FINAL

INSTALLATION RESTORATION PROGRAM

REMEDIAL INVESTIGATION REPORT
SITE 2 - PESTICIDE PIT BURIAL AREA

STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

VOLUME II OF II

SEPTEMBER 1997



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DTIC QUALITY INSPECTED 3

Prepared For
AIR NATIONAL GUARD READINESS CENTER
ANDREWS AFB, MARYLAND 20762-5157

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Site 2-Pesticide Pit Burial Area was investigated under the Installation Restoration Program. A removal action was conducted in 1988, when pesticide containers and contaminated soil were excavated from the pit. The pit covered an area of approximately 1000 square feet and was approximately 12 feet deep. The report recommends no further action based on study results.

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APPENDIX A

BASEWIDE SITE INVESTIGATION DATA

TABLE 7-3
WATER LEVEL OBSERVATIONS

STEWART ANGB, NEW YORK

LOCATION	CASING ELEVATION (FT)	8/11/87 ELEVATION (FT)	8/14/87 ELEVATION (FT)	9/2/87 ELEVATION (FT)	9/14/87 ELEVATION (FT)	1/18/89 ELEVATION (FT)
JMW-101	440.21	429.63	408.77[3]	429	431.83	428.55
JMW-107	367.43	357.18	356.88	356.7	359.0	361.67
JMW-108	370.85	362.35	362.15	362.27	362.14	366.99
JMW-109	374.45	364.4	364.33	366.09	369.48	669.80
JTB-100A	436.6	--	--[1]	405.02	404.7	405.14
JTB-100B	436.6	--	422.6[2]	405.15	404.32	405.82
JTB-101A	440.15	406.55	403.54	407.34	406.41	407.84
JTB-101B	440.15	406.59	403.54	407.35	406.45	407.88
JTB-102A	430.36	--	392.68	393.29	393.35	394.02
JTB-102B	430.36	--	395.17	393.18	396.77	397.49
JTB-102C	430.36	--	416.01	416.18	417.4	417.71
JTB-103A	435.48	--	420.63[2]	404.79	403.86	413.18[3]
JTB-103B	435.48	--	420.12[2]	404.95	403.95	407.68
JTB-104A	437.95	--	413.82	414.19	414.83	417.45
JTB-104B	437.95	--	414.06	414.53	415.15	418.34
JTB-104C	437.95	--	419.88	420.55	424.06	425.47
JTB-105A	394.57	376.63	376.36	376.64	376.25	377.95
JTB-105B	394.57	377.3	377.12	378.98	377.25	378.72
JTB-105C	394.57	280.96	380.66	380.26	382.05	382.59
JTB-106A	389.95	371.32	371.24	371.76	371.39	373.15
JTB-106B	389.95	371.68	371.75	372.1	371.77	373.31
JTB-107A	367.99	356.54	356.37	356.3	357.92	360.96
JTB-107B	367.99	356.54	356.37	--	358.39	361.12
JTB-108A	370.25	360.73	360.58	360.81	360.68	364.92
JTB-108B	370.25	360.45	360.17	360.72	360.49	364.81
JTB-109A	374.01	364.19	364.08	365.91	368.81	369.28
JTB-109B	374.01	364.19	364.05	365.77	369.48	369.82
JTB-110A	364.22	346.31	346.18	346.36	346.85	352.90
JTB-110B	364.22	346.19	346.17	346.26	346.75	352.85

[1] Depth below top of casing.
[2] Not installed by this date.
[3] May be an anomalous measurement.

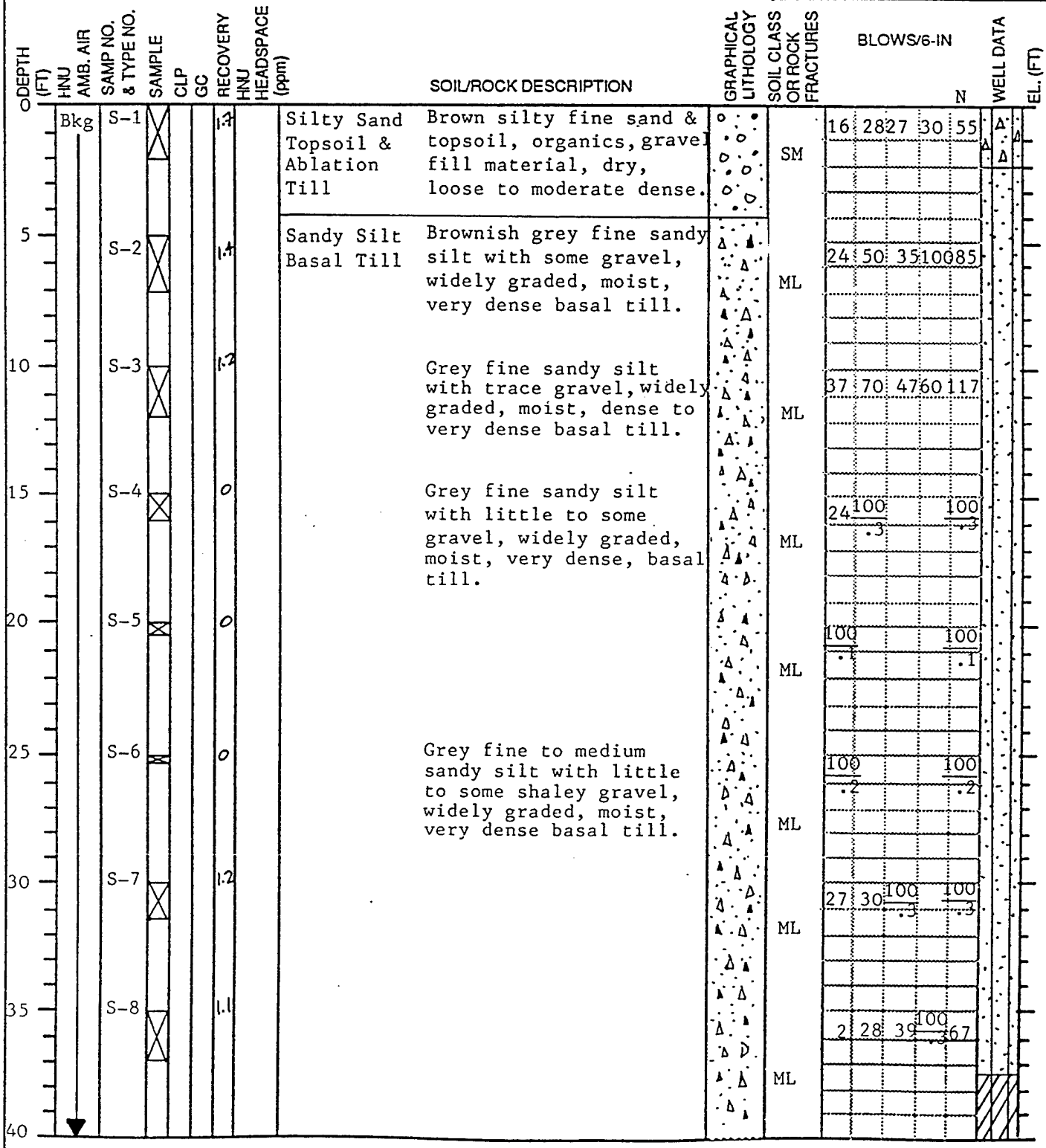
APPENDIX B-1

SOIL BORING LOGS (INCLUDING PIEZOMETER AND MONITORING WELL INSTALLATION DIAGRAMS)

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-10

CLIENT: STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR: EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/13/87	COMPLTD. 8/14/87
METHOD: Spun casing	CASING SIZE: 4" I.D.	HNU TIP: 10.6	PROTECTION LEVEL: B C D
GROUND EL: 433.93	SOIL DRILLED: 45.6'	ROCK DRILLED: 10'	FT BELOW GROUND: 55.6
LOGGED BY: J. Urquhart	CHECKED BY: FFB	DATE: 11-10-87	



* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-100

CLIENT: STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR: EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/13/87	COMPLTD. 8/14/87
METHOD: Spun casing	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 433.93	SOIL DRILLED 45.6'	ROCK DRILLED 10'	FT BELOW GROUND 55.6
LOGGED BY J. Urquhart	CHECKED BY FFB	DATE 11-10-87	

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CLP GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN N	WELL DATA	EL. (FT)
40	Bkg	S-9					Sandy Silt: Grey fine sandy silt with little clay, trace gravel. Clay structure has thin laminations. Widely graded, moist, cohesive medium dense to dense.		ML	24 47 4760 94		
45		S-10			2		45.6' Shale: Black, dark grey extremely weathered shale, Fe staining on fractured surfaces, thinly bedded.			84 100/.1		
50							Roller bit 45.6' to 55.6'					
55							B.O.B. 55.6'					
60												

* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-10

CLIENT - STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8-4-87	COMPLTD. 8-7-87
METHOD HSA/Spin casing	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 437.64	SOIL DRILLED 37.7	ROCK DRILLED 8.8	FT BELOW GROUND 46.5
LOGGED BY S. Pinette	CHECKED BY FFB	DATE 11-10-87	Page 1 of 2

DEPTH (FT)	INU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CIP	GC	RECOVERY INU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN or RQD %	WELL DATA	EL. (FT)
0	Bkg	S-1				0.5	Fine Sand Fill & Ablation Till: Light yellowish brown with grass roots, loose dry uniform; over very fine & with little coarse sand, trace gravel		SW	8 60		
5		S-2				1.4	6' Fine Sand Basal Till: Olive brown, silty, trace clay & coarse sand & gravel, very dense, dry, gap graded		SM	8 31 6570		
10		S-3				1.3	Olive gray with fine to medium gravel, fine to coarse sand, some clay, moderately plastic, very firm, moist			– 50 44 63		
15		S-4				1.4				48 82 90100/0.2		
20		S-5				1.3	As above with more fine sand			38 63 80 –		
25		S-6				0.7				63 100/0.4		
30		S-7				0.4	As above with little clay, low plasticity, moist, very hard		SM	100/0.2		
35		S-8				0	As above but mixed with weathered shale fragments			100/0.2		
							37.7' Top of Rock					
40		R-1				77%	Shale: Medium gray, well cleaved, cleavage surfaces stained with oxidation, cleavage at 45°			0%		

* U= THIN WALL S= SPLIT SPOON R= ROCK

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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-101

CLIENT : STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/4/87	COMPLTD. 8/7/87
METHOD HSA/Spun casing	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 437.64	SOIL DRILLED 37.7'	ROCK DRILLED 8.8'	FT BELOW GROUND 46.5
LOGGED BY S. Pinette	CHECKED BY FFB	DATE 11-10-87	Page 2 of 2

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CIP	GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN or RQD % (20 40 60 80)	WELL DATA	EL. (FT)
40		R-1						Shale Medium gray, well cleaned @ 45°, staining on cleavage surfaces, very broken;					
45		R-2				100%		Sandstone interbedded with shale at 42.6 to 43.3					
								B.O.B. @ 46.5'					
50													

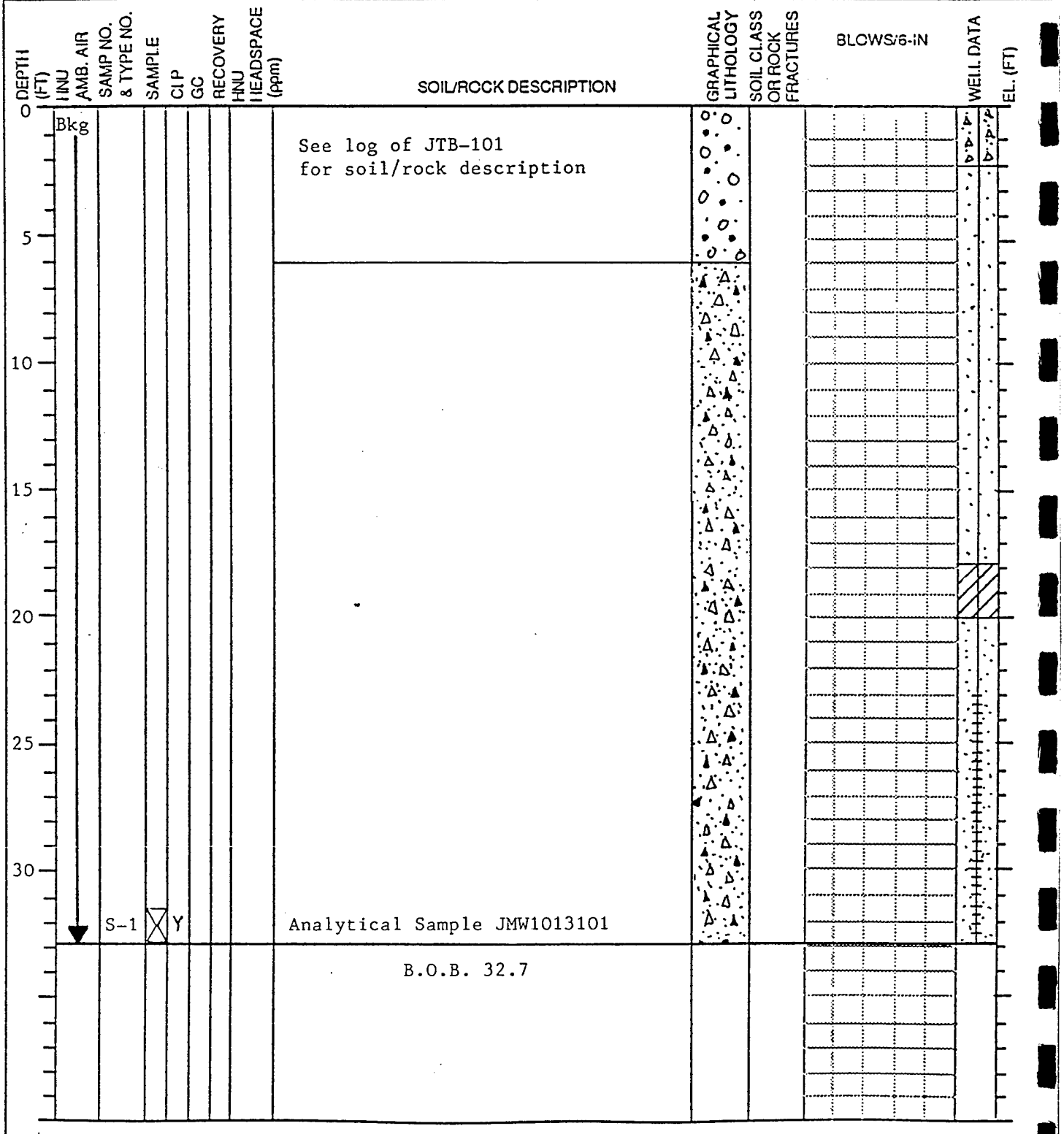
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INSTALLATION RESTORATION PROGRAM

BORING NO. JMW-101

CLIENT - STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8-7-87	COMPLTD. 8-10-87
METHOD HSA	CASING SIZE 4.25" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 437.83	SOIL DRILLED 32.5	ROCK DRILLED 0.2	FT BELOW GROUND 32.7
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	



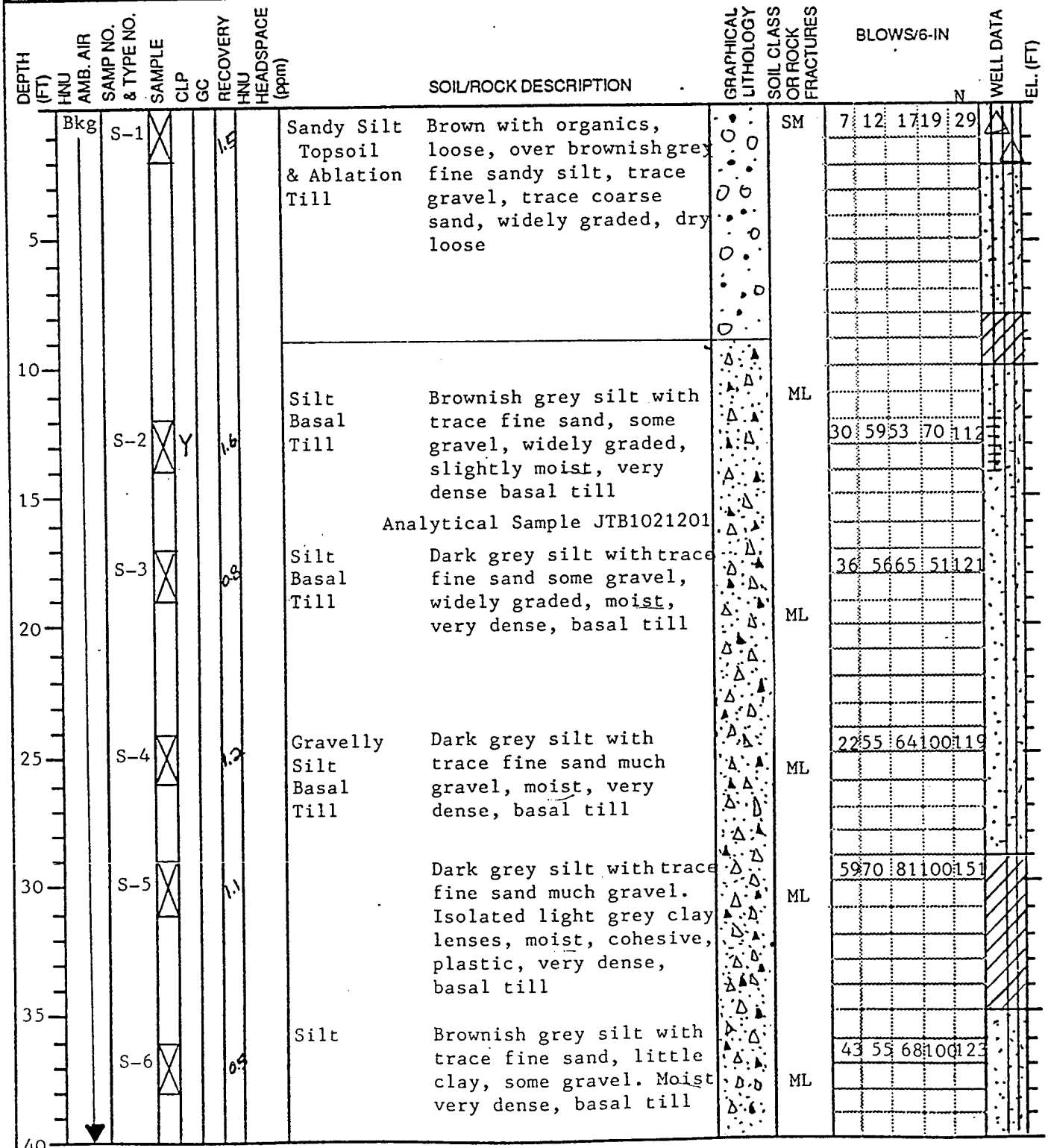
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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-102

CLIENT - STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/11/87	COMPLTD. 8/13/87
METHOD Spun Casing	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 427.62	SOIL DRILLED 51.6'	ROCK DRILLED 10'	FT BELOW GROUND 61.6'
LOGGED BY J. Urquhart	CHECKED BY FFB	DATE 11-10-87	



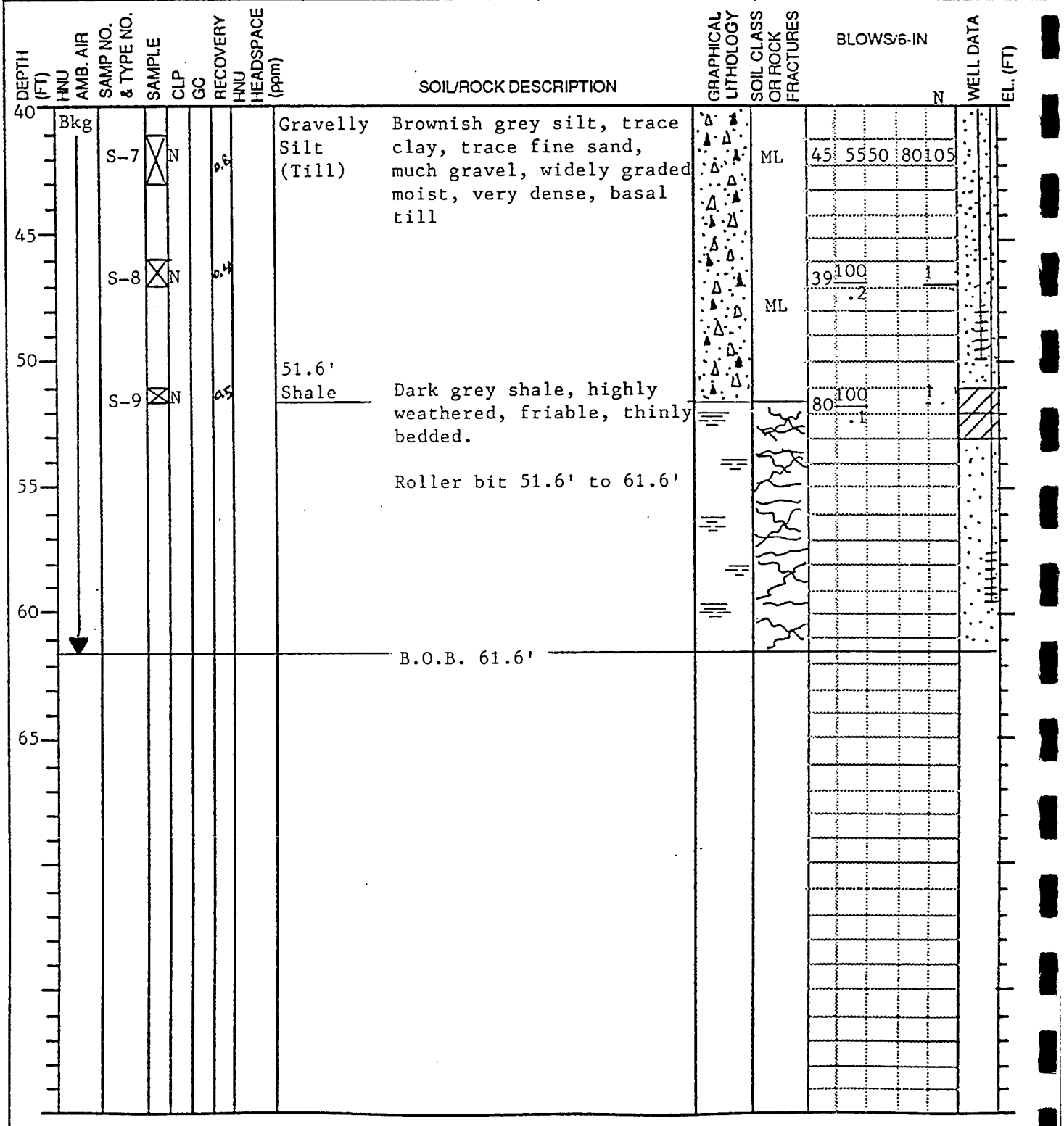
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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-102

CLIENT: STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR: EMPIRE SOILS INVESTIGATIONS		DATE STARTED	COMPLTD. 8/13/87
METHOD: Spun casing	CASING SIZE: 4" I.D.	HNU TIP: 10.6	PROTECTION LEVEL: B C D
GROUND EL: 427.62	SOIL DRILLED: 51.6	ROCK DRILLED: 10'	FT BELOW GROUND: 61.6'
LOGGED BY: J. Urquhart	CHECKED BY: FFB	DATE: 11-10-87	



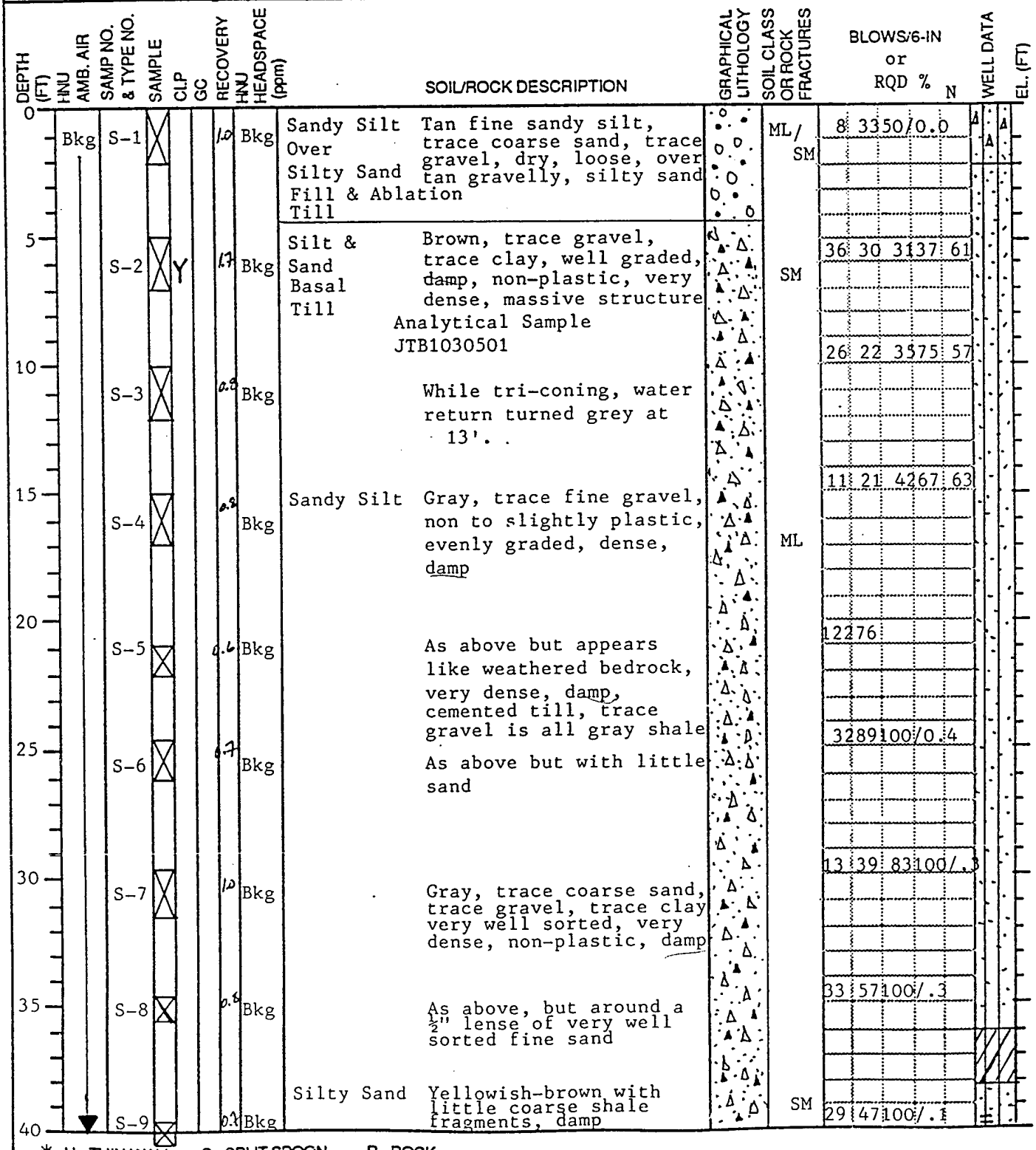
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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-103

CLIENT: STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR: EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/12/87	COMPLTD. 8/14/87
METHOD: Spin casing/coring	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 432.54	SOIL DRILLED 41'	ROCK DRILLED 10'	FT BELOW GROUND 51.4'
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	



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E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-103

CLIENT - **STEWART AIR NATIONAL GUARD BASE**			PROJECT NO. **5139-01**
CONTRACTOR **EMPIRE SOILS INVESTIGATIONS**		DATE STARTED 8/12/87	COMPLTD. 8/14/87
METHOD Spin casing-coring	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 432.54	SOIL DRILLED 40'	ROCK DRILLED 11.4'	FT BELOW GROUND 51.4'
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CLP	GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN	WELL DATA	EL. (FT)
40								Extremely weathered bedrock, water return is brown		SM			
45		S-10				.05	Bkg	Sand & Silt (Weathered Rock) Brown, trace gravel, very dense, wet; few distinct brown mottles; weathered rock			100/.1		
		S-11				.1	Bkg						
50		S-12				.0	Bkg	Black & brown w/little clay, moist, lensoid, very hard			100/.3		
								B.O.B. @ 51.4' Solid Rock					
55													

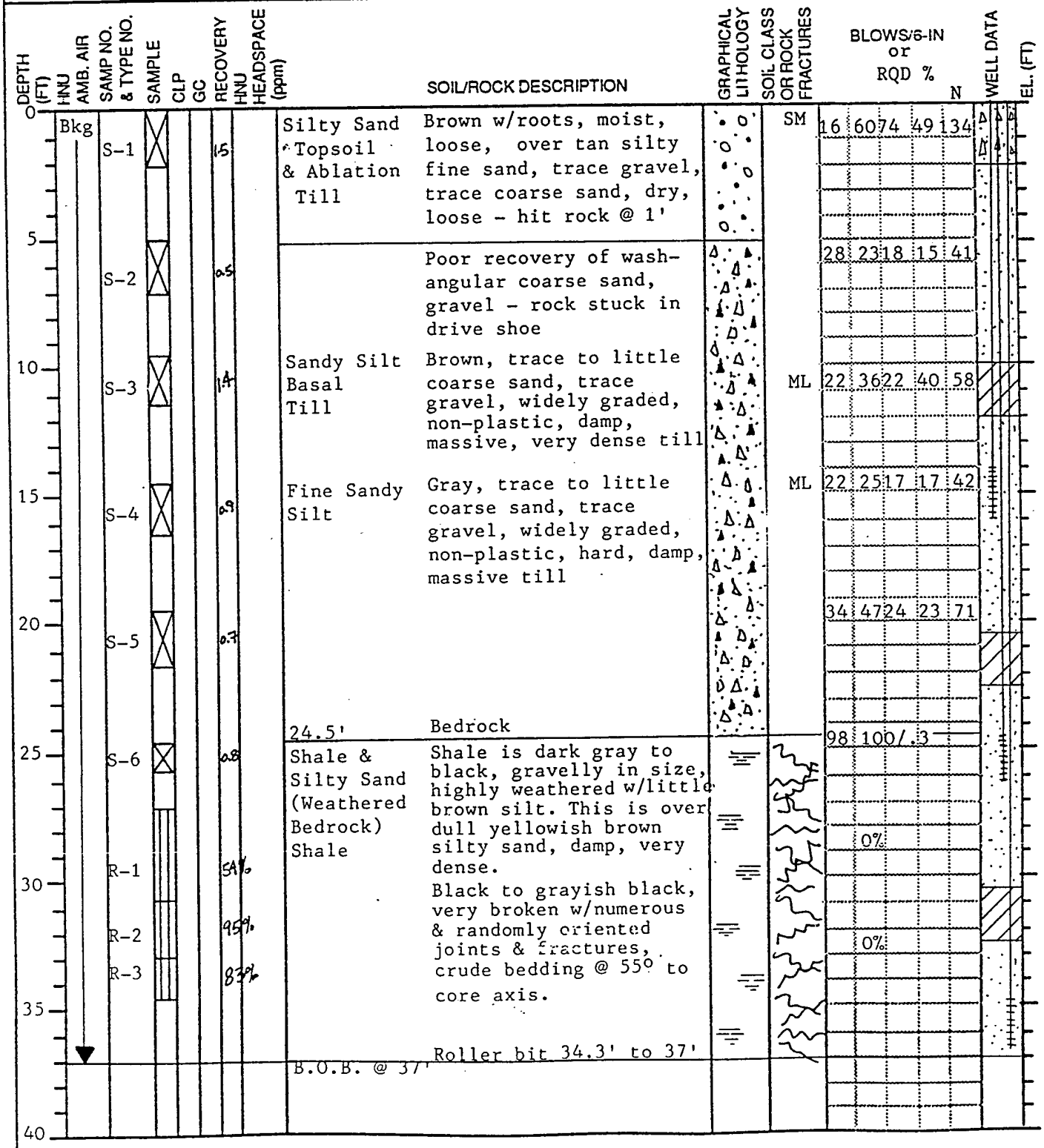
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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-104

