)	37 UJ (s)	37 UJ (s)	39 UJ (s)	37 UJ (s)	36 UJ (s)	36 UJ (s)
aroclor-1232	16	18 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	18 UJ (s)	18 UJ (s)
aroclor-1242	16	18 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	18 UJ (s)	18 UJ (s)
aroclor-1248	16	18 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	18 UJ (s)	18 UJ (s)
aroclor-1254	16	18 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	18 UJ (s)	18 UJ (s)
aroclor-1260	16	18 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	19 UJ (s)	18 UJ (s)	18 UJ (s)	18 UJ (s)
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/20/92	3/20/92	3/20/92	3/20/92	3/20/92	3/20/92	3/20/92	3/20/92
PERCENT MOISTURE:		9.00	9.00	11.00	10.00	13.00	9.00	8.00	6.00

SITE: NWS EARLE
CASE NO: NUS001
LABORATORY: ORTEK

SOLID PCB ANALYSES (ug/kg)

CLIENT ID:		E-SS9-0612	E-SS4-0612
LAB ID:		123290	123285
ANALYTE	CRQL		
aroclor-1016	16	19 UJ (s)	18 UJ (s)
aroclor-1221	34	38 UJ (s)	37 UJ (s)
aroclor-1232	16	19 UJ (s)	18 UJ (s)
aroclor-1242	16	19 UJ (s)	18 UJ (s)
aroclor-1248	16	19 UJ (s)	18 UJ (s)
aroclor-1254	16	19 UJ (s)	18 UJ (s)
aroclor-1260	16	19 UJ (s)	18 UJ (s)
DILUTION FACTOR:		1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92
DATE ANALYZED:		3/20/92	3/20/92
PERCENT MOISTURE:		11.00	13.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

PESTICIDE/PCB SOLID (ug/kg)

