

C-49-10-5-72 (RE-ISSUE)

TO: DAVE BRAYAK

DATE: OCTOBER 5, 1991

FROM: KAREN SABOLOSKY

COPIES: D. A. SCHEIB

**SUBJECT: ORGANIC DATA VALIDATION - BTEX/PAH
CALVERTON, NY
NET CONTROL # 91.0580**

SAMPLES:

Soils:

Soil-

20	20B	21	21B
20A	20C	21A	

NET Laboratories, Incorporated analyzed 7 soil samples (including one field duplicate pair) for benzene, toluene, ethylbenzene, and xylenes (BTEX) and Polynuclear Aromatic Hydrocarbons (PAHs). Although associated field quality control blanks were taken, none were analyzed under this particular analytical grouping.

The data for these analyses were reviewed with reference to the EPA "Functional Guidelines for Organic Data Validation" and the "Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program" -NEESA. The analyses were conducted under NEESA Level D QA/QC criteria and were evaluated according to the following parameters:

- Data completeness
- Holding times
- GC/MS tuning and performance
- Initial and continuing calibration
- Laboratory and field blank analyses
- * • Surrogate spike recoveries
- * • Matrix spike and matrix spike duplicate results
- Field duplicate precision
- Detection limits
- Sample quantitation

The symbol (*) indicates that quality control criteria were not met for this parameter. Problems affecting data usability are discussed below and the attached Table I summarizes the validation qualifications.

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MR. DAVE BRAYAK
OCTOBER 5, 1991
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BTEX Fraction

The laboratory did not provide statistically derived surrogate quality control limits. When contacted, the laboratory explained that this quality control information is not included as part of the analytical data package, but is presented in the monthly progress reports submitted to the client Project Manager. Because these quality control limits were not available at the time, the data reviewer proceeded by using professional judgement to evaluate the associated data.

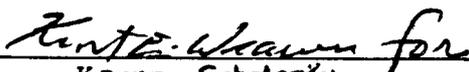
The laboratory used three surrogates (1) 2-fluorobiphenyl and (2) para-terphenyl, which the laboratory uses as petroleum hydrocarbon fingerprint surrogate, and (3) bromofluorobenzene which the laboratory uses as a volatile surrogate. All recoveries for the volatile surrogate were greater than 80%. It is in the professional opinion of the reviewer that these volatile surrogate recoveries are acceptable for soil analyses. Review of subsequent information as produced by the laboratory shows all surrogate recoveries to be within the quality control limits.

PAH Fraction

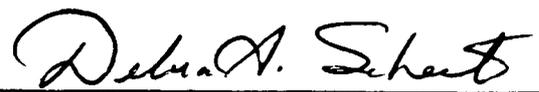
As explained previously, no quality control acceptance ranges for surrogates were available from the laboratory at the original time of evaluation. In the professional opinion of the data reviewer, recoveries for both semivolatile surrogates were typical of soil analyses, therefore the data were accepted without qualification.

Likewise, no statistical recovery (quality control) limits for Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses were available from the laboratory at the time of the original data evaluation. Professional judgement was used to evaluate the data. All MS/MSD recoveries were very typical of analyses for PAHs in soil. The data was accepted without qualification. Further review based on subsequent information as provided by the laboratory showed that all surrogate and MS/MSD recoveries were within acceptable limits.

"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).


Karen Sabolcsky
HALLIBURTON NUS

Data Validator


Debra A. Scheib
HALLIBURTON NUS

Data Validation Quality
Assurance Officer

CALVERTON, NY
NET CONTROL # 91.0580

TABLE I - RECOMMENDATION SUMMARY

Sample No.	BTEX	PAHs
SOIL20		
SOIL20A		
SOIL20B		
SOIL20C		
SOIL21		
SOIL21A		
SOIL21B		

If the field is left blank, the qualifier is A - Accept data without qualification.

APPENDIX I
QUALIFIED ANALYTICAL RESULTS

CALVERTON
CASE NO. 91.0580
LABORATORY: NET CAMBRIDGE

Volatile Soil Analyses
mg/Kg

	SAMPLE LOCATION: SAMPLE NUMBER:	SOIL 21 12649	SOIL 21A 12650	SOIL 21B 12651	SOIL 20 12652	SOIL 20A 12653	SOIL 20B 12654	SOIL 20C 12655
COMPOUND	CRQL							
Benzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl-t-butyl-Ether	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m-Xylene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Xylene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:	07/26/91	07/26/91	07/26/91	07/26/91	07/26/91	07/26/91	07/26/91	07/26/91
DATE ANALYZED:	08/10/91	08/10/91	08/10/91	08/10/91	08/13/91	08/13/91	08/13/91	08/13/91

CALVERTON
CASE NO. 91.0580
LABORATORY: NET CAMBRIDGE

Polynuclear Aromatic Soil Analyses
mg/Kg

SAMPLE LOCATION: SAMPLE NUMBER:		SOIL 21 12649	SOIL 21A 12650	SOIL 21B 12651	SOIL 20 12652	SOIL 20A 12653	SOIL 20B 12654	SOIL 20C 12655
COMPOUND	RDL							
Acenaphthene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Acenaphthylene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Anthracene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Benzo(a)anthracene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Benzo(a)pyrene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Benzo(b)fluoranthene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Benzo(k)fluoranthene	80	170	< 80	< 100	160	< 70	295	130
Benzo(ghi)perylene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Chrysene	80	77	93	< 100	< 70	< 70	< 70	< 70
Dibenzo(a,h)anthracene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Fluoranthene	80	100	210	< 100	< 70	< 70	< 70	< 70
Fluorene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Indeno(1,2,3-cd)pyrene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Naphthalene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Phenanthrene	80	< 80	< 80	< 100	< 70	< 70	< 70	< 70
Pyrene	80	< 80	190	< 100	< 70	< 70	< 70	< 70
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		07/26/91	07/26/91	07/26/91	07/26/91	07/26/91	07/26/91	07/26/91
DATE ANALYZED:		08/23/91	08/23/91	08/23/91	08/24/91	08/24/91	08/24/91	08/24/91