CLIENT: STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR: EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/11/87	COMPLTD. 8/12/87
METHOD: Spin casing-coring	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 435.54	SOIL DRILLED 27'	ROCK DRILLED 10'	FT BELOW GROUND 37.0
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	



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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-10

CLIENT - STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/7/87	COMPLTD. 8/10/87
METHOD Spin casing-coring	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 392.69	SOIL DRILLED	ROCK DRILLED	FT BELOW GROUND 38.0
LOGGED BY T. Longley & J. Urquhart	CHECKED BY FFB	DATE 11-10-87	

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CLP	GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN N	WELL DATA	EL. (FT)
0	Bkg	S-1				0.9		Sandy Silt — Brown to tan fine sandy silt with some gravel and roots, dry, loose, sub-rounded gravel		SM-ML	13 100/0.3		
5								Cobbles Trace of fill over ablation till					
		S-2	Y			1.2		Silty Sand & Gravel — Tan gravelly silty sand, mottled, firm to dense, moist, massive structure, subrounded gravel Analytical Sample JTB1050701		SM-GM	10 15 12 50/0.2		
10													
		S-3				1.6		Yellow to olive silty sand and fine gravel, trace clay, dense to very dense, slightly moist		SM-GM	25 22 29 21 51		
15													
		S-4				0.5		Basal Till Color change to grayish black			48 50/0.2		
20		R-1						Grey-black gravel, some silt, very dense, slightly moist (weathered shale fragments and till)		SM-GM			
		R-2											
25								25.5' Probably Top of Rock					
		R-3						Roller Bit to 37.0'					
30													
35													
		R-4						B.O.B. @ 38.0'					
40													

* U= THIN WALL S= SPLIT SPOON R= ROCK

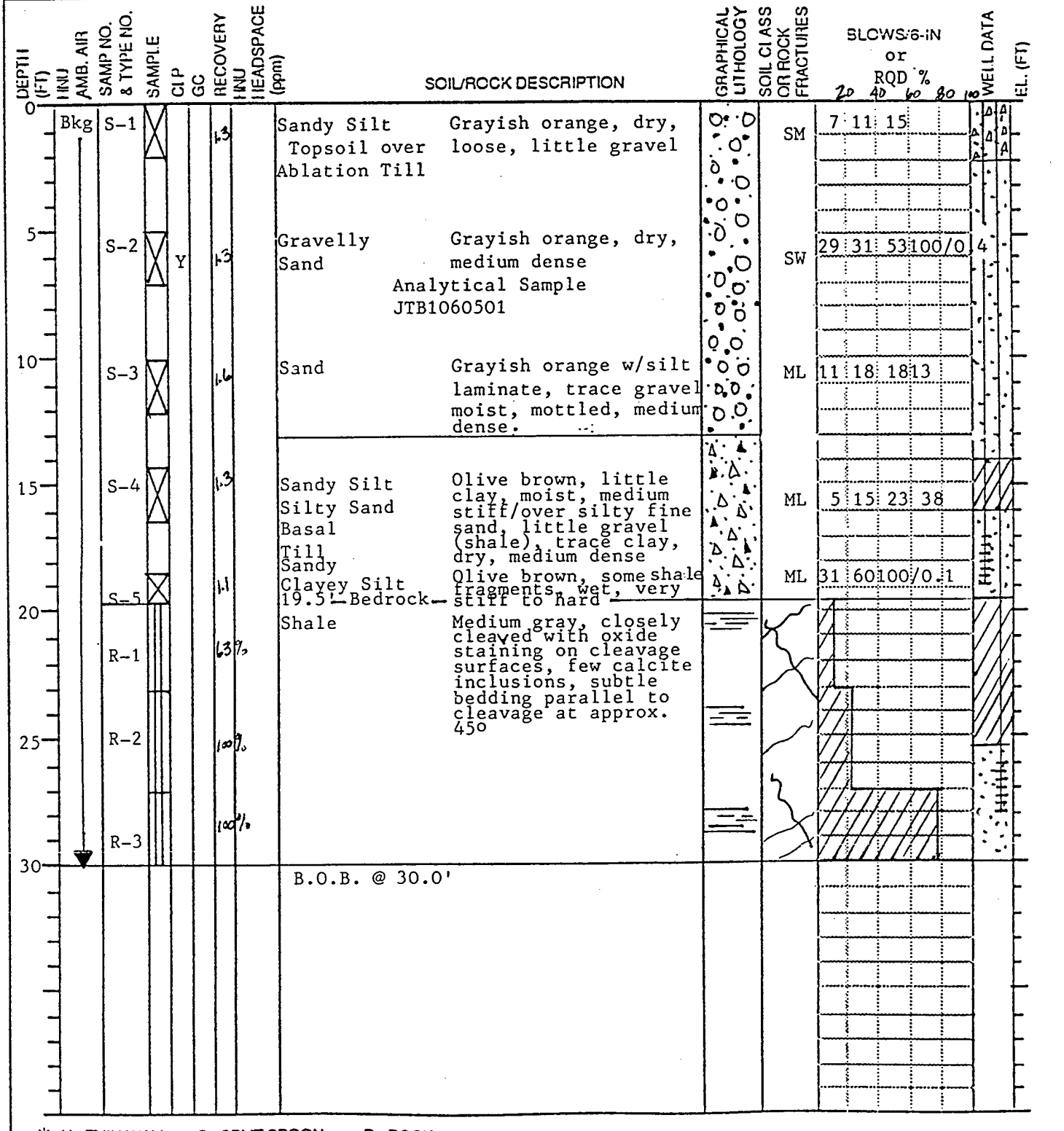
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*Cored cobbles; not boxed

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-106

CLIENT STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 7/30/87	COMPLTD. 8/4/87
METHOD HSA/Rock core	CASING SIZE 4.25"	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 386.97	SOIL DRILLED 19.5'	ROCK DRILLED 10.5'	FT BELOW GROUND 30.0
LOGGED BY S. Pinette	CHECKED BY FFB	DATE 11-10-87	Page 1 of 1



* U= THIN WALL S= SPLIT SPOON R= ROCK

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INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-107

CLIENT : **STEWART AIR NATIONAL GUARD BASE**			PROJECT NO. **5139-01**
CONTRACTOR **EMPIRE SOILS INVESTIGATIONS**		DATE STARTED 7/30/87	COMPLTD. 8/3/87
METHOD Spin casing-coring	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 364.79	SOIL DRILLED 10.0'	ROCK DRILLED 9.4'	FT BELOW GROUND 19.4
LOGGED BY L. Healey	CHECKED BY FFB	DATE 11-10-87	

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CLP	GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN N	WELL DATA	EL. (FT)
0	Bkg	S-1				2.4		Silty Sand (Colluvium) — Tan silty sand, trace medium gravel & roots, loose, brown moist		SM	2 7 9 15 16		
5		S-2				1.4		Fine Sand Ablation Till — Brown fine sand, little silt, trace medium - coarse gravel, moist, medium dense, mottled, slightly stratified		SM			
		S-3				0.1		9.4'					
10		R-1				25%		Silty Sand & Shale — Gray silty sand, weathered medium-coarse shale gravel, moist cohesive (Top of rock 9.4')		SM-GM	6 9 24 32 33		
											0% RQD		
15		R-2				66%		Black to grayish black shale, highly weathered FeO staining, clay seams and voids			0% RQD		
		R-3				35%					0% RQD		
20								B.O.B. @ 19.4'					
25													
30													
35													
40													

* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JMW-107

CLIENT : STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 7/30/87	COMPLTD. 8/3/87
METHOD 4.25" HSA	CASING SIZE N/A	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 364.14	SOIL DRILLED * 21.0	ROCK DRILLED N	FT BELOW GROUND 9.5
LOGGED BY L. Healey	CHECKED BY FFB	DATE 11-10-87	

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	C I P	GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN N	WELL DATA	EL. (FT)
0	Bkg		Y			25		See log of JTB-107 for soil/rock descriptions. Analytical sample JMW-107 0401 taken from 4.5-7.5'			13 21 18 22 40 15 21		
5													
10								B.O.B. @ 9.5'					

*Note: Moved borehole location 5 times before boulder-free location was found. 21' of soil drilled.

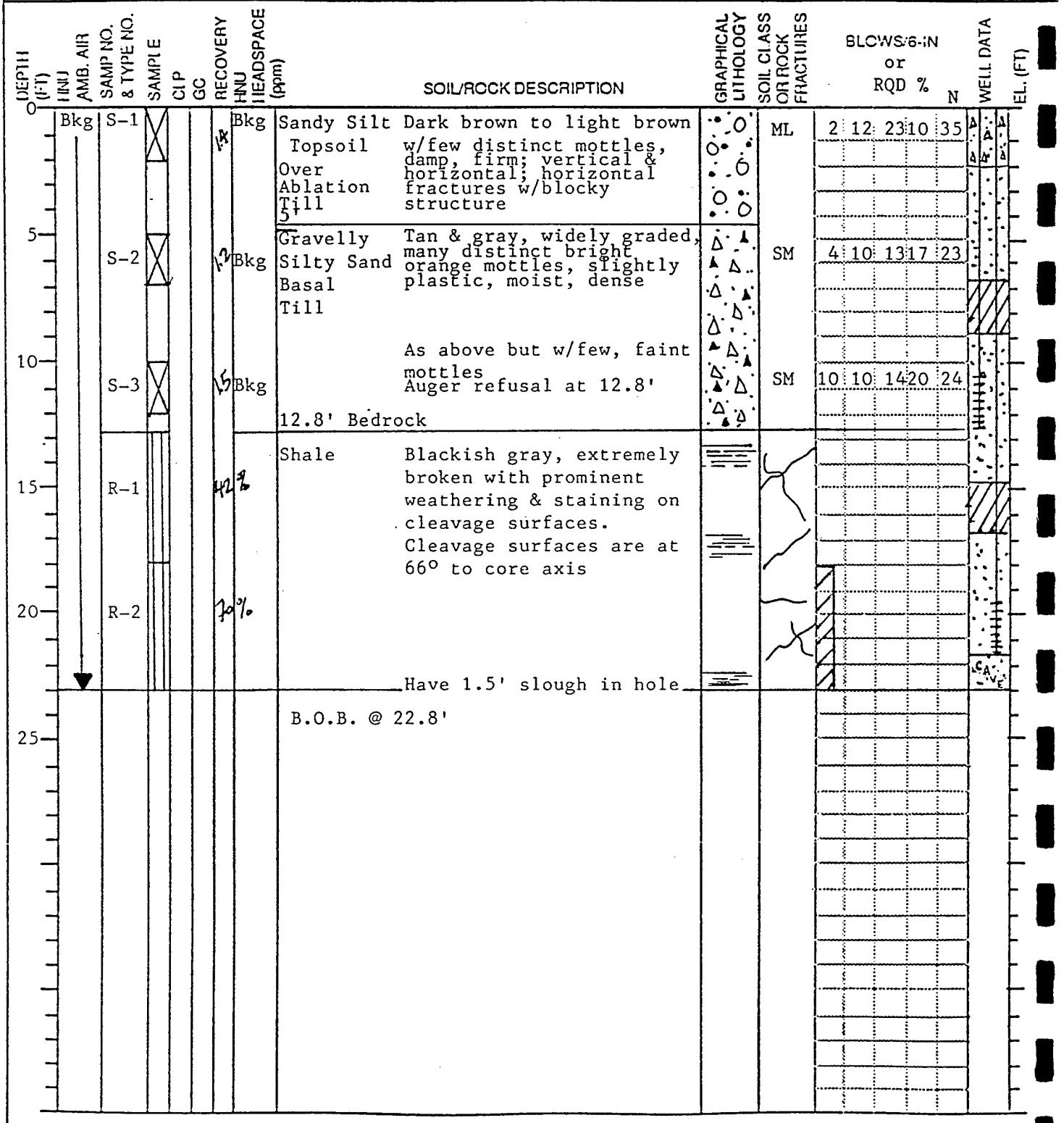
* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-10

CLIENT STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/3/87	COMPLTD. 8/4/87
METHOD HSA/Coring	CASING SIZE 4.25" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 367.34	SOIL DRILLED 12.8'	ROCK DRILLED 10'	FT BELOW GROUND 22.8
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	



* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. MW-108

CLIENT STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED	COMPLTD.
METHOD HSA	CASING SIZE 4.25" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 368.34	SOIL DRILLED 12'	ROCK DRILLED N.A.	FT BELOW GROUND 12
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	

DEPTH (FT)	AMB. AIR HNU	SAMP NO. & TYPE NO.	SAMPLE	C I P	G C	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN or RQD % N	WELL DATA
0	Bkg	S-1				1.2	Bkg	Silty Sand Topsoil & Till. Brown, dry, loose, trace gravel, roots at top		ML	3 6 5 10 11	
5								Analytical Sample JMW1080701				
		S-2	Y			.03		Silty Sand Till. Brown, trace to little gravel, moist to wet		SM	7 9 9 9 18	
10		S-3	Y			1.1		firm, well graded w/few distinct yellow mottles; S-2 filled VOA jar, S-3 filled remaining jars			9 12 100/.3	
								B.O.B. @ 12'				
15												

* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-10

CLIENT STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 8/4/87	COMPLTD.
METHOD H.S.A./Spin casing	CASING SIZE 4" I.D.	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 371.72	SOIL DRILLED 10.4	ROCK DRILLED 9'	FT BELOW GROUND 19.4
LOGGED BY T. Longley	CHECKED BY FFB	DATE 11-10-87	

Bkg = Background

DEPTH (FT)	HNU AMB. AIR	SAMP NO. & TYPE NO.	SAMPLE	CLP	GC	RECOVERY	HNU HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	GRAPHICAL LITHOLOGY	SOIL CLASS OR ROCK FRACTURES	BLOWS/6-IN N	WELL DATA	EL. (FT)
0	Bkg	S-1				19	Bkg	Silty Sand over Sandy Silt Topsoil Over Ablation Till: Dark brown to tan, trace gravel, dry loose; top-soil over blocky structure w/oxidation staining on ped faces		SM/ ML	3 6 11 12 17		
5		S-2				8	Bkg	Silty Sand Till: Yellowish brown, trace to some gravel, very dense, dry to damp, widely graded, massive structure, distinct mottles, auger refusal at 6 - spin casing			24 32 100/.3		
10		R-1				16%		10.4' Bedrock. Shale: Gray, thinly laminated, medium hard, very broken much oxidation on fracture faces			0%	C A V	
15		R-2				24%		Roller Bit 18.5 - 19.4			0%		
20								B.O.B. @ 19.4'					

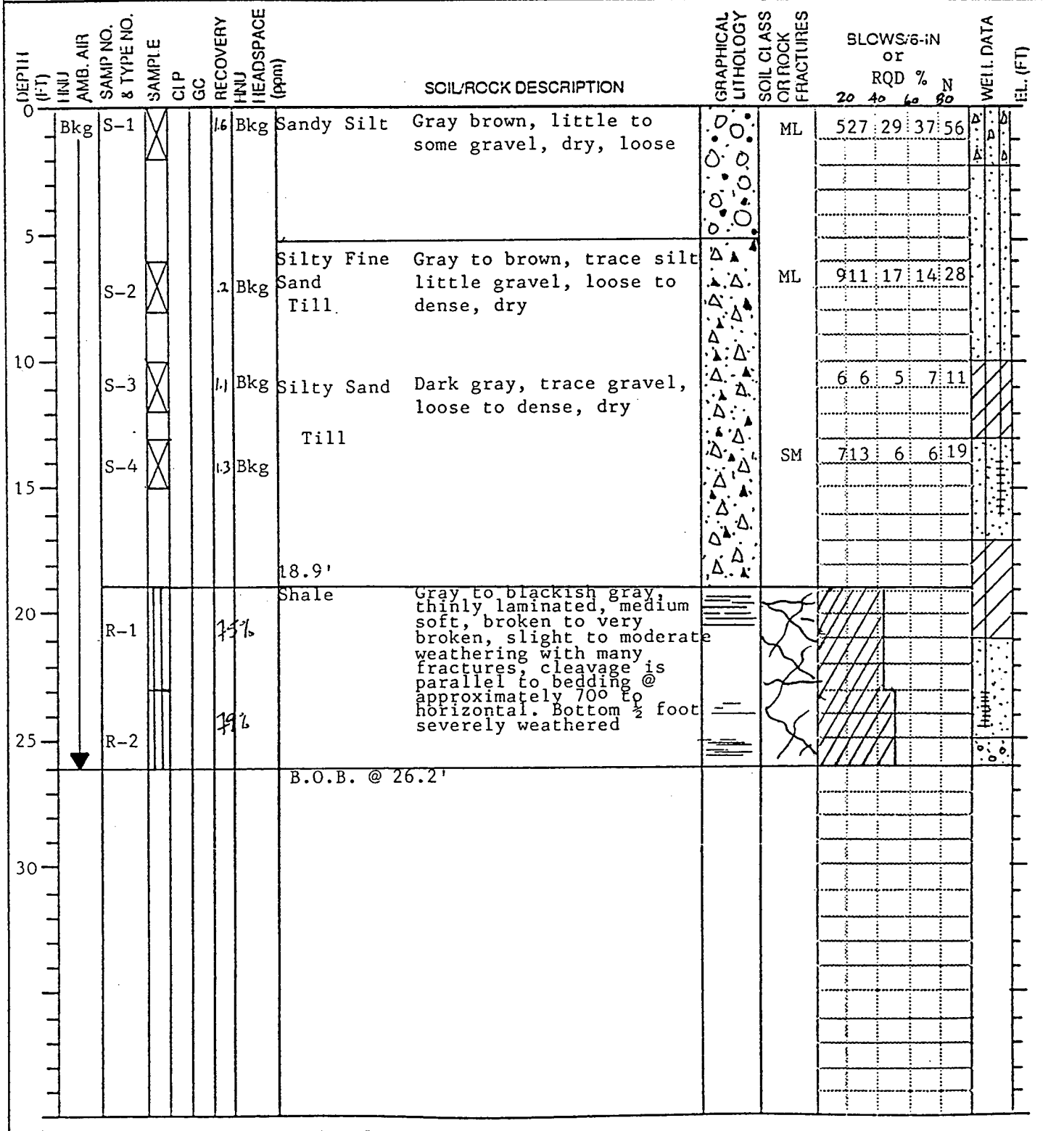
* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

INSTALLATION RESTORATION PROGRAM

BORING NO. JTB-110

CLIENT STEWART AIR NATIONAL GUARD BASE			PROJECT NO. 5139-01
CONTRACTOR EMPIRE SOILS INVESTIGATIONS		DATE STARTED 7/29/87	COMPLTD. 7/29/87
METHOD HSA	CASING SIZE 4¼"	HNU TIP 10.6	PROTECTION LEVEL B C D
GROUND EL 361.34	SOIL DRILLED 18.9'	ROCK DRILLED 7.3'	FT BELOW GROUND 26.2
LOGGED BY J. Urquhart	CHECKED BY FFB	DATE 11-10-87	



* U= THIN WALL S= SPLIT SPOON R= ROCK

E.C. JORDAN CO.

APPENDIX B-2

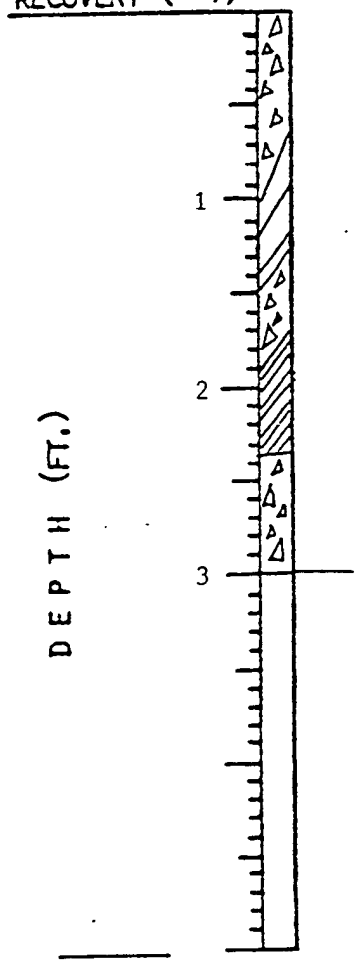
ROCK CORE LOGS

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-110
Logged By T. Longley	Date 8-19-87		Protection Level D
Core Diameter NX (2")	Core Run No. R-1	Depth 18.9 ft to 22.9 ft.	(4')
Core Recovery 3 ft.	RQD 42 %	Core Quality Fair	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 3' (4)

75 %

TOTAL 20" (48)

42 %

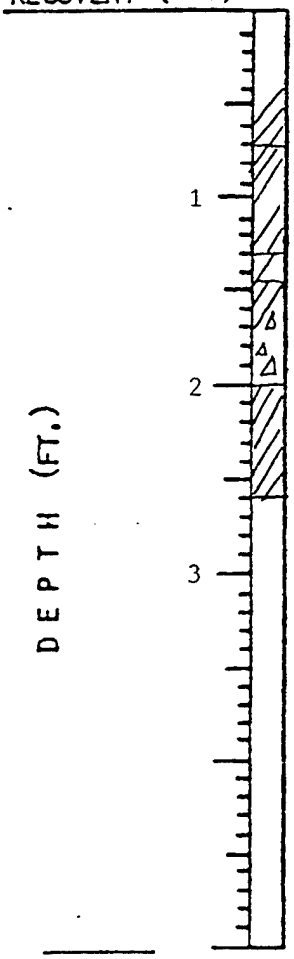
ROCK DESCRIPTION AND IDENTIFICATION

Shale - gray to blackish gray, thinly laminated, medium soft, moderately fractured and broken, 42% RQD, slight to moderate weathering with many fractures showing bright oxidation staining.
Cleavage is // to bedding and at 20° to core axis.
Few fractures up to 60° to axis
Few open vugs
Very crumbly at bottom of run

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-110
Logged By T. Longley	Date 8-19-87		Protection Level D
Core Diameter NX (2")	Core Run No. R-2	Depth 22.9 ft to 26.2 ft. (3.3')	
Core Recovery 2.6 ft.	RQD 52 %	Core Quality Fair	

CORE RECOVERY (FT.)



TOTAL 2.6 (3.3)

79 %

.3 FT. CORE RECOVERY

End of Core

TOTAL 1.7 (3.3)

52 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - As above but less fractured

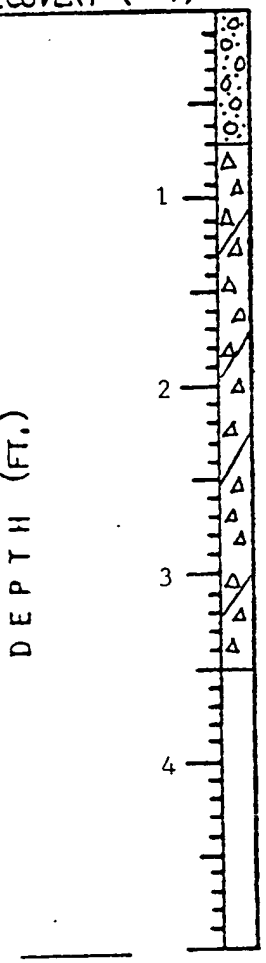
Last 9" of core is severely weathered along fracture faces

VISUAL IDENTIFICATION OF ROCK CORES

SHEET 1 OF 2

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-101
Logged By S. Pinette	Date 8-6-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-1	Depth 37.0 ft to 41.5 ft.	(4.5)
Core Recovery 3.5 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)



TOTAL 3.5 (4.5)

77 %

.3 FT. CORE RECOVERY

Soil - Till

Highly broken and Fractured

End of Core

TOTAL 0 (4.5)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Upper 0.7' (37.0'-37.7') is olive grey till mixed with medium grey shale fragments.

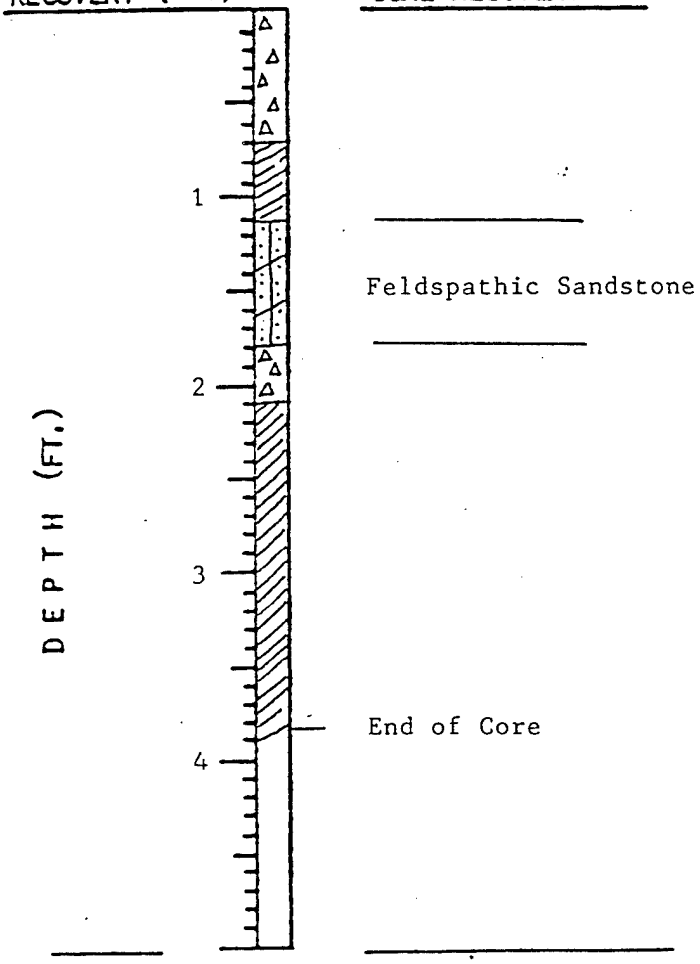
remainder of core is medium grey shale; well cleaved; cleavage planes stained rusty brown and medium greenish brown; cleavage oriented at 45° to core axis. Only 4 pieces of core are at least 1" in diameter.

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-101
Logged By S. Pinette	Date 8-7-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-2	Depth 41.5 ft to 46.5 ft. (5)	
Core Recovery 3.9 ft.	RQD 36 %	Core Quality Poor to fair	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 3.9 (5.0)

78 %

TOTAL 1.8 (5.0)

36 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - predominantly medium grey, closely cleaved; cleavage plane oriented at 45° to core axis; cleavage surface stained medium greenish brown and, in frequently, rusty brown (geothite); vertical joint (parallel to core axis) discontinous (0.1') in shale

Feldspathic Sandstone -- 0.7' bed interbedded with shale (42.6' to 43.3') fine grain, light grey/tan color; laminated parallel to cleavage in shale; relatively massive

VISUAL IDENTIFICATION OF ROCK CORES

SHEET 1 OF 1

Project No. 5139-01	Project Name Stewart ANGB	Boring No. JTB-102
Logged By J. Urquhart	Date 8-12-87	Protection Level D
Core Diameter Roller Bit 3.5"	Core Run No.	Depth 51.6 ft to 61.6 ft.
Core Recovery 0* ft.	RQD 0 %	Core Quality

*No rock core made - hole advanced into rock with tri-cone roller bit.

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY

ROCK DESCRIPTION AND IDENTIFICATION

DEPTH (FT.)

TOTAL ____( )

____%

TOTAL ____( )

____%

VISUAL IDENTIFICATION OF ROCK CORES

SHEET 1 OF 1

Project No. 5139-01	Project Name Stewart ANGB	Boring No. JTB-103
Logged By T. Longley	Date 8-14-87	Protection Level D
Core Diameter Roller Bit 3.5"	Core Run No. --	Depth 43 ft to 51.4 ft.
Core Recovery 0* ft.	RQD 0 %	Core Quality

*No rock core made - hole advanced into rock with tri-cone roller bit.

CORE RECOVERY (FT,)

.3 FT. CORE RECOVERY

ROCK DESCRIPTION AND IDENTIFICATION

DEPTH (FT.)

