79913

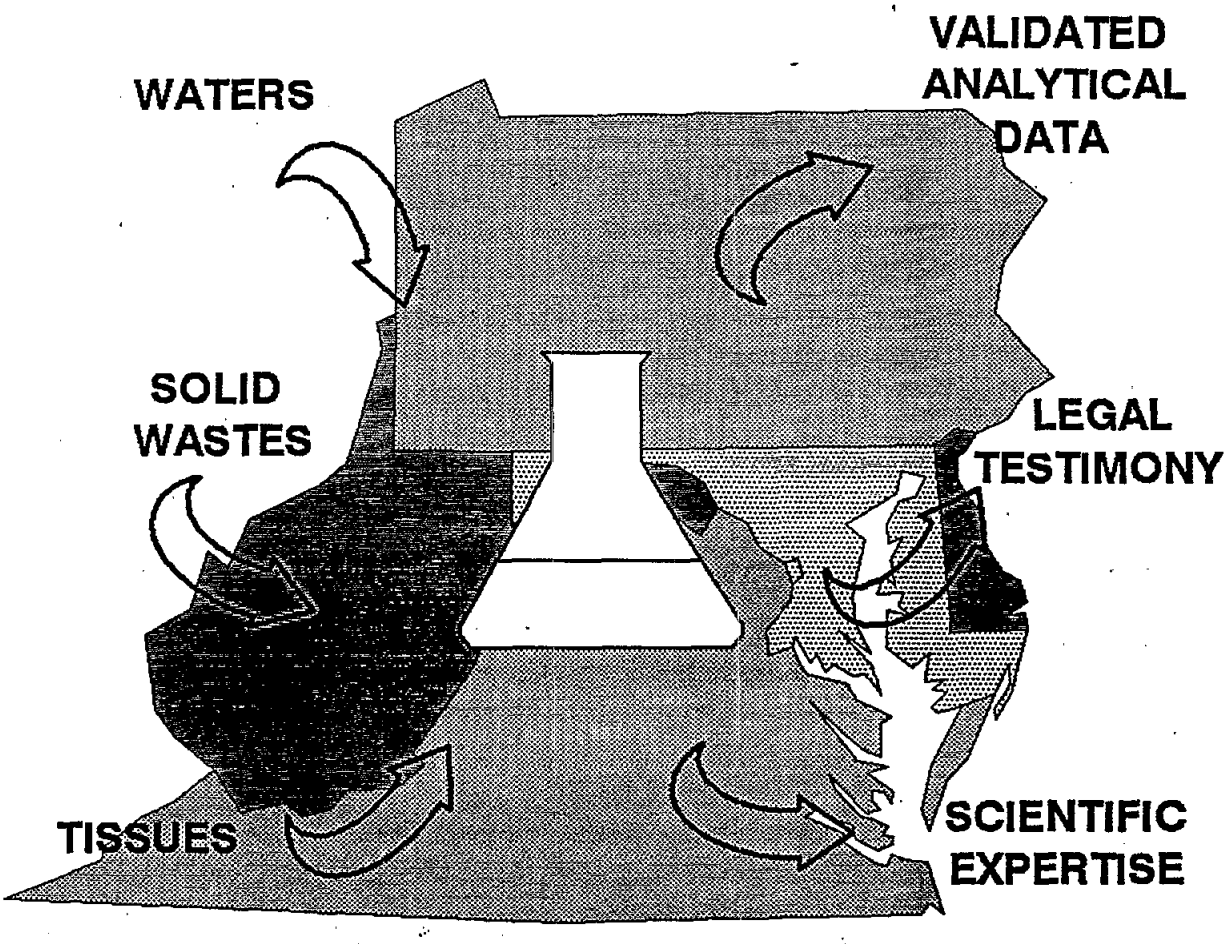
EPA Region III
Central Regional Laboratory

BOARHEAD FARMS

SUPERFUND R/R ACCT. NO. TFA03N9Y2

REQ 94026

JUNE 22, 1994



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AR305207

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401-3013
(410) 573 - 2799

DATE: June 22, 1994

SUBJECT: Analytical Results for Boarhead Farms (REQ 94026)

FROM: Frederick Dreisch, Chief (3ES20)
Laboratory Branch

TO: Harry Harbold (3HW21)

Attached is a revised copy of the analytical report for Boarhead Farms which originally was sent to you on March 4, 1994. The PCB/Pesticide portion of the report is the only section changed and only the analyst narrative for PCB/Pesticides is attached.

The report is organized into several sections:

Section A. Sample Description (listing of laboratory sample numbers and an abbreviated description of the tests performed).

Section B. Analytical Results (listing of the analytical results for the samples, as well as the following QC results : organic surrogate recoveries). The analytical results have been reviewed by a second analyst and laboratory managers.

Section C. Target Compound/Analyte Lists and Nominal Quantitation Limits (listing of the lowest concentration level at which analytical results are accurately quantitated. The Actual Quantitation Limits (AQL) achieved for a given sample are a function of matrix interferences and procedural steps, e.g., exact weight of sample analyzed. Specific information for the calculation of AQLs is included in Section E).

Section D. Qualifier Codes (listing of the codes used to append additional information about analytical results).

Section E. Method Description and Quality Control Protocols (listing of specific analytical methods, procedural options and quality control procedures. The target limits for the recovery of surrogate spikes (organic) are also included in this Section).

If you have any questions or comments, please call me at (410) 573-2646, or Khin Cho Thaung, Chief, Inorganic Section (410) 573-2680 or Skip Weisberg, Chief, Organic Section (410) 573-2681.

cc: Donna Connery (CH2M Hill, Phila)

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401
06/21/94

Section: A

Batch ID: REQ94026	Facility: BOARHEAD FARMS
Account No. TFA03N9Y2	Program: SUPERFUND REMOVAL/REMEDIAL

Sample #	Station & Description		Matrix	Collection Dates Beginning	Ending
93121401	STA TB1213/442, TB121393/442	TRIP BLANK	Other Aqueous Matrices - Ty	12/13/93	12/13/93
93121402	STA EB1213/443, EB121393/443	RINSATE	Other Aqueous Matrices - Ty	12/13/93	12/13/93
93121503	STA TB1214/444, TB121493/444	TRIP BLANK	Other Aqueous Matrices - Ty	12/14/93	12/14/93
93121504	STA EB1214/445, EB121493/445	RINSATE	Other Aqueous Matrices - Ty	12/14/93	12/14/93
93121604	STA TB1215/446, TB121593/446	TRIP BLANK	Other Aqueous Matrices - Ty	12/15/93	12/15/93
93121605	STA EB1215/447, EB121593/447	RINSATE	Other Aqueous Matrices - Ty	12/15/93	12/15/93
93121606	STA SB386/450, SB386/450	MS/MSD	Soil	12/16/93	12/16/93
93121607	STA SB387/451, SB387/451		Soil	12/16/93	12/16/93
93121608	STA SB388/452, SB388/452		Soil	12/16/93	12/16/93
93121609	STA SB389/453, SB389/453		Soil	12/16/93	12/16/93
93121610	STA SB390/454, SB390/454		Soil	12/16/93	12/16/93
93121611	STA SB391/455, SB391/455		Soil	12/16/93	12/16/93
93121612	STA SB388/459, SB388/459	DUP of 93121608	Soil	12/16/93	12/16/93
93121713	STA EB1216/449, EB121693/449	RINSATE	Other Aqueous Matrices - Ty	12/16/93	12/16/93
93121714	STA TB1216/448, TB121693/448	TRIP BLANK	Other Aqueous Matrices - Ty	12/16/93	12/16/93
93121715	STA SB95/457, SB95/457		Soil	12/16/93	12/16/93
93121716	STA SB222/458, SB222/458		Soil	12/16/93	12/16/93
93122101	STA SB392/456, SB392/456		Soil	12/17/93	12/17/93
93122102	STA SB393/460, SB393/460		Soil	12/17/93	12/17/93
93122103	STA SB394/461, SB394/461		Soil	12/17/93	12/17/93
93122104	STA TB1217/462, TB121793/462	TRIP BLANK	Other Aqueous Matrices - Ty	12/17/93	12/17/93
93122105	STA EB1217/463, EB121793/463	RINSATE	Other Aqueous Matrices - Ty	12/17/93	12/17/93
93122106	STA TB1218/464, TB121893/464	TRIP BLANK	Other Aqueous Matrices - Ty	12/18/93	12/18/93
93122107	STA EB1218/465, EB121893/465	RINSATE	Other Aqueous Matrices - Ty	12/18/93	12/18/93

Passed Analyst Data Review.