CLIENT ID:		E-S10-0006	E-SS10-0612	E-S-11-0006	E-SS11-0612	E-S12-0006	E-SS12-0612	E-SS12D-0612
LAB ID:		123291	123292	123293	123294	123295	123296	123297
ANALYTE	CRQL							
alpha-BHC	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	2.00 UJ (s)	1.90 UJ (s)	1.90 UJ (s)
beta-BHC	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	2.00 UJ (s)	1.90 UJ (s)	1.90 UJ (s)
delta-BHC	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	2.00 UJ (s)	1.90 UJ (s)	0.27 Y J (s)
gamma-BHC (lindane)	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	2.00 UJ (s)	1.90 UJ (s)	1.90 UJ (s)
heptachlor	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	1.40 J (s)	1.90 UJ (s)	1.90 UJ (s)
aldrin	1.70	1.90 UJ (s)	1.90 U	R (s)	0.86 Y J (s)	2.00 UJ (s)	1.90 UJ (s)	1.90 UJ (s)
heptachlor epoxide	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	1.60 J (s)	1.90 UJ (s)	1.90 UJ (s)
endosulfan I	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	2.00 UJ (s)	1.90 UJ (s)	1.90 UJ (s)
dieldrin	3.30	3.70 U (s)	3.60 U	R (s)	3.50 UJ (s)	3.90 UJ (s)	3.70 UJ (s)	3.70 UJ (s)
4,4'-DDE	3.30	2.10 J (s)	3.60 U	R (s)	3.50 UJ (s)	33.00 J (s)	3.70 UJ (s)	3.70 UJ (s)
endrin	3.30	3.70 UJ (s)	3.60 U	R (s)	3.50 UJ (s)	13.00 Y J (s)	3.70 UJ (s)	3.70 UJ (s)
endrosulfan II	3.30	0.42 Y J (s)	2.20 Y	R (s)	3.50 UJ (s)	3.90 UJ (s)	3.70 UJ (s)	3.70 UJ (s)
4,4'-DDD	3.30	3.90 J (s)	3.60 U	R (s)	3.50 UJ (s)	47.00 J (s)	3.70 UJ (s)	3.70 UJ (s)
endosulfan sulfate	3.30	3.70 UJ (s)	3.60 U	R (s)	3.50 UJ (s)	3.90 UJ (s)	0.30 Y J (s)	3.70 UJ (s)
4,4'-DDT	3.30	1.40 Y J (s)	3.60 U	R (s)	3.50 UJ (s)	12.00 J (s)	0.38 Y J (s)	3.70 UJ (s)
methoxychlor	17.00	19.00 U (s)	19.00 U	0.22 Y J (s)	18.00 UJ (s)	20.00 UJ (s)	19.00 UJ (s)	19.00 UJ (s)
endrin ketone	3.30	3.70 UJ (s)	3.60 U	R (s)	3.50 UJ (s)	3.90 UJ (s)	3.70 UJ (s)	3.70 UJ (s)
alpha chlordane	1.70	0.39 Y J (s)	1.90 U	R (s)	1.80 UJ (s)	2.80 J (s)	1.90 UJ (s)	1.90 UJ (s)
gamma chlordane	1.70	1.90 UJ (s)	1.90 U	R (s)	1.80 UJ (s)	3.10 J (s)	1.90 UJ (s)	1.90 UJ (s)
endrin aldehyde	3.30	3.70 UJ (s)	3.60 U	R (s)	3.50 UJ (s)	3.90 UJ (s)	3.70 UJ (s)	3.70 UJ (s)
aroclor-1016	33.00	37.00 UJ (s)	36.00 UJ (s)	R (s)	35.00 UJ (s)	39.00 UJ (s)	37.00 UJ (s)	37.00 UJ (s)
aroclor-1221	67.00	74.00 UJ (s)	74.00 UJ (s)	R (s)	72.00 UJ (s)	79.00 UJ (s)	74.00 UJ (s)	74.00 UJ (s)
aroclor-1232	33.00	37.00 UJ (s)	36.00 UJ (s)	R (s)	35.00 UJ (s)	39.00 UJ (s)	37.00 UJ (s)	37.00 UJ (s)
aroclor-1242	33.00	37.00 UJ (s)	36.00 UJ (s)	R (s)	35.00 UJ (s)	39.00 UJ (s)	37.00 UJ (s)	37.00 UJ (s)
aroclor-1248	33.00	37.00 UJ (s)	36.00 UJ (s)	R (s)	35.00 UJ (s)	39.00 UJ (s)	37.00 UJ (s)	37.00 UJ (s)
aroclor-1254	33.00	37.00 UJ (s)	36.00 UJ (s)	R (s)	35.00 UJ (s)	39.00 UJ (s)	37.00 UJ (s)	37.00 UJ (s)
aroclor-1260	33.00	37.00 UJ (s)	36.00 UJ (s)	R (s)	35.00 UJ (s)	39.00 UJ (s)	37.00 UJ (s)	37.00 UJ (s)
toxaphene	170.00	190.00 UJ (s)	190.00 UJ (s)	R (s)	180.00 UJ (s)	200.00 UJ (s)	190.00 UJ (s)	190.00 UJ (s)
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/25/92	3/26/92	3/26/92	3/26/92	3/26/92	3/26/92	3/26/92
PERCENT MOISTURE:		10.00	9.00	7.00	7.00	15.00	10.00	10.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

PESTICIDE/PCB AQUEOUS (ug/l)

CLIENT ID:		E-RB-0310
LAB ID:		123300
ANALYTE	CRQL	
alpha-BHC	0.005	0.005 U
beta-BHC	0.005	0.005 U
delta-BHC	0.005	0.005 U
gamma-BHC (lindane)	0.005	0.005 U
heptachlor	0.005	0.005 U
endosulfan I	0.005	0.005 U
dieldrin	0.010	0.010 U
4,4'-DDE	0.010	0.010 U
endrin	0.010	0.010 U
endrosulfan II	0.010	0.010 U
4,4'-DDD	0.010	0.010 U
endosulfan sulfate	0.010	0.010 U
4,4'-DDT	0.010	0.010 U
methoxychlor	0.050	0.050 U
endrin ketone	0.010	0.010 U
alpha chlordane	0.005	0.005 U
gamma chlordane	0.005	0.005 U
endrin aldehyde	0.010	0.010 U
aroclor-1016	0.500	0.500 U
aroclor-1221	0.100	0.100 U
aroclor-1232	0.200	0.200 U
aroclor-1242	0.100	0.100 U
aroclor-1248	0.100	0.100 U
aroclor-1254	0.100	0.100 U
aroclor-1260	0.100	0.100 U
toxaphene	0.100	0.100 U
DILUTION FACTOR:		1.00
DATE SAMPLED:		3/10/92
DATE ANALYZED:		3/26/92
PERCENT MOISTURE:		-