TOTAL ____( )

____%

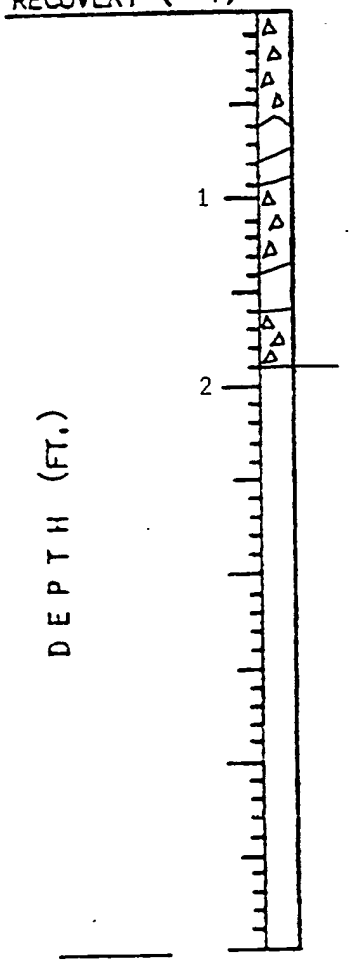
TOTAL ____( )

____%

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-104
Logged By T. Longley	Date 8-11-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-1	Depth 27 ft to 30.5 ft. (3.5)	
Core Recovery 1.9 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)



TOTAL 1.9 (3.5)

54 %

.3 FT. CORE RECOVERY

TOTAL 0 (3.5)

0 %

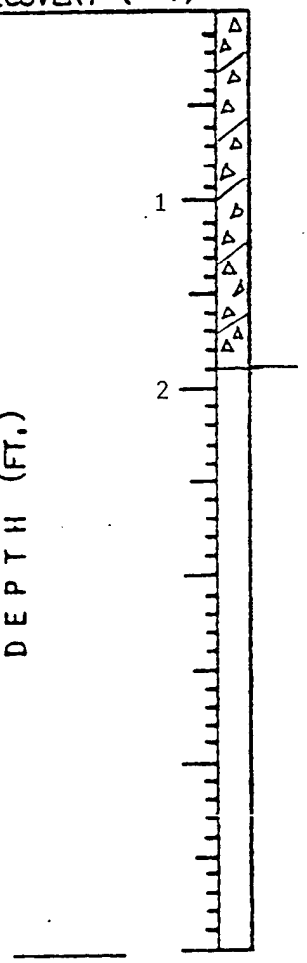
ROCK DESCRIPTION AND IDENTIFICATION

Black to grayish black shale, highly fractured and broken with numerous interconnecting, randomly oriented joints and open fractures. No one piece is as large as 4"; most are less than 2". Weathering of fractur is moderately fresh, especially near 30', which has moderate staining and distinct FeO and Mn O_2 staining on fracture faces. No distinct layerin or foliation

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-104
Logged By T. Longley	Date 8-12-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-2	Depth 30.5 ft to 32.5 ft. (2')	
Core Recovery 1.9 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)



TOTAL 1.9 (2)

95 %

.3 FT. CORE RECOVERY

TOTAL 0' (2)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Same rock type as in R-1 - highly fractured and broken shale, common joints and fractures, few open ½" in size; top of run is extremely broken and pebbly, bottom ½' of recovered core is severely weathered rock (prevented penetration and caused core block), very (soil-like) weak and crumbly; one rock piece shows bedding at 55° to long core axis; FeO & MnO_2 is faint to distinct throughout core.

Some fragments exhibit highly sheared and rehealed rock.

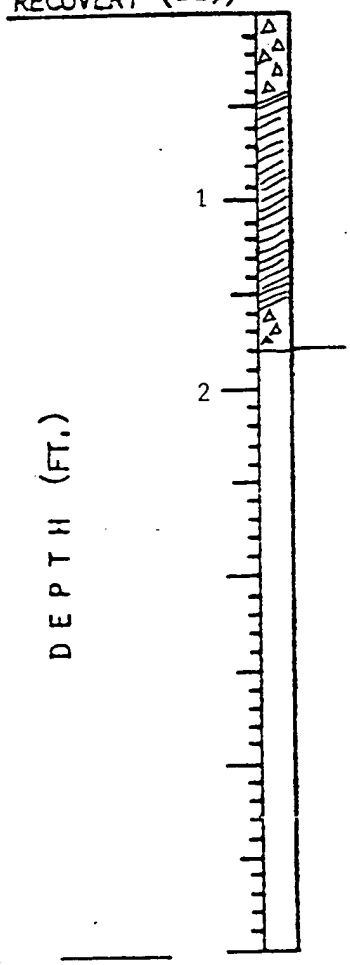
Thin interbedded layers of feldspathic sandstone

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-104
Logged By T. Longley	Date 8-12-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-3	Depth 32.5 ft to 34.3 ft. (1.8')	
Core Recovery 1.8 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT,)

.3 FT. CORE RECOVERY



TOTAL 1.5 (1.8)

83 %

TOTAL 0 (1.8)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale

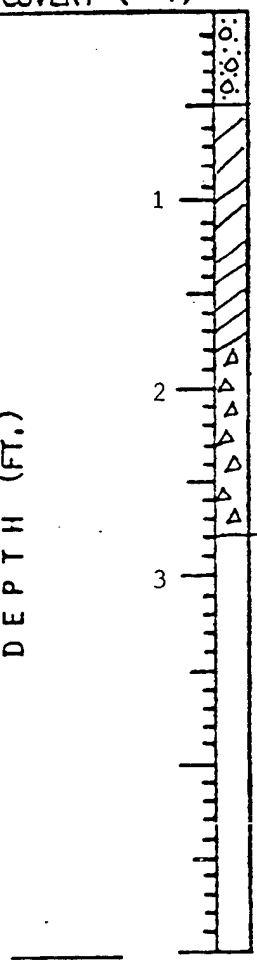
Same as above; extremely fractured and broken, crumbly, very weak, moderate to severe weathering; no piece of core longer than 1".
Top of recovery is slough from soil zone - pebbles and gravel

Core recovery is very subjective due to the poor rock quality

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-106
Logged By S. Pinette	Date 8-3-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-1	Depth 19.5 ft to 23.0 ft. (3.5)	
Core Recovery 2.3 ft.	RQD 9 %	Core Quality Poor	

CORE RECOVERY (FT.)



.3 FT. CORE RECOVERY

Soil - Till

Shale

End of Core

TOTAL 2.3 (3.5)

66 %

TOTAL 0.3 (3.5)

9 %

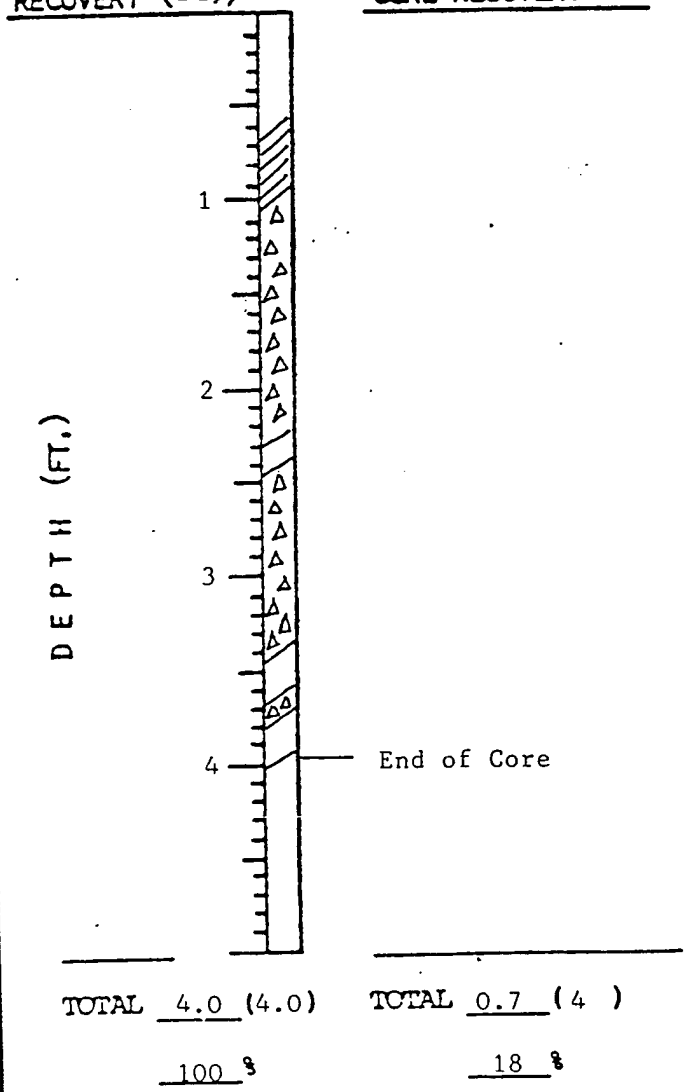
ROCK DESCRIPTION AND IDENTIFICATION

Shale - Medium grey colored; closely spaced cleaved planes are well developed and stained medium brown (FeO/MnO); cleavage and stratification are parallel and oriented at 40-50° with respect to core axis trace calcite peds and veinlets occur throughout, oriented both parallel and transverse to bedding/cleavage

Note: Majority of core breaks occur along cleavage planes; no joints evident in this run

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-106
Logged By S. Pinette	Date 8-4-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-2	Depth 23.0 ft to 27.0 ft. (4.0)	
Core Recovery 4.0 ft.	RQD 18 %	Core Quality Fair to poor	



ROCK DESCRIPTION AND IDENTIFICATION

Shale - essentially same as described for R-1; discontinuous, poorly developed joints present; oriented 90° to cleavage plane; joint surface stained iron-oxide (geothite) rusty yellowish brown color which is distinct from stain on cleavage surfaces; joints are relatively sparse

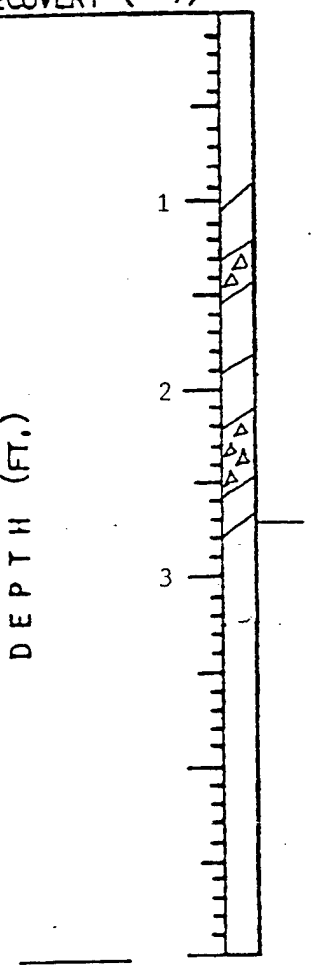
VISUAL IDENTIFICATION OF ROCK CORES

SHEET 3 OF 3

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-106
Logged By S. Pinette	Date 8-4-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-3	Depth 27.0 ft to 30.0 ft.	(3.0)
Core Recovery 2.8 ft.	RQD 78 %	Core Quality Good	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



End of Core

TOTAL 3.0' (3.0)

100 %

TOTAL 2.35 (3.0)

78 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale as described in R-2 above; joints are more abundant and slightly better developed then in R-2; joints spaces as closely as 1 inch in some core sections

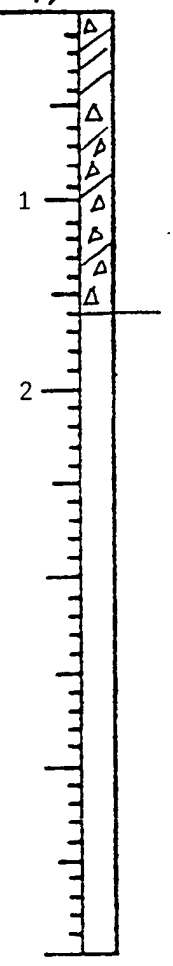
VISUAL IDENTIFICATION OF ROCK CORES

SHEET 1 OF 3

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-107
Logged By T. Longley	Date 8-19-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-1	Depth 10 ft to 14 ft. (4)	
Core Recovery 1.6 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 1.6 (4)

40 %

TOTAL 0 (4)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale

gray shale

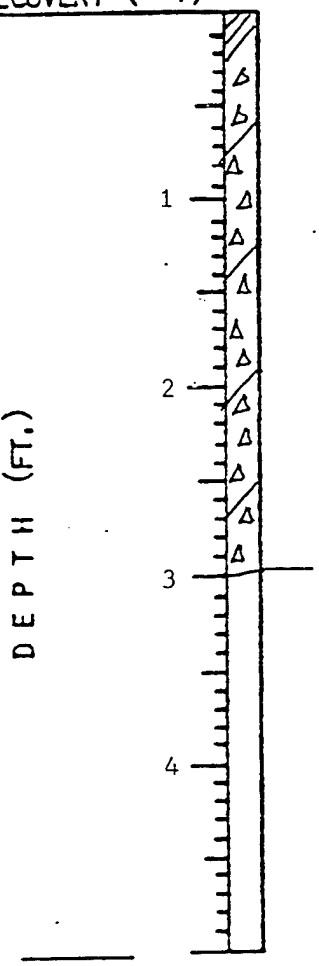
highly fractured and broken
slicken sides throughout
reddish brown to yellowish stain
on most all surfaces

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-107
Logged By T. Longley	Date 8-19-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-2	Depth 14 ft to 17 ft. (3')	
Core Recovery 4' ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 4 (4)

100 %

TOTAL 0 (3)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - Gray, thinly laminated medium-hard, highly fractured and broken, slight to moderate weathering staining on all fracture surfaces

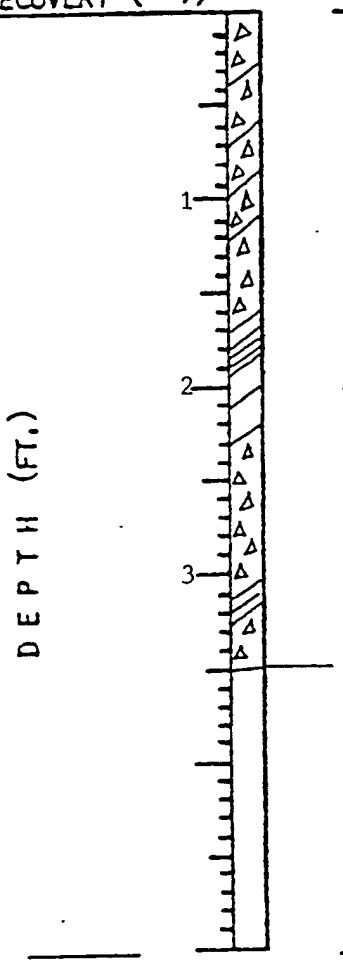
Cleavage is 36° to core axis and is // to bedding lineation

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-107
Logged By T. Longley	Date 8-20-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-3	Depth 17 ft to 19.3 ft. (2.3)	
Core Recovery 3.5 ft.*	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT,)

.3 FT. CORE RECOVERY



TOTAL 3.5 (2.3)

100 %*

TOTAL 0 (2.3)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - Same as R-1 and R-2

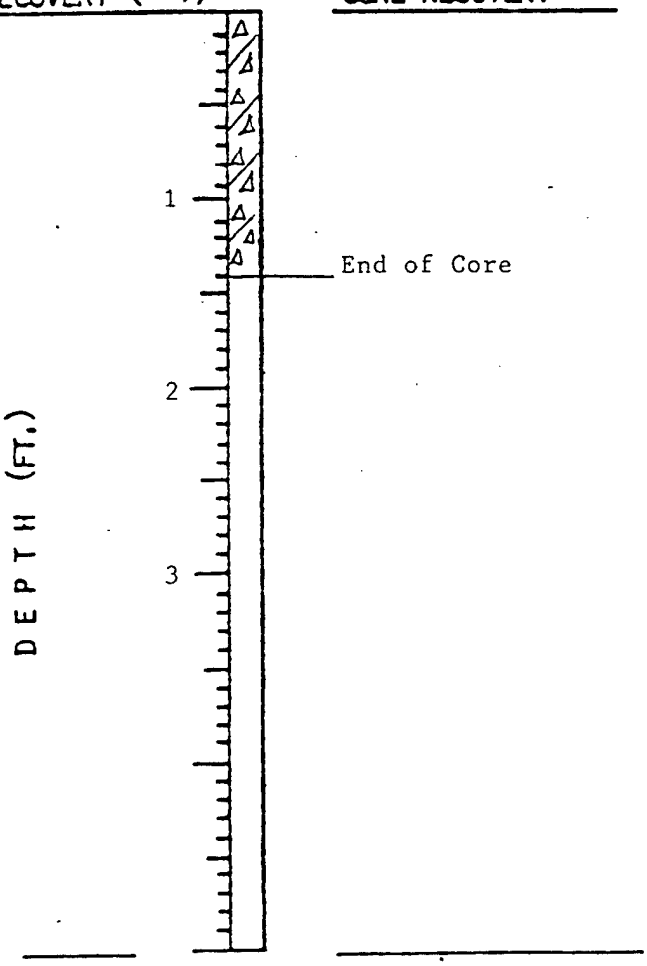
*R-3 recovered some of the broken fragments from R-2

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-108
Logged By T. Longley	Date 8-20-87		Protection Level D
Core Diameter NX (≈2")	Core Run No. R-1	Depth 12.8 ft to 17.8 ft. (5)	
Core Recovery 1.4 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 1.4' (5)

28 %

TOTAL 0 (5)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - gray to blackish gray thinly laminated medium soft to medium hard with depth, highly fractured and broken, medium weathering at top to slight with depth

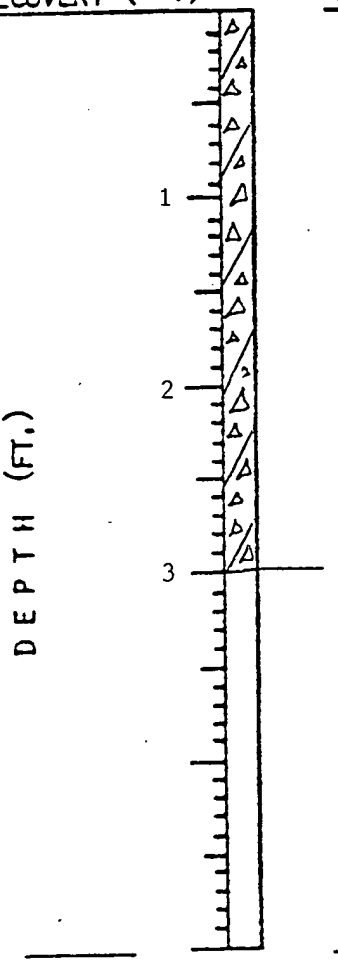
Cleavage 50° to long axis

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-108
Logged By T. Longley	Date 8-20-87		Protection Level D
Core Diameter NX (2")	Core Run No. R-2	Depth 17.8 ft to 22.8 ft. (5)	
Core Recovery 3.0 ft.	RQD 14 %	Core Quality Very poor	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 3 ( ) TOTAL .7 (5)

60 % 14 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - blackish gray to black thinly laminated, medium hard to hard, fresh to slight weathering highly fractured and broken

Cleavage is // to laminations and at 45° to long axis

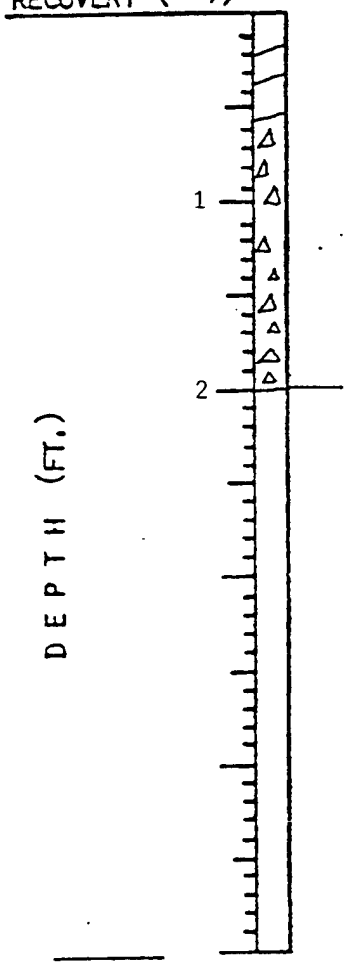
Trace of disseminated pyrite

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-109
Logged By T. Longley	Date 8-19-87		Protection Level D
Core Diameter NX (2")	Core Run No. R-1	Depth 10 ft to 14.3 ft. (4.3')	
Core Recovery 2.0 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT.)

.3 FT. CORE RECOVERY



TOTAL 2.0 (4.3)

47 %

TOTAL 0 (4.3)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale - gray, thinly laminated, medium hard, highly fractured and broken, fresh to slight weathering

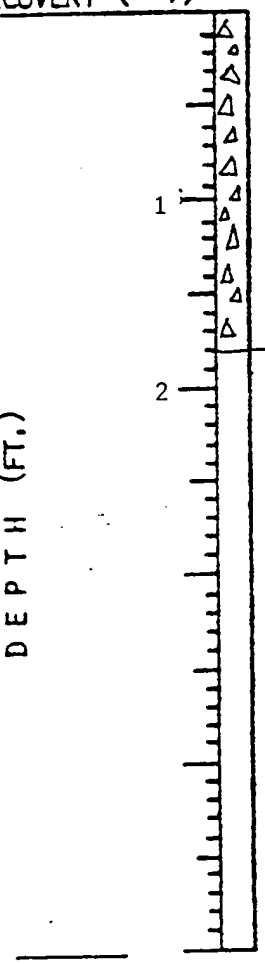
Can't measure ⊀'s at all due to broken nature of rock

VISUAL IDENTIFICATION OF ROCK CORES

Project No. 5139-01	Project Name Stewart ANGB		Boring No. JTB-109
Logged By T. Longley	Date 8-19-87		Protection Level D
Core Diameter NX (2")	Core Run No. R-2	Depth 14.3 ft to 18.5 ft. (4.2)	
Core Recovery 1.8 ft.	RQD 0 %	Core Quality Very poor	

CORE RECOVERY (FT,)

.3 FT. CORE RECOVERY



TOTAL 1.8 (4.2)

43 %

TOTAL 0 (4.2)

0 %

ROCK DESCRIPTION AND IDENTIFICATION

Shale same as above - recovered very short pieces but these show more weathering on all fracture faces

APPENDIX B-3

MONITORING WELL INSTALLATION SHEETS

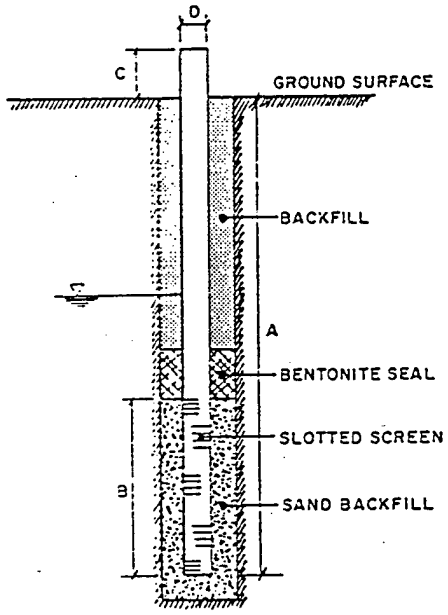
SITE Stewart ANGB JOB NO. 5139-01

MONITORING WELL DESIGNATION JMW-101 INSTALLATION DATE 8/3/87

DIAMETER OF WELL 0.166' MATERIAL SCH 40 PVC

LOCKING PROTECTIVE COVER YES ✓ NO ___ ECJ ~~DRILLER~~ DEVELOPED YES ✓ NO ___

WELL CONSTRUCTION



A = 32.75'

B = 12.0'

C = 2.41 CASING

D = 0.166'

NOTES
10' SCREEN LENGTH

WATER LEVEL RANGE 31.44

ELEVATION OF WELL AT GRADE ___

GROUNDWATER INFORMATION

APPROXIMATE RECHARGE/YIELD ___

WELL SCREEN POSITIONED IN TILL
(i.e. till, clay, rock)

GROUNDWATER MONITORING/SAMPLING DATA

RECOMMENDED TYPE OF EQUIPMENT TO FLUSH WELL ___

RECOMMENDED AMOUNT OF FLUSHING ___

SAMPLING PROCEDURES

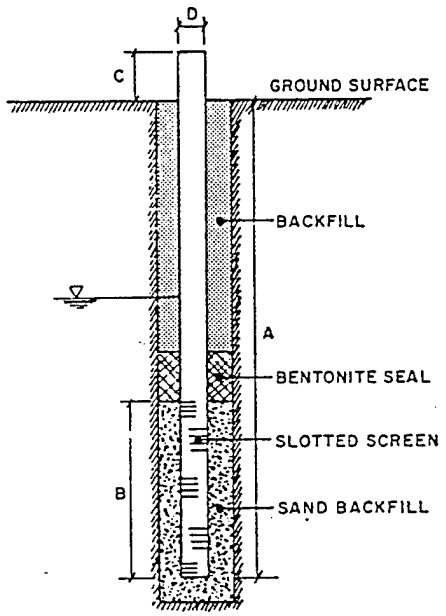
SITE Stewart ANGB JOB NO. 5139-01

MONITORING WELL DESIGNATION JMW-107 INSTALLATION DATE 8/3/87

DIAMETER OF WELL 0.166 FT MATERIAL SCH. 40 PVC; 0.010" SLOTTED SCREEN

LOCKING PROTECTIVE COVER YES ✓ NO ___ ~~DRILLER~~ EGI DEVELOPED YES ✓ NO ___

WELL CONSTRUCTION



A = 9.38'

B = 7.0'

C = 3.25' CASING

D = 0.166'

NOTES

5' SCREEN LENGTH

WATER LEVEL RANGE 10.25 - 10.55

ELEVATION OF WELL AT GRADE ___

GROUNDWATER INFORMATION

APPROXIMATE RECHARGE/YIELD ___

WELL SCREEN POSITIONED IN TILL
(i.e. till, clay, rock)

GROUNDWATER MONITORING/SAMPLING DATA

RECOMMENDED TYPE OF EQUIPMENT TO FLUSH WELL ___

RECOMMENDED AMOUNT OF FLUSHING ___

SAMPLING PROCEDURES

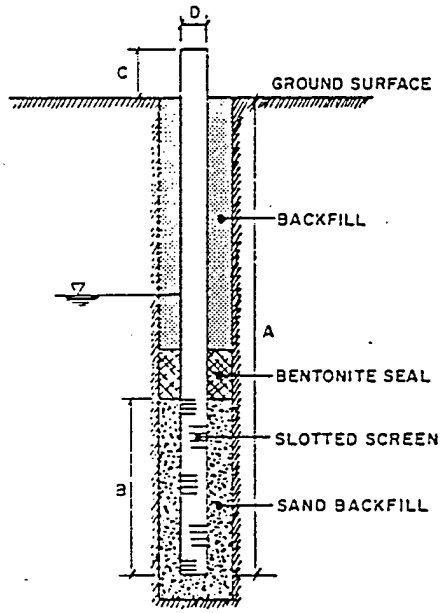
SITE Stewart ANGB JOB NO. 5139-01

MONITORING WELL DESIGNATION JMW-108 INSTALLATION DATE 8/4/87

DIAMETER OF WELL 0.166 FT MATERIAL SCH. 40 PVC; 0.010" SLOT SIZE SCREEN

LOCKING PROTECTIVE COVER YES ✓ NO ___ ECJ ~~DRILLER~~ DEVELOPED YES ✓ NO ___

WELL CONSTRUCTION



A = 10.97'

B = 7.0'

C = 2.59' CASING

D = 0.166'

NOTES
5' SCREEN LENGTH

WATER LEVEL RANGE 8.5 - 8.7

ELEVATION OF WELL AT GRADE ___

GROUNDWATER INFORMATION

APPROXIMATE RECHARGE/YIELD ___

WELL SCREEN POSITIONED IN TILL
(i.e. till, clay, rock)

GROUNDWATER MONITORING/SAMPLING DATA

RECOMMENDED TYPE OF EQUIPMENT TO FLUSH WELL ___

RECOMMENDED AMOUNT OF FLUSHING ___

SAMPLING PROCEDURES

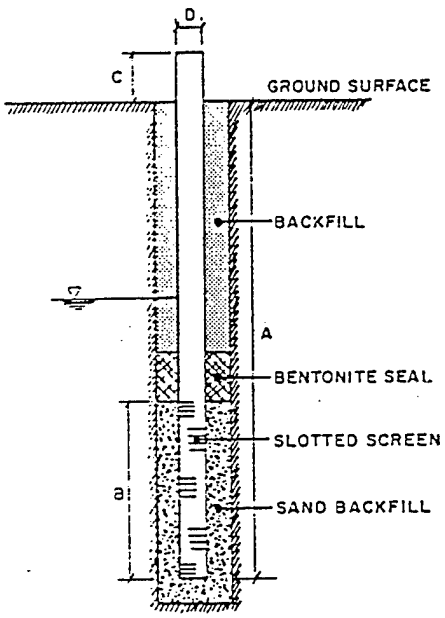
SITE Stewart ANGB JOB NO. 5139-01

MONITORING WELL DESIGNATION JMW -109 INSTALLATION DATE 8/6/87

DIAMETER OF WELL 0.166' MATERIAL SCH. 40 PVC ; 0.010 SLOT SIZE SCREEN

LOCKING PROTECTIVE COVER YES ✓ NO ___ ECJ ~~DRILLER~~ DEVELOPED YES ✓ NO ___

WELL CONSTRUCTION



A = 10.25'

B = 7.0'

C = 2.45' CASING

D = 0.166'

NOTES

5' SCREEN LENGTH

WATER LEVEL RANGE 10.05 - 10.12

ELEVATION OF WELL AT GRADE ___

GROUNDWATER INFORMATION

APPROXIMATE RECHARGE/YIELD ___

WELL SCREEN POSITIONED IN TILL
(i.e. till, clay, rock)