Reviews: 6/22/94 6/23/94 6/24/94
Inorg. Sec. Chief Date Organ. Sec. Chief Date QCO Date

Laboratory Branch Chief Approval For Release: 6/24/94
Date

AR305209

Sample	Test	Description
93121401	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121402	BNA-WATER	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-W	Total Cyanide
	MERCURY-W	Mercury by Semi-Automated Cold Vapor Technique
	METALS-W	Metals Analysis
	PCB/PEST W	PCBs and Pesticides by Gas Chromatography
	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121503	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121504	BNA-WATER	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-W	Total Cyanide
	MERCURY-W	Mercury by Semi-Automated Cold Vapor Technique
	METALS-W	Metals Analysis
	PCB/PEST W	PCBs and Pesticides by Gas Chromatography
	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121604	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121605	BNA-WATER	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-W	Total Cyanide
	MERCURY-W	Mercury by Semi-Automated Cold Vapor Technique
	METALS-W	Metals Analysis
	PCB/PEST W	PCBs and Pesticides by Gas Chromatography
	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121606	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121607	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121608	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C

Sample	Test	Description
93121608	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121609	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121610	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121611	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121612	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121713	BNA-WATER	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-W	Total Cyanide
	MERCURY-W	Mercury by Semi-Automated Cold Vapor Technique
	METALS-W	Metals Analysis
	PCB/PEST W	PCBs and Pesticides by Gas Chromatography
	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121714	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93121715	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis

Sample	Test	Description
93121715	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93121716	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93122101	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93122102	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93122103	BNA-SOIL	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-S	Total Cyanide
	MERCURY-S	Mercury by Semi-Automated Cold Vapor Technique
	METALS-S	Metals Analysis
	PCB/PEST S	PCBs and Pesticides by Gas Chromatography
	PD105	Percent Dry Weight at 105 degree C
	PD60	Percent Dry Weight at 60 degree C
	VOA46.1	Volatile Organic Compounds by Purge & Trap GC/MS
93122104	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93122105	BNA-WATER	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-W	Total Cyanide
	MERCURY-W	Mercury by Semi-Automated Cold Vapor Technique
	METALS-W	Metals Analysis
	PCB/PEST W	PCBs and Pesticides by Gas Chromatography
	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS
93122106	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS

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06/21/94

Sample	Test	Description
93122107	BNA-WATER	GC/MS Analysis for Semivolatile Organics
	CN-TOTAL-W	Total Cyanide
	MERCURY-W	Mercury by Semi-Automated Cold Vapor Technique
	METALS-W	Metals Analysis
	PCB/PEST W	PCBs and Pesticides by Gas Chromatography
	VOA45.2	Volatile Organic Compounds by Purge and Trap GC/MS

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Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number: 93121401 TRP	93121402 RIN	93121503 TRP	93121504 RIN	93121604 TRP	93121605 RIN	93121606 SAM
>Service Group: BNA									
2,4,6-Trichlorophenol	88-0602	mg/Kg							UJ
Benzoic Acid	65-85-0	mg/Kg							UJ
Benzoic Acid	65-85-0	ug/L		UJ		UJ			
Hexachlorocyclopentadiene	77-47-4	ug/L		UJ		UJ			
2,4,6-Tribromophenol (Surrogate)		% REC		58		62		84	41
2-Fluoro-1,1'-Biphenyl (Surrogate		% REC		84		83		94	53
2-Fluorophenol (Surrogate)		% REC		72		70		80	48
d14-Terphenyl (Surrogate)		% REC		90		87		72	44
d5-Nitrobenzene (Surrogate)		% REC		81		77		89	49
d5-Phenol (Surrogate)		% REC		78		77		93	47
>Service Group: IN-CHEMICAL									
Cyanide	STORET 782	mg/Kg							< 1.0 D
Cyanide	STORET 782	mg/L		< 0.02 D		< 0.02		< 0.02 D	
>Service Group: IN-PHYSICAL									
Percent Dry Weight (105C)		%							75.3
Percent Dry Weight (60C)		%							64.1
>Service Group: METALS									
Aluminum	7429-90-5	ug/g							25000
Aluminum	7429-90-5	ug/L		<200		<200		<200	
Antimony	7440-36-0	ug/g							<0.5
Antimony	7440-36-0	ug/L		<10		<10		<10	
Arsenic	7440-38-2	ug/g							4.4

AR305214

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Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number: 93121401 TRP	93121402 RIN	93121503 TRP	93121504 RIN	93121604 TRP	93121605 RIN	93121606 SAM
Arsenic	7440-38-2	ug/L		<2		<2		<2	
Barium	7440-39-3	ug/g							85.0
Barium	7440-39-3	ug/L		<200		<200		<200	
Beryllium	7440-41-7	ug/g							0.5
Beryllium	7440-41-7	ug/L		<5		<5		<5	
Cadmium	7440-43-9	ug/g							<0.5
Cadmium	7440-43-9	ug/L		<5		<5		<5	
Calcium	7440-70-2	ug/g							3260
Calcium	7440-70-2	ug/L		<2000		<2000		<2000	
Chromium	7440-47-3	ug/g							210
Chromium	7440-47-3	ug/L		<10		<10		<10	
Cobalt	7440-48-4	ug/g							13.3
Cobalt	7440-48-4	ug/L		<50		<50		<50	
Copper	7440-58-8	ug/g							18.8
Copper	7440-58-8	ug/L		<25		<25		<25	
Iron	7439-89-6	ug/g							21500
Iron	7439-89-6	ug/L		<100		<100		<100	
Lead	7439-92-1	ug/g							46.3
Lead	7439-92-1	ug/L		<3		<3		<3	
Magnesium	7439-95-4	ug/g							2020
Magnesium	7439-95-4	ug/L		<500		<500		<500	
Manganese	7439-96-5	ug/g							387
Manganese	7439-96-5	ug/L		<15		<15		<15	
Mercury	7439-97-6	ug/g							< 0.1
Mercury	7439-97-6	ug/L		< 0.2		< 0.2		< 0.2	
Nickel	7440-02-0	ug/g							39.6
Nickel	7440-02-0	ug/L		<40		<40		<40	
Potassium	7440-09-7	ug/g							784
Potassium	7440-09-7	ug/L		<1000		<1000		<1000	
Selenium	7782-49-2	ug/g							0.7

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Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number: 93121401 TRP	93121402 RIN	93121503 TRP	93121504 RIN	93121604 TRP	93121605 RIN	93121606 SAM
Selenium	7782-49-2	ug/L		<5		<5		<5	
Silver	7440-22-4	ug/g							<1.0
Silver	7440-22-4	ug/L		<10		<10		<10	
Sodium	7440-23-5	ug/g							319
Sodium	7440-23-5	ug/L		<2000		<2000		<2000	
Thallium	7440-28-0	ug/g							<1.0
Thallium	7440-28-0	ug/L		<10		<10		<10	
Vanadium	7440-62-2	ug/g							71.0
Vanadium	7440-62-2	ug/L		<50		<50		<50	
Zinc	7440-66-6	ug/g							104
Zinc	7440-66-6	ug/L		<20		<20		<20	
>Service Group: ORGANICS									
Decachlorobiphenyl (Surrogate)	877-09-8	% REC		115		115		121	114
Tetrachloro-M-Xylene (Surrogate)	877-09-8S	% REC		86		93		92	100
>Service Group: VOA									
1,2-Dibromo-3-Chloropropane	96-12-8	ug/Kg							UJ
2-Butanone	78-93-3	ug/Kg							UJ
Acetone	67-64-1	ug/Kg							7 J
Acetone	67-64-1	ug/L	UJ	UJ	UJ	UJ	UJ	UJ	
Bromomethane	74-83-9	ug/L	UJ	UJ	UJ	UJ	UJ	UJ	
Chloroform	65-66-3	ug/L	2 J	0.7 J	1 J				
Chloromethane	74-87-3	ug/L	71.9	5.6	19.8	6.6	4 J	5.4	
Dichlorodifluoromethane	75-71-8	ug/Kg							UJ
Methylene Chloride	75-09-2	ug/Kg							4 B
Methylene Chloride	75-09-2	ug/L	1 J	1 J	2 J	1 J	1 J	1 J	
N-Butylbenzene	104-51-8	ug/L	UJ	UJ	UJ	UJ	UJ	UJ	

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Analyte:	CAS Number:	Units:	Sample Number:						
			93121401	93121402	93121503	93121504	93121604	93121605	93121606
			TRP	RIN	TRP	RIN	TRP	RIN	SAM
P-Isopropyltoluene	99-87-6	ug/L	UJ	UJ	UJ	UJ	UJ	UJ	
Bromofluorobenzene (Surrogate)	460-00-4	% REC	101	97	101	99	98	98	76
d4-1,2-Dichloroethane (Surrogate)	17060070	% REC	102	104	104	102	104	102	117
d8-Toluene (Surrogate)	2037265	% REC	93	92	93	91	92	91	121 A
Toluene	108-88-3	ug/L	UJ	UJ	UJ	UJ	UJ	UJ	
Trans-1,3-Dichloropropene	10061-02-6	ug/L	UJ	UJ	UJ	UJ	UJ	UJ	