CASE: NWS EARLE
CASE NO.: NUS0102
LABORATORY: ORTEK

VOLATILE SOLID ANALYSES (ug/kg)

CLIENT ID:		E-S10-0006	E-S11-0006	E-S12-0006	E-S13-0006	E-SS10-0612	E-SS11-0612
LAB ID:		123291	123293	123295	123298	123292	123294
ANALYTE	CRQL						
chloromethane	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
bromomethane	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
vinyl chloride	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
chloroethane	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
methylene chloride	10	11 U (b)	25 UJ (s) (b)	12 U (b)	11 U (b)	11 U (b)	11 U (b)
acetone	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
carbon disulfide	10	11 UJ (c)	11 UJ (s)	12 UJ (c)	11 UJ (c)	11 UJ (c)	11 UJ (c)
1,1-dichloroethene	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
1,1-dichloroethane	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
1,2-dichloroethene (total)	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
chloroform	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
1,2-dichloroethane	10	11 U	11 UJ (s)	12 U	11 U	11 U	11 U
2-butanone	10	11 UJ (c)	11 UJ (s,i)	12 UJ (c)	11 UJ (c)	11 U	11 U
1,1,1-trichloroethane	10	11 U (b)	28 J (s,i)	12 U (b)	11 U (b)	11 U (b)	11 U (b)
carbon tetrachloride	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
vinyl acetate	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
bromodichloromethane	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
1,2-dichloropropane	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
cis-1,3-dichloropropene	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
trichloroethene	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
dibromochloromethane	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
1,1,2-trichloroethane	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
benzene	10	11 U	11 UJ (s,i) (b)	12 U	11 U	11 U (b)	11 U (b)
trans-1,3-dichloropropene	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
bromoform	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
4-methyl-2-pentanone	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
2-hexanone	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
tetrachloroethene	10	2 J	16 J (s,i)	12 U	3 J	11 U	11 U
1,1,2,2-tetrachloroethane	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
toluene	10	13 U (b)	11 UJ (s,i) (b)	12 U (b)	15 U (b)	11 U	11 U
chlorobenzene	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
ethylbenzene	10	1 J	4 J (s,i)	12 U	2 J	11 U	11 U
styrene	10	11 U	11 UJ (s,i)	12 U	11 U	11 U	11 U
total xylenes	10	11 U (b)	22 J (s,i)	12 U (b)	11 U (b)	11 U	11 U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/17/92	3/20/92	3/20/92	3/20/92	3/20/92	3/17/92
PERCENT MOISTURE:		7.00	7.00	15.00	13.00	8.00	6.00

CASE: NWS EARLE
CASE NO.: NUS0102
LABORATORY: ORTEK

VOLATILE SOLID ANALYSES (ug/kg)