GROUNDWATER MONITORING/SAMPLING DATA

RECOMMENDED TYPE OF EQUIPMENT TO FLUSH WELL ___

RECOMMENDED AMOUNT OF FLUSHING ___

SAMPLING PROCEDURES

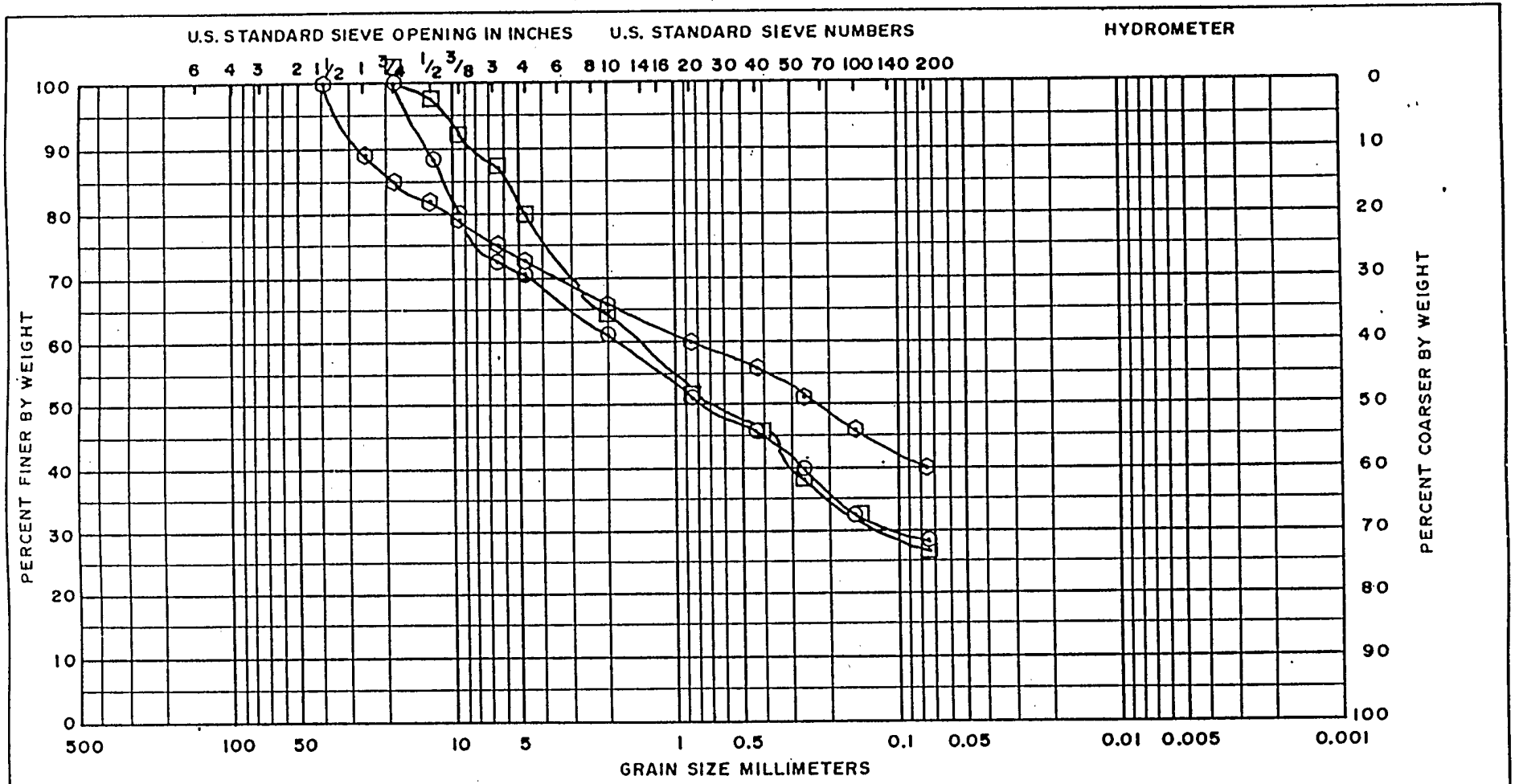
APPENDIX C

LABORATORY DATA

C-1 GRAIN-SIZE DISTRIBUTION CURVES
C-2 SIEVE ANALYSIS DATA

APPENDIX C-1

GRAIN-SIZE DISTRIBUTION CURVES



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
MW 101	S-1 ⊙	Silty SAND, some gravel, little clay; fill	8.2%			
MW 109	S-1 ⊙	Silty SAND, some gravel, little clay, till	12.9%			
MW 100	S-1 ⊡	Silty SAND, some gravel, little gravel, till	11.0%			

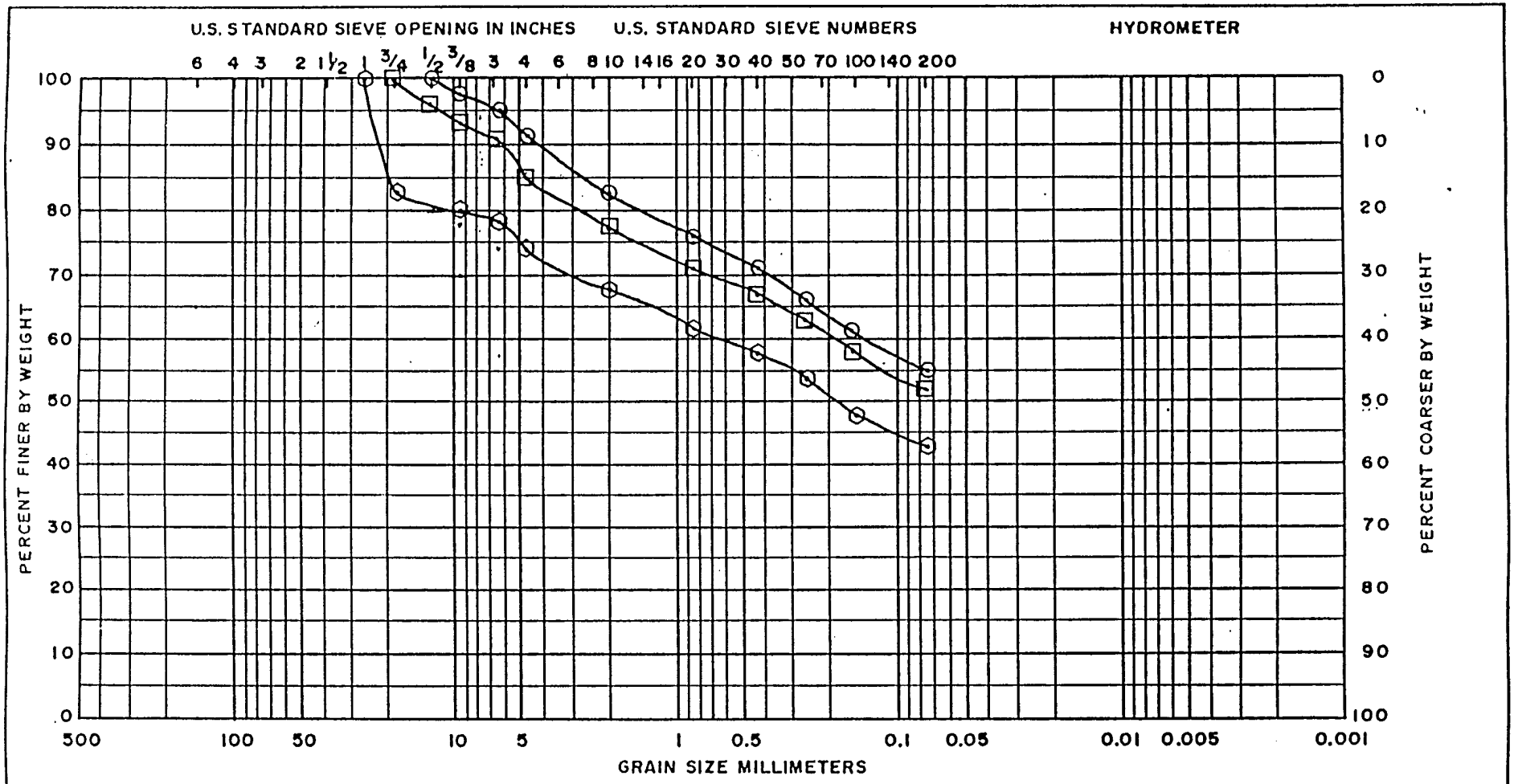
GRAIN SIZE DISTRIBUTION CURVES

STEWART A.N.G.

TESTED BY	CHECKED BY	PROJ NO
TS	RLR	5139.01
	DATE 9.10.87	

JGA 003
I AP

JORDAN GORRILL ASSOCIATES
ECH CON ANTS



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH		CLASSIFICATION	NAT W%	LL	PL	PI
B100	S-3	⊙	Silty Sand, some clay, some gravel, till	8.0%			
B101	S4	⊙	Silty Sand, some clay, some gravel, till	8.8%			
B102	S6	⊡	Silty Sand, some clay, some gravel, till	10.6%			

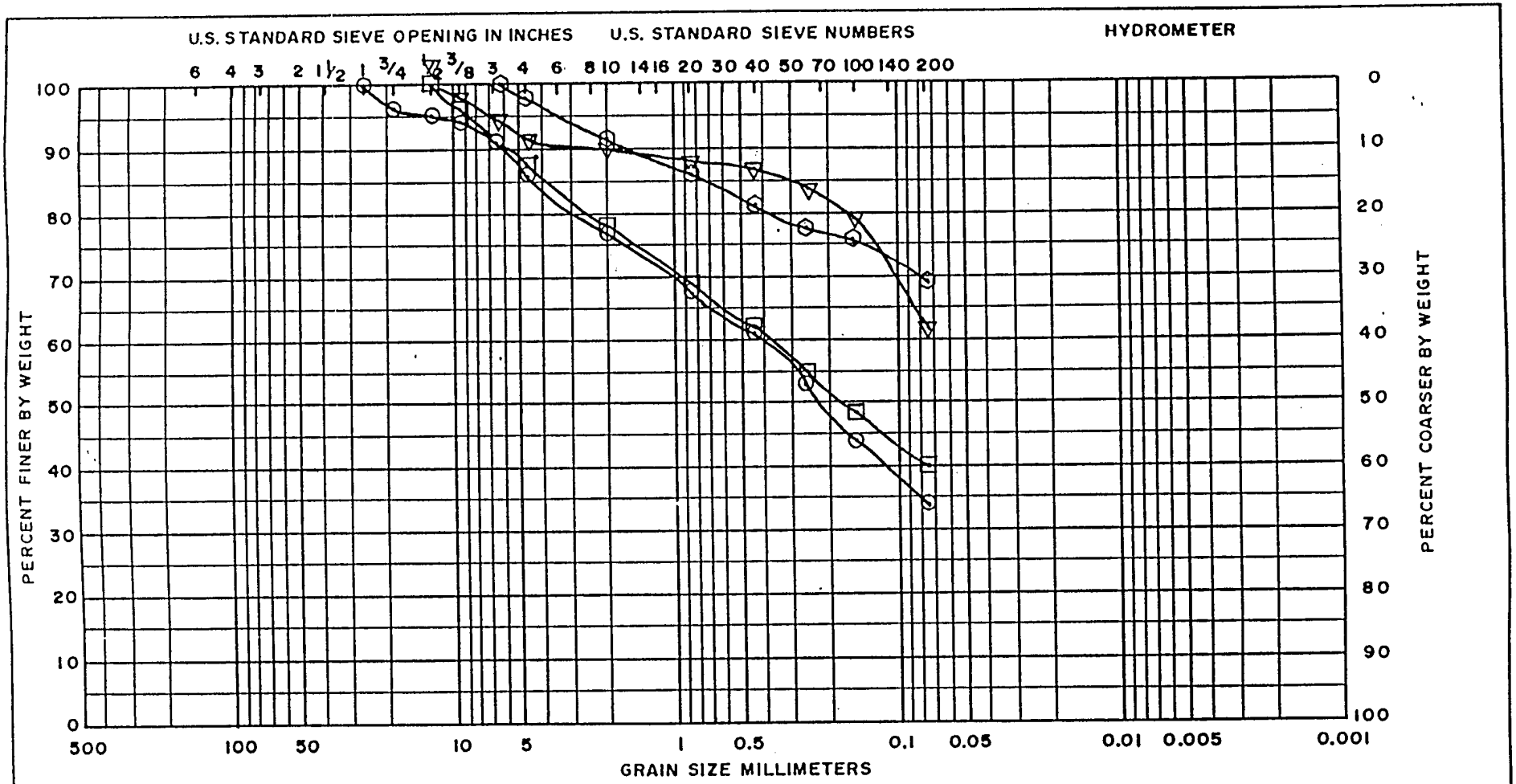
GRAIN SIZE DISTRIBUTION CURVES

STEWART A.N.G.

TESTED BY	CHECKED BY	PROJ NO
TS	RLR	5139.01
	DATE 9.10.87	

JGA 003
1 APR 82

JORDAN GORRILL ASSOCIATES
GEOTECHNICAL CONSULTANTS



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH		CLASSIFICATION	NAT W%	LL	PL	PI
B105	S5	⊙	Silt and Sand, stratified	13.6%			
B106	S3	⊙	Sand, some silt, little gravel, trace clay	12.2%			
B106	S5	⊡	Silty Sand, some clay, little gravel	13.2%			
B107	S2	▽		17.2%			

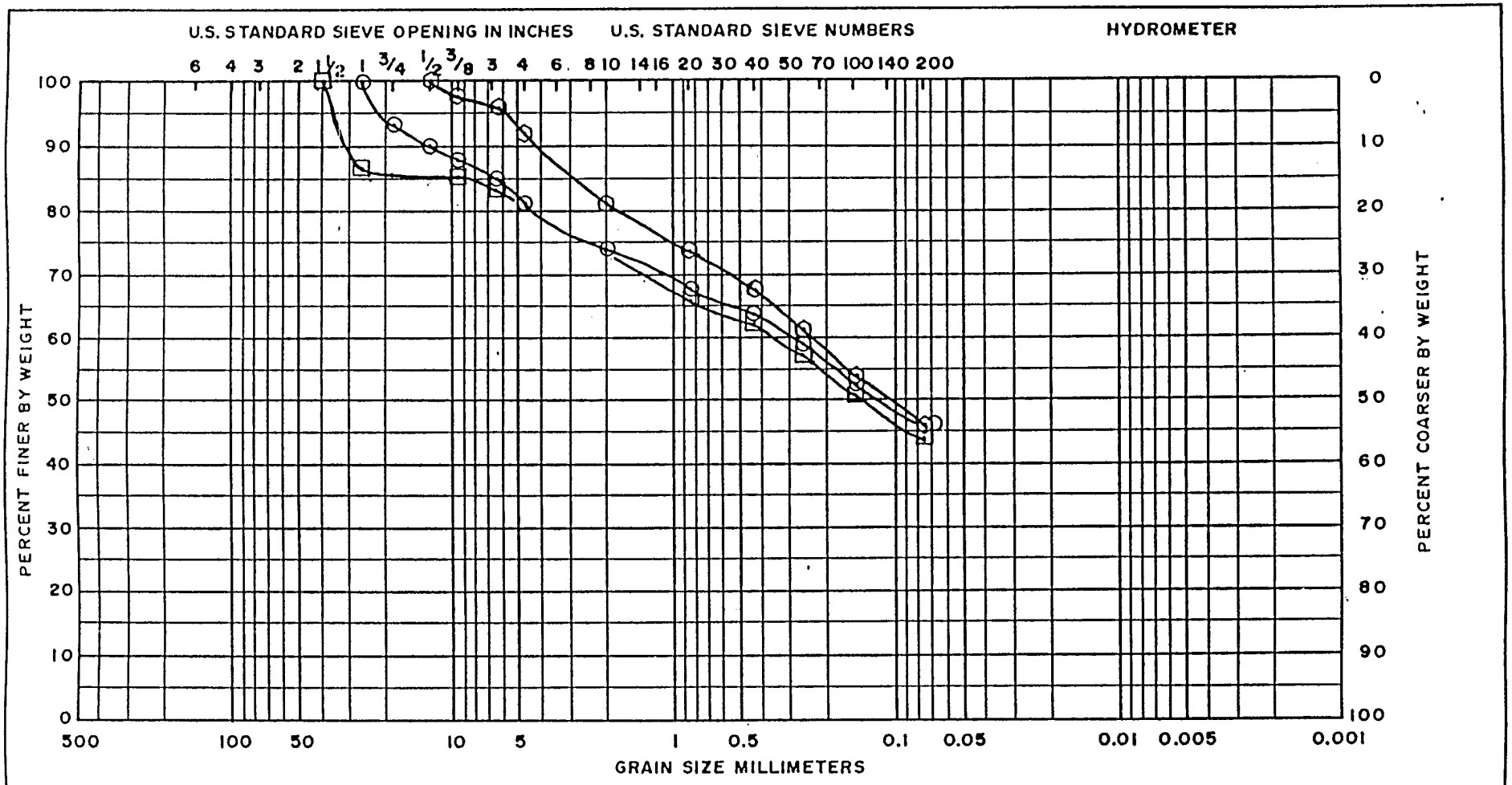
GRAIN SIZE DISTRIBUTION CURVES

STEWART ANG

TESTED BY	CHECKED BY	PROJ NO.
TS	RLR	5139.01
	DATE 9.10.87	

JGA 003
1 APR 82

JORDAN GORRILL ASSOCIATES
GEOTECHNICAL CONSULTANTS



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH		CLASSIFICATION	NAT W%	LL	PL	PI
B103	S2	⊙	Silty Sand, little clay, trace fine gravels	10.0%			
B103	S7	⊙	Silty Sand, little clay, little fine gravels	8.1%			
B104	S4	⊡	Silty Sand, little clay, little gravel	8.5%			

GRAIN SIZE DISTRIBUTION CURVES

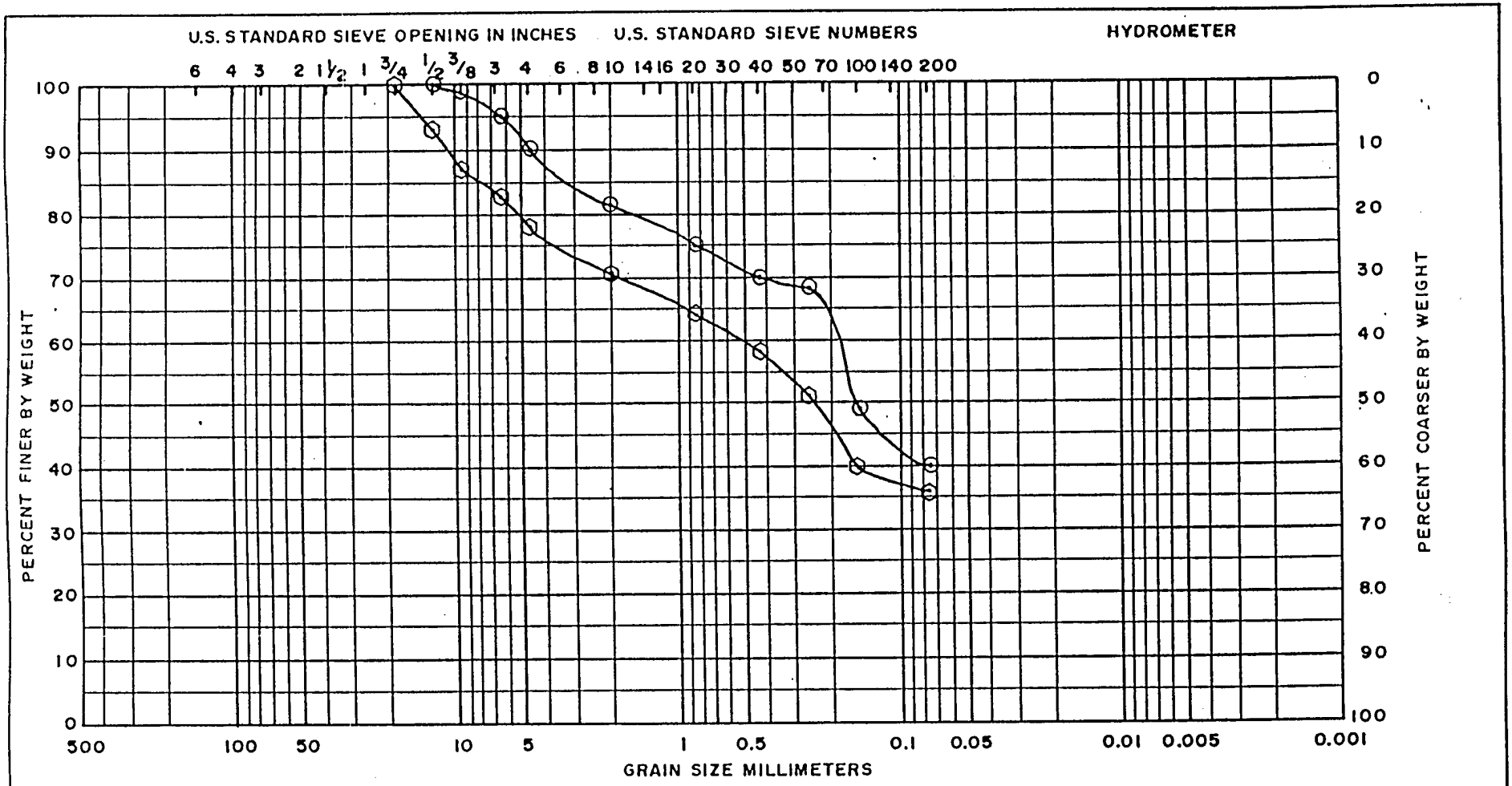
STEWART A.N.G.

TESTED BY TS | CHECKED BY RJR | PROJ NO. 5139.01

DATE 9.10.87

JGA 003

JORDAN GORRILL ASSOCIATES



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
B108	S3 ⊙	Sand, some silt, little clay, little fine gravel	12.0%			
B110	S4 ⊙	Sand, some silt, little clay, little fine gravel	13.5%			

GRAIN SIZE DISTRIBUTION CURVES

STEWART A.N.G.

TESTED BY	CHECKED BY	PROJ NO
TS		5139.01
	DATE 9.10.87	

APPENDIX C-2

SIEVE ANALYSIS DATA

"LEVEL D"

WATER CONTENT - GENERAL

DATE 9.3.87

PROJECT STEWART AVE JOB NO. 5139.01

	BORING AND SAMPLE NO.		MW101 S1	MW109 S1	MW109 S3	B100 S3	B101-S4	B102 S
	TARE NO.		34	106	75	88	56	5
WEIGHT IN GRAMS	TARE PLUS WET SOIL		207.4	226.7	242.5	251.6	239.6	258.
	TARE PLUS DRY SOIL		289.7	207.4	224.5	237.3	215.3	249.
	WATER	W_w	17.7	19.3	18.0	14.3	14.3	20.7
	TARE		72.7	58.2	61.1	58.8	53.0	52.8
	DRY SOIL	W_s	217.0	149.2	163.4	178.5	162.3	196.
	WATER CONTENT, %	w	8.2	12.9	11.0	8.0	8.8	10.6
	SAMPLE DESCRIPTION							

	BORING AND SAMPLE NO.		B103 S2	B103 S7	B104 S4	B105 S5	B106 S3	B106 S
	TARE NO.		60	8	4	53	70	3
WEIGHT IN GRAMS	TARE PLUS WET SOIL		279.8	234.8	361.8	183.3	255.1	263.
	TARE PLUS DRY SOIL		259.1	221.1	245.4	167.5	244.1	238.
	WATER	W_w	20.7	13.7	16.4	15.5	15.0	24.7
	TARE		52.5	52.1	53.4	53.7	58.6	51.9
	DRY SOIL	W_s	206.6	169.0	192.0	114.1	205.5	186.
	WATER CONTENT, %	w	10.0	8.1	8.5	13.6	12.2	13.2
	SAMPLE DESCRIPTION							

	BORING AND SAMPLE NO.		B107 S2	B103 S3	B110 S4			
	TARE NO.		25	19	51			
WEIGHT IN GRAMS	TARE PLUS WET SOIL		234.9	232.7	237.2			
	TARE PLUS DRY SOIL		210.5	213.8	215.3			
	WATER	W_w	24.4	18.9	21.9			
	TARE		68.7	55.7	52.8			
	DRY SOIL	W_s	141.8	158.1	162.5			
	WATER CONTENT, %	w	17.2	12.0	13.5			
	SAMPLE DESCRIPTION							

REMARKS high 17.2 (B107 S-2) Low 8.0 (B100 S3) AVE = 11.2%

TECHNICIAN TS COMPUTED BY TS CHECKED BY

PROJECT STEWART ANG | COMP. BY TS | JOB Nº 5129.11 | CHK. BY RLR | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING MW109 NUMBER S-1 DEPTH

MOISTURE CONTENT

TARE Nº 106 Wt. 58.2
SAMPLE+TARE, i 226.7
SAMPLE+TARE, f 207.4
SAMPLE, f 149.2
MOISTURE 19.3
% Wc 12.9

% OF FINES

TARE Nº 106 Wt. 58.2
SAMPLE+TARE, i 207.4
SAMPLE+TARE, f 165.2
Wt. SOIL LOST 42.2
Wt. SOIL, i 149.2
% of FINES 28.3

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (Cd)

	SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
COARSE ANALYSIS	3					
	1½					
	1				100	100
	¾		19.0	12.1	87.9	88 ✓
	½		19.6	13.1	86.9	87
	⅜		30.3	20.3	79.7	80
	¼		40.1	26.9	73.1	73
	4		43.0	28.8	71.2	71 ✓
	PAN					
	Wt. i		Wt. f		% Loss	
FINE ANALYSIS	4		-	-		
	10		58.5	39.2	60.8	61
	20		72.9	48.9	51.1	51 ✓
	40		81.2	54.4	45.6	46
	60		89.7	60.1	39.9	40
	100		99.3	66.6	33.4	33 ✓
	200		106.5	71.4	28.6	29
	PAN		106.6	—	—	—
	Wt. i		Wt. f	% Loss	C.F.	

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-Cd+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi} \left((R - C_d + M) - 1\right)\right] \times 1000$$

G_s _____ REAL / ASSUMED

PROJECT SWAMP ANC

COMP. BY TS | JOB Nº 5139.01

CHK. BY RLR | DATE 8-31-87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING MW109 NUMBER S-3 DEPTH

MOISTURE CONTENT

TARE Nº 75 Wt. 61.1

SAMPLE+TARE, i 242.5

SAMPLE+TARE, f 224.5

SAMPLE, f 163.4

MOISTURE 18 c

% Wc 11.0

% OF FINES

TARE Nº 75 Wt. 61.1

SAMPLE+TARE, i 224.5

SAMPLE+TARE, f 181.5

Wt. SOIL LOST 43.0

Wt. SOIL, i 163.4

% of FINES 26.3

HYDROMETER ANALYSIS

SAMPLE SIZE i

MENISCUS CORR (M)

DISP. AGENT

AMOUNT CORR (C_d)

	SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
COARSE ANALYSIS	3					
	1½					
	1					
	¾				100	100
	½		3.6	2.2	97.8	98
	⅜		12.5	7.6	92.4	92
	¼		21.3	13.0	87.0	87
	4		33.5	20.5	79.5	80
	PAN			-		
	Wt. i		Wt. f		% Loss	
FINE ANALYSIS	4			-	-	
	10		59.1	36.2	63.8	64
	20		78.4	48.0	52.0	52
	40		90.3	55.3	44.7	45
	60		100.6	61.6	38.4	38
	100		110.1	67.4	32.6	33
	200		120.0	73.4	26.6	27
	PAN		120.2	73.6	-	-
	Wt. i		Wt. f		% Loss	C.F.

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi}\right] \left((R - C_d + M) - 1\right) \times 1000$$

G_s _____ REAL / ASSUMED

PROJECT STEWART ANG | COMP. BY TS | CHK. BY RR | JOB Nº 5139.01 | DATE 2.5.97

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B100 NUMBER S-3 DEPTH

MOISTURE CONTENT

TARE Nº 38 Wt. 58.8
SAMPLE+TARE, i 251.6
SAMPLE+TARE, f 237.3
SAMPLE, f 178.5
MOISTURE 14.3
% Wc 8.0%

% OF FINES

TARE Nº 88 Wt. 58.5
SAMPLE+TARE, i 237.3
SAMPLE+TARE, f 160.6
Wt. SOIL LOST 76.7
Wt. SOIL, i 178.5
% of FINES 43.0%

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (C_d)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1		—		100	100
¾		50.1	16.9	83.1	83
½		—		—	—
⅜		22.9	10.6	31.4	31
¼		38.5	21.6	75.4	75
4		45.5	25.7	74.3	74
PAN		—			

Wt. i ____ Wt. f ____ % Loss ____

FINE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
4		—		—	
10		50.8	31.8	68.2	68
20		67.3	37.7	62.3	62
40		74.8	41.9	58.1	58
60		82.8	46.4	53.6	54
100		93.0	52.1	47.9	48
200		102.0	57.1	42.9	43
PAN		—			

Wt. i ____ Wt. f ____ % Loss ____ C.F. ____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\%\ \text{FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi}\ \left((R - C_d + M) - 1\right)\right] \times 1000$$

G_s ____ REAL / ASSUMED

EQUIPMENT

PROJECT STEWART ANG | COMP. BY TS | CHK. BY RLR | JOB Nº 513-01 | DATE 2-5-85

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B101 NUMBER S4 DEPTH _____

MOISTURE CONTENT

TARE Nº 56 Wt. 53.0
SAMPLE+TARE, i 229.6
SAMPLE+TARE, f 215.3
SAMPLE, f 162.3
MOISTURE 14.3
% Wc 8.8 /

% OF FINES

TARE Nº 56 Wt. 53.0
SAMPLE+TARE, i 215.3
SAMPLE+TARE, f 126.5
Wt. SOIL LOST 88.8
Wt. SOIL, i 162.3
% of FINES 54.7 /

HYDROMETER ANALYSIS

SAMPLE SIZE i _____
MENISCUS CORR (M) _____
DISP. AGENT _____
AMOUNT ____ CORR (Cd) ____

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1					
¾					
½			0	100	100
⅜		3.2	3.0 /	97	97
¼		5.9	5.5	94.5	94.5
4		14.8	9.1	90	91 /
PAN				—	

Wt. i _____ Wt. f _____ % Loss _____

FINE ANALYSIS

4				—	—
10		28.1	17.3	82.7	83
20		39.5	24.3	75.7	76 /
40		47.2	29.1	70.9	71
60		55.1	33.9	66.1	66 /
100		63.9	39.4	60.6	61
200		73.3	45.2	54.8	55 /
PAN		73.5	45.3	—	—

Wt. i _____ Wt. f _____ % Loss _____ C.F. _____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-Cd+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{Gs}{Gs-1}\right) \times \frac{100}{Wi} \left((R-Cd+M)-1\right)\right] \times 1000$$

Gs _____ REAL / ASSUMED

EDGERTON

PROJECT STEWART ANG | COMP. BY TS | CHK. BY RC | JOB Nº 5139.01 | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B102 NUMBER S-6 DEPTH

MOISTURE CONTENT

TARE Nº 5 Wt. 52.8
SAMPLE+TARE, i 269.7
SAMPLE+TARE, f 249.0
SAMPLE, f 196.2
MOISTURE 20.7
% Wc 10.6 ✓

% OF FINES

TARE Nº 5 Wt. 52.8
SAMPLE+TARE, i 249.0
SAMPLE+TARE, f 146.2
Wt. SOIL LOST 102.8
Wt. SOIL, i 196.2
% of FINES 52.4 ✓

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR(Cd)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1					
¾				100	100
½		8.7	4.4	95.6	96 ✓
⅜		13.2	6.7	93.3	93
¼		18.4	9.5	90.5	90
4		28.7	14.6	85.4	85
PAN					

Wt. i ____ Wt. f ____ % Loss ____

FINE ANALYSIS

4					
10		44.7	22.8	77.2	77 ✓
20		57.2	29.2	70.8	71
40		64.4	32.8	67.2	67 ✓
60		73.3	37.4	62.6	63
100		83.3	42.5	57.5	58 ✓
200		93.3	47.6	52.4	52
PAN		93.4	—	—	—

Wt. i ____ Wt. f ____ % Loss ____ C.F. ____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-Cd+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\%\ \text{FINER} = \left[\left(\frac{Gs}{Gs-1}\right) \times \frac{100}{Wi} \left((R-Cd+M)-1\right)\right] \times 1000$$

Gs ____ REAL / ASSUMED

EQUATION

PROJECT STEWART AVE | COMP. BY TS | CHK. BY RLR | JOB Nº 5134.01 | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING 5103 NUMBER S-2 DEPTH

MOISTURE CONTENT

TARE Nº 160 Wt. 52.5
SAMPLE+TARE, i 279.5
SAMPLE+TARE, f 259.1
SAMPLE, f 206.6
MOISTURE 52.5
% Wc 10.0

% OF FINES

TARE Nº 160 Wt. 52.5
SAMPLE+TARE, i 259.1
SAMPLE+TARE, f 164.0
Wt. SOIL LOST 95.1
Wt. SOIL, i 206.6
% of FINES 46.0

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR(C_d)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1					
¾					
½				100	100
⅜		4.0	1.9	98.1	98
¼		9.2	4.5	95.5	96
4		17.0	8.2	91.8	92
PAN					

Wt. i ____ Wt. f ____ % Loss ____

FINE ANALYSIS

4		–	–	–	–
10		38.2	18.4	81.6	82
20		54.3	26.3	73.7	74
40		67.1	32.5	67.5	68
60		80.2	38.8	61.2	61
100		96.2	46.6	53.4	54
200		111.4	53.9	46.1	46
PAN		111.6	–	–	–

Wt. i ____ Wt. f ____ % Loss ____ C.F. ____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\%\ \text{FINER} = \left[\left(\frac{G_s}{G_s-1}\right) \times \frac{100}{Wi}\ \left((R-C_d+M)-1\right)\right] \times 1000$$

G_s ____ REAL / ASSUMED

PROJECT STEWART ANG | COMP. BY TS | JOB Nº 512 | CHK. BY | DATE 8-5-87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING 5103 NUMBER S-7 DEPTH

MOISTURE CONTENT

TARE Nº 8 Wt. 52.1
SAMPLE+TARE, i 234.8
SAMPLE+TARE, f 221.1
SAMPLE, f 169.0
MOISTURE 13.7
% Wc 8.1

% OF FINES

TARE Nº 8 Wt. 52.1
SAMPLE+TARE, i 221.1
SAMPLE+TARE, f 143.3
Wt. SOIL LOST 77.8
Wt. SOIL, i 169.0
% of FINES 46.0

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (C_d)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1				100	
¾		12.1	7.2	92.8	
½		17.7	10.5	89.5	
⅜		21.2	12.5	87.5	
¼		24.6	14.6	85.4	
4		31.5	18.6	81.4	
PAN					

Wt. i Wt. f % Loss

FINE ANALYSIS

4					—
10		43.6	25.8	74.2	74
20		53.5	31.7	68.3	
40		60.9	36.0	64.0	
60		68.9	40.8	59.2	59
100		79.0	46.7	53.3	53
200		91.2	54.0	46.0	46
PAN		91.4	—	—	

Wt. i Wt. f % Loss C.F.