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Analyte:	CAS Number:	Units:	Sample Number: 93121607 SAM	93121608 SAM	93121609 SAM	93121610 SAM	93121611 SAM	93121612 SAM	93121713 RIN
>Service Group: BNA									
3,3'-Dichlorobenzidine	91-94-1	mg/Kg	UJ						
Benzoic Acid	65-85-0	mg/Kg		UJ	UJ		UJ	UJ	
Benzoic Acid	65-85-0	ug/L							UJ
Hexachlorocyclopentadiene	77-47-4	mg/Kg		UJ	UJ		UJ		
2,4,6-Tribromophenol (Surrogate)		% REC	24	32	31	46	39	38	80
2-Fluoro-1,1'-Biphenyl (Surrogate		% REC	39	46	49	62	53	48	86
2-Fluorophenol (Surrogate)		% REC	31	38	42	47	50	43	69
d14-Terphenyl (Surrogate)		% REC	28	39	47	42	48	24	63
d5-Nitrobenzene (Surrogate)		% REC	30	45	46	51	53	42	70
d5-Phenol (Surrogate)		% REC	35	38	43	53	51	47	82
>Service Group: IN-CHEMICAL									
Cyanide	STORET 782	mg/Kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Cyanide	STORET 782	mg/L							< 0.02
>Service Group: IN-PHYSICAL									
Percent Dry Weight (105C)		%	75.2	70.8	86.4	90.2	69.6	71.4	
Percent Dry Weight (60C)		%	75.4	72.2	86.9	90.4	71.6	71.4	
>Service Group: METALS									
Aluminum	7429-90-5	ug/g	62600	28700	19800	18200	11200	21900	
Aluminum	7429-90-5	ug/L							<200
Antimony	7440-36-0	ug/g	<0.5 D	1.4	<0.5	<0.5	<0.5	1.5	
Antimony	7440-36-0	ug/L							<10
Arsenic	7440-38-2	ug/g	4.1	3.7	<0.5	<0.5	2.0	4.5	

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Analyte:	CAS Number:	Units:	Sample Number: 93121607 SAM	93121608 SAM	93121609 SAM	93121610 SAM	93121611 SAM	93121612 SAM	93121713 RIN
Arsenic	7440-38-2	ug/L							<2
Barium	7440-39-3	ug/g	175	109	57.3	51.9	52.8	100	
Barium	7440-39-3	ug/L							<200
Beryllium	7440-41-7	ug/g	1.1	0.6	<0.5	<0.5	<0.5	0.5	
Beryllium	7440-41-7	ug/L							<5
Cadmium	7440-43-9	ug/g	<1.0 D	<=0.5	<0.5	<0.5	<0.5	<0.5	
Cadmium	7440-43-9	ug/L							<5
Calcium	7440-70-2	ug/g	1060	1310	8120	8420	1570	1250	
Calcium	7440-70-2	ug/L							<2000
Chromium	7440-47-3	ug/g	876	384	157	117	154	303	
Chromium	7440-47-3	ug/L							<10
Cobalt	7440-48-4	ug/g	85.5	44.4	21.6	10.6	12.5	38.8	
Cobalt	7440-48-4	ug/L							<50
Copper	7440-58-8	ug/g	56.2	31.0	30.9	26.4	12.4	27.7	
Copper	7440-58-8	ug/L							<25
Iron	7439-89-6	ug/g	85000	37600	14900	14200	16700	33100	
Iron	7439-89-6	ug/L							<100
Lead	7439-92-1	ug/g	28.4	55.4	5.6	6.0	36.2	48.2	
Lead	7439-92-1	ug/L							<3
Magnesium	7439-95-4	ug/g	2880	1720	3210	3320	1660	1540	
Magnesium	7439-95-4	ug/L							<500
Manganese	7439-96-5	ug/g	1320	1350	225	96.3	578	1200	
Manganese	7439-96-5	ug/L							<15
Mercury	7439-97-6	ug/g	< 0.1	< 0.1	< 0.1	< 0.1 D	< 0.1	< 0.1	
Mercury	7439-97-6	ug/L							< 0.2
Nickel	7440-02-0	ug/g	146	64.4	33.6	28.1	23.0	52.6	
Nickel	7440-02-0	ug/L							<40
Potassium	7440-09-7	ug/g	800	869	383	478	261	657	
Potassium	7440-09-7	ug/L							<1000
Selenium	7782-49-2	ug/g	<0.5 D	0.5	<0.5	<0.5	0.6	0.8	

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number: 93121607 SAM	93121608 SAM	93121609 SAM	93121610 SAM	93121611 SAM	93121612 SAM	93121713 RIN
Selenium	7782-49-2	ug/L							<5
Silver	7440-22-4	ug/g	<4.0 D	<1.0	<1.0	<1.0	<1.0	<1.0	
Silver	7440-22-4	ug/L							<10
Sodium	7440-23-5	ug/g	<400 D	<200	1620	1650	<200	<200	
Sodium	7440-23-5	ug/L							<2000
Thallium	7440-28-0	ug/g	<1.0 D	<1.0	<1.0	<1.0	<1.0	<1.0	
Thallium	7440-28-0	ug/L							<10
Vanadium	7440-62-2	ug/g	254	110	46.4	34.8	51.4	94.8	
Vanadium	7440-62-2	ug/L							<50
Zinc	7440-66-6	ug/g	47.8	106	18.8	18.1	76.9	104	
Zinc	7440-66-6	ug/L							<20
>Service Group: ORGANICS									
Decachlorobiphenyl (Surrogate)	877-09-8	% REC	106	104	102	98	107	87	86
Tetrachloro-M-Xylene (Surrogate)	877-09-8S	% REC	94	87	89	86	97	67	95
>Service Group: VOA									
1,2-Dibromo-3-Chloropropane	96-12-8	ug/Kg		UJ			UJ	UJ	
2-Butanone	78-93-3	ug/Kg	UJ	UJ	UJ	UJ	UJ	UJ	
Acetone	67-64-1	ug/Kg	UJ	UJ	UJ	UJ	UJ	UJ	
Acetone	67-64-1	ug/L							UJ
Bromomethane	74-83-9	ug/L							UJ
Chloromethane	74-87-3	ug/Kg	UJ		UJ	UJ			
Chloromethane	74-87-3	ug/L							7.0
Dichlorodifluoromethane	75-71-8	ug/Kg		UJ			UJ	UJ	
Methylene Chloride	75-09-2	ug/Kg	2 B	4 B	2 B	2 B	4 B	4 B	
Methylene Chloride	75-09-2	ug/L							2 J
N-Butylbenzene	104-51-8	ug/L							UJ

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number:						
			93121607	93121608	93121609	93121610	93121611	93121612	93121713
			SAM	SAM	SAM	SAM	SAM	SAM	RIN
P-Isopropyltoluene	99-87-6	ug/L							UJ
Bromofluorobenzene (Surrogate)	460-00-4	% REC	95	81	97	98	79	76	98
d4-1,2-Dichloroethane (Surrogate)	17060070	% REC	100	111	104	103	114	117	105
d8-Toluene (Surrogate)	2037265	% REC	97	112	99	98	119 A	117	95
Toluene	108-88-3	ug/L							UJ
Trans-1,3-Dichloropropene	10061-02-6	ug/L							UJ

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number:						
			93121714 TRP	93121715 SAM	93121716 SAM	93122101 SAM	93122102 SAM	93122103 SAM	93122104 TRP
>Service Group: BNA									
3,3'-Dichlorobenzidine	91-94-1	mg/Kg					UJ	UJ	
Benzoic Acid	65-85-0	mg/Kg		UJ	UJ	UJ			
2,4,6-Tribromophenol (Surrogate)		% REC		59	48	71	53	66	
2-Fluoro-1,1'-Biphenyl (Surrogate		% REC		65	62	71	51	66	
2-Fluorophenol (Surrogate)		% REC		56	50	70	48	60	
d14-Terphenyl (Surrogate)		% REC		46	42	50	35	47	
d5-Nitrobenzene (Surrogate)		% REC		53	48	61	44	58	
d5-Phenol (Surrogate)		% REC		66	58	81	55	69	
>Service Group: IN-CHEMICAL									
Cyanide	STORET 782	mg/Kg		< 1.0 D	< 1.0	< 1.0	< 1.0	< 1.0 D	
>Service Group: IN-PHYSICAL									
Percent Dry Weight (105C)		%		76.9	75.5	79.1	62.2	74.0	
Percent Dry Weight (60C)		%		77.4	78.5	80.8	58.7	76.9	
>Service Group: METALS									
Aluminum	7429-90-5	ug/g		26800	26200	22600	11400	15400	
Antimony	7440-36-0	ug/g		0.7	<0.5	<0.5 D	<0.5	<0.5	
Arsenic	7440-38-2	ug/g		3.6	3.3	19.1	2.3	2.6	
Barium	7440-39-3	ug/g		140	96.8	135	45.0	64.5	
Beryllium	7440-41-7	ug/g		17.3	<0.5	1.1	<0.5	<0.5	
Cadmium	7440-43-9	ug/g		<1.0	<0.5	<0.5 D	<0.5	<0.5	
Calcium	7440-70-2	ug/g		6170	1760	4610	725	2470	
Chromium	7440-47-3	ug/g		461	338	43.1	49.1	108	