SUPPORT DOCUMENTATION

QUALITY CONTROL DATA

Client: HALLIBURTON MUD

NET Job No: 91.0580

Project: SEDIMENTS

Report Date: 09/05/1991

Surrogate Standard Percent Recovery

Abbreviated Surrogate Standard Names:

SS1 SS2 SS3 SS4 SS5 SS6 SS7 SS8 SS9 SS10 SS11 SS12
 2-Fluor p-Terph Bromofl

Percent Recovery

Sample ID	NET ID	Matrix	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12
SOIL 21	12649	SD	58	71	85									
SOIL 21A	12650	SD	73	86	93									
SOIL 21B	12651	SD	68	82	97									
SOIL 20	12652	SD	59	75	94									
SOIL 20MS	12652 MS	SD	67	77	90									
SOIL 20MSD	12652 MSD	SD	38	47	89									
SOIL 20A	12653	SD	65	75	96									
SOIL 20B	12654	SD	64	77	84									
SOIL 20C	12655	SD	58	73	82									
PBLK1S		SD	45	52	-									
VBLK081091		SD	-	-	94									
VBLK081391		SD	-	-	95									

*no action
 laboratory
 control
 results*

✓
 Typical recoveries
 from BUA
 fraction separator

Notes:

- NR - This surrogate standard is Not Required. Future versions of the test method will require this surrogate standard.
- Dil - This surrogate standard was diluted to below detectable levels due to concentrations of analytes in this sample.

Complete Surrogate Standard Names Listed by Analysis:

Pesticide Surrogate Standards:

Decachl = Decachlorobiphenyl (NR) Dibutyl = Dibutylchlorodate Tetrach = Tetrachlorobiphenyl (NR)

Volatile Surrogate Standards:

Bromofl = Bromofluorobenzene 1,2-Dichl = 1,2-Dichloroethane-d6 Toluene = Toluene-d8

Semivolatile Surrogate Standards:

2-Fluor (1st) = 2-Fluorobiphenyl Phenol- = Phenol-d6 2,4,6-T = 2,4,6-Tribromophenol
 2-Fluor (2nd) = 2-Fluorophenol Nitroben = Nitrobenzene-d5 p-Terph = p-Terphenyl

Herbicides Surrogate Standards:

2,4-Dic = 2,4-Dichlorophenyl acetic acid

Petroleum Hydrocarbon Fingerprint Surrogate Standard:

2-Fluor = 2-Fluorobiphenyl para-Te = para-Terphenyl

NET Atlantic, Cambridge Division QUALITY CONTROL DATA

Report Date: 09/05/1991

NET Job No: 91.0580

Report To: HALLIBURTON MUS

Project: SEDIMENTS

Date Received:

Matrix Spike/Matrix Spike Duplicate Results

Compound	Spike Amount	Sample Result	Units	MS Result	MS % Recovery	MSD Result	MSD % Recovery	RPD

Polynuclear Aromatics 8100 S								
Acenaphthene	1375	<70	ug/Kg	1091	79.30	627	45.60	53.9
Acenaphthylene	1375	<70	ug/Kg	1084	78.80	621	45.20	54.2
Anthracene	1375	<70	ug/Kg	1161	84.40	698	50.80	49.7
Benzo(a)anthracene	1375	<70	ug/Kg	1185	86.20	714	51.90	49.5
Benzo(a)pyrene	1375	<70	ug/Kg	1141	83.00	699	50.80	47.9
Benzo(b)fluoranthene	1375	<70	ug/Kg	1162	84.50	702	51.10	49.3
Benzo(k)fluoranthene	1375	160	ug/Kg	1184	74.50	626	33.90	61.6
Benzo(ghi)perylene	1375	<70	ug/Kg	1155	84.00	696	50.60	49.5
Chrysene	1375	<70	ug/Kg	1197	87.10	726	52.80	48.9
Dibenzo(a,h)anthracene	1375	<70	ug/Kg	1207	87.80	726	52.80	49.7
Fluoranthene	1375	<70	ug/Kg	1181	85.90	711	51.70	49.6
Fluorene	1375	<70	ug/Kg	1119	81.40	651	47.30	52.8
Indeno(1,2,3-cd)pyrene	1375	<70	ug/Kg	1212	88.10	707	51.40	52.5
Naphthalene	1375	<70	ug/Kg	1054	76.70	582	42.30	57.6
Phenanthrene	1375	<70	ug/Kg	1158	84.20	689	50.10	50.7
Pyrene	1375	<70	ug/Kg	1185	86.20	717	52.10	49.1

(qualitative comment)
 no standard recovery limits available from laboratory at this time. In the professional opinion of the data reviewer, these MS/MSD recoveries are typical for this type of analysis and are thus for acceptance.