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-Cd+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi} \left((R - Cd + M) - 1\right)\right] \times 1000$$

G_s _____ REAL / ASSUMED

PROJECT STEWART ANG | COMP. BY TS | JOB Nº 5139.01 | CHK. BY EC | DATE 8.5.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B104 NUMBER S-4 DEPTH

MOISTURE CONTENT

TARE Nº 4 Wt. 53.4
SAMPLE+TARE, i 261.8
SAMPLE+TARE, f 245.4
SAMPLE, f 192.0
MOISTURE 16.4
% Wc 8.5 /

% OF FINES

TARE Nº 4 Wt. 53.4
SAMPLE+TARE, i 245.4
SAMPLE+TARE, f 160.3
Wt. SOIL LOST 85.1
Wt. SOIL, i 192.0
% of FINES 44.3 /

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR(Cd)

	SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
COARSE ANALYSIS	3					
	1½				100	100
	1		25.7	13.4	86.6	87 /
	¾		—	—	—	
	½		/	—	—	
	⅜		27.9	14.5	85.5	86
	¼		51.2	26.7	73.3	74
	4		37.0	19.3	80.7	81 /
	PAN					
	Wt. i		Wt. f		% Loss	
FINE ANALYSIS	4					
	10		50.6	26.4	73.6	74 /
	20		62.8	32.7	67.3	67
	40		71.8	37.4	62.6	63 /
	60		82.1	42.8	57.2	57
	100		93.9	48.9	51.1	51 /
	200		106.8	55.6	44.4	44
	PAN		107.0	—		
	Wt. i		Wt. f		% Loss	C.F.

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-Cd+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECT
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi} \left((R - C_d + M) - 1\right)\right] \times 1000$$

G_s _____ REAL / ASSU

EDCPDA

B

PROJECT STEWART ANC | COMP. BY TS | JOB Nº 5139.01 | CHK. BY RLR | DATE 8-31-87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B 106 NUMBER S3 DEPTH

MOISTURE CONTENT

TARE Nº 70 Wt. 58.6
SAMPLE+TARE, i 289.1
SAMPLE+TARE, f 264.1
SAMPLE, f 205.5
MOISTURE 25.0
% Wc 12.2 ✓

% OF FINES

TARE Nº 70 Wt. 58.6
SAMPLE+TARE, i 264.1
SAMPLE+TARE, f 195.0
Wt. SOIL LOST 69.1
Wt. SOIL, i 205.5
% of FINES 33.6 ✓

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (Cd)

	SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
COARSE ANALYSIS	3					
	1½					
	1				100	100
	¾		7.1	3.5	96.5	97 ✓
	½		9.7	4.7	95.3	95
	⅜		11.6	5.6	94.4	94 ✓
	¼		18.7	9.1	90.9	91
	4		28.1	13.7	86.3	86 ✓
	PAN					
	Wt. i		Wt. f		% Loss	
FINE ANALYSIS	4				—	
	10		46.8	22.8	77.2	77
	20		65.4	31.8	68.2	68 ✓
	40		80.2	39.0	61.0	61 ✓
	60		97.3	47.4	52.6	53 ✓
	100		116.3	56.6	44.4	44
	200		135.8	66.1	33.9	34 ✓
	PAN		136.5	—	—	—
	Wt. i		Wt. f	% Loss		C.F.

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-Cd+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{W_i} \left((R - C_d + M) - 1\right)\right] \times 1000$$

Gs _____ REAL / ASSUMED

B

PROJECT STEWART ANC | COMP. BY TS | JOB Nº 5139.01 | CHK. BY RLR | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING S 10c NUMBER 55 DEPTH

MOISTURE CONTENT

TARE Nº 3 Wt. 51.9
SAMPLE+TARE, i 263.3
SAMPLE+TARE, f 235.6
SAMPLE, f 183.7
MOISTURE 24.7
% Wc 13.2 /

% OF FINES

TARE Nº 3 Wt. 51.9
SAMPLE+TARE, i 238.6
SAMPLE+TARE, f 164.5
Wt. SOIL LOST 74.1
Wt. SOIL, i 186.7
% of FINES 39.9 /

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (C_d)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1					
¾					
½				100	100
⅜		8.0	4.3	95.7	96 /
¼		16.8	9.0	91.0	91
4		24.3	13.0	87.0	87 /
PAN					

Wt. i ____ Wt. f ____ % Loss ____

FINE ANALYSIS

4		—			
10		41.7	22.3	77.7	78
20		58.2	31.2	68.8	69 /
40		71.0	38.0	62.0	62
60		83.7	44.8	55.2	55 /
100		97.0	52.0	48.0	45
200		112.0	60.0	40.0	40 /
PAN		112.8	—	—	—

Wt. i ____ Wt. f ____ % Loss ____ C.F. ____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi} \left((R - C_d + M) - 1\right)\right] \times 1000$$

G_s ____ REAL / ASSUMED

E.C. JORDAN CO.

PROJECT STEWART ANC | COMP. BY TS | JOB Nº 5139.01 | CHK. BY RLR | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B 107 & NUMBER S-2 DEPTH

MOISTURE CONTENT

TARE Nº 25 Wt. 68.7
SAMPLE+TARE, i 234.9
SAMPLE+TARE, f 210.5
SAMPLE, f 141.8
MOISTURE 24.4
% Wc 17.2 /

% OF FINES

TARE Nº 25 Wt. 68.7
SAMPLE+TARE, i 210.5
SAMPLE+TARE, f 123.6
Wt. SOIL LOST 86.9
Wt. SOIL, i 141.8
% of FINES 61.3% /

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (C_d)

	SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
COARSE ANALYSIS	3					
	1½					
	1					
	¾					
	½				100	100
	⅜		5.0	5.5	96.5	97 /
	¼		8.4	5.9	94.1	94
	4		11.3	8.0	92.0	92 /
	PAN				—	
	Wt. i		Wt. f		% Loss	
FINE ANALYSIS	4				—	
	10		13.6	9.6	90.4	90
	20		16.5	11.6	88.4	88 /
	40		18.8	13.3	86.7	87
	60		22.6	15.9	84.1	84 /
	100		30.3	21.4	78.6	79
	200		53.4	37.7	62.3	62 /
	PAN		54.9	—	—	
	Wt. i		Wt. f		% Loss	C.F.

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s-1}\right) \times \frac{100}{Wi} \left((R-C_d+M)-1\right)\right] \times 1000$$

G_s _____ REAL / ASSUMED

B

PROJECT STEWART ANG | COMP. BY TS | JOB Nº 5139.01 | CHK. BY RLR | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B108 NUMBER S3 DEPTH

MOISTURE CONTENT

TARE Nº 19 Wt. 55.7
SAMPLE+TARE, i 232.7
SAMPLE+TARE, f 213.8
SAMPLE, f 158.1
MOISTURE 18.9
% Wc 12.0%

% OF FINES

TARE Nº 19 Wt. 55.7
SAMPLE+TARE, i 213.5
SAMPLE+TARE, f 158.8
Wt. SOIL LOST 55.0
Wt. SOIL, i 158.1
% of FINES 34.8 ~~35.2~~

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (C_d)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1					
¾				100	100
½		11.5	7.3	92.7	93 ✓
⅜		20.0	12.7	87.3	87
¼		26.3	16.7	83.3	83 ✓
4		34.2	21.6	78.4	78 ✓
PAN					

Wt. i ____ Wt. f ____ % Loss ____

FINE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
4		—			
10		45.9	29.0	71.0	71
20		57.6	36.4	63.6	64 ✓
40		66.4	42.0	58.0	58
60		77.6	49.1	50.9	51 ✓
100		95.1	60.2	39.8	40
200		103.2	61.9	35.5	~~35~~ 35
PAN		103.3			

Wt. i ____ Wt. f ____ % Loss ____ C.F. ____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\% \text{ FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi} \left((R - C_d + M) - 1\right)\right] \times 1000$$

G_s ____ REAL / ASSUMED

B

PROJECT STEWART AVE | COMP. BY TS | JOB Nº 5130.01 | CHK. BY RLR | DATE 8.31.87

GRAIN SIZE ANALYSIS

SAMPLE I.D: BORING B 110 NUMBER S4 DEPTH

MOISTURE CONTENT

TARE Nº S 51 Wt. 52.8
SAMPLE+TARE, i 237.2
SAMPLE+TARE, f 215.3
SAMPLE, f 162.5
MOISTURE 21.9
% Wc 13.5

% OF FINES

TARE Nº 51 Wt. 52.8
SAMPLE+TARE, i 215.3
SAMPLE+TARE, f 150.4
Wt. SOIL LOST 64.9
Wt. SOIL, i 162.5
% of FINES 40.0

HYDROMETER ANALYSIS

SAMPLE SIZE i
MENISCUS CORR (M)
DISP. AGENT
AMOUNT CORR (C_d)

COARSE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
3					
1½					
1					
¾					
½		0		100	100
⅜		1.8	1.1	98.9	99 ✓
¼		8.2	5.1	94.9	95
4		16.1	9.9	90.1	90 ✓
PAN					

Wt. i _____ Wt. f _____ % Loss _____

FINE ANALYSIS

SIEVE	Wt. RETAINED WITH TARE	Wt. RETAINED WITHOUT TARE	% RET	% PASS	CORRECT'D
4					
10		29.7	18.3	81.7	82
20		40.3	24.8	75.2	75 ✓
40		48.5	30.0	70.0	70
60		60.2	31.7	68.3	68 ✓
100		82.3	50.7	49.3	49
200		98.1	60.4	39.6	40 ✓
PAN		98.3	60.5	—	—

Wt. i _____ Wt. f _____ % Loss _____ C.F. _____

TIME	Δt MIN	TEMP/K	ACTUAL HYDRO	R CORR'D	L Eff.Dpth.	R-C_d+M CALC	$d=K\sqrt{\frac{L}{T}}$ SIZE	% Finer	CORRECTED
	0								
	½								
	1								
	2								
	4								
	8								
	15								
	30								
	60								
	120								
	240								
	480								
	1440								

$$\%\ \text{FINER} = \left[\left(\frac{G_s}{G_s - 1}\right) \times \frac{100}{Wi}\ \left((R - C_d + M) - 1\right)\right] \times 1000$$

G_s _____ REAL / ASSUMED

APPENDIX D

FIELD PERMEABILITY TEST DATA

TABLE D-1

RISING HEAD PERMEABILITY TEST DATA

JMW108 PERMTEST

Diameter of riser = 0.166
Length of zone = 7
Diameter of zone = 0.66
Static water level = 8.38
Number of readings = 20

Time (min.)	Excess Head (ft.)
0	5.1
1	4.88
2	4.67
3	4.41
4	4.09
5	3.88
6	3.66
7	3.42
8	3.2
9	2.97
10	2.78
11	2.58
12	2.41
13	2.26
14	2.11
15	1.95
20	1.38
25	0.88
30	0.61
35	0.48

$K = 5.13 \times 10^{-5}$ cm/sec

JMW109 PERMTEST

Diameter of riser = 0.166
Length of zone = 7
Diameter of zone = 0.666
Static water level = 9.91
Number of readings = 14

Time (min.)	Excess Head (ft.)
0	2.04
.5	1.93
1	1.87
2	1.73
3	1.59
4	1.48
5	1.39
6	1.3
7	1.22
8	1.15
9	1.08
10	1.01
15	0.74
20	0.61

$K = 5.19 \times 10^{-5}$ cm/sec

JMW107 PERMTEST

Diameter of riser = 0.166
Length of zone = 7
Diameter of zone = 0.66
Static water level = 10.13
Number of readings = 18

Time (min.)	Excess Head (ft.)
.5	1.98
1	1.9
1.5	1.86
2	1.84
3	1.78
4	1.75
5	1.69
6	1.65
7	1.61
8	1.57
9	1.53
10	1.49
15	1.14
21	0.89
29	0.49
30	0.47
40	0.17
50	0.13

$K = 4.20 \times 10^{-5}$ cm/sec

JMW101 PERMTEST

Diameter of riser = 0.166
Length of zone = 12
Diameter of zone = 0.333
Static water level = 31.23
Number of readings = 16

Time (min.)	Excess Head (ft.)
0	1.41
.5	1.34
1	1.34
2	1.24
3	1.20
4	1.17
5	1.13
6	1.13
7	1.11
8	1.09
9	1.08
10	1.07
15	1.02
20	0.94
25	0.88
30	0.84

$K = 2.24 \times 10^{-5}$ cm/sec

APPENDIX G

DAMES AND MOORE - BORING AND MONITORING WELL DATA

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

SOIL CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SYSTEM

DAMES & MOORE

FIGURE A-1

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-1
SURFACE ELEV: 436.0'

DRILLING METHOD: Hollow stem auger

SAMPLING METHOD: Split spoon

DATE STARTED: 9/12/85
DATE FINISHED: 9/16/85

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
1	40	SS	0		Brown moist silt and fine to medium sand, little medium gravel
			1	SM	grading to brownish-gray, silt, dry,
			2	ML	some fine gravel and coarse sand, little coarse to medium gravel
			3		Hnu=0ppm
			4		Gray dry silt, litle fine to medium gravel, little sand
2	103	SS	5		Hnu=0ppm
			6		
			7		
			8		boulder drilled at 8.0'
			9		
3	88	SS	10		grades to some sand, little fine to coarse gravel
			11		Hnu=0ppm
			12	ML	
			13		
			14		
4	128	SS	15		cobble at 15.0'
			16		
			17		
			18		
			19		
5	77	SS	20		

FIGURE A-2A

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-1

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			20		
			21		
			22		
			23		boulder at 23.0'
			24		
6	100	SS	25		grades to little sand Hnu=0ppm
			26		
			27		
			28	ML	
			29		
7	146	SS	30		Hnu=<1ppm
			31		
			32		
			33		
			34		
8	80/2"	SS	35		Hnu=<1ppm
			36		
			37		
			38		Brown with iron staining, fissile, weathered shale, dry to moist, wet zone from 40'1" to 40'2", some silt
			39		
9	100/3"	SS	40		

FIGURE A-2

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-1

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			40	WEATHERED ROCK	
			41		
			42		
			43		
			44		
10	100/5"	SS	45		grades to gray, dry with iron staining
			46		
			47		
			48		Bedrock, spoon refusal, no sample Hnu=0ppm
			49		
	100/0"		50		Boring terminated at a depth of 50.0 feet on 9/16/85

NOTE: Hnu readings are field detections of organic vapors given off by soil samples; measured with an Hnu photoionization meter set to a 9.8 span.

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-2
SURFACE ELEV: 433.5'

DRILLING METHOD: Hollow stem auger

SAMPLING METHOD: Split spoon

DATE STARTED: 9/18/85
DATE FINISHED: 9/19/85

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
1	32	SS	0		Brown, mottled, dry to moist, fine sand and silt, little fine gravel Hnu=0ppm
			1		
			2	SP	
			3		
			4		
2	100	SS	5	SM	Brown, dry fine sand, little fine to medium gravel Hnu=0ppm
			6		Brown, moist, fine sand, little medium to coarse sand and fine gravel, trace silt Hnu=0ppm
			7		
			8	SP	
			9		
3	92	SS	10		grades to dry, less gravel
			11		
			12		
			13		Gray, moist, silt, little fine to medium gravel, little fine sand Hnu=0ppm
			14		
4	75	SS	15		
			16	ML	
			17		
			18		
			19		
			20		

FIGURE A-3

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-2

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			20		no soil sample; cuttings are gray silt drilled boulder at 21 feet
	100/5"		21		
			22		
			23		
			24		
5	80	SS	25		grades to dry to slightly moist, little fine to medium sand, little fine to coarse gravel. Hnu=10ppm
			26		
			27	ML	
			28		
			29		
6	20/1"	SS	30		no soil sample; cuttings are gray silt
			31		
			32		
			33		
			34		
7	100/1"	SS	35		Brown-gray with iron stains, weathered, slightly, metamorphosed shale Hnu=200ppm
			36		
			37	ROCK	
			38		
			39		
8	100/1/2"	SS	40		Hnu=8ppm

FIGURE A-

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-2

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			40		
			41		
			42		
			43		
			44		
	100/0"	SS	45	BEDROCK	Spoon bounces; bedrock
			46		
			47		
			48		
			49		
	50/0"		50		Boring terminated at a depth of 50.0 feet on 9/19/85

NOTE: Hnu readings are field detections of organic vapors given off by soil samples; measured with an Hnu photoionozation meter set to a 9.8 span.

FIGURE A-3

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-3
SURFACE ELEV: 432.6'

DRILLING METHOD: Hollow stem auger

SAMPLING METHOD: Split sploon

DATE STARTED: 9/24/85
DATE FINISHED: 9/26/85

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
1	46	SS	0		Gray-brown, dry to slightly moist, mottled fine sand, some fine to medium gravel, little silt
			1		Hnu=0ppm
			2		boulder at 3.0'
			3		
			4		
2	31	SS	5		grades to mottled, tan-light brown, moist
			6		Hnu=0ppm
			7	SM	boulder at 8.0'
			8		
			9		
3	74	SS	10		Hnu=0ppm
			11		boulder at 12.0'
			12		
			13		
			14		
4	52	SS	15		Tan to light brown, moist, fine sand, some fine to coarse gravel, trace silt
			16		Hnu=0ppm
			17	SP	
			18		
			19		
5	86	SS	20	SM	Yellow-tan, dry to slightly moist, fine

FIGURE A-

DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

BORING NO.: SW-3

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			20	SM	sand and silt, little fine to medium gravel
			21		grades to brown, dry, no gravel
				-----	grades to gray slightly moist
			22		Gray, slightly moist silt, some fine to medium gravel, some fine sand
			23		Hnu=Øppm
			24		
6	50/6"	SS	25		
			26		
			27		
			28		
			29		
7	50/3"	SS	30		cobble at 30.Ø'
			31	ML	grades to dry, little fine to coarse gravel
			32		Hnu=Øppm
			33		
			34		
8	70/1/2"	SS	35		grades to no gravel
			36		Hnu=Øppm
			37		
			38		
			39		
	50/1/2"		40		grades to light gray silt and gravel

FIGURE A-4

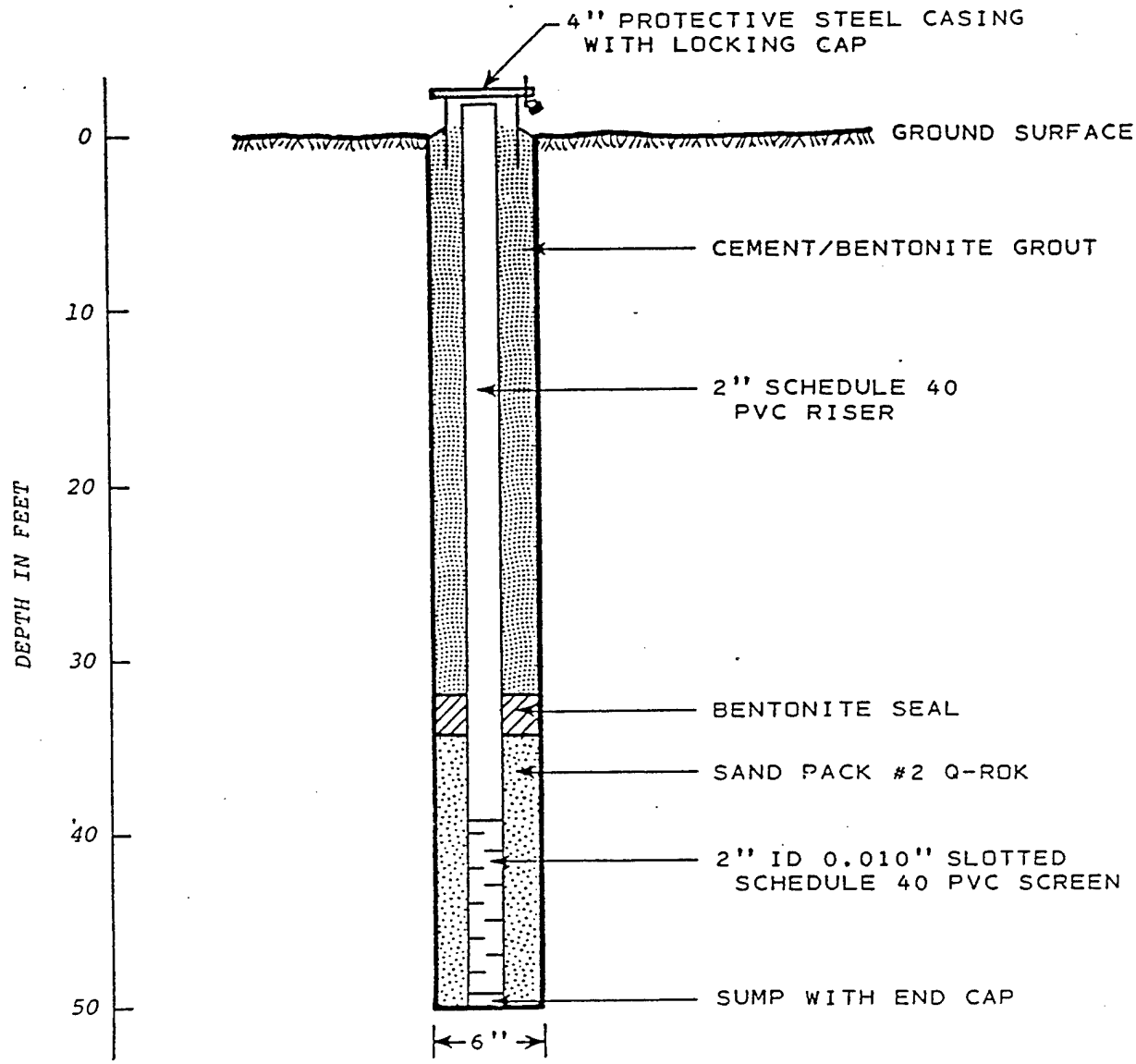
DAMES & MOORE
BORING LOG

CLIENT: STEWART AIR NATIONAL GUARD BASE
LOCATION: NEWBURGH, NY

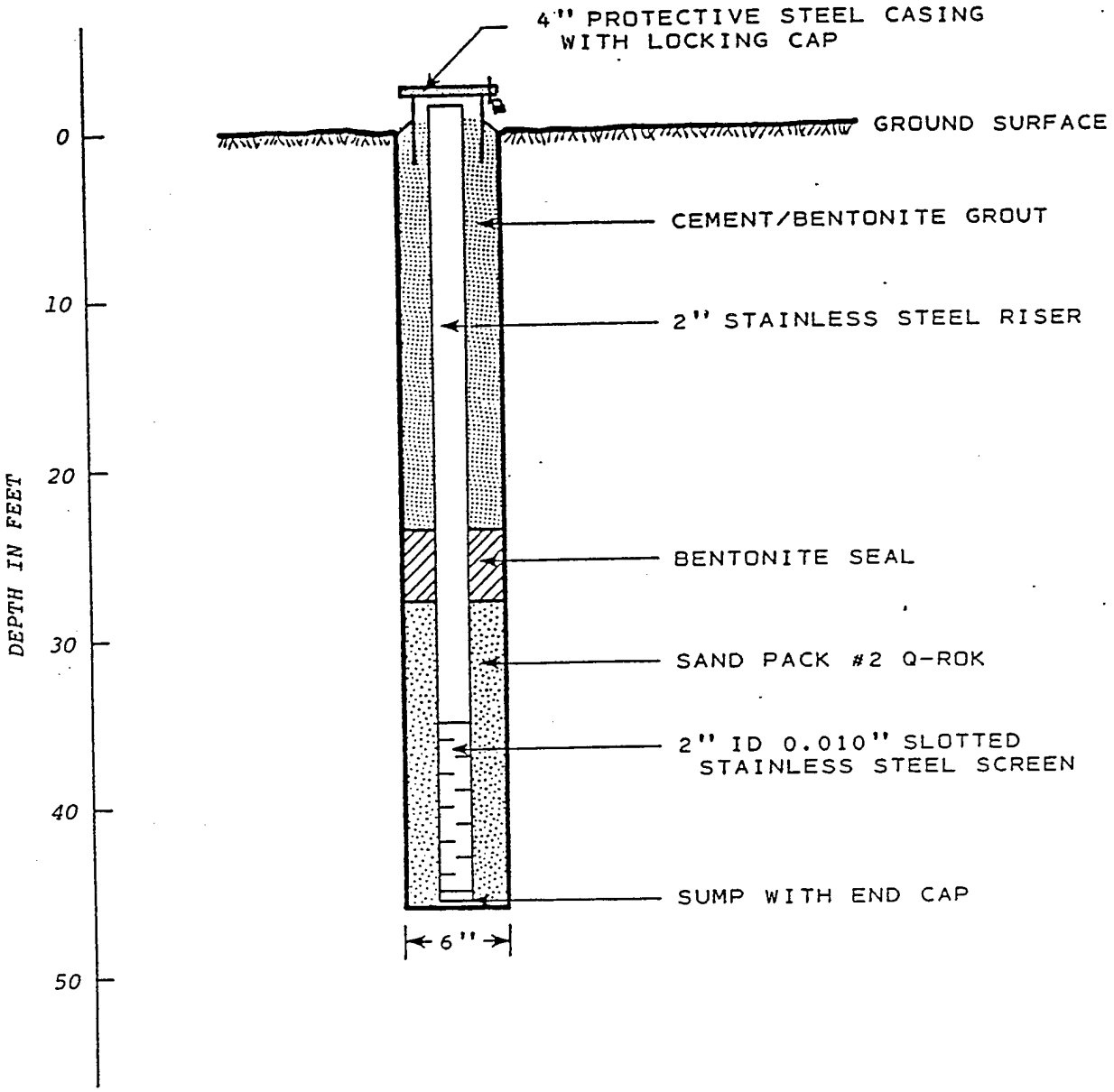
BORING NO.: SW-3

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			40		Hnu=Øppm
			41	ML	
			42		Weathered rock
			43		Hnu=Øppm
			44		drilled easy from 44 1/2 to 45 feet
9	70/1"	SS	45		Shale bedrock
			46		Hnu=Øppm
			47		
			48		
			49		Boring terminated at a depth of 49.5 feet on 9/26/85
			50		

NOTE: Hnu readings are field detections of organic vapors given off by soil samples; meadured with an Hnu photoionozation meter set to a 9.8 span.