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number:						
			93121714	93121715	93121716	93122101	93122102	93122103	93122104
			TRP	SAM	SAM	SAM	SAM	SAM	TRP
Cobalt	7440-48-4	ug/g		55.0	45.4	16.3	<5.0	10.7	
Copper	7440-58-8	ug/g		396	27.9	29.3	7.2	19.2	
Iron	7439-89-6	ug/g		53000	32000	27500	5960	19900	
Lead	7439-92-1	ug/g		128	40.5	85.4	46.4	22.8	
Magnesium	7439-95-4	ug/g		2180	1890	5890	896	2160	
Manganese	7439-96-5	ug/g		1410	1120	770	23.8	153	
Mercury	7439-97-6	ug/g		< 0.1	< 0.1	< 0.1 D	< 0.1	< 0.1	
Nickel	7440-02-0	ug/g		100	83.0	35.0	12.2	25.0	
Potassium	7440-09-7	ug/g		824	428	1690	467	428	
Selenium	7782-49-2	ug/g		0.9	0.6	<0.5 D	0.6	<0.5	
Silver	7440-22-4	ug/g		<2.0	<1.0	<1.0 D	<1.0	<1.0	
Sodium	7440-23-5	ug/g		459	<200	589	<200	214	
Thallium	7440-28-0	ug/g		<1.0	<1.0	<1.0 D	<1.0	<1.0	
Vanadium	7440-62-2	ug/g		126	94.2	41.6	21.8	42.7	
Zinc	7440-66-6	ug/g		2620	90.8	140	28.3	31.1	
>Service Group: ORGANICS									
4,4'-DDE	72-55-9	mg/Kg				0.029 J	0.0041 J		
4,4'-DDT	50-29-3	mg/Kg				0.011 J			
Aldrin	309-00-2	mg/Kg		0.0054	0.0028		0.0051 J		
Beta BHC	319-85-7	mg/Kg		0.0074					
Decachlorobiphenyl (Surrogate)	877-09-8	% REC		98	106	115	114	114	
Tetrachloro-M-Xylene (Surrogate)	877-09-8S	% REC		87	91	109	101	102	
>Service Group: VOA									
1,2-Dibromo-3-Chloropropane	96-12-8	ug/Kg		UJ	UJ	UJ	UJ	UJ	
2-Butanone	78-93-3	ug/Kg		UJ	UJ	UJ	UJ	UJ	
Acetone	67-64-1	ug/Kg		UJ	UJ	UJ	UJ	UJ	

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number:						
			93121714	93121715	93121716	93122101	93122102	93122103	93122104
			TRP	SAM	SAM	SAM	SAM	SAM	TRP
Acetone	67-64-1	ug/L	UJ						UJ
Bromomethane	74-83-9	ug/L	UJ						UJ
Chloroform	65-66-3	ug/L							0.8 J
Chloromethane	74-87-3	ug/L	6.5						10.9
Dichlorodifluoromethane	75-71-8	ug/Kg		UJ	UJ	UJ	UJ	UJ	
Methylene Chloride	75-09-2	ug/Kg		5.0 B	4 B	1 B	5.2 B	1 B	
Methylene Chloride	75-09-2	ug/L	2 J						1 J
N-Butylbenzene	104-51-8	ug/L	UJ						UJ
P-Isopropyltoluene	99-87-6	ug/L	UJ						UJ
Bromofluorobenzene (Surrogate)	460-00-4	% REC	98	79	74	91	82	90	99
d4-1,2-Dichloroethane (Surrogate)	17060070	% REC	104	116	111	99	108	102	102
d8-Toluene (Surrogate)	2037265	% REC	91	105	104	101	110	103	93
Toluene	108-88-3	ug/L	UJ						UJ
Trans-1,3-Dichloropropene	10061-02-6	ug/L	UJ						UJ

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number: 93122105 RIN	93122106 TRP	93122107 RIN
>Service Group: BNA					
3,3'-Dichlorobenzidine	91-94-1	ug/L	UJ		UJ
2,4,6-Tribromophenol (Surrogate)		% REC	72		75
2-Fluoro-1,1'-Biphenyl (Surrogate		% REC	77		80
2-Fluorophenol (Surrogate)		% REC	68		73
d14-Terphenyl (Surrogate)		% REC	55		59
d5-Nitrobenzene (Surrogate)		% REC	68		69
d5-Phenol (Surrogate)		% REC	82		83
>Service Group: IN-CHEMICAL					
Cyanide	STORET 782	mg/L	< 0.02 D		< 0.02
>Service Group: METALS					
Aluminum	7429-90-5	ug/L	<200		<200
Antimony	7440-36-0	ug/L	<10		<10
Arsenic	7440-38-2	ug/L	<2		<2
Barium	7440-39-3	ug/L	<200		<200
Beryllium	7440-41-7	ug/L	<5		<5
Cadmium	7440-43-9	ug/L	<5		<5
Calcium	7440-70-2	ug/L	<2000		<2000
Chromium	7440-47-3	ug/L	<10		<10
Cobalt	7440-48-4	ug/L	<50		<50
Copper	7440-58-8	ug/L	<25		<25
Iron	7439-89-6	ug/L	<100		<100
Lead	7439-92-1	ug/L	<3		<3
Magnesium	7439-95-4	ug/L	<500		<500
Manganese	7439-96-5	ug/L	<15		<15

U.S. EPA Region III
Central Regional Laboratory
Annapolis, Md. 21401

Batch ID. REQ94026 Facility: BOARHEAD FARMS
Passed analyst data review

Analyte:	CAS Number:	Units:	Sample Number: 93122105 RIN	93122106 TRP	93122107 RIN
Mercury	7439-97-6	ug/L	< 0.2		< 0.2
Nickel	7440-02-0	ug/L	<40		<40
Potassium	7440-09-7	ug/L	<1000		<1000
Selenium	7782-49-2	ug/L	<5		<5
Silver	7440-22-4	ug/L	<10		<10
Sodium	7440-23-5	ug/L	<2000		<2000
Thallium	7440-28-0	ug/L	<10		<10
Vanadium	7440-62-2	ug/L	<50		<50
Zinc	7440-66-6	ug/L	<20		<20
>Service Group: ORGANICS					
Decachlorobiphenyl (Surrogate)	877-09-8	% REC	54 A		96
Tetrachloro-M-Xylene (Surrogate)	877-09-8S	% REC	94		89
>Service Group: VOA					
Acetone	67-64-1	ug/L	UJ		
Bromomethane	74-83-9	ug/L	UJ	UJ	UJ
Chloroform	65-66-3	ug/L	0.6 J		0.9 J
Chloromethane	74-87-3	ug/L	3 J	9.8	7.1
Methylene Chloride	75-09-2	ug/L	1 J		
N-Butylbenzene	104-51-8	ug/L	UJ		
P-Isopropyltoluene	99-87-6	ug/L	UJ		
Bromofluorobenzene (Surrogate)	460-00-4	% REC	98	94	95
d4-1,2-Dichloroethane (Surrogate)	17060070	% REC	103	102	103
d8-Toluene (Surrogate)	2037265	% REC	92	92	92
Toluene	108-88-3	ug/L	UJ		
Trans-1,3-Dichloropropene	10061-02-6	ug/L	UJ		

EPA Region III
Central Regional Laboratory
Inorganics
Nominal Quantitation Limits and Test Names

INORGANICS

	Aqueous			Solids		
Name	Test Name	NQL	Unit	Test Name	NQL	Unit
Acidity	ACDTY	4	mg/L			
Alkalinity	ALK01	2	mg/L			
Ammonia	NH301	0.04	mg/L			
Biological Oxygen Demand	BOD05	1	mg/L			
Bromide	BR001	0.5	mg/L			
Chloride	CL001	0.2	mg/L			
Color	COLOR	5	True Color Units			
Chemical Oxygen Demand	COD01	4	mg/L			
Cyanide	CN001	0.012	mg/L	CN002	1.2	mg/Kg
Dissolved Organic Carbon	DOC01	1	mg/L			
Fluoride	FL001	0.1	mg/L			
Hardness	HARD1	14	mg/L			
Hex Cr	HEXCR	10	ug/L			
Nitrate	NO301	0.04	mg/L			
Nitrite	NO201	0.01	mg/L			
Nitrite+Nitrate	NO23C	0.040	mg/L			
Oil and Grease	OG001	5	mg/L			
Ortho Phosphate	OP041	0.005	mg/L			
Phenol	PHENL	10	ug/L			
Phosphate	PO401	0.005	mg/L			
Silica	SI001	0.2	mg/L			
Sulfate	SO401	0.5	mg/L			
Sulfide	SUL01	0.2	mg/L			
Sulfite	SO201	Field Parameter				
Total Dissolved Solids	TDS01	10	mg/L			
Total Kjeldahl Nitrogen	TKN11	0.2	mg/L			
Total Organic Carbon	TOC01	1	mg/L			
Total Phosphate	TP001	0.01	mg/L			
Total Solids	TS001	10	mg/L			
Total Suspended Solids	TSS01	4	mg/L			

The "Nominal Quantitation Limit" listed for each parameter is the level of quantitation normally reported for undiluted samples. Methods used and and levels reported are as required by the analytical assignment.