CLIENT ID:		E-SS12-0612	E-SS12D-0612	E-SS13-0612	E-SS4-0612
LAB ID:		123296	123297	123299	123285
ANALYTE	CRQL				
chloromethane	10	11 U	11 U	11 UJ (s)	11 UJ (s)
bromomethane	10	11 U	11 U	11 UJ (s)	11 UJ (s)
vinyl chloride	10	11 U	11 U	11 UJ (s)	11 UJ (s)
chloroethane	10	11 U	11 U	11 UJ (s)	11 UJ (s)
methylene chloride	10	11 U (b)	11 U (b)	26 UJ (s)(b)(r)	11 UJ (s) (b)
acetone	10	11 U	11 U	11 UJ (s)	73 UJ (s)
carbon disulfide	10	11 UJ (c)	11 UJ (c)	11 UJ (s)	11 UJ (s)
1,1-dichloroethene	10	11 U	11 U	11 UJ (s)	11 UJ (s)
1,1-dichloroethane	10	11 U	11 U	11 UJ (s)	11 UJ (s)
1,2-dichloroethene (total)	10	11 U	11 U	11 UJ (s)	11 UJ (s)
chloroform	10	11 U	11 U	11 UJ (s)	11 UJ (s)
1,2-dichloroethane	10	11 U	11 U	11 UJ (s)	11 UJ (s)
2-butanone	10	11 U	11 U	11 UJ (s)	11 UJ (s)
1,1,1-trichloroethane	10	11 U	11 U	16 J (s,i) (b)(r)	11 UJ (s)
carbon tetrachloride	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
vinyl acetate	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
bromodichloromethane	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
1,2-dichloropropane	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
cis-1,3-dichloropropene	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
trichloroethene	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
dibromochloromethane	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
1,1,2-trichloroethane	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
benzene	10	11 U (b)	11 U (b)	11 UJ (s,i)	11 UJ (s)
trans-1,3-dichloropropene	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
bromoform	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
4-methyl-2-pentanone	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
2-hexanone	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
tetrachloroethene	10	11 U	11 U	13 J (s,i)(r)	11 UJ (s)
1,1,2,2-tetrachloroethane	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
toluene	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
chlorobenzene	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
ethylbenzene	10	11 U	11 U	5 J (s,i)(r)	130 J (s)
styrene	10	11 U	11 U	11 UJ (s,i)	11 UJ (s)
total xylenes	10	11 U	11 U	16 UJ (s,i) (b)	250 J (s)
DILUTION FACTOR:		1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/17/92	3/17/92	3/17/92	3/17/92
PERCENT MOISTURE:		10.00	10.00	13.00	10.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

CLIENT ID:		E-RB-0310
LAB ID:		123300
ANALYTE	CRQL	
phenol		
bis(2-chloroethyl) ether	10	22 U
2-chlorophenol	10	22 U
1,3-dichlorobenzene	10	22 U
1,4-dichlorobenzene	10	22 U
benzyl alcohol	10	22 U
1,2-dichlorobenzene	10	22 U
2-methylphenol	10	22 U
bis(2-chloroisopropyl) ether	10	22 U
4-methylphenol	10	22 U
n-nitroso-di-n-propylamine	10	22 U
hexachloroethane	10	22 U
nitrobenzene	10	22 U
isophorone	10	22 U
2-nitrophenol	10	22 U
2,4-dimethylphenol	10	22 U
benzoic acid	10	22 U
bis(2-chloroethoxy) methane	10	22 U
2,4-dichlorophenol	10	22 U
1,2,4-trichlorobenzene	10	22 U
naphthalene	10	22 U
4-chloroaniline	10	22 U
hexachlorobutadiene	10	22 U
4-chloro-3-methylphenol	10	22 U
2-methylnaphthalene	10	22 U
hexachlorocylclopentadiene	10	22 UJ (c)
DILUTION FACTOR:		2.20
DATE SAMPLED:		3/10/92
DATE ANALYZED:		3/19/92
PERCENT MOISTURE:		100.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

CLIENT ID:		E-RB-0310
LAB ID:		123300
ANALYTE	CRQL	
2,4,6-trichlorophenol	10	22 U
2,4,5-trichlorophenol	25	54 U
2-chloronaphthalene	10	22 U
2-nitroaniline	25	54 U
dimethyl phthalate	10	22 U
acenaphthylene	10	22 U
3-nitroaniline	10	22 U
2,4-dinitrophenol	25	54 U
acenaphthene	10	22 U
4-nitrophenol	25	54 U
dibenzofuran	10	22 U
2,4-dinitrotoluene	10	22 U
2,6-dinitrotoluene	10	22 U
diethylphthalate	10	2 J
4-chlorophenyl-phenylether	10	22 U
fluorene	10	22 U
4-nitroanaline	25	54 U
4,6-dinitro-2-methylphenol	25	54 U
n-nitrosdiphenylamine	10	22 U
4-bromophenyl-phenylether	10	22 U
hexachlorobenzene	10	22 U
pentachlorophenol	25	54 U
phenathrene	10	22 U
anthracene	10	22 U
di-n-butylphthalate	10	22 U
fluoranthene	10	22 U
pyrene	10	22 U
butylbenzylphthalate	10	22 U
carbazole	10	22 U

DILUTION FACTOR:	2.20
DATE SAMPLED:	3/10/92
DATE ANALYZED:	3/19/92
PERCENT MOISTURE:	100.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE AQUEOUS ANALYSES (ug/l)