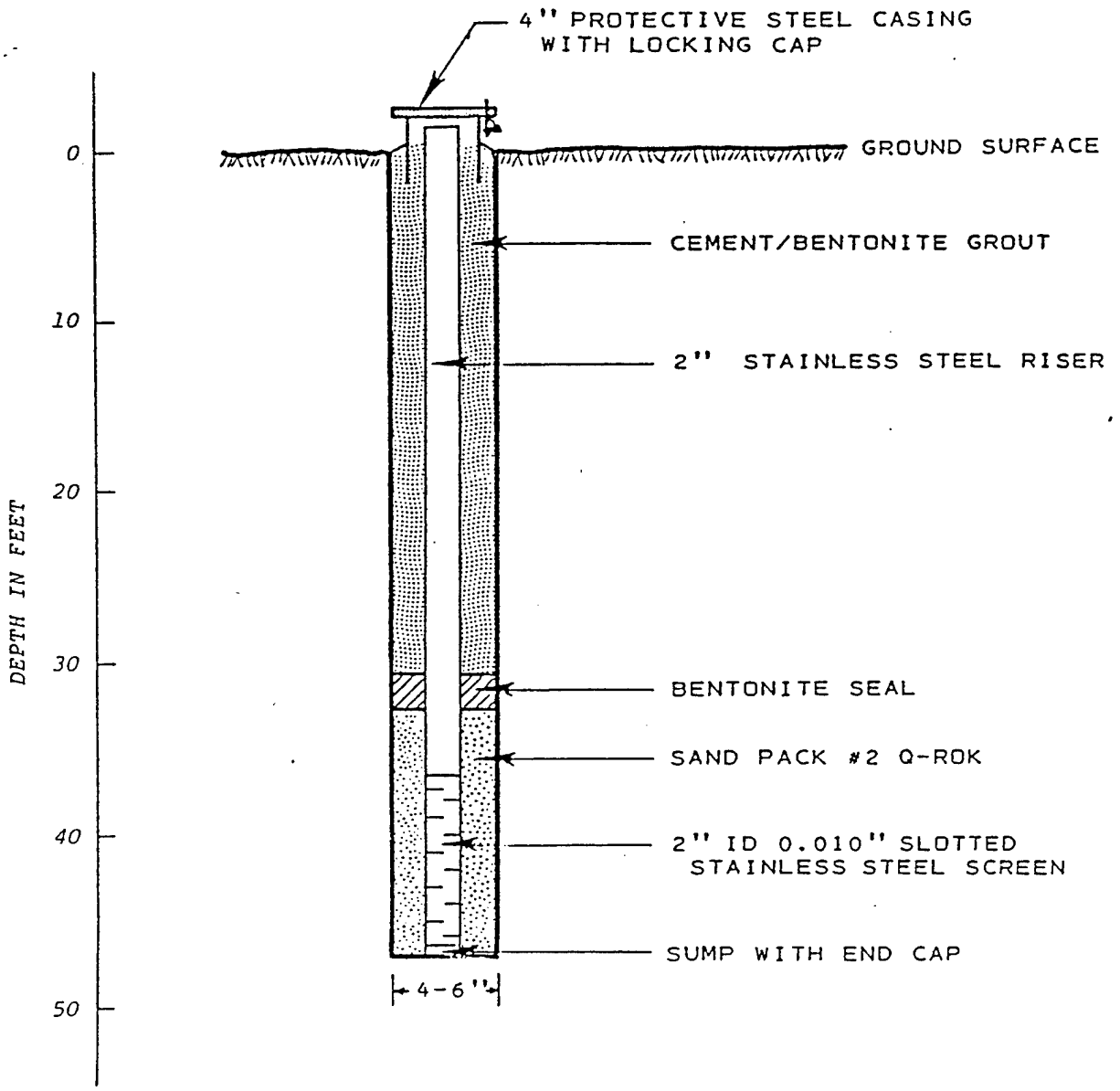
WELL SCHEMATIC
SW-1



WELL SCHEMATIC
SW-2

DAMES & MOORE

FIGURE A-6



WELL SCHEMATIC
SW-3

DAMES & MOORE

FIGURE A-7

APPENDIX B

FIELD CHANGE REQUESTS

FIELD CHANGE REQUEST FORM

1. Field Change No. 1
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

GROUNDWATER MONITORING WELL MW-13 WAS INSTALLED AND SAMPLED IN ADDITION TO PROPOSED MONITORING WELLS.

7. REASON FOR CHANGE:

AS MW-02 AND MW-03 WERE NOT INSTALLED, MW-13 WAS ADDED TO FACILITATE SAMPLING AND ANALYSIS OF OVER BURDEN GROUND WATER

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

MW-13

10. REQUESTED BY:

Michael Plent
Field/Project Manager

7/10/96
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 2
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

PROPOSED GROUND WATER MONITORING WELLS MW-02 AND MW-03 WERE NOT INSTALLED

7. REASON FOR CHANGE:

IMMUNO ASSAY SCREENING OF SOILS COLLECTED FROM THESE LOCATIONS INDICATED THE PRESENCE OF PESTICIDES. AS PER ANG SITE INVESTIGATION PROTOCAL, THEY COULD NOT BE INSTALLED

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

MW-02 AND MW-03

10. REQUESTED BY:

Michael Blunt
Field/Project Manager

7/10/96
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 3
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

THREE SOIL SAMPLES WERE COLLECTED FROM THE SOIL BORING FOR MW-01 AND SUBMITTED TO THE OFFSITE LABORATORY FOR CHEMICAL ANALYSIS.

7. REASON FOR CHANGE:

THIS WAS PERFORMED TO ENSURE AN ADEQUATE AMOUNT OF SITE-SPECIFIC BACKGROUND DATA WERE OBTAINED

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

INCREASED THE NUMBER OF BACKGROUND SAMPLES COLLECTED.

10. REQUESTED BY:

Michael Flint
Field/Project Manager

7/10/96
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 4
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

A GROUND PENETRATING RADAR SURVEY WAS PERFORMED AND AN EXPLORATORY TEST PIT WAS EXCAVATED TO CONFIRM THE LOCATION OF THE FORMER PESTICIDE PIT LOCATION

7. REASON FOR CHANGE:

THE EM SURVEY WAS FOUND TO PROVIDE INCONCLUSIVE RESULTS AS TO THE LOCATION OF THE BURIED "I" BEAMS

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

ACHIEVED CONFIRMATION OF PIT LOCATION; THEREFORE CONFIRMED APPROPRIATENESS OF SOIL BORING LOCATIONS

10. REQUESTED BY:

Michael Allen — Field/Project Manager

7/10/96 — Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 5
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

GLASSWARE FOR COLLECTION OF SOIL SAMPLES CHANGED TO:
1-2oz. WIDE MOUTH GLASS JAR FOR VOCs
1-8oz. WIDE MOUTH GLASS JAR FOR SVOC; PEST/PCB, TAL INORGANICS
1-2oz. GLASS JAR FOR T.O.C.
ALSO- STAINLESS STEEL LINERS ARE NOT BEING USED FOR SUBSURFACE SOIL SAMPLE COLLECTION

7. REASON FOR CHANGE:

REQUIRED GLASSWARE FOR LAB TO PERFORM NYSDEC CLP ANALYSES
LINERS NOT USED BECAUSE CORE BARREL SAMPLER IS BEING USED DUE TO HARDNESS OF MATERIAL

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

ALL SOIL SAMPLES

10. REQUESTED BY:

Michael Blend
Field/Project Manager

10/18/95
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 6
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

GROUND WATER MONITORING WELLS WILL BE CONSTRUCTED AS 2" DIAMETER WELLS INSTEAD OF 4" WELLS

7. REASON FOR CHANGE:

WELLS TO BE INSTALLED WILL BE CONSISTENT WITH EXISTING WELLS

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

ALL GROUND WATER MONITORING WELLS

10. REQUESTED BY:

Michael Blum
Field/Project Manager

10/18/95
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 7
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER
5. APPLICABLE DOCUMENT

6. DESCRIPTION OF CHANGE:

DURING BOREHOLE ABANDONMENT OF SOIL BORINGS WHICH PENETRATE WEATHERED SHALE, SAND WILL BE PLACED IN THE BOREHOLE WITHIN AND ABOVE THE WEATHERED SHALE ZONE AND THEN THE HOLE IS TO BE GROUTED TO WITHIN APPROX. 1 FT OF GROUND SURFACE

7. REASON FOR CHANGE:

THIS IS DONE TO AVOID SIGNIFICANTLY ALTERING THE pH OF GROUND WATER BY ADDING BENTONITE GROUT IMMEDIATELY UPGRADIENT OF WELLS TO BE INSTALLED AND SAMPLED.

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

SB-01, SB-06, SB-07

10. REQUESTED BY:

Michael Bland
Field/Project Manager

10/18/95
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

FIELD CHANGE REQUEST FORM

1. Field Change No. 8
2. Page 1 of 1

3. PROJECT STEWART ANG BASE - SITE 2
4. PROJECT NUMBER _____
5. APPLICABLE DOCUMENT _____

6. DESCRIPTION OF CHANGE:

DECONTAMINATION PROCEDURE CHANGED TO THE FOLLOWING ① ALCONOX RINSE; ② TAP RINSE; ③ RINSE W/ 10% HNO_3 FOR STAINLESS STEEL, 1% HNO_3 FOR CARBON STEEL; ④ TAP RINSE ⑤ METHANOL RINSE; ⑥ AIR DRY; ⑦ DI WATER RINSE; ⑧ WRAP IN FOIL

7. REASON FOR CHANGE:

DECONTAMINATION PROCEDURE ALTERED TO FOLLOW EPA'S REGION II DECONTAMINATION PROCEDURE

8. RECOMMENDED DISPOSITION:

9. PRESENT & COMPLETED WORK IMPACT:

ALL SAMPLING

10. REQUESTED BY:

Michael Blum
Field/Project Manager

10/18/95
Date

11. FINAL DISPOSITION:

12. APPROVAL:

NGB Project Manager

Date

APPENDIX C

INVESTIGATION DERIVED WASTE

ANALYTICAL REPORT

ANEPTEK CORPORATION
209 WEST CENTRAL ST.
NATICK MA 01760

Report Date:	06-JAN-96
Project:	STEWART ANG SITE 2
Lab Number:	156140
Sample Number(s):	156140-01 to 156140-04

Ronald A. Bayer
Laboratory Director

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Inorganics Analysis Data Sheet
Form I - IN

Client Name: ANEPTEK
Project Name: STEWART ANG SITE 2

ETL Sample Number: 156140-01

Client I.D.: IDW-01-120695

Date Collected: 06-DEC-95
Matrix: 3 Soil/Sldg

Date Received: 07-DEC-95

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	0.33 U	MG/L	6010	02-JAN-96
Barium	0.37	MG/L	6010	02-JAN-96
Cadmium	0.03 U	MG/L	6010	02-JAN-96
Chromium	0.03 U	MG/L	6010	02-JAN-96
Lead	0.33 U	MG/L	6010	02-JAN-96
Mercury	0.2 U	UG/L	7470	22-DEC-95
Percent Solids	83.2	%	160.3	07-DEC-95
Selenium	0.33 U	MG/L	6010	02-JAN-96
Silver	0.03 U	MG/L	6010	02-JAN-96
TCLP Extraction			1311	20-DEC-95
pH	10.4		9045	11-DEC-95

Remarks:

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Volatile Organics Analysis Data Sheet
Form I VOA
TCLP-8240

Client ID:	IDW-01-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-01	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	
Project Name:	STEWART ANG SITE 2	Date Analyzed:	21-DEC-95
% Solid:	83.2	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	TCLP-8240
Sample Wt/Vol:	5ml	Lab File Id:	>W1719
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	10		U
78-93-3	2-Butanone	10		U
56-23-5	Carbon Tetrachloride	10		U
108-90-7	Chlorobenzene	10		U
67-66-3	Chloroform	10		U
107-06-2	1,2-Dichloroethane	10		U
75-35-4	1,1-Dichloroethene	10		U
127-18-4	Tetrachloroethene	10		U
79-01-6	Trichloroethene	10		U
75-01-4	Vinyl Chloride	10		U

315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Semi-Volatile Organics Analysis Data Sheet
Form I SV
TCLP-8270

Client ID:	IDW-01-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-01	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	21-DEC-95
% Solid:	83.2	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	E5836.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
106-46-7	1,4-Dichlorobenzene	10		U
121-14-2	2,4-Dinitrotoluene	10		U
118-74-1	Hexachlorobenzene	10		U
87-68-3	Hexachlorobutadiene	10		U
67-72-1	Hexachloroethane	10		U
95-48-7	2-Methylphenol	10		U
108-39-4	3-Methylphenol	10		U
106-44-5	4-Methylphenol	10		U
98-95-3	Nitrobenzene	10		U
87-86-5	Pentachlorophenol	50		U
110-86-1	Pyridine	10		U
95-95-4	2,4,5-Trichlorophenol	10		U
88-06-2	2,4,6-Trichlorophenol	10		U

EnviroTest
Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Herbicide Organics Analysis Data Sheet
Form I Herb
TCLP-8150

Client ID:	IDW-01-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-01	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	20-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	30-DEC-95
% Solid:	83.2	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	500ml	Lab File Id:	36P2371P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U

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Pesticide/PCB Organics Analysis Data Sheet
Form I PEST
TCLP-8080

Client ID:	IDW-01-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-01	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	29-DEC-95
% Solid:	83.2	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	36P2334P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	.05		U
57-74-9	Chlordane	1		U
72-20-8	Endrin	.1		U
76-44-8	Heptachlor	.05		U
1024-57-3	Heptachlor Epoxide	.05		U
72-43-5	Methoxychlor	.5		U
8001-35-2	Toxaphene	5		U

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: ANEPTEK
Project Name: STEWART ANG SITE 2
ETL Sample Number: 156140-02
Client I.D.: IDW-02-120695
Date Collected: 06-DEC-95
Matrix: 3 Soil/Sldg
Date Received: 07-DEC-95
Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	0.33 U	MG/L	6010	02-JAN-96
Barium	0.39	MG/L	6010	02-JAN-96
Cadmium	0.03 U	MG/L	6010	02-JAN-96
Chromium	0.03 U	MG/L	6010	02-JAN-96
Lead	0.33 U	MG/L	6010	02-JAN-96
Mercury	0.2 U	UG/L	7470	22-DEC-95
Percent Solids	78.0	%	160.3	07-DEC-95
Selenium	0.33 U	MG/L	6010	02-JAN-96
Silver	0.03 U	MG/L	6010	02-JAN-96
TCLP Extraction			1311	20-DEC-95
pH	11.7		9045	11-DEC-95

Remarks:

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Pesticide/PCB Organics Analysis Data Sheet
Form I PEST
TCLP-8080

Client ID:	IDW-02-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-02	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	29-DEC-95
% Solid:	78.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	36P2335P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	.05		U
57-74-9	Chlordane	1		U
72-20-8	Endrin	.1		U
76-44-8	Heptachlor	.05		U
1024-57-3	Heptachlor Epoxide	.05		U
72-43-5	Methoxychlor	.5		U
8001-35-2	Toxaphene	5		U

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Volatile Organics Analysis Data Sheet
Form I VOA
TCLP-8240

Client ID:	IDW-02-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-02	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	
Project Name:	STEWART ANG SITE 2	Date Analyzed:	20-DEC-95
% Solid:	78.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	TCLP-8240
Sample Wt/Vol:	5ml	Lab File Id:	>W1711
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	10		U
78-93-3	2-Butanone	10		U
56-23-5	Carbon Tetrachloride	10		U
108-90-7	Chlorobenzene	10		U
67-66-3	Chloroform	10		U
107-06-2	1,2-Dichloroethane	10		U
75-35-4	1,1-Dichloroethene	10		U
127-18-4	Tetrachloroethene	10		U
79-01-6	Trichloroethene	10		U
75-01-4	Vinyl Chloride	10		U

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Semi-Volatile Organics Analysis Data Sheet
Form I SV
TCLP-8270

Client ID:	IDW-02-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-02	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	21-DEC-95
% Solid:	78.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	E5837.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
106-46-7	1,4-Dichlorobenzene	10		U
121-14-2	2,4-Dinitrotoluene	10		U
118-74-1	Hexachlorobenzene	10		U
87-68-3	Hexachlorobutadiene	10		U
67-72-1	Hexachloroethane	10		U
95-48-7	2-Methylphenol	10		U
108-39-4	3-Methylphenol	10		U
106-44-5	4-Methylphenol	10	2	J
98-95-3	Nitrobenzene	10		U
87-86-5	Pentachlorophenol	50		U
110-86-1	Pyridine	10		U
95-95-4	2,4,5-Trichlorophenol	10		U
88-06-2	2,4,6-Trichlorophenol	10		U

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Herbicide Organics Analysis Data Sheet
Form I Herb
TCLP-8150

Client ID:	IDW-02-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-02	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	20-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	30-DEC-95
% Solid:	78.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	500ml	Lab File Id:	36P23721P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: ANEPTEK
Project Name: STEWART ANG SITE 2
ETL Sample Number: 156140-03
Client I.D.: IDW-03-120695
Date Collected: 06-DEC-95
Matrix: 3 Soil/Sldg
Date Received: 07-DEC-95
Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	0.33 U	MG/L	6010	02-JAN-96
Barium	0.34	MG/L	6010	02-JAN-96
Cadmium	0.03 U	MG/L	6010	02-JAN-96
Chromium	0.03 U	MG/L	6010	02-JAN-96
Lead	0.33 U	MG/L	6010	02-JAN-96
Mercury	0.2 U	UG/L	7470	22-DEC-95
Percent Solids	90.0	%	160.3	07-DEC-95
Selenium	0.33 U	MG/L	6010	02-JAN-96
Silver	0.03 U	MG/L	6010	02-JAN-96
TCLP Extraction			1311	20-DEC-95
pH	8.9		9045	11-DEC-95

Remarks:

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Semi-Volatile Organics Analysis Data Sheet
Form I SV
TCLP-8270

Client ID:	IDW-03-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-03	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	21-DEC-95
% Solid:	90.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	E5838.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
106-46-7	1,4-Dichlorobenzene	10		U
121-14-2	2,4-Dinitrotoluene	10		U
118-74-1	Hexachlorobenzene	10		U
87-68-3	Hexachlorobutadiene	10		U
67-72-1	Hexachloroethane	10		U
95-48-7	2-Methylphenol	10		U
108-39-4	3-Methylphenol	10		U
106-44-5	4-Methylphenol	10		U
98-95-3	Nitrobenzene	10		U
87-86-5	Pentachlorophenol	50		U
110-86-1	Pyridine	10		U
95-95-4	2,4,5-Trichlorophenol	10		U
88-06-2	2,4,6-Trichlorophenol	10		U

Herbicide Organics Analysis Data Sheet
Form I Herb
TCLP-8150

Client ID:	IDW-03-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-03	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	20-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	30-DEC-95
% Solid:	90.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	500ml	Lab File Id:	36P23731P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U

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Pesticide/PCB Organics Analysis Data Sheet
Form I PEST
TCLP-8080

Client ID:	IDW-03-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-03	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	29-DEC-95
% Solid:	90.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	36P2336P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	.05		U
57-74-9	Chlordane	1		U
72-20-8	Endrin	.1		U
76-44-8	Heptachlor	.05		U
1024-57-3	Heptachlor Epoxide	.05		U
72-43-5	Methoxychlor	.5		U
8001-35-2	Toxaphene	5		U

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Volatile Organics Analysis Data Sheet
Form I VOA
TCLP-8240

Client ID:	IDW-03-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-03	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	
Project Name:	STEWART ANG SITE 2	Date Analyzed:	20-DEC-95
% Solid:	90.0	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	TCLP-8240
Sample Wt/Vol:	5ml	Lab File Id:	>W1712
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	10		U
78-93-3	2-Butanone	10		U
56-23-5	Carbon Tetrachloride	10		U
108-90-7	Chlorobenzene	10		U
67-66-3	Chloroform	10		U
107-06-2	1,2-Dichloroethane	10		U
75-35-4	1,1-Dichloroethene	10		U
127-18-4	Tetrachloroethene	10		U
79-01-6	Trichloroethene	10		U
75-01-4	Vinyl Chloride	10		U

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: ANEPTEK
Project Name: STEWART ANG SITE 2

ETL Sample Number: 156140-04

Client I.D.: IDW-04-120695

Date Collected: 06-DEC-95
Matrix: 3 Soil/Sldg

Date Received: 07-DEC-95

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	0.33 U	MG/L	6010	02-JAN-96
Barium	0.20	MG/L	6010	02-JAN-96
Cadmium	0.03 U	MG/L	6010	02-JAN-96
Chromium	0.03 U	MG/L	6010	02-JAN-96
Lead	0.33 U	MG/L	6010	02-JAN-96
Mercury	0.2 U	UG/L	7470	22-DEC-95
Percent Solids	80.5	%	160.3	07-DEC-95
Selenium	0.33 U	MG/L	6010	02-JAN-96
Silver	0.03 U	MG/L	6010	02-JAN-96
TCLP Extraction			1311	20-DEC-95
pH	7.5		9045	11-DEC-95

Remarks:

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Semi-Volatile Organics Analysis Data Sheet
Form I SV
TCLP-8270

Client ID:	IDW-04-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-04	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	21-DEC-95
% Solid:	80.5	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	E5839.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
106-46-7	1,4-Dichlorobenzene	10		U
121-14-2	2,4-Dinitrotoluene	10		U
118-74-1	Hexachlorobenzene	10		U
87-68-3	Hexachlorobutadiene	10		U
67-72-1	Hexachloroethane	10		U
95-48-7	2-Methylphenol	10		U
108-39-4	3-Methylphenol	10		U
106-44-5	4-Methylphenol	10		U
98-95-3	Nitrobenzene	10		U
87-86-5	Pentachlorophenol	50		U
110-86-1	Pyridine	10		U
95-95-4	2,4,5-Trichlorophenol	10		U
88-06-2	2,4,6-Trichlorophenol	10		U

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Herbicide Organics Analysis Data Sheet
Form I Herb
TCLP-8150

Client ID:	IDW-04-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-04	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	20-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	30-DEC-95
% Solid:	80.5	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	500ml	Lab File Id:	36P23741P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U

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Pesticide/PCB Organics Analysis Data Sheet
Form I PEST
TCLP-8080

Client ID:	IDW-04-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-04	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	19-DEC-95
Project Name:	STEWART ANG SITE 2	Date Analyzed:	29-DEC-95
% Solid:	80.5	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	DB-5
Sample Wt/Vol:	1000ml	Lab File Id:	36P2337P.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	.05		U
57-74-9	Chlordane	1		U
72-20-8	Endrin	.1		U
76-44-8	Heptachlor	.05		U
1024-57-3	Heptachlor Epoxide	.05		U
72-43-5	Methoxychlor	.5		U
8001-35-2	Toxaphene	5		U

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Volatile Organics Analysis Data Sheet
Form I VOA
TCLP-8240

Client ID:	IDW-04-120695	Date Collected:	06-DEC-95
ETL Sample Number:	156140-04	Date Received:	07-DEC-95
Client Name:	ANEPTEK	Date Extracted:	
Project Name:	STEWART ANG SITE 2	Date Analyzed:	20-DEC-95
% Solid:	80.5	Report Date:	06-JAN-96
Matrix:	3 Soil/Sldg	Column:	TCLP-8240
Sample Wt/Vol:	5ml	Lab File Id:	>W1713
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	10		U
78-93-3	2-Butanone	10		U
56-23-5	Carbon Tetrachloride	10		U
108-90-7	Chlorobenzene	10		U
67-66-3	Chloroform	10		U
107-06-2	1,2-Dichloroethane	10		U
75-35-4	1,1-Dichloroethene	10		U
127-18-4	Tetrachloroethene	10		U
79-01-6	Trichloroethene	10		U
75-01-4	Vinyl Chloride	10		U

APPENDIX D

BORING LOGS

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 1 of 3
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel	MW-01

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	10/16/95 952	10/20/95 930

Logged By:	Drilling Method:	Screening Device (Type, make, model):
J. Donovan	HSA / NX Core Barrel	HNU PID 10.2 eV

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
		43.0 ft.	31.6 ft.	NA	8"(0-16')/4"(16-43')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		4,10 15,33	12	0-2" Brown topsoil 2-10" Grey dense SILT, some gravel Not enough recovery for a sample	GM	ϕ
2							
3	2-4	MW-01-04	7,25 34,41	13	Grey v. dense SILT, trace clay, trace gravel	ML	ϕ
4							
5	4-6	MW-01-06	25,39 45,50/4"	24	Grey v. dense SILT, some f.-c. gravel, trace clay	ML	ϕ
6							
7	6-8		21,28 30,48	10	Grey v. dense SILT, little clay, trace f.-c. gravel	ML	ϕ
8							
9	8-10	MW-01-10	16,23 32,41	22	Grey v. dense SILT, little clay, trace f.-c. gravel	ML	ϕ
10							
11	10-11.2		19,35 52/2"	10	Grey v. dense SILT, little clay, trace f.-c. gravel Refusal at 11.2'	ML	ϕ
12					Roller Bit to 13'		
13							
14	13-15		10,22 33,31	15	Grey v. dense SILT, little clay, trace f.-c. gravel	ML	ϕ
15							
16					Roller Bit to 16'		
17	16-18	MW-01-18	Min./ ft 5 5	24"	Begin Coring at 16' with Series 6 Bit Grey very stiff CLAY and f.-c. gravel, some silt (lodgement till)	CL	ϕ

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:
Lost 30 gallons of water during drilling.

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 3
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	MW-01

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18							
19	20-22	MW-01-22	3 4	54	Grey very stiff CLAY and f.-c. gravel, some silt (lodgement till)	CL	ϕ
20			4 5				
21			4				
22							
23	25-27	MW-01-27	3	60	Grey very stiff CLAY and f.-c. gravel, some silt (lodgement till)	CL	ϕ
24			5 4				
25			4				
26							
27							
28							
29	28-33	MW-01-31.6	3 4	60	28'-31.6' Grey very stiff CLAY and f.-c. gravel, some silt (lodgement till)	CL	ϕ
30			4 7		31.6'-33' Dark grey weathered shale, RQD= 0		
31			7				
32							
33							
34	33-38		4 3	60	Dark grey fractured shale, no iron staining, no fines RQD=0		
35			4 5				
36			3				
37							
38							
39							

Notes and Comments:

ANEPTEK CORPORATION

Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: MW-01

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
40	38-43		4	60	Weathered shale, iron staining in bottom 2' of fractures, no fines, RQD = 0		
			3				
41			4				
			5				
42			3				
43							
					E.O.B.- 43'		

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 1 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel	MW-02

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	10/19/95 1650	10/20/95 1230
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
M. Plumb	HSA / NX Core Barrel	HNU PID 10.2 eV	

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545946.0N 568740.4E	432.9 ft.	31.5 ft.	30.2 ft.	NA	8.25"(0-18')/4"(18-31.5')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		12,16 14,27	3	Brown topsoil		ϕ
3	2-4	MW-02-04	8,12 7,7	6	Light brown v. stiff clayey SILT, trace c. gravel	ML	ϕ
5							
7							
9	8-10	MW-02-10	5,15 41,65	12	8.0'-8'4" Light brown v. stiff clayey SILT, trace c. gravel 8'4"-8'9" C. GRAVEL, some light brown silty sand 8'9"-9.0' Grey fractured rock	ML GM GW	ϕ
11					HSA to 13'		
13	13-15	MW-02-15	16,31 30,24	24	13'-13'5" Silty CLAY, rolls to 1/8" 13'5"-13'6" Coarse gravel 13'6"-15' Grey hard clayey SILT mottled with light brown spots, trace c. gravel (lodgement till)	ML GP ML	bottom 1" 30 ppm
15	15-17	MW-02-17	10,30 28,25	11	Grey v. dense SILT, f.-m. sand (lodgement till)	SM	7-22 ppm
17							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: MW-02

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18					Roller Bit to 18'		
19	18-22	MW-02-22	1.5 1.5 2 3	57	Begin Coring at 18' with Step Bit Grey very stiff CLAY, f.-c. gravel, some silt, 1 cobble (lodgement till)	CL	0-5 ppm
20							
21							
22							
23	22-27	MW-02-27	3 5 4 4 4	60	Grey very stiff CLAY, f.-c. gravel, some silt, 1 cobble (lodgement till)	CL	4 ppm
24							
25							
26							
27							
28	27-31.5'		2 3 3 4 5/6"	52	27'-30'2" Grey very stiff CLAY, f.-c. gravel, some silt, 1 cobble (lodgement till) 30'2"-31'6" Weathered shale with sand in vertical fractures	CL	ϕ
29							
30							
31							
32					E.O.B.- 31.5'		
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04				Page 1 of 2
Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel				Boring/Well No.: MW-03
Drilling Contractor: East Coast Thomas	Drilling Rig Make/Model: CME Track Rig		Date/Time Started 10/20/95 750	Date/Time Finished 10/24/95 1500
Logged By: M. Plumb/K.Kutawski	Drilling Method: HSA / NX Core Barrel		Screening Device (Type, make, model): HNU PID 10.2 eV	
Location (survey coord): 545959.3N 568779.4E	Ground. El: 433.7 ft.	Total Depth: 35 ft. / Bedrock Depth: 32 ft.	Water Table Depth: NA	Borehole Diameter: 8.25"(0-18')/4"(18-35')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	MW-03-02	6,7 7,12	18	0-1" Brown topsoil clayey silt with roots 1"-18" Grey m. stiff clayey SILT, trace f.-m. gravel	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	MW-03-06	3,13 18,13	5	Dense f.-c. GRAVEL, some orange-brown clayey silt	GM/GC	ϕ
6							
7					HSA to 8'		
8							
9	8-10		5,6 9,5	15	M. dense f.-c. GRAVEL, some orange-brown clayey silt Color change to grey-green clayey silt	ML	ϕ
10							
11					HSA to 14'		
12							
13							
14							
15	14-16		6,14 26,16		Grey-green v. stiff clayey SILT, some f.-m. gravel (lodgement till)	ML	ϕ
16							
17	16-18		25,40 34,48		Grey-green hard clayey SILT, some f.-m. gravel (lodgement till)	ML	ϕ

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

Lost 35 gallons of water during drilling.