October 1992

EPA Region III
Central Regional Laboratory
Metals
Nominal Quantitation Limits and Test Names

METALS

	Aqueous			Solids		
Name	Test Name	NQL	Unit	Test Name	NQL	Unit
Aluminum	AL011	200	ug/L	AL012	20	ug/g
Antimony	SB011	10	ug/L	SB012	1.0	ug/g
Arsenic	AS011	5	ug/L	AS012	0.5	ug/g
Barium	BA011	200	ug/L	BA012	20	ug/g
Beryllium	BE011	5	ug/L	BE012	0.5	ug/g
Cadmium	CD011	5	ug/L	CD012	0.5	ug/g
Calcium	CA011	1.0	mg/L	CA012	100	mg/Kg
Chromium	CR011	10	ug/L	CR012	1	ug/g
Cobalt	CO011	50	ug/L	CO012	5	ug/g
Copper	CU011	25	ug/L	CU012	2.5	ug/g
EP Tox Arsenic	EAS11	5	mg/L			
EP Tox Barium	EBA11	100	mg/L			
EP Tox Cadmium	ECD11	1	mg/L			
EP Tox Chromium	ECR11	5	mg/L			
EP Tox Lead	EPB11	5	mg/L			
EP Tox Mercury	EHG01	0.2	mg/L			
EP Tox Selenium	ESE11	1	mg/L			
EP Tox Silver	EAG11	5	mg/L			
Iron	FE011	100	ug/L	FE012	10	ug/g
Lead	PB011	3	ug/L	PB012	0.3	ug/g
Magnesium	MG011	0.5	mg/L	MG012	50	mg/Kg
Manganese	MN011	15	ug/L	MN012	1.5	ug/g
Mercury	HG001	0.2	ug/L	HG002	0.1	ug/g
Nickel	NI011	40	ug/L	NI012	4.0	ug/g
Potassium	KO011	1.0	mg/L	KO012	100	mg/Kg
Selenium	SE011	5	ug/L	SE012	0.5	ug/g
Silver	AG011	10	ug/L	AG012	1	ug/g
Sodium	NA011	1.0	mg/L	NA012	100	mg/Kg
TCLP Arsenic		5	mg/L			
TCLP Barium		100	mg/L			
TCLP Cadmium		1	mg/L			
TCLP Chromium		5	mg/L			
TCLP Lead		5	mg/L			
TCLP Mercury		0.2	mg/L			
TCLP Selenium		1	mg/L			
TCLP Silver		5	mg/L			
Thallium	TL011	5	ug/L	TL012	0.5	ug/g
Vanadium	VO011	50	ug/L	VO012	5	ug/g
Zinc	ZN011	20	ug/L	ZN012	2	ug/g

The "Nominal Quantitation Limit" listed for each parameter is the level of quantitation normally reported for undiluted samples. These levels meet or exceed the program requirements for CERCLA and RCRA. Methods used and levels reported are as required by the analytical assignment.

Central Regional Laboratory - Region III
Volatile Organics Analysis
Nominal Quantitation Limits (NQL)

Units: Aqueous = ug/L Non-aqueous = ug/Kg (Wet) NPTC = Non-Priority Pollutant Target Compound
Test: Water = VOA45 Soil = VOA46 Actual Quantitation Limit = (Dilution Factor) x NQL

CAS Number	Analyte		NQL	CAS Number	Analyte		NQL
75-71-8	Dichlorodifluoromethane		5	142-28-9	1,3-Dichloropropane	NPTC	5
74-87-3	Chloromethane		5	591-78-6	2-Hexanone	NPTC	5
75-01-4	Vinyl Chloride		5	124-48-1	Dibromochloromethane		5
74-83-9	Bromomethane		5	106-93-4	1,2-Dibromoethane (EDB)	NPTC	5
75-00-3	Chloroethane		5	108-90-7	Chlorobenzene		5
75-69-4	Trichlorofluoromethane		5	630-20-6	1,1,1,2-Tetrachloroethane	NPTC	5
75-35-4	1,1-Dichloroethylene		5	100-41-4	Ethylbenzene		5
75-15-0	Carbon Disulfide	NPTC	5	108-38-3	m-Xylene } (m & p isomers	NPTC	5
67-64-1	Acetone	NPTC	5	106-42-3	p-Xylene together)	NPTC	5
75-09-2	Methylene Chloride		5	95-47-6	o-xylene	NPTC	5
156-60-5	trans-1,2-Dichloroethene		5	100-42-5	Styrene	NPTC	5
75-34-3	1,1-Dichloroethane		5	75-25-2	Bromoform		5
108-05-4	Vinyl Acetate	NPTC	5	98-82-8	Isopropylbenzene	NPTC	5
590-20-7	2,2-Dichloropropane		5	108-86-1	Bromobenzene	NPTC	5
156-59-4	cis-1,2-Dichloroethene	NPTC	5	79-34-5	1,1,2,2-Tetrachloroethane		5
78-93-3	2-Butanone	NPTC	5	96-18-4	1,2,3-Trichloropropane	NPTC	5
74-97-5	Bromochloromethane	NPTC	5	103-65-1	n-Propylbenzene	NPTC	5
65-66-3	Chloroform		5	95-49-8	2-Chlorotoluene	NPTC	5
71-55-6	1,1,1-Trichloroethane		5	106-43-4	4-Chlorotoluene	NPTC	5
56-23-5	Carbon Tetrachloride		5	108-67-8	1,3,5-Trimethylbenzene	NPTC	5
563-58-6	1,1-Dichloro-1-propene		5	98-06-6	tert-Butylbenzene	NPTC	5
71-43-2	Benzene		5	93-63-6	1,2,4-Trimethylbenzene	NPTC	5
107-06-2	1,2-Dichloroethane		5	135-98-8	sec-Butylbenzene	NPTC	5
79-01-6	Trichloroethylene		5	541-73-1	1,3-Dichlorobenzene		5
78-87-5	1,2-Dichloropropane		5	106-46-7	1,4-Dichlorobenzene		5
74-95-3	Dibromomethane	NPTC	5	99-87-6	p-Isopropyltoluene	NPTC	5
75-27-4	Bromodichloromethane		5	95-50-1	1,2-Dichlorobenzene		5
110-75-8	2-Chloroethylvinylether		5	104-51-8	n-Butylbenzene	NPTC	5
10061-01-6	trans-1,3-Dichloropropene	NPTC	2	96-12-8	1,2-Dibromo-3-chloropropane	NPTC	5
108-10-1	4-Methyl-2-pentanone	NPTC	5	120-82-1	1,2,4-Trichlorobenzene		5
108-88-3	Toluene		5	91-20-3	Naphthalene		5
10061-01-5	cis-1,3-Dichloropropene		8	87-68-3	Hexachlorobutadiene		5
79-00-5	1,1,2-Trichloroethane		5	87-61-6	1,2,3-Trichlorobenzene	NPTC	5
127-18-4	Tetrachloroethylene		5				

The "Nominal Quantitation Limit" listed for each target compound is based on the Superfund CLP protocol. These have been verified at the Central Regional Laboratory using the method detailed by William Budde, et al., "Trace Analyses for Wastewater" Environmental Science and Technology, Volume 15, No. 12, December 1981, p. 1426-1435. The Actual Quantitation Limits are related to the NQLs by a dilution factor. This dilution factor reflects procedural steps, e.g., sample dilution, which influence the quantitation limits. The equations used for this dilution factor are as follows:

$$\text{Dilution Factor (water)} = \frac{5\text{mL (Ideal Sample Vol.)} \times \text{(Ext D. F.)}}{\text{Actual Sample Vol. (mL)}}$$

$$\text{Dilution Factor (nonaqueous)} = \frac{1^{*}\ 5\text{gm (Ideal Sample Wt.)} \times \text{(Ext D. F.)}}{\text{Actual Sample Wt. (gm)}}$$

*"Ext. D.F." in these equations refers to the extract dilution factor in the case of soils and the sample dilution factor in the case of aqueous samples.

October 1992

Central Regional Laboratory - Region III
Pesticide and PCB Analysis
Nominal Quantitation Limits (NQL)

Units: Aqueous = ug/L Non-aqueous = mg/kg (Wet) Fish = mg/kg (Wet) NPTC = Non-Priority Pollutant Target Compound
Test : Aqueous = PES61 Non-aqueous = PES62 Fish = PES44
PCB61 PCB62 PCB44

Actual Quantitation Limit = (Dilution Factor) x NQL

CAS Number	Pesticide		NQL
319-84-6	alpha-BHC		0.05
319-85-7	beta-BHC		0.05
319-86-8	delta-BHC		0.05
58-89-9	gamma-BHC		0.05
76-44-8	Heptachlor		0.05
309-00-2	Aldrin		0.05
1024-57-3	Heptachlor epoxide		0.05
959-98-8	Endosulfan I		0.05
60-57-1	Dieldrin		0.10
72-55-9	4,4'-DDE		0.10
72-20-8	Endrin		0.10
33213-65-9	Endosulfan II		0.10
72-54-8	4,4'-DDD		0.10
1031-07-8	Endosulfan sulfate		0.10
50-29-3	4,4'-DDT		0.10
7421-93-4	Endrin aldehyde		0.10
53494-70-5	Endrin ketone	NPTC	0.10
72-43-5	Methoxychlor	NPTC	0.05
5103-71-9	alpha-Chlordane		0.05
5103-74-2	gamma-Chlordane		0.05
57-74-9	Chlordane		1.0
8001-35-2	Toxaphene		5.0