CLIENT ID:		E-RB-0310
LAB ID:		123300
ANALYTE	CRQL	
benzo(a)anthracene	10	22 U
chrysene	10	22 U
bis(2-ethylhexyl)phthalate	10	22 UJ (c)
di-n-octyl phthalate	10	22 U
benzo(b)fluoranthene	10	22 U
benzo(k)fluoranthene	10	22 U
benzo(a)pyrene	10	22 U
indeno(1,2,3-cd)pyrene	10	22 U
benzo(g,h,i)perylene	10	22 U

DILUTION FACTOR:	2.20
DATE SAMPLED:	3/10/92
DATE ANALYZED:	3/19/92
PERCENT MOISTURE:	100.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE SOLID ANALYSES (ug/kg)

CLIENT ID:		E-S10-0006	E-S11-0006	E-S12-0006	E-S13-0006	E-SS10-0612	E-SS11-0612	E-SS12-0612
LAB ID:		123291	123293	123295	123298	123292	123294	123296
ANALYTE	CRQL							
phenol								
bis(2-chloroethyl) ether	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2-chlorophenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
1,3-dichlorobenzene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
1,4-dichlorobenzene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
benzyl alcohol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
1,2-dichlorobenzene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2-methylphenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
bis(2-chloroisopropyl) ether	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
4-methylphenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
n-nitroso-di-n-propylamine	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
hexachloroethane	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
nitrobenzene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
isophorone	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2-nitrophenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2,4-dimethylphenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
benzoic acid	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
bis(2-chloroethoxy) methane	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2,4-dichlorophenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
1,2,4-trichlorobenzene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
naphthalene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
4-chloroaniline	330	370 UJ (c)	350 UJ (c)	390 UJ (c)	380 U	360 U	350 UJ (c)	370 UJ (c)
hexachlorobutadiene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
4-chloro-3-methylphenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2-methylnaphthalene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
hexachlorocyclopentadiene	330	370 UJ (c)	350 UJ (c)	390 UJ (c)	380 UJ (c)	360 UJ (c)	350 UJ (c)	370 UJ (c)
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/16/92	3/16/92	3/16/92	3/16/92	3/19/92	3/16/92	3/16/92
PERCENT MOISTURE:		100.00	6.00	15.00	13.00	8.00	6.00	10.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE SOLID ANALYSES (ug/kg

CLIENT ID:		E-SS12D-0612	E-SS13-0612
LAB ID:		123297	123299
ANALYTE	CRQL		
phenol			
bis(2-chloroethyl) ether	330	370 U	380 U
2-chlorophenol	330	370 U	380 U
1,3-dichlorobenzene	330	370 U	380 U
1,4-dichlorobenzene	330	370 U	380 U
benzyl alcohol	330	370 U	380 U
1,2-dichlorobenzene	330	370 U	380 U
2-methylphenol	330	370 U	380 U
bis(2-chloroisopropyl) ether	330	370 U	380 U
4-methylphenol	330	370 U	380 U
n-nitroso-di-n-propylamine	330	370 U	380 U
hexachloroethane	330	370 U	380 U
nitrobenzene	330	370 U	380 U
isophorone	330	370 U	380 U
2-nitrophenol	330	370 U	380 U
2,4-dimethylphenol	330	370 U	380 U
benzoic acid	330	370 U	380 U
bis(2-chloroethoxy) methane	330	370 U	380 U
2,4-dichlorophenol	330	370 U	380 U
1,2,4-trichlorobenzene	330	370 U	380 U
naphthalene	330	370 U	380 U
4-chloroaniline	330	370 U	380 U
hexachlorobutadiene	330	370 U	380 U
4-chloro-3-methylphenol	330	370 U	380 U
2-methylnaphthalene	330	370 U	380 U
hexachlorocylclopentadiene	330	370 UJ (c)	380 UJ (c)
DILUTION FACTOR:		1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92
DATE ANALYZED:		3/19/92	3/20/92
PERCENT MOISTURE:		10.00	13.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE SOLID ANALYSES (ug/kg)