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: MW-03

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18	18-23	MW-03-22	1 1.5 1.5 5 2.2	21	Begin Coring at 18' with Step Bit Light brown clayey SILT, some m.-c. gravel, trace f. sand Color change to grey in bottom 1" with no f. sand Rolled to between 1/4" to 1/8" when water was added (lodgement till)	ML	ϕ
23	23-28	MW-03-27	1 3.3 2 2.1 3.12	41	Grey very stiff dense CLAY, some f.-m. gravel, some silt (lodgement till) Rolls to 1/16" when wet	CL	ϕ
28	28-32	MW-03-32	4.11 1.3 3 2 3	39	Grey very stiff dense CLAY, some f.-m. gravel, some silt, trace f. sand (lodgement till) Rolls to 1/16" when wet Harder than last interval	CL	ϕ
32	32-35		2 4 4.5	36	Weathered shale - dark-blue grey, fine grained, iron staining between fractures, bedding planes dipping approximately 45°, fractures along bedding planes, no secondary mineralization, can be scratched easily with knife RQD = 0		ϕ
36					E.O.B.- 35 ft		

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 1 of 4
ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08	
Sampler Type/Size:	**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel	MW-04

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	10/24/95 1317	11/16/95 1630
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
K.Kutawski/ M. Plumb	HSA / NX Core Barrel	Foxboro 108 FID /Bacharach 4 Gas	

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545635.45N 568377.81E	434.20 ft.	72.5 ft	45-46 ft	NA	8.25"(0-9')/4"(9-72.5)

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		8, 5 7, 16	15.5	Brown stiff clayey SILT, little f.-m. gravel , trace f. sand Color change to grey in bottom 1/2" Rolled to 1/4" when water is added	ML	ϕ
3	2-4		17, 23 35, 30	20	Brown hard clayey SILT, little f. gravel, trace m. gravel Color change to grey in bottom 3" Roll to 1/8" when water is added, stiffer than last interval (lodgement till)	ML	ϕ
5	4-6		7, 16 22, 22	12	Grey dry v. stiff clayey SILT, little f.-m. gravel, little f.-m. sand Roll to 1/8" when water is added (lodgement till)	ML	ϕ
7	6-8		19, 19 20, 18	16	Grey dry v. stiff clayey SILT, little f.-m. gravel, little f.-m. sand Roll to 1/8" when water is added Refusal at 8' (lodgement till)	ML	ϕ
9					Roller Bit to 9'		
10	9-12.5		Min/ ft 5 3.5 3.5 4	30	Begin Coring at 9' with Step Bit Grey very stiff CLAY, some SILT, some f.-c. gravel, trace f. sand , 2 cobbles (lodgement till) Rolls to 1/32" when water is added	CL	ϕ
13	12.5-17.5			60	Grey very stiff CLAY, some SILT, some f.-c. gravel, trace f. sand , 1 cobble (lodgement till) Rolls to 1/32" when water is added	CL	ϕ

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 4
ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08	
Sampler Type/Size:	**Boring/Well No.:**
2" Split Spoon/ 5' NX Core Barrel	MW-04

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18	17.5-22.5		3 3 3 3 5	42	Grey very stiff CLAY, some silt, some f.-c. gravel, trace f. sand, 1 cobbles (lodgement till) Rolls to 1/32" when water is added	CL	ϕ
23	22.5-27.5		2 2 1 3.5 3.5	56.5	Grey very stiff CLAY, some silt, some f.-c. gravel, trace f. sand, 2 cobbles (lodgement till) Rolls to 1/32" when water is added	CL	ϕ
28	27.5-32.5		1.5 2 4 4 3	33	Grey very stiff CLAY, some silt, some f.-c. gravel, trace f. sand, 2 cobbles (lodgement till) Rolls to 1/32" when water is added Changed to Series 6 Bit at 32.5'	CL	ϕ
33	32.5-34			11	Grey very stiff CLAY, some silt, some f.-c. gravel, trace f. sand, 1 cobble, washed stones, rolls to 1/32" when water is added (lodgement till)	CL	ϕ
35	34-36		4 5	5	Eight medium size pieces of fined grained grey gravel		
37	36-40		3 3 4 2.5		Grey very stiff TILL consisting mainly of CLAY, some silt, some f.-c. gravel, trace f. sand, 2 cobbles Rolls to 1/32" when water is added	CL	ϕ

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: MW-04

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
40							
					Roller Bit to 41'		
41							
	41-43.5		7	5	1" Grey very stiff CLAY, some silt, some f.-c. gravel, trace f.	CL	
42			8		sand, 2 cobbles (lodgement till)		
			6"/4.5		Rolls to 1/32" when water is added		
43					Gravel jammed in barrel		
44					Roller Bit to 45'		
45							
	45-47		7.5	18	Grey weathered shale, 45° bedding planes, fractures along		
46			8		bedding planes, iron staining in fractures, no secondary		
47					mineralization, RQD = 0		
	47-52		11		Grey weathered shale, 45° bedding planes, fractures along		
48			9		bedding planes, iron staining in fractures, no secondary		
			10		mineralization, RQD = 0		
49			9				
			8				
50							
51							
52							
	52-57			50	52-56' Grey weathered fractured shale, bedding not evident,		
53					iron staining in fractures, pieces 5-15 mm in size, no secondary		
					mineralization, RQD = 0		
54					56-57' Fractures along bedding planes can be identified		
55							
56							
57							
	57-62		4	44	57'-61' Grey weathered shale, 45° bedding planes, fractures		
58			7		along bedding planes, iron staining in fractures, some vertical		
			6		fractures, no secondary mineralization		
59			8		61-62' No iron staining between fractures		
			10		RQD = 0		
60							
61							
62							
63							

ANEPTEK CORPORATION

Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: MW-04

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
63	62-67		12 12 7 8 5	44	Dark grey highly weathered shale, iron staining in fractures, little to trace amounts of grey till in sample, no secondary mineralization, bedding not evident RQD = 0		
64							
65							
66							
67							
68	67-72		4 6 5 14 5	24	Dark grey weathered shale, white calcite veins in rock RQD = 11%		
69							
70							
71							
72							
					Roller Bit to 72.5'		
73					E.O.B.- 72.5 ft.		
74							
75							

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: LCSI ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08		Page 1 of 2
Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel		Boring/Well No.: MW-05

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	10/26/95 1625	10/30/95 1632
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
K.Kutawski/ M. Plumb	HSA / NX Core Barrel	Photovac FID /Bacharach 4 Gas	

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545386.81N 569141.96E	349.9 ft.	36.5 ft.	24.5 ft	NA	8.25"(0-24.5')/4"(24.5-36.5')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		4, 2 5, 8	18	0-6"Brown moist soft clayey SILT, little f. gravel , trace m. gravel, trace f. sand 6"-18" Color change to tan, molded iron and manganese staining visible - Rolled to 1/8"	ML	ϕ
3	2-4		11, 11 11, 12	24	Tan v. stiff clayey SILT, some f. gravel (platey to subangular), trace m. gravel, trace f. sand, molded	ML	ϕ
5	4-6		5, 10 9, 8	4	Tan v. stiff clayey SILT, some f. gravel (platey to subanuglar), trace f. sand, molded	ML	ϕ
7	6-8		5, 10 9, 8	9	Tan v. stiff saturated clayey SILT, some m. gravel, trace f.-m. sand with 2" of fractured platey rock with iron staining	MH	ϕ
9	8-10		19, 14 20, 21	18	Tan v. stiff dry clayey SILT, some f. gravel (some platey), little m. gravel, trace f. sand (lodgement till)	ML	ϕ
11	10-12		19, 14 20, 21	18	Tan v. stiff wet clayey SILT, some f. gravel (some platey), little m. gravel, trace f. sand (lodgement till) 2" layer of grey fine grained m. gravel	ML	ϕ
13	12-14		5, 12 33, 37	11	Tan v. stiff dry clayey SILT, some f. gravel, trace m. gravel, trace f.-m. gravel (lodgement till)	ML	ϕ
15	14-16		5, 13 16, 24	13	Grey v. stiff CLAY and SILT, trace f. gravel, trace f. sand Rolls to 1/16" when water is added (lodgement till) Very hard, can be broken by hand with some force	CL	ϕ
17	16-18		5, 13 16, 24	12	Grey v. stiff CLAY and SILT, trace f. gravel, trace f. sand Rolls to 1/16" when water is added (lodgement till) Very hard, can be broken by hand with some force	CL	ϕ

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION

Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08	
Sampler Type/Size:	**Boring/Well No.:**
2" Split Spoon/ 5' NX Core Barrel	MW-05

Depth (ft)	Sample Interval	Sample Number	Blows/ 6 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18							
19	18-20		13, 20 22, 36	18	Grey v. stiff CLAY and SILT, little f.-m. gravel, trace f. sand Rolls to 1/16" when water is added (lodgement till) Very hard, can be broken by hand with some force	CL	ϕ
20							
21	20-22		9, 8 18, 50/3"	8	Grey v. stiff CLAY and SILT, and f.-m. GRAVEL, trace f. sand Rolls to 1/16" when water is added (lodgement till) Very hard, can be broken by hand with some force Refusal at 21'3", platey pieces of rock in nose	CL	ϕ
22							
23					Roller Bit to 24.5'		
24							
25			**Min/ft.**		Begin Coring at 24.5' with Step Bit		ϕ
26	24.5-29.5		5 6	48	Weathered shale, iron staining in fractures, white calcite veins in rock, bedding planes at 45° angles, changes in fracture direction noted from 45° angle to vertical then back to 45° angle		
27			7 9				
28			9		RQD = 0		
29							
30	29.5-34.5		5	54	Weathered shale, iron staining in fractures, white calcite veins in rock, no consistant bedding can be seen, fractures vary horizontal to vertical RQD = 0		
31			5				
32			7				
33			5				
34							
35					Roller Bit to 36.5'		
36							
37					E.O.B.- 36.5'		
38							
39							

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 1 of 2
ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08	
Sampler Type/Size:	**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel	MW-07

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	11/8/95 1100	11/9/95 930
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
M. Plumb/J. Donovan	HSA / NX Core Barrel	Photovac FID /Bacharach 4 Gas	

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545159.95N 568999.12E	360.1 ft.	30.5 ft.	16.0 ft	NA	8.25"(0-16'')/4"(16-30.5')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		1,3 6,5	10	0-2" Dark brown topsoil 2-8" Light brown stiff clayey SILT, little gravel, trace f. sand	ML	ϕ
3	2-4		9,5 6,9	16	0-16" Light brown stiff clayey SILT, some gravel, trace f. sand 16-20" Same material only wet	ML	ϕ
5	4-6		2,6 6,6	18	Light brown stiff slighty moist clayey SILT, slatey gravel	ML	ϕ
7	6-8		6,7 11,9	20	Light brown v. stiff slighty moist clayey SILT, little gravel, trace f. sand, molded	ML	ϕ
9	8-10		18,11 11,13	16	0-4" Light brown, v. stiff wet silty CLAY 4-10" Gravel layer 10-16" Light brown v. stiff dry silty CLAY	ML	ϕ
11	10-12		3,12 22,24	19	0-8" Light brown wet silty CLAY, little gravel, little f. sand (lodgement till) 8"-19" Color becomes slightly more grey 15"-19" Same material, only dry	ML	ϕ
13	12-14		14, 14 21, 28	22	Light brown v. stiff dry silty CLAY, little gravel (lodgement till)	ML	ϕ
15	14-16		5,18 43,50	19	Light brown hard silty CLAY, little gravel, top 4" wet, traces of iron staining on gravel (lodgement till)	ML	ϕ
17	16-16.4		50/4"	4	0-2" Light brown hard silty CLAY,little gravel (lodgement till) 2-4" Grey platey gravel, no soil	ML	ϕ

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08

Sampler Type/Size: 2" Split Spoon/ 5' NX Core Barrel

Boring/Well No.: MW-07

Depth (ft)	Sample Interval	Sample Number	Minutes/ ft.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18					Begin Coring at 16' with Step Bit		
	16-21		5	16	Fractured dark grey shale, calcite veins in top 5"		ϕ
19			7		No clear fracture pattern		
			7		RQD = 0		
20			7				
			6				
21							
	21-26		2	12	Fractured dark grey shale		ϕ
22			3		No clear fracture pattern		
			5		RQD = 0		
23			5				
			7				
24							
25							
26							
	26-30.5		5	24	Dark grey weathered shale, multiple fractures in no clear pattern,		ϕ
27			5		calcite veins in bottom 3"		
			4		RQD = 0		
28			4				
			4/6"				
29							
30							
31					E.O.B.- 30.5 ft.		
32							
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

Lost approximately 43 gallons of water during drilling.

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 1 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-DO-004	
Sampler Type/Size:	**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel	MW-09

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	11/6/95 1500	11/8/95 700

Logged By:	Drilling Method:	Screening Device (Type, make, model):
K. Kutawski	HSA / NX Core Barrel	Photovac FID /Bacharach 4 Gas

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545707.49N 569212.22E	366.2 ft.	26.0 ft.	11.0 ft	NA	8.25"(0-17')/4"(17-26)

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		2,2 4,4	12	0-3" Dark brown topsoil 3-12" Brown moist clayey SILT, little f.-m. gravel, trace f. sand	ML	ϕ
3	2-4		18,17 17,15	3	Brown dry clayey SILT and f.-m. angular to subangular gravel	ML	ϕ
5	4-6		5,11 11,11	17	Brown moist clayey SILT, little f. platey angular and sub-angular gravel, molded rolls to 1/16" when water was added	ML	ϕ
7	6-8		17,24 19,14	5	Brown clayey SILT with little f. gravel, trace m. gravel, trace f. sand, molded	ML	ϕ
9	8-10		6,4 8,6	16	Brown moist clayey SILT, little f. gravel, trace m. gravel, trace f. sand, nose of spoon wet	ML	ϕ
11	10-12		6,9 13,22	19	0-4" Brown moist clayey SILT, little f. gravel, trace m. gravel, trace f. sand, rolls to 1/32" when water is addded 4-19" Dark grey wet pieces of platey rock, trace fines	ML	ϕ
13	12-14		17,14 26,16	16	Dark grey weathered fractured platey rock, breaks in hand, scratches with knife, trace to no fines, water inside spoon		ϕ
15	14-14.8		22 50/3"	3	Dark grey weathered fractured platey rock, breaks in hand, scratches with knife, trace to no fines		
16					Roller Bit to 17'		
17							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

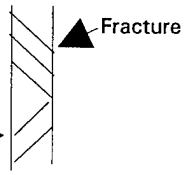
Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

Lost 30 gallons of water during drilling.

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-DO-004	
Sampler Type/Size:	**Boring/Well No.:**
2" Split Spoon/ 5' NX Core Barrel	MW-09

Depth (ft)	Sample Interval	Sample Number	Minutes/ ft.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18					Begin Coring at 17 ' with Step Bit		
	17-22		6	54	Dark grey weathered shale, white calcite veins throughout,		
19			7		fractures at 45° angles along bedding planes, last 5"		ϕ
			7		fractures change direction		
20			6		RQD = 0		
			7		ROCK CORE →  Fracture		
21							
					Change in fracture direction →		
22							
	22-26		3	12	Dark grey weathered shale, no secondary mineralization,		ϕ
23			5		fractures at 45° along bedding planes, iron staining in		
			5		fractures		
24			7		RQD = 0		
25							
26							
					E.O.B.- 26 ft.		
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 1 of 2
ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08	
Sampler Type/Size:	**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel	MW-11

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	11/8/95 1100	11/9/95 930
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
K.Kutawski	HSA / NX Core Barrel	Photovac FID /Bacharach 4 Gas	

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
546123.29N 569216.33E	388.69 ft.	29.0 ft.	18.0 ft	NA	8.25"(0-19')/4"(19-29')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2		1,1 2,2	6	Brown soft clayey SILT, trace m. gravel , trace f. gravel, pieces of wood, molded	ML	ϕ
3	2-4		11,8 11, 8	20	Brown v. stiff moist clayey SILT, little f. gravel, trace m. gravel, trace f. sand, molded	ML	ϕ
5	4-6		5,5 5,8	2	Brown stiff moist clayey SILT, little f. gravel, trace m. gravel, trace f. sand, tiny pieces of platey rock, molded Rock in nose	ML	ϕ
7	6-8		8,9 13,8	18	Brown v. stiff moist clayey SILT, little to some f.-m. gravel, trace f. sand, mottled	ML	ϕ
9	8-10		6,4 13,10	18	Outside of spoon wet, water ran out of spoon Brown stiff clayey SILT, some f. gravel, trace m. gravel, trace f. sand, outside of material wet, inside of material moist	ML	ϕ
11	10-12		2,3 7,14	18	Tan m. stiff saturated clayey SILT, some f. gravel, trace m. gravel, little f. sand, rock in nose	ML	ϕ
13	12-14		29,11 9,11	24	0-15" Tan v. stiff saturated clayey SILT, some f. gravel, trace m. gravel, little f. sand, rock in nose 15-24" Same material, outside of material was saturated, inside of material was moist	ML	ϕ
15	14-16		7,16 20,19	24	Tan v. stiff clayey SILT, some f. gravel, trace m. gravel, little f. sand, outside of material wet, inside of material moist (lodgement till)	ML	ϕ
17	16-18		15,21 23,30	12	Tan v. stiff slightly moist tight clayey SILT, some f.-m. gravel, trace to little platey gravel and m. sand (lodgement till)	ML	ϕ

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:

Lost approximately 30 gallons of water during drilling.

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANGB Site 1/ DAHA-90-93-D-0003/DO-08	
Sampler Type/Size:	**Boring/Well No.:**
2" Split Spoon/ 5' NX Core Barrel	MW-11

Depth (ft)	Sample Interval	Sample Number	Blows/ 6 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18							
19	18-19.4		20,30 50/4"	11	Dark grey very soft weathered shale, crumbles in hand, iron staining in fractures, no soil, scratches easily with knife, m. gravel to sand size pieces of rock		ϕ
20			**Min/ ft**		Begin Coring at 19' with Step Bit		
21	19-24		4.5	2	Dark grey fractured shale, no iron staining, white calcite veins throughout, too small a sample to see bedding planes or fracture orientation		ϕ
22			7 10				
23			6 8				
24							
25	24-29		4 5	53	Dark grey weathered shale, iron staining in fractures, white calcite veins throughout, fractures at 45° angles along bedding planes		ϕ
26			5 5		RQD = 26.3%		
27			6.5				
28							
29							
30					E.O.B.- 29 ft.		
31							
32							
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

	Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04		Page 1 of 3
	Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel		Boring/Well No.: SB-01
Drilling Contractor: East Coast Thomas	Drilling Rig Make/Model: CME Track Rig	Date/Time Started 10/2/95 1713	Date/Time Finished 10/4/95 1327
Logged By: R. Ramuglia	Drilling Method: HSA / NX Core Barrel	Screening Device (Type, make, model): HNU PID 10.2 eV	
Location (survey coord): 545867.0N 568658.4E	Ground. El: 433.8 ft. / Total Depth: 50 ft. / Bedrock Depth: 40 ft	Water Table Depth: NA	Borehole Diameter: 8.25"(0-10')/3"(10-50')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-01-02	7,13 12,19	22	0-4" Brown topsoil with roots 4-12" Tan m. dense brown SILT, little gravel, little m.-c. sand 12-22" Grey-brown dense SILT, some gravel, some m.-c. sand	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-01-06	6,16 20,21	16	Grey soft loose SILT, some f. gravel, little f. sand, trace clay	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-10	SB-01-10	13 50/6"	12	Grey stiff SILT, some clay, little f. sand, little c. sand, trace gravel, refusal at 10'	ML	ϕ
11	10-13	SB-01-13	Min/ ft 8 4	18	Begin Coring at 10' with Popcorn Bit 10-11' Boulder 11-13' Grey very dense CLAY, f.-m. gravel, little silt	CL	ϕ
12			7		(lodgement till)		
13							
14	13-15		16 10	20	Switched to Step Bit because material was too hard Grey hard CLAY and f.-m. GRAVEL, little silt, 2 boulders, can be rolled to 1/8" when wet (lodgement till)	CL	ϕ
15							
16	15-18.5	SB-01-18.5	1.5 1.5	42	Grey hard CLAY and f.-m. GRAVEL, some silt, slightly plastic (lodgement till)		
17			2		(Lost approximately 35-40 gallons of water)	CL	ϕ

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 3
ANGRC/Stewart ANG/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	SB-01

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18							
19	18.5-20				Roller Bit through boulders 18.5'-20.0'		
20							
21	20-25	SB-01-25	2 5 2.5 2 1.5	54	Grey very stiff CLAY and f.-m. gravel, trace f.-c. sand, trace to little silt, trace cobbles (lodgement till) Rolls to 1/8" when wet	CL	ϕ
22							
23							
24							
25							
26	25-27.5	SB-01-27.5	3 2	30	Grey very stiff CLAY and f.-m. gravel, trace f.-c. sand, trace to little silt, trace cobbles (lodgement till) Rolls to 1/8" when wet Bottom 6" Brown tinge	CL	ϕ
27							
28	27.5-30				Roller Bit 27.5' to 30.0'		
29							
30							
31	30-32.5	SB-01-32.5	2 2		Grey-brown hard CLAY and f.-m. gravel, trace f.-c. sand, trace to little silt, trace cobbles (lodgement till) Rolls to 1/8" when wet	CL	ϕ
32							
33							
34	32.5-35				Roller Bit 32.5 to 35'		
35							
36	35-37				NO RECOVERY		
37							
38					Roller Bit 37' to 40'		
39							
39							

Notes and Comments:

Lost 800 gallons of water. Water being lost in top 10' where the augers are seated. Ground around drilling mounding due to water build up.

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGRC/Stewart ANG/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: SB-01

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
40	40-45		3.5	48	No soil recovery		ϕ
41			4		Weathered shale - dark-blue grey, fine grained, iron staining		
			3		throughout, bedding planes dipping approximately 40°-45°,		
42			7		fractures along bedding planes, iron staining visible in		
			4		fractures, no secondary mineralization, can be scratched easily		
43					with knife		
					RQD = 0		
44							
45							
46	45-50		5.5	54	Weathered shale - dark-blue grey, fine grained, iron staining		ϕ
			6		throughout, bedding planes dipping approximately 40°-45°,		
47			6		fractures along bedding planes, iron staining and m. grey sand		
			6		visible in fractures, no secondary mineralization, can be		
48			4.5		scratched easily with knife		
					RQD = 0		
49							
50							
					E.O.B.- 50 ft		

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:		Page 1 of 2
ANG/Stewart ANG Site 2/ DAHA-90-93-D-0003/DO-04		
Sampler Type/Size:		**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel		SB-02

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	10/4/95 1612	10/4/95 1900

Logged By:	Drilling Method:	Screening Device (Type, make, model):
K.Kutawski	HSA / NX Core Barrel	HNU PID 10.2 eV

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545937.3N 568681.2E	434.5 ft.	24 ft.		NA	8.25"(0-10')/3"(10-24')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-02-02	9,12 25,27	21	0-5" Brown topsoil with roots, little f. gravel Tan v. stiff clayey SILT, little f. sand, trace f. gravel	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-02-06	6,22 31,30	22	4.0'-4'4" Tan clayey SILT, little f. sand, trace f. gravel 4'4"-6.0' Grey hard clayey SILT, little f.-m. gravel (lodgment till)	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-10.2	SB-02-10.2	10,42 50/2"	10	Grey hard clayey SILT, some f.-m. sand, trace c. sand, trace f. gravel	ML	ϕ
11					HSA to 15'		
12							
13							
14							
15			Min/ft		Begin Coring with Step Bit		
16	15-19		2 6		NO RECOVERY Rock jammed in barrel		
17			3 3.5				

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

	Client/Project/Contract No.: ANG/Stewart ANG Site 2/ DAHA-90-93-D-0003/DO-04	**Page 1 of 2**
	Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel	**Boring/Well No.:** SB-02

Drilling Contractor:	**Drilling Rig Make/Model:**	**Date/Time Started**	**Date/Time Finished**
East Coast Thomas	CME Track Rig	10/4/95 1612	10/4/95 1900

Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**
K.Kutawski	HSA / NX Core Barrel	HNU PID 10.2 eV

Location (survey coord):	**Ground. El:**	**Total Depth:**	**Bedrock Depth:**	**Water Table Depth:**	**Borehole Diameter:**
545937.3N 568681.2E	434.5 ft.	24 ft.		NA	8.25"(0-10')/3"(10-24')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-02-02	9,12 25,27	21	0-5" Brown topsoil with roots, little f. gravel Tan v. stiff clayey SILT, little f. sand, trace f. gravel	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-02-06	6,22 31,30	22	4.0'-4'4" Tan clayey SILT, little f. sand, trace f. gravel 4'4"-6.0' Grey hard clayey SILT, little f.-m. gravel (lodgment till)	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-10.2	SB-02-10.2	10,42 50/2"	10	Grey hard clayey SILT, some f.-m. sand, trace c. sand, trace f. gravel	ML	ϕ
11					HSA to 15'		
12							
13							
14							
15			Min/ft		Begin Coring with Step Bit		
16	15-19		2 6 3		NO RECOVERY Rock jammed in barrel		
17			3.5				

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANG Site 2/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	SB-02

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18					Roller Bit to 19'		
19							
20	19-24		1		NO RECOVERY - Grey fine grained rock jammed in core barrel		
21			1.5				
22			1				
23			1				
24							
25					E.O.B.- 24 ft		
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

500-600 gallons of water lost during drilling.

ANEPTEK CORPORATION
Boring Log

	Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	**Page 1 of 2**
	Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel	**Boring/Well No.:** SB-03

Drilling Contractor:	**Drilling Rig Make/Model:**	**Date/Time Started**	**Date/Time Finished**
East Coast Thomas	CME Track Rig	10/5/95 1300	10/5/95 1615

Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**
K.Kutawski	HSA / NX Core Barrel	HNU PID 10.2 eV

Location (survey coord):	**Ground. El:**	**Total Depth:**	**Bedrock Depth:**	**Water Table Depth:**	**Borehole Diameter:**
545967.4N 568675.0E	435.1 ft.	24 ft.	NA	NA	8.25"(0-10')/3"(10-22')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-1.3	SB-03-1.3	16, 24 50/3"	12	0-4" Brown topsoil with roots and grass Brown clayey SILT, little f.-c. gravel	ML	ϕ
2					HSA to 4'		
3							
4							
5	4-6	SB-03-06	12,16 21,20	18	Grey hard SILT, some f. sand, trace clay (lodgement till)	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-10.3	SB-03-10.3	28,38 50/3"	16	9'-9'5" Grey hard moist SILT, some f. sand, trace clay 9'5"-10'3" Grey hard tight, dry CLAY, little f. sand, trace f. gravel, trace silt, rolled to 1/16" when water was added	ML	ϕ
11					HSA to 12'		
12							
13	13-17		**Min/ft** 2 3	36	Begin Coring at 12' with Step Bit Grey CLAY, some f.-c. gravel, some silt, trace m. sand, 3 cobbles (2 grey f. grained, 1 red), can be rolled to 1/8" when water was added (lodgement till)	CL	ϕ
14			3				
15			4 5				
16							
17							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	SB-03

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18	17-22	SB-03-22	4 3 3 2 3	52	Grey CLAY, some f.-c. gravel, some silt, trace m. sand, 6 cobbles (lodgement till)	CL	ϕ
23					Roller Bit to 24'		
25					E.O.B.- 24 ft		

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04			Page 1 of 2
Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel			Boring/Well No.: SB-04
Drilling Contractor: East Coast Thomas	Drilling Rig Make/Model: CME Track Rig	Date/Time Started 10/6/95 730	Date/Time Finished 10/6/95 1200
Logged By: K.Kutawski	Drilling Method: HSA /NX Core Barrel	Screening Device (Type, make, model): HNU PID 10.2 eV	
Location (survey coord): 545997.2N 568685.1E	Ground. El: 436 ft.	Total Depth: 23 ft. / Bedrock Depth: NA	Water Table Depth: NA / Borehole Diameter: 8.25"(0-14')/3"14-21')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-04-02	4,9 12,15	18	0-5" Dark brown topsoil with roots and grass 5-18" Brown v. stiff clayey SILT, trace f.-m. gravel, trace f. sand	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-04-06	11,26 34,25	17	Light brown hard clayey SILT, some f.-m. sand, trace f.-m. gravel	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-11	SB-04-11	17,27 30,50	22	Grey hard CLAY, little silt, trace f.-m. platey and subangular gravel (lodgement till)	CL	ϕ
11							
12					HSA to 14'		
13							
14							
15	14-18	SB-04-16	Min/ft 3 3 2 4	53	Begin Coring at 14' with Step Bit Grey CLAY, some f.-c. gravel, some f.-c. sand, little silt,1 cobble (lodgement till)	CL	ϕ
16							
17							

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: SB-04

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18							
19	18-22	SB-08-22	3 2 3 3 3	24	Grey CLAY, some f.-c. gravel, some f.-c. sand, little silt, few cobbles (lodgement till)	CL	ϕ
20							
21							
22							
23					Roller Bit to 23'		
24					E.O.B.- 23 ft.		
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

Series 2 Bit used

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04		Page 1 of 2
Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel		Boring/Well No.: SB-05
Drilling Contractor: East Coast Thomas	Drilling Rig Make/Model: CME Track Rig	Date/Time Started: 10/10/95 1050 / Date/Time Finished: 10/10/95 1440
Logged By: K.Kutawski	Drilling Method: HSA / NX Core Barrel	Screening Device (Type, make, model): HNU PID 10.2 eV
Location (survey coord): 546013.4N 568709.2E	Ground. El: 435.8 ft. / Total Depth: 22 ft. / Bedrock Depth: / Water Table Depth: NA	Borehole Diameter: 8.25"(0-13')/3"(13-22')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-05-02	2,15 10,15	7	Brown m. dense SILT, some f. sand, trace clay Rock in nose	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-05-06	5,6 5,10	9	Brown m. dense SILT, some f. sand, some f.-c. gravel, trace clay Color change to grey in bottom 2 "	ML	ϕ
6							
7					HSA to 8'		
8							
9	8-10	SB-05-10	8,11 17,27	24	8.0'-9'2" Grey m. dense f. SAND, some silt, trace clay 9'2"-10.0' Grey hard CLAY, some silt, trace f. sand (lodgement till)	SM CL	ϕ
10							
11					Roller Bit to 14'		
12							
13							
14							
15	14-17	SB-05-17	Min/ft 2 2.5	12	Begin Coring at 14' with Step Bit Grey CLAY, and f.-c. GRAVEL, some silt, trace f. sand (lodgement till)	CL	ϕ
16			5				
17							

Penetration Resistance

Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions

Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content

D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	SB-05

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18	17-22	SB-05-22	3 3 2 7 2	24	Grey CLAY, and f.-c. GRAVEL, some silt, trace m. sand, cobbles - approximately 1 ft of gravel (lodgement till)	CL	ϕ
22					E.O.B. -22 ft		

Notes and Comments:

200 gallons of water lost during coring.