CAS Number	PCB	NQL
12674-11-2	Aroclor-1016	1.0
1104-28-2	Aroclor-1221	2.0
11141-16-5	Aroclor-1232	1.0
53469-21-9	Aroclor-1242	1.0
12672-29-6	Aroclor-1248	1.0
11097-69-1	Aroclor-1254	1.0
11096-82-5	Aroclor-1260	1.0

The "Nominal Quantitation Limit" listed for each target compound is based on the Superfund CLP protocol. The Actual Quantitation Limits are related to the NQLs by a dilution factor. This dilution factor reflects procedural steps, e.g., extract dilution, which influence the quantitation limits. The equations used for this dilution factor are as follows:

$$\text{Dilution Factor (water)} = \frac{1\ \text{L (Ideal Sample Vol.)}}{\text{Actual Sample Vol. (L)}} * \text{Ext. D.F.} * \frac{\text{Final Ext. Vol. (mL)}}{10\ \text{mL (Ideal Final Vol.)}}$$

$$\text{Dilution Factor (non-aqueous)} = \frac{1}{30} * \frac{30\ \text{gm (Ideal Sample Wt.))}}{\text{Actual Sample Wt. (gm)}} * \text{Ext. D.F.} * \frac{\text{Final Ext. Vol. (mL)}}{10\ \text{mL (Ideal Final Vol.)}}$$

$$\text{Dilution Factor (Fish)} = \frac{1}{30} * \frac{\text{(40g (Ideal Sample Weight))}}{\text{Actual Sample Weight (gm)}} * \text{Ext D.F.} * \frac{\text{Final Ext. Vol. (mL)}}{10\ \text{mL (Ideal Final Vol.)}}$$

The "Ext. D.F." in these equations refers to the Extract Dilution Factor. The 1/30 value, included in the equation for the non-aqueous samples, is the conversion factor between soil and water NQLs as estimated by the EPA Superfund program (one significant figure).

Rev. 2.0 (6/17/92)

Central Regional Laboratory - Region III
Pesticide and PCB Analysis
Nominal Quantitation Limits (NQL)

Units: Oil = mg/kg Wipe = ug/wipe

Test: Oil = PCB43 Wipe = PCB45

Actual Quantitation Limit = (Dilution Factor) x NQL

CAS Number	PCB	NQL
12674-11-2	Aroclor-1016	1.0
1104-28-2	Aroclor-1221	2.0
11141-16-5	Aroclor-1232	1.0
53469-21-9	Aroclor-1242	1.0
12672-29-6	Aroclor-1248	1.0
11097-69-1	Aroclor-1254	1.0
11096-82-5	Aroclor-1260	1.0

The "Nominal Quantitation Limit" listed for each target compound is based on the Superfund CLP protocol. The Actual Quantitation Limits are related to the NQLs by a dilution factor. This dilution factor reflects procedural steps, e.g., extract dilution, which influence the quantitation limits. The equations used for the dilution factor are as follows:

$$\text{Dilution Factor (oil)} = \frac{1\text{ g (Ideal Sample Weight)}}{\text{Actual Sample Weight (g)}} * \text{Ext. D.F.} * \frac{\text{Final Ext. Vol. (mL)}}{\text{10 mL (Ideal Final Vol.)}}$$

$$\text{Dilution Factor (wipe)} = \frac{\text{1 wipe (Ideal Sample Number)}}{\text{Actual Number of Wipes}} * \text{Ext. D.F.} * \frac{\text{Final Extract Vol. (mL)}}{\text{10 mL (Ideal Final Vol.)}}$$

NOTE: All wipes received in one container will be extracted together.

The "Ext. D.F." in these equations refers to the Extract Dilution Factor.

Rev. 2.0 (6/17/92)

Central Regional Laboratory - Region III
Extractable Organics Analysis
Nominal Quantitation Limits (NQL)

Units: Aqueous = ug/L Non-aqueous = mg/Kg (Wet) NPTC = Non-Priority Pollutant Target Compound
Test : Aqueous = EXT31 Non-aqueous = EXT32 (1) = Cannot be separated from diphenylamine
Actual Quantitation Limit = (Dilution Factor) x NQL

CAS Number	Analyte		NQL	CAS Number	Analyte		NQL
62-75-9	N-Nitrosodimethylamine		10	99-09-2	3-Nitroaniline	NPTC	50
108-95-2	Phenol		10	83-32-9	Acenaphthene		10
62-53-34	Aniline	NPTC	10	51-28-5	2,4-Dinitrophenol		50
111-44-4	bis(2-Chloroethyl)Ether		10	100-02-7	4-Nitrophenol		50
95-57-8	2-Chlorophenol		10	132-64-9	Dibenzofuran	NPTC	10
541-73-1	1,3-Dichlorobenzene		10	606-20-2	2,6-Dinitrotoluene		10
106-46-7	1,4-Dichlorobenzene		10	121-14-2	2,4-Dinitrotoluene		10
100-51-6	Benzyl Alcohol	NPTC	10	84-66-2	Diethylphthalate		10
95-50-1	1,2-Dichlorobenzene		10	7005-72-3	4-Chlorophenylphenylether		10
95-48-7	2-Methylphenol	NPTC	10	86-73-7	Fluorene		10
108-60-1	bis(2-chloroisopropyl)Ether		10	100-01-6	4-Nitroaniline	NPTC	50
106-44-5	4-Methylphenol	NPTC	10	86-30-6	N-Nitrosodiphenylamine(1)		10
621-64-7	N-Nitroso-di-n-Propylamine		10	534-52-1	4,6-Dinitro-2-Methylphenol		50
67-72-1	Hexachloroethane		10	101-55-3	4-Bromophenylphenylether		10
98-95-3	Nitrobenzene		10	118-74-1	Hexachlorobenzene		10
78-59-1	Isophorone		10	87-86-5	Pentachlorophenol		50
88-75-5	2-Nitrophenol		10	85-01-8	Phenanthrene		10
105-67-9	2,4-Dimethylphenol		10	120-12-7	Anthracene		10
65-85-0	Benzoic Acid	NPTC	50	84-74-2	Di-n-Butylphthalate		10
111-91-1	bis(2-Chloroethoxy)Methane		10	206-44-0	Fluoranthene		10
120-83-2	2,4-Dichlorophenol		10	92-87-5	Benzidine		50
120-82-1	1,2,4-Trichlorobenzene		10	129-00-0	Pyrene		10
91-20-3	Naphthalene		10	85-68-7	Butylbenzylphthalate		10
106-47-8	4-Chloroaniline	NPTC	10	91-94-1	3,3'-Dichlorobenzidine		20
87-68-3	Hexachlorobutadiene		10	56-55-3	Benzo(a)Anthracene		10
59-50-7	4-Chloro-3-Methylphenol		10	117-81-7	bis(2-Ethylhexyl)Phthalate		10
91-57-6	2-Methylnaphthalene	NPTC	10	218-01-9	Chrysene		10
77-47-4	Hexachlorocyclopentadiene		10	117-84-0	Di-n-Octylphthalate		10
88-06-2	2,4,6-Trichlorophenol		10	205-99-2	Benzo(b)Fluoranthene		10
95-95-4	2,4,5-Trichlorophenol	NPTC	50	207-08-9	Benzo(k)Fluoranthene		10
91-58-7	2-Chloronaphthalene		10	50-32-8	Benzo(a)Pyrene		10
88-74-4	2-Nitroaniline	NPTC	50	193-39-5	Indeno(1,2,3-cd)Pyrene		10
131-11-3	Dimethylphthalate		10	53-70-3	Dibenzo(a,h)Anthracene		10
208-96-8	Acenaphthylene		10	191-24-2	Benzo(g,h,i)Perylene		10

The "Nominal Quantitation Limit" listed for each target compound is based on the Superfund CLP protocol. These have been verified at the Central Regional Laboratory using the method detailed by William Budde, et al., "Trace Analyses for Wastewater" Environmental Science and Technology, Volume 15, No. 12, December 1981, p. 1426-1435. The Actual Quantitation Limits are related to the NQLs by a dilution factor. This dilution factor reflects procedural steps, e.g., extract dilution, which influence the quantitation limits. The equations used for this dilution factor are as follows:

$$\text{Dilution Factor (water)} = \frac{1\ \text{L (Ideal Sample Vol.)}}{\text{Actual Sample Vol. (L)}} * \frac{\text{Ext. D.F.}}{} * \frac{\text{Final Ext. Vol. (mL)}}{1\ \text{mL (Ideal Final Vol.)}}$$

$$\text{D. F. (non-aqueous)} = \frac{1 * (30\ \text{gm (Ideal Sample Wt.)})}{30 * \text{Actual Sample Wt. (gm)}} * \frac{\text{Ext. D.F.}}{} * \frac{\text{Final Ext. Vol. (mL)}}{1\ \text{mL (Ideal Final Vol)}}$$

The "Ext. D.F." in these equations refer to the Extract Dilution Factor. The 1/30 value, included in the equation for the non-aqueous samples, is the conversion factor between soil and water NQLs as estimated by the EPA Superfund program (one significant figure).

REGION III
CENTRAL REGIONAL LABORATORY
QUALIFIER CODES

A = Quality Control value is outside acceptance limits.