CLIENT ID:		E-S10-0006	E-S11-0006	E-S12-0006	E-S13-0006	E-SS10-0612	E-SS11-0612	E-SS12-0612
LAB ID:		123291	123293	123295	123298	123292	123294	123296
ANALYTE	CRQL							
2,4,6-trichlorophenol	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2,4,5-trichlorophenol	830	830 U	860 U	940 U	920 U	870 U	890 U	890 U
2-chloronaphthalene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2-nitroaniline	830	830 U	860 U	940 U	920 U	870 U	850 U	890 U
dimethyl phthalate	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
acenaphthylene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
3-nitroaniline	830	890 U	860 U	940 U	920 U	870 U	850 U	890 U
2,4-dinitrophenol	830	890 U	860 U	940 U	920 U	870 U	850 U	890 U
acenaphthene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
4-nitrophenol	830	890 U	860 U	940 U	920 U	870 U	850 U	890 U
dibenzofuran	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2,4-dinitrotoluene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
2,6-dinitrotoluene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
diethylphthalate	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
4-chlorophenyl-phenylether	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
fluorene	330	370 U	350 U	390 U	48 J	360 U	350 U	370 U
4-nitroanaline	830	890 U	860 U	940 U	920 U	870 U	850 U	890 U
4,6-dinitro-2-methylphenol	830	890 U	860 U	940 U	920 U	870 U	850 U	890 U
n-nitrosdiphenylamine	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
4-bromophenyl-phenylether	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
hexachlorobenzene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
pentachlorophenol	830	890 U	860 U	940 U	920 U	870 U	830 U	890 U
phenathrene	330	370 U	350 U	390 U	580	360 U	350 U	370 U
anthracene	330	370 U	350 U	390 U	83 J	360 U	350 U	370 U
di-n-butylphthalate	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
fluoranthene	330	370 U	49 J	390 U	1700	360 U	350 U	370 U
pyrene	330	370 U	350 U	51 J	1800	360 U	350 U	370 U
butylbenzylphthalate	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
carbazole	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/16/92	3/16/92	3/16/92	3/16/92	3/19/92	3/16/92	3/16/92
PERCENT MOISTURE:		100.00	6.00	15.00	13.00	8.00	6.00	10.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE SOLID ANALYSES (ug/kg

CLIENT ID:		E-SS12D-0612	E-SS13-0612
LAB ID:		123297	123299
ANALYTE	CRQL		
2,4,6-trichlorophenol	330	370 U	380 U
2,4,5-trichlorophenol	830	890 U	920 U
2-chloronaphthalene	330	370 U	380 U
2-nitroaniline	830	890 U	920 U
dimethyl phthalate	330	370 U	380 U
acenaphthylene	330	370 U	380 U
3-nitroaniline	830	890 U	920 U
2,4-dinitrophenol	830	890 U	920 U
acenaphthene	330	370 U	380 U
4-nitrophenol	830	890 U	920 U
dibenzofuran	330	370 U	380 U
2,4-dinitrotoluene	330	370 U	380 U
2,6-dinitrotoluene	330	370 U	380 U
diethylphthalate	330	370 U	380 U
4-chlorophenyl-phenylether	330	370 U	380 U
fluorene	330	370 U	380 U
4-nitroanaline	830	890 U	920 U
4,6-dinitro-2-methylphenol	830	890 U	920 U
n-nitrosdiphenylamine	330	370 U	380 U
4-bromophenyl-phenylether	330	370 U	380 U
hexachlorobenzene	330	370 U	380 U
pentachlorophenol	830	890 U	920 U
phenathrene	330	370 U	380 U
anthracene	330	370 U	380 U
di-n-butylphthalate	330	370 U	380 U
fluoranthene	330	370 U	380 U
pyrene	330	370 U	110 J
butylbenzylphthalate	330	370 U	380 U
carbazole	330	370 U	380 U
DILUTION FACTOR:		1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92
DATE ANALYZED:		3/19/92	3/20/92
PERCENT MOISTURE:		10.00	13.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE SOLID ANALYSES (ug/kg)

CLIENT ID:		E-S10-0006	E-S11-0006	E-S12-0006	E-S13-0006	E-SS10-0612	E-SS11-0612	E-SS12-0612
LAB ID:		123291	123293	123295	123298	123292	123294	123296
ANALYTE	CRQL							
benzo(a)anthracene	330	370 U	350 U	390 U	730	360 U	350 U	370 U
chrysene	330	370 U	350 U	390 U	600 (b)	360 U	350 U	370 U
bis(2-ethylhexyl)phthalate	330	370 U	350 U	390 U (b)	380 U(b), J(c)	360 UJ (c)	350 U (b)	370 U
di-n-octyl phthalate	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
benzo(b)fluoranthene	330	370 U	350 U	42 J	1000	360 U	350 U	370 U
benzo(k)fluoranthene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
benzo(a)pyrene	330	370 U	350 U	390 U	450	360 U	350 U	370 U
indeno(1,2,3-cd)pyrene	330	370 U	350 U	390 U	140 J	360 U	350 U	370 U
dibenz(a,h)anthracene	330	370 U	350 U	390 U	380 U	360 U	350 U	370 U
benzo(g,h,i)perylene	330	370 U	350 U	390 U	71 J	360 U	350 U	370 U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92	3/10/92
DATE ANALYZED:		3/16/92	3/16/92	3/16/92	3/16/92	3/19/92	3/16/92	3/16/92
PERCENT MOISTURE:		100.00	6.00	15.00	13.00	8.00	6.00	10.00

SITE: NWS EARLE
CASE NO: NUS002
LABORATORY: ORTEK

SEMIVOLATILE SOLID ANALYSES (ug/kg

CLIENT ID:		E-SS12D-0612	E-SS13-0612
LAB ID:		123297	123299
ANALYTE	CRQL		
benzo(a)anthracene	330	370 U	380 U
chrysene	330	370 U	380 U
bis(2-ethylhexyl)phthalate	330	370 U(b), J (c)	380 U (b)
di-n-octyl phthalate	330	370 U	380 U
benzo(b)fluoranthene	330	370 U	380 U
benzo(k)fluoranthene	330	370 U	380 U
benzo(a)pyrene	330	370 U	380 U
indeno(1,2,3-cd)pyrene	330	370 U	380 U
dibenz(a,h)anthracene	330	370 U	380 U
benzo(g,h,i)perylene	330	370 U	380 U
DILUTION FACTOR:		1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92
DATE ANALYZED:		3/19/92	3/20/92
PERCENT MOISTURE:		10.00	13.00

CASE: NWS EARLE
CASE NO.: NUS0102
LABORATORY: ORTEK

VOLATILE AQUEOUS ANALYSES (ug/l)

CLIENT ID:		E-RB-0310	E-TB-0310
LAB ID:		123300	123301
ANALYTE	CRQL		
chloromethane	10	10 U	10 U
bromomethane	10	10 U	10 U
vinyl chloride	10	10 U	10 U
chloroethane	10	10 U	10 U
methylene chloride	10	7 J	170 J
acetone	10	26	8 J
carbon disulfide	10	17 J	10 UJ (c)
1,1-dichloroethene	10	10 U	10 U
1,1-dichloroethane	10	10 U	10 U
1,2-dichloroethene (total)	10	10 U	10 U
chloroform	10	10 U	10 U
1,2-dichloroethane	10	10 U	10 U
2-butanone	10	10 U	10 U
1,1,1-trichloroethane	10	10 U	2 J
carbon tetrachloride	10	10 U	10 U
vinyl acetate	10	10 U	10 U
bromodichloromethane	10	10 U	10 U
1,2-dichloropropane	10	10 U	10 U
cis-1,3-dichloropropene	10	10 U	10 U
trichloroethene	10	10 U	10 U
dibromochloromethane	10	10 U	10 U
1,1,2-trichloroethane	10	10 U	10 U
benzene	10	5 J	5 J
trans-1,3-dichloropropene	10	10 U	10 U
bromoform	10	10 U	10 U
4-methyl-2-pentanone	10	10 U	10 U
2-hexanone	10	10 U	10 U
tetrachloroethene	10	10 U	10 U
1,1,2,2-tetrachloroethane	10	10 U	10 U
toluene	10	10 U	10 U
chlorobenzene	10	10 U	10 U
ethylbenzene	10	10 U	10 U
styrene	10	10 U	10 U
total xylenes	10	10 U	10 U
DILUTION FACTOR:		1.00	1.00
DATE SAMPLED:		3/10/92	3/10/92
DATE ANALYZED:		3/17/92	3/17/92