B = Not detected substantially above (10 times) the level reported in the laboratory or field blanks (includes field, trip, rinsate, and equipment blanks).

C = See report narrative for analyst's observations concerning this result.

D = Sample and duplicate value below quantitation limit. Quantitation limit reported.

E = Value exceeds a theoretically equivalent or greater value (e.g. dissolved > total, orthophosphate > total phosphorus). However, the difference is within the expected precision of the analytical techniques and is not statistically significant.

I = An interference exists which masks true response. See report narrative for explanation.

J = Analyte present. Reported value is estimated; concentration is below the level for accurate quantitation.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

MSA= Method of Standard Additions

N = Presumptive evidence indicates the presence of compound. Special methods and/or method modifications may be needed to confirm its presence or absence in future sampling efforts.

NA = Analysis was not requested.

Q = No analytical results. See report narrative for explanation.

R = Unreliable results, Analyte may or may not be present in the sample. Supporting data is necessary to confirm results.

RPD= Results for method duplicates are expressed as the mean and the relative percent difference.

T = Tentatively identified compound. Identified as a result of a library search using the EPA/NIH Mass Spectral Library. Authentic standards were not available to properly identify and quantitate the compound. The reported concentration is an estimate.

TD = Spike recovery too dilute for accurate quantitation.

UJ = Not detected. Quantitation limit is estimated.

UL = Not detected. Quantitation limit is probably higher.

< = Sample value below quantitation limit. Quantitation limit reported.
≤ = Reported value is estimated. Sample analyzed in duplicate, one value is equal to or above the quantitation limit and one below. Average of quantitation limit and detected value reported.

Numbers in parentheses are analytical (post-digestion) spike recoveries.
Numbers in brackets are matrix [pre-digestion] spike recoveries.

PCB/PESTICIDE ANALYSIS BY GC

Analyst:

Timothy M. Casey
Chemist/Lockheed

Method:

The samples from Boarhead Farms were analyzed by capillary column gas chromatography for polychlorinated biphenyls and organochlorine pesticides listed on the priority pollutants compound list. The samples were collected on December 13, 14, 15, 16, 17, and 18, 1993. The extractions of the samples were performed on December 16, 21, 22, and 28, 1993. One liter of each aqueous sample was extracted between eighteen and twenty-four hours with methylene chloride by continuous liquid-liquid extraction. Each extract was subsequently reduced to 10 mL in hexane using Kuderna-Danish flasks. Approximately 30 gram portions of each soil sample were weighed, and the soil extracted by sonication in a 1:1 mixture of methylene chloride and acetone. Each extract was subsequently reduced to 10 mL in hexane using Kuderna-Danish flasks. All extractions and analyses were performed according to SOP R3-QA207.0. This SOP is a consolidated method derived from the Superfund CLP Statement of Work OLM01.9.

Analysis of all sample extracts began on January 4, 1994 and continued until January 13, 1994. All sample extracts were analyzed on a Hewlett-Packard 5890 gas chromatograph (GC) equipped with an automatic injector and dual electron capture detectors (ECDs). All samples, standards, and laboratory control solutions were run on dual columns connected by an injector port tee. The fused silica capillary column connected to the front ECD was a J&W Scientific DB-608 (30 m., 0.53 mm ID). The fused silica capillary column connected to the rear ECD was a J&W Scientific DB-1701 (30 m., 0.53 mm ID). Data were obtained from these analyses using the Millenium data acquisition and processing software. Unless otherwise noted, all quantitation was performed using the DB-1701 primary column.

Identification of organochlorine pesticides was accomplished by comparing retention times of known pesticides with the peaks observed in the sample extract chromatograms. A retention time window of 1.5% of the retention time of the standard chromatogram was used for identification of target compounds. Identification of PCBs was accomplished by matching the profile of known PCBs with patterns exhibited in the target sample chromatograms. Quantitation of multi-responding compounds was based on the average of several calibrated peaks. The quantitation of all surrogate compounds was based on a five-point average response factor where the relative standard deviation is less than 20%. The quantitation of all target analytes was based on a five-point linear regression where the correlation coefficient is greater than 0.995 for pesticides, and on a three-point linear regression where the correlation coefficient is greater than 0.995 for PCBs.

All soil results are reported on a WET WEIGHT basis.

Quality Control:

The two fused silica capillary columns of the HP5890 Gas Chromatograph were calibrated with five levels of the certified pesticide standards. A breakdown check standard and a mid-level check standard were analyzed concurrent with sample analyses. To monitor instrument stability, each sample sequence was interspersed with mid-level check standards and ended with a mid-level check standard. If initial and/or continuing calibration check criteria are not satisfied for a particular analyte on one column, quantitation of that analyte will be performed using the other column (assuming valid linearity). If linearity cannot be achieved on either column, the problem will be addressed, and a new curve will be generated.

A representative standard or a three-point calibration for each Toxaphene and each PCB was analyzed at the beginning of the analytical sequence for pattern recognition or quantitation. The injection volume was 3 uL for the standards, samples, and quality control solutions. An automatic sampler (HP 7673A) was used for injection.

Surrogates tetrachloro-meta-xylene (TMX) and decachlorobiphenyl (DCBP) were added to all target samples and quality control samples. With each sample set, a laboratory blank and matrix spikes (in duplicate) are analyzed. An in-house performance audit is analyzed at least quarterly to assure satisfactory method performance. Recoveries and duplicate results are monitored to demonstrate acceptable system performance.

One (1) of the thirty-six (36) sample surrogate recoveries was outside the 60% - 150% advisory limits. The recovery outside of advisory limits has been flagged "A".

Four quality control surrogate results were were outside of the advisory limits. The recoveries outside the advisory limits have been flagged "A".

All remaining recoveries for surrogate and spiked compounds were within advisory limits.

Methoxyclor was calibrated using a four (4) point calibration on the confirmation column due to a high level response outside of the tolerance limits of the data system.

Soil samples 931221-01, 931221-02, and 931221-03 were prepared outside of technical sample holding times. The results should be regarded as estimated.

Continuing calibration criteria were monitored for target pesticides. Endosulfan I percent difference (%D) was outside the check standard criterion on the confirmation column for the check standard analyzed at 4:41 on January 6. This did not impact target analyte quantitation.

All soil samples were treated with mercury to remove sulfur interferences.

Several samples were observed to contain target pesticides at low level. The presence was confirmed using a column of differing selectivity.

SURROGATE RECOVERY LIMITS

COMPOUND	PERCENT RECOVERY
Tetrachloro-meta-xylene	60-150
Decachlorobiphenyl	60-150

BLANK SPIKE RESULTS

SAMPLE: LFM1/LFM2 12/16

COMPOUND	TRUE VALUE (ug/L)	PERCENT RECOVERY LFM1	LFM2	RPD	QC LIMITS %REC	RPD
Gamma-BHC	0.200	92	95	3	56-123	15
Heptachlor	0.200	91	94	3	40-131	20
Aldrin	0.200	87	88	1	40-120	22
Dieldrin	0.400	96	98	2	52-126	18
Endrin	0.400	94	93	1	56-121	21
4,4'-DDT	0.400	96	98	2	38-127	27

SAMPLE: LFM1/LFM2 12/22

COMPOUND	TRUE VALUE (ug/L)	PERCENT RECOVERY LFM1	LFM2	RPD	QC LIMITS %REC	RPD
Gamma-BHC	0.200	90	86	4	56-123	15
Heptachlor	0.200	84	82	2	40-131	20
Aldrin	0.200	82	80	2	40-120	22
Dieldrin	0.400	87	84	4	52-126	18
Endrin	0.400	82	85	4	56-121	21
4,4'-DDT	0.400	88	85	3	38-127	27

SAMPLE: LFM 12/21

COMPOUND	TRUE VALUE (mg/Kg)	PERCENT RECOVERY LFM	QC LIMITS %REC
Gamma-BHC	0.0133	55	46-127
Heptachlor	0.0133	52	35-130
Aldrin	0.0133	46	34-132
Dieldrin	0.0267	55	31-134
Endrin	0.0267	58	42-139
4,4'-DDT	0.0267	57	23-134

SAMPLE: LFM 12/28

COMPOUND	TRUE VALUE (mg/Kg)	PERCENT RECOVERY LFM	QC LIMITS %REC
Gamma-BHC	0.0133	101	46-127
Heptachlor	0.0133	104	35-130
Aldrin	0.0133	98	34-132
Dieldrin	0.0267	100	31-134
Endrin	0.0267	93	42-139
4,4'-DDT	0.0267	92	23-134

MATRIX SPIKE RESULTS

SAMPLE: 93121606

COMPOUND	TRUE VALUE (mg/Kg)	PERCENT RECOVERY LF1	LF2	RPD	QC LIMITS %REC	RPD
Gamma-BHC	0.0133	77	80	4	46-127	50
Heptachlor	0.0133	77	84	9	35-130	31
Aldrin	0.0133	75	85	12	34-132	43
Dieldrin	0.0267	85	86	1	31-134	38
Endrin	0.0267	91	92	1	42-139	45
4,4'-DDT	0.0267	91	91	0	23-134	50

AUDIT RESULTS

SAMPLE: PCB AUDIT - 12/16

COMPOUND	TRUE VALUE (ug/L)	PERCENT RECOVERY LCM	LCD	RPD	QC LIMITS %REC	RPD
Aroclor 1260	25.0	108	111	3	8-127	NA

SAMPLE: PCB AUDIT - 12/22

COMPOUND	TRUE VALUE (ug/L)	PERCENT RECOVERY LCM	LCD	RPD	QC LIMITS %REC	RPD
Aroclor 1260	25.0	109	108	1	8-127	NA

SAMPLE: PCB AUDIT - 12/21

COMPOUND	TRUE VALUE (mg/Kg)	PERCENT RECOVERY LCM	LCD	RPD	QC LIMITS %REC	RPD
Aroclor 1260	45.2	56	51	9	33-137	NA

SAMPLE: PCB AUDIT - 12/28

COMPOUND	TRUE VALUE (mg/Kg)	PERCENT RECOVERY LCM	LCD	RPD	QC LIMITS %REC	RPD
Aroclor 1260	45.2	92	90	2	33-137	NA

SAMPLE VOLUMES AND NQL FACTORS

SAMPLE	VOLUME	NQL FACTOR
93121402	1 L	1.0
93121504	1 L	1.0
93121605	1 L	1.0
93121713	1 L	1.0
93122105	1 L	1.0
93122107	1 L	1.0

$$\text{NQL FACTOR} = \frac{\text{1 L (Ideal Sample Vol)}}{\text{Actual Sample Vol (L)}} * \text{Ext.D.F.} * \frac{\text{Final-Ext. Vol. (mL)}}{\text{10 mL (Ideal Final Vol)}} \text{ (Water)}$$

SAMPLE WEIGHTS AND NQL FACTORS

SAMPLE	WEIGHT	NQL FACTOR
93121606	30.0 g	1.0
93121607	30.0 g	1.0
93121608	30.1 g	0.997
93121609	30.3 g	0.990
93121610	30.1 g	0.997
93121611	30.0 g	1.0
93121612	30.1 g	0.997
93121715	30.0 g	1.0
93121716	30.0 g	1.0
93122101	30.8 g	0.974
93122102	30.0 g	1.0
93122103	30.9 g	0.971

$$\text{NQL FACTOR} = \frac{\text{30 g(Ideal Sample Wt.)}}{\text{Actual Sample Wt. (g)}} * \text{Ext.D.F.} * \frac{\text{Final Ext. Vol. (mL)}}{\text{10 mL (Ideal Final Vol)}} \text{ (Soil)}$$

Additional Quality Control Result will be provided upon request.

IRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
841 Chestnut St.
Philadelphia, Pennsylvania 19107

CHAIN OF CUSTODY RECORD

PROJ. NO.: 18-3142.0
PROJECT NAME: Boarhead Farms
SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL VOA	TCL BNA/PEST/PCB	TAL total metals	TAL cyanide	REMARKS
SB392/456	12/17/93	1340		X	SB392/456	1 6	X	X	X 93122101		tag# 3-1202164 Thru 69
SB393/460	12/17/93	1400		X	SB392/460	2 6	X	X	X 93122102		tag# 3-1202170 Thru 75
SB394/461	12/17/93	1415		X	SB394/461	3 6	X	X	X 93122103		tag# 3-1202176 Thru 81
TB121793/462	12/17/93	0730		X	TB121793/462	4 3	X		93122104		tag# 3-1202182 Thru 84 trip blank
EB121793/463	12/17/93	0800		X	EB121793/463	5 6	X	X	X 93122105		tag# 3-1202185 Thru 90 equip blank
TB121893/464	12/18/93	0800		X	TB121893/464	6 3	X		93122106		tag# 3-1202191 Thru 93 trip blank
EB121893/465	12/18/93	0815		X	EB121893/465	7 7	X	X	X 93122107		tag# 3-1202194 Thru 200 equip blank

aqueous samples preserved &
TCL VOA → HCl pH<2
TAL total metals → HNO_3 pH<2
TAL cyanide → NaOH pH>12

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	12/20/93 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		William Pabst, Jr.	12/21/93 10:32		1 of 1 fedex# 0928456546

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

AR305239

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Region III, Central Regional Laboratory
Annapolis, Maryland
HAZARD AND RISK EXPOSURE DATA SHEET
LEVELS OF PERSONAL PROTECTION DURING SAMPLING

BACKGROUND

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clear Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment.

GENERAL

This form is to be used when collecting Environmental Samples (i.e. streams, farm ponds, wells, soils etc.) and for Hazardous Samples (i.e. drums, storage tanks, lagoons, leachates, hazardous waste sites). This information is intended for use as a guide for the safe handling of these laboratory samples in accordance with EPA and OSH regulations. The sample classification(s) and levels of personal protection used by the sampler in all situations will enable the analyst to be better aware of potential exposure to substances in air, splashes of liquids, or other direct contact with material due to work being done.

DEGREE OF PROTECTION

____ Level A: Highest level of respiratory, skin, and eye protection needed.
Fully encapsulated suit, respirator self-contained (Tank type)

____ Level B: Highest level of respiratory protection but lesser level of skin protection needed.
Chemical suit, respirator self-contained (Tank type)

____ Level C: Lesser level of respiratory protection than Level B. Skin protection criteria are similar to Level B.
Chemical suit, cannister respirator/cartridge

✓ Level D: Work uniform without any respirator or skin hazards.
Lab coat, gloves etc.

CLASSIFIED FIELD SAMPLES

____ Environmental ✓ Hazardous ____ Comb. (Env. & Haz.) ____ Radioactive

Site Name: Boorhead Farms Sampling Date: 12/17+12/18/93

Sta No.	TB121793/ 462	EB121793/ 463		TB121893/ 464	EB121893/ 465			SB392/ 456	SB393/ 460	SB394/ 461
Field pH:	pH<2	pH<2 x12		pH<2	pH<2 x12			—	—	—

(must be taken prior to submission of aqueous samples)

Sampler: [illegible] Work Phone Number: 215 563 4220

Personal observations at time of sampling (surroundings): residential property wooded + open areas

Sample collection observations (physical sample, odors etc.) none

AR305240

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Street Address

1216 ARCH STREET 6TH FLR

City | State | ZIP Required

PHILADELPHIA | PA | 19107

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Company | Department/Floor No.

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City | State | ZIP Required

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12 FEDEX PAK*
13 FEDEX BOX
14 FEDEX TUBE

Standard Overnight (Delivery by next business afternoon; No Saturday delivery)
51 OTHER PACKAGING
56 FEDEX LETTER*
52 FEDEX PAK*
53 FEDEX BOX
54 FEDEX TUBE

Economy Two-Day (Delivery by second business day)
30 ECONOMY**

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Dry Ice: 9, UN 1845, ____ x ____ kg. 904 III
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Emp. No. | Date

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Third Party | Chg. To Del. | Chg. To Hold

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REVISION DATE 12/92
PART #137204 NCREC 7/93
FORMAT #158

158

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AR305241

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

Philadelphia, Pennsylvania 19107

PROJ. NO.: 18-3L420
PROJECT NAME: Boarhead Farms
SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL VOA	TCL BNA PEST PCB	TAL total metals	TAL cyanide		REMARKS
EB121693/449	12/16/93	0845		X	EB121693/449	13 7	X	X	X	X	93121713	tag# 3-1202718 Thru 24 equip blank
TB121693/448	12/16/93	0830		X	TB121693/448	14 3	X				93121714	tag# 3-1202715 Thru 17 trip blank
SB95/457	12/16/93	1000		X	SB95/457	15 6	X	X	X		93121715	tag# 3-1202725 Thru 30
SB222/458	12/16/93	1430		X	SB222/458	16 6	X	X	X		93121716	tag# 3-1202731 Thru 36
												aqueous samples preserved w/:
												VOA HCl pH<2
												total metal HNO3 pH<2
												cyanide NaOH pH>12
												bna pest pcb ice only
												~~soils~~ 48 dilutions

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	12/16/93				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Linda Vaughan	Date / Time 12/17/93 09:37	Remarks plofl fedex # 0928456852	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

AR305242

3 15309

Region III, Central Regional Laboratory
Annapolis, Maryland
HAZARD AND RISK EXPOSURE DATA SHEET
LEVELS OF PERSONAL PROTECTION DURING SAMPLING

BACKGROUND

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clea: Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA ha: been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment.

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____ Level C: Lesser level of respiratory protection than Level B. Skin protection criteria are similar to Level B. Chemical suit, cannister respirator/cartridge

X Level D: Work uniform without any respirator or skin hazards. Lab coat, gloves etc.

CLASSIFIED FIELD SAMPLES

____Environmental X Hazardous ____Comb. (Env. & Haz.) ____Radioactive

Site Name: Boarhead Farms Sampling Date: 12/16/93

	TB121693/	EB121693/	SB395/	SB222/				
Sta No.	448	449	457	458				
Field pH:	ph<2	ph<2 ph>12						

(must be taken prior to submission of aqueous samples)

Sampler: [illegible] Work Phone Number: 215 563 4220

Personal observations at time of sampling (surroundings): wooded area

Sample collection observations (physical sample, odors etc.)

AR305243