ANEPTEK CORPORATION
Boring Log

	Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	**Page 1 of 2**
	Sampler Type/Size: 2' Split Spoon/ 5' NX Core Barrel	**Boring/Well No.:** SB-06

Drilling Contractor:	**Drilling Rig Make/Model:**	**Date/Time Started**	**Date/Time Finished**
East Coast Thomas	CME Track Rig	10/10/95 1730	10/12/95 945
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
K.Kutawski	HSA / NX Core Barrel	HNU PID 10.2 eV	

Location (survey coord):	**Ground. El:**	**Total Depth:**	**Bedrock Depth:**	**Water Table Depth:**	**Borehole Diameter:**
545979.4N 568731.1E	434.6 ft.	41 ft.	36 ft.	NA	8.25"(0-22) / 3"(22-41')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-06-02	4,12 16,22	12	Brown v. stiff clayey SILT, little gravel, little m.-c. sand	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-06-06	4,9 13,19	14	Brown v. stiff clayey SILT, some f.-m. gravel, some f. sand	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-11	SB-06-11	20,58 50,3	18	Brown v. stiff clayey SILT, some f.-m. sand, little f.-m. gravel Color change to grey at 10' 10'7"-11' Grey v. stiff clayey SILT, trace f. sand (lodgement till)	ML	ϕ
11							
12					HSA to 14'		
13							
14							
15	14-16	SB-06-16	5,12 26,27	14	14'10"-15'5" Grey v. stiff clayey SILT, some f.-m. sand 15'5"-16' Grey hard CLAY, some silt, trace f. sand, shiny when pressed with knife blade (lodgement till)	ML	ϕ
16							
17							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANGRC/Stewart ANG/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	SB-06

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18					HSA to19'		
19							
20	19-20.4		24,62 50/4"	13	Grey hard CLAY, some silt, little f.-m. gravel (higher than last interval) (lodgement till)	CL	ϕ
21					Roller Bit to 22.5'		
22							
23			**Min/ft.**		Begin coring at 22.5' with Step Bit		
	22.5-26.5	SB-06-26.5	5	48	Grey very stiff dense CLAY, some f.-m. gravel, some silt, little	CL	ϕ
24			4		f.-c. sand (lodgement till)		
			6				
25			5				
26							
27							
28	26.5-31.5		2	12	Recovery 11' of rock - m. gravel, 2 cobbles		ϕ
			6		1" grey very stiff dense CLAY, some f.-m. gravel, some silt, little	CL	
29			10		f.-c. sand (lodgement till)		
			4				
30			5				
31							
	31.5-34.5		10	22	0-9" Weathered shale fractures along bedding planes at 45°		
32			6		9-11" Grey moist CLAY - can be rolled 1/16" w/o water		ϕ
					11-16" Weathered shale fractures along bedding planes at 45°		
33					16-21" Brown moist grey-green CLAY, f. gravel rolled to 1/16"		
					21-22" Weathered shale		
34					Roller Bit from 34.5' to 36'		
	34.5-36						
35							
36	36-41	5		24	Weathered shale - dark-blue grey, fine grained, iron staining		
		4			throughout, bedding planes dipping approximately 30°, fractures		ϕ
37		4			along bedding planes, iron staining visible in fractures, no secondary		
		3			mineralization, can be scratched easily with knife		
38		5			RQD = 0		
39							
					E.O.B.- 41 ft.		
41							

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:		Page 1 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04		
Sampler Type/Size:		**Boring/Well No.:**
2' Split Spoon/ 5' NX Core Barrel		SB-07

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
East Coast Thomas	CME Track Rig	10/12/95 1400	10/13/95 900
Logged By:	**Drilling Method:**	**Screening Device (Type, make, model):**	
K.Kutawski	HSA / NX Core Barrel	HNU PID 10.2 eV	

Location (survey coord):	Ground. El:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
545949.3N 568724.3E	433.4 ft.	35 ft.	32 ft. 9in.	NA	8.25"(0-10')/3"(10-50')

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-07-02	3,12 13,9	11	0-4" Brown topsoil clayey silt with roots Brown m. dense clayey SILT, some f.-m. gravel, little f.-m. sand	ML	ϕ
2							
3					HSA to 4 '		
4							
5	4-6	SB-07-06	8,38 53,50/4"	18	Brown hard clayey SILT, some f.-m. gravel, little m.-c. sand (lodgement till)	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-11	SB-01-11	21,40 55,50/4"	18	Grey hard clayey SILT, some f.-m. platey & subangular gravel, little m.-c. sand, can be rolled to between 1/4" and 1/16" when wet (lodgement till)	ML	ϕ
11							
12					HSA to 14'		
13							
14							
15	14-16	SB-07-16	32,22 50/3"	6	Grey hard clayey SILT, some f.-m. sand, trace f.-m. gravel 15'11"-16' Grey hard CLAY, some silt, trace f. sand (shiny when pressed with knife blade) (lodgement till)	ML	ϕ
16							
17					Roller Bit to 18'		

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04

Sampler Type/Size: 5' NX Core Barrel

Boring/Well No.: SB-07

Depth (ft)	Sample Interval	Sample Number	Minutes/ 12 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18							
19					Begin Coring at 18' with Carbide Bit		
	18-23	SB-07-23	3.5	6	Rock jammed in barrel		ϕ
20			3		Grey fine grained gravel recovered		
			4				
21			4.5				
			6				
22							
23							
	23-28	SB-07-25	4	56	Changed from Carbide Bit to Series 6 bit at 23'		
24			2		Grey very stiff dense CLAY, some f.-m. gravel, some SILT,	CL	ϕ
		SB-17-25	2.5		little f.-c. sand (lodgement till)		
25		Duplicate	3.5		Rolls to 1/16" when wet		
			3				
26							
27							
28							
	28-33	SB-07-33	3	48	Grey very stiff dense CLAY, some f.-m. gravel, some SILT,		
29			3		little f.-c. sand (lodgement till)		
		SB-17-33	3		Rolls to 1/16" when wet		ϕ
30		Duplicate	3		32'9"-33' Weathered shale		
			5		Weathered shale - dark-blue grey, fine grained, iron staining		
31					throughout, bedding planes dipping approximately 45°,		
					fractures along bedding planes, iron staining visible in		
32					fractures, no secondary mineralization, can be scratched easily		
					with knife		
33					RQD = 0		
	33-35		10	14	Weathered shale - same description as above		ϕ
34			7		RQD = 0		
			6				
35							
					E.O.B.- 35 ft		
36							
37							
38							
39							

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04		Page 1 of 2
Sampler Type/Size: 2' Split Spoon		Boring/Well No.: SB-08/MW-13
Drilling Contractor: East Coast Thomas	Drilling Rig Make/Model: CME Track Rig	Date/Time Started: 10/6/95 730 / Date/Time Finished: 10/6/95 1200
Logged By: K.Kutawski	Drilling Method: HSA	Screening Device (Type, make, model): HNU PID 10.2 eV
Location (survey coord): 545914.49N 568747.42E	Ground. El: 433.1 ft. / Total Depth: 21 ft. / Bedrock Depth: NA	Water Table Depth: NA / Borehole Diameter: 8.25"

Depth (ft)	Sample Interval (ft)	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	FID (ppm)
1	0-2	SB-08-02	7,8 8,13	22	Brown v. stiff clayey SILT, some f.-m. gravel, trace f. sand Note: Tiny pieces of white cloth and two pieces of black plastic in sample (fill)	ML	ϕ
2							
3					HSA to 4'		
4							
5	4-6	SB-08-06	2,2 2,4	12	Grey-green soft moist CLAY, some silt, little f. gravel, trace f. sand, shiny when pressed with knife, gravel outside of spoon was wet	ML	ϕ
6							
7					HSA to 9'		
8							
9							
10	9-10.9	SB-08-11	19,37 56,50/3"	22	Grey-green hard dry clayey SILT, little f.-m. gravel (mostly platey with tiny pieces of red sandstone), trace f. sand, rolls to 1/32" when water is added (lodgement till)	CL	ϕ
11							
12					HSA to 14'		
13							
14							
	14-14.5	SB-08-14.5			Same descripition as 9-10.9 ft interval	ML	ϕ
15							
16	15-16.4	SB-08-16.4	33,53 50/4"		Grey dry hard clayey SILT, little f.-m. gravel (mostly platey) with tiny pieces of red sandstone, trace f. sand, rolls to 1/32" with water	CL	ϕ
17		SB-08-16.4 Duplicate					

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	m. Dense	4 - 8	m. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.:	Page 2 of 2
ANG/Stewart ANGB Site 2/ DAHA-90-93-D-0003/DO-04	
Sampler Type/Size:	**Boring/Well No.:**
5' NX Core Barrel	SB-08/MW-13

Depth (ft)	Sample Interval	Sample Number	Blows 6 in	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
18					HSA to 19'		
19							
20	19-21	SB-08-21	13,19 18,16	17	0-14"Grey dry clayey SILT, some f.-m. platey to subangular gravel (lodgement till) 14-17" Color change to darker grey and tighter material, rolls to 1/32" when water is added	ML	ϕ
21							
22					E.O.B.- 21 ft.		
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

Notes and Comments:

APPENDIX E

MONITORING WELL CONSTRUCTION LOGS

ANEPTEK CORPORATION
Well Completion Log

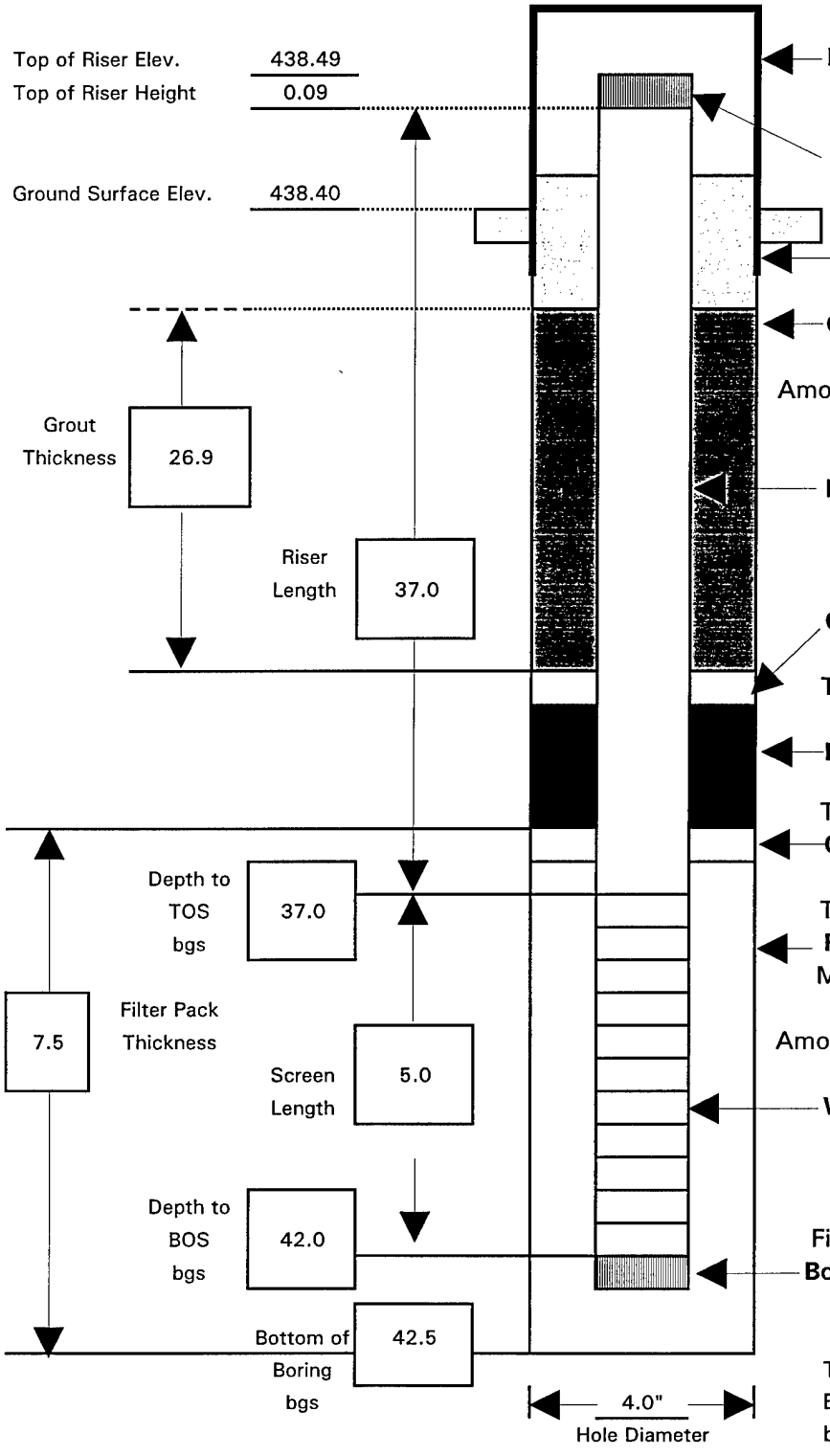
Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 2 /DAHA-90-93-DO-004		MW-01
Logged By:	**Date/Time Started**	**Date/Time Finished**
M.Plumb/ J.Donovan	10/31/95 0700	9/19/95 1630

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 546067.5000
Easting (X): 568494.8600



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Cement

Grout
Type: Cement & Bentonite
Amount Used: 100 lbs Cement
10 lbs. Bentonite

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 3.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 28.5

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

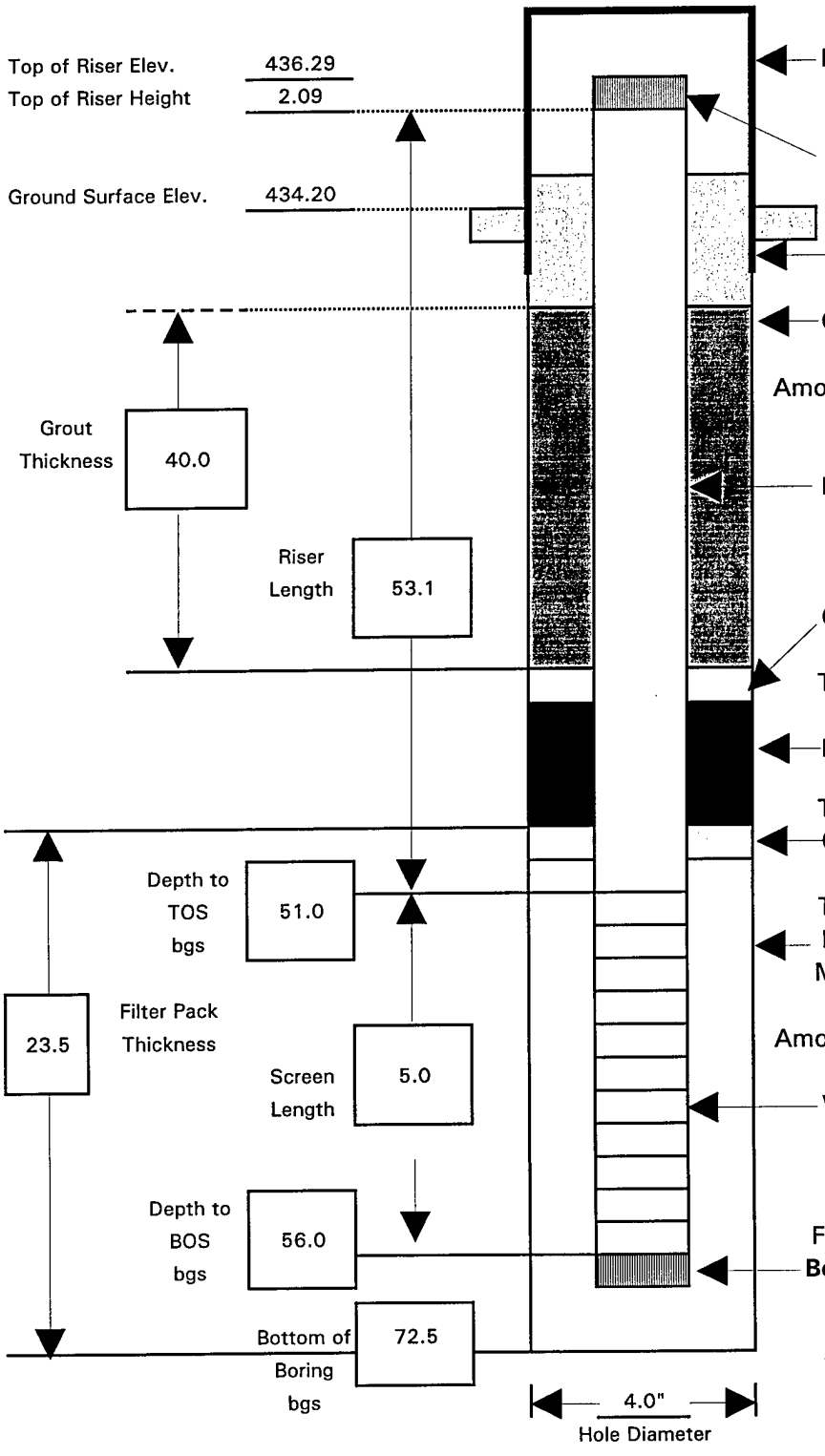
ANEPTEK CORPORATION
Well Completion Log

Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 1 /DAHA-90-93-DO-008		MW-04
Logged By:	**Date/Time Started**	**Date/Time Finished**
M.Plumb	11/15/95 1330	11/16/95 1230
Drilling Contractor:	**Drilling Rig Make/Model:**	**Drilling Method:**
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545635.4500
Easting (X): 568377.8100



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal: Cement

Grout
Type: Cement & Bentonite
Amount Used: 180 lbs Cement
20 lbs. Bentonite

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 4.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 89 lbs

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

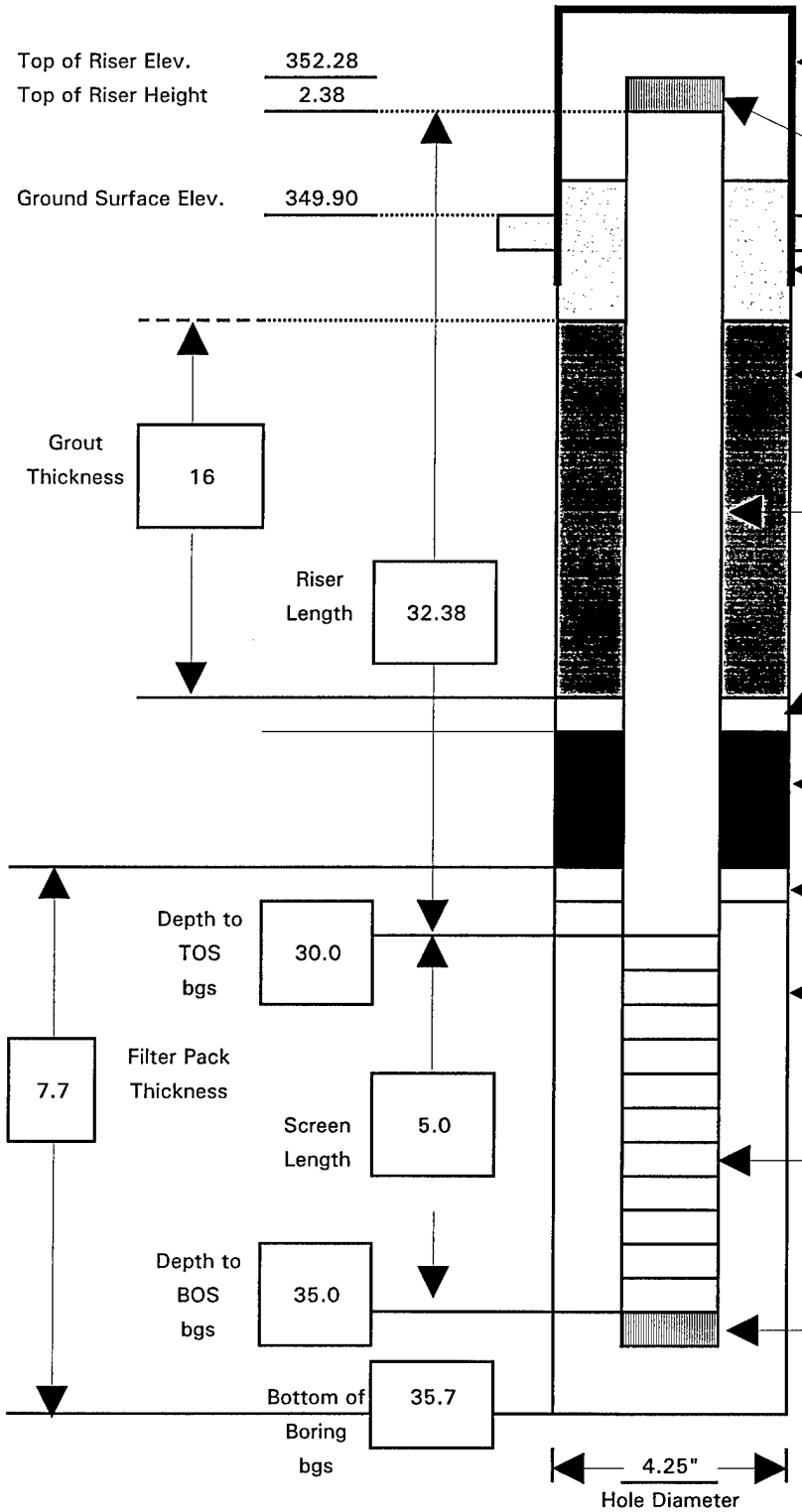
Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 1/ DAHA-90-93-D-008		MW-05
Logged By:	**Date/Time Started**	**Date/Time Finished**
M. Plumb/J. Donovan	10/13/95 0700	10/31/95 1430

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545386.8100
Easting (X): 569141.9500



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Cement

Grout
Type: Cement & Bentonite
Amount Used: 10 lbs. Bentonite/100 lbs. Cement

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 7

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 30 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap:

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

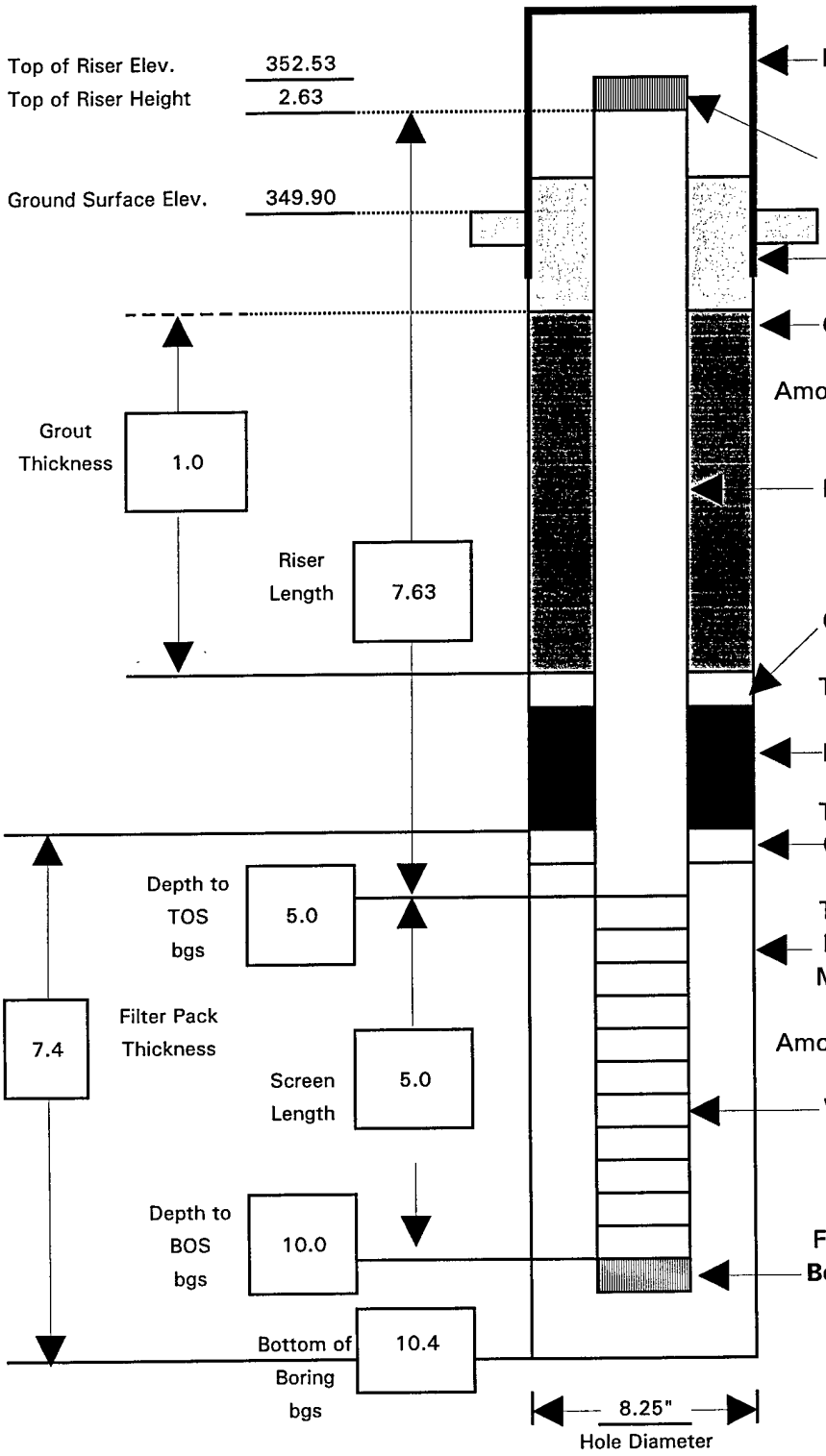
Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 1 /DAHA-90-93-D-008		MW-06
Logged By:	**Date/Time Started**	**Date/Time Finished**
M.Plumb/J.Donovan	10/31/95 1530	11/1/95 900

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545379.1100
Easting (X): 569140.6500



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Cement

Grout
Type: Bentonite Chips
Amount Used: 30 lbs

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 1.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 53 lbs

Well Screen
Material: Sched 40 PVC
Diameter: 2 "
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

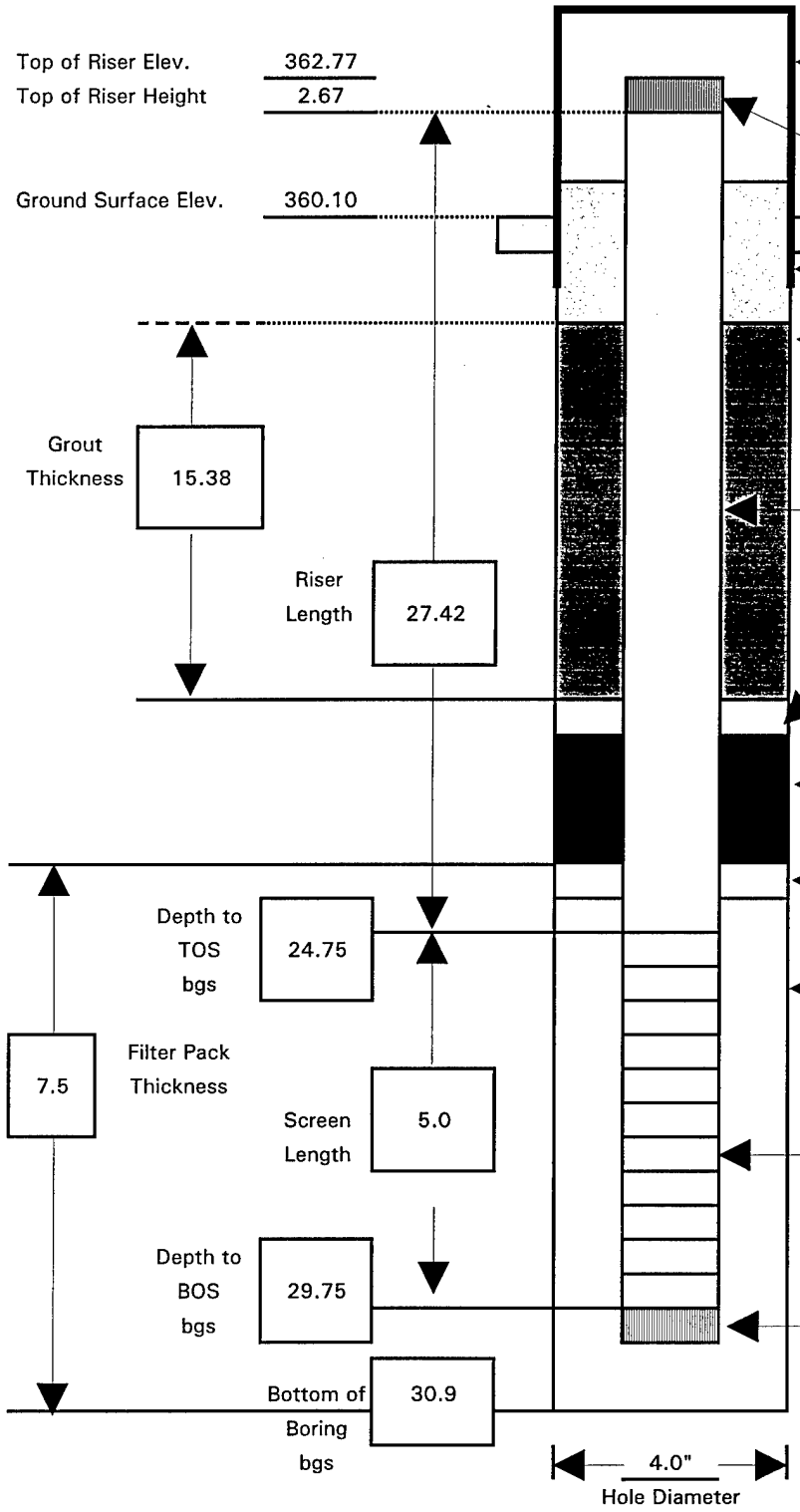
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ANG /Stewart Site 1 /DAHA-90-93-DO-008		MW-07
Logged By:	**Date/Time Started**	**Date/Time Finished**
M.Plumb	11/2/95 0900	11/2/95 1730

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545159.9500
Easting (X): 568999.1200



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Cement

Grout
Type: Cement & Bentonite
Amount Used: 70 lbs. Cement
7 lbs. Bentonite

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 3.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 0.5

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 29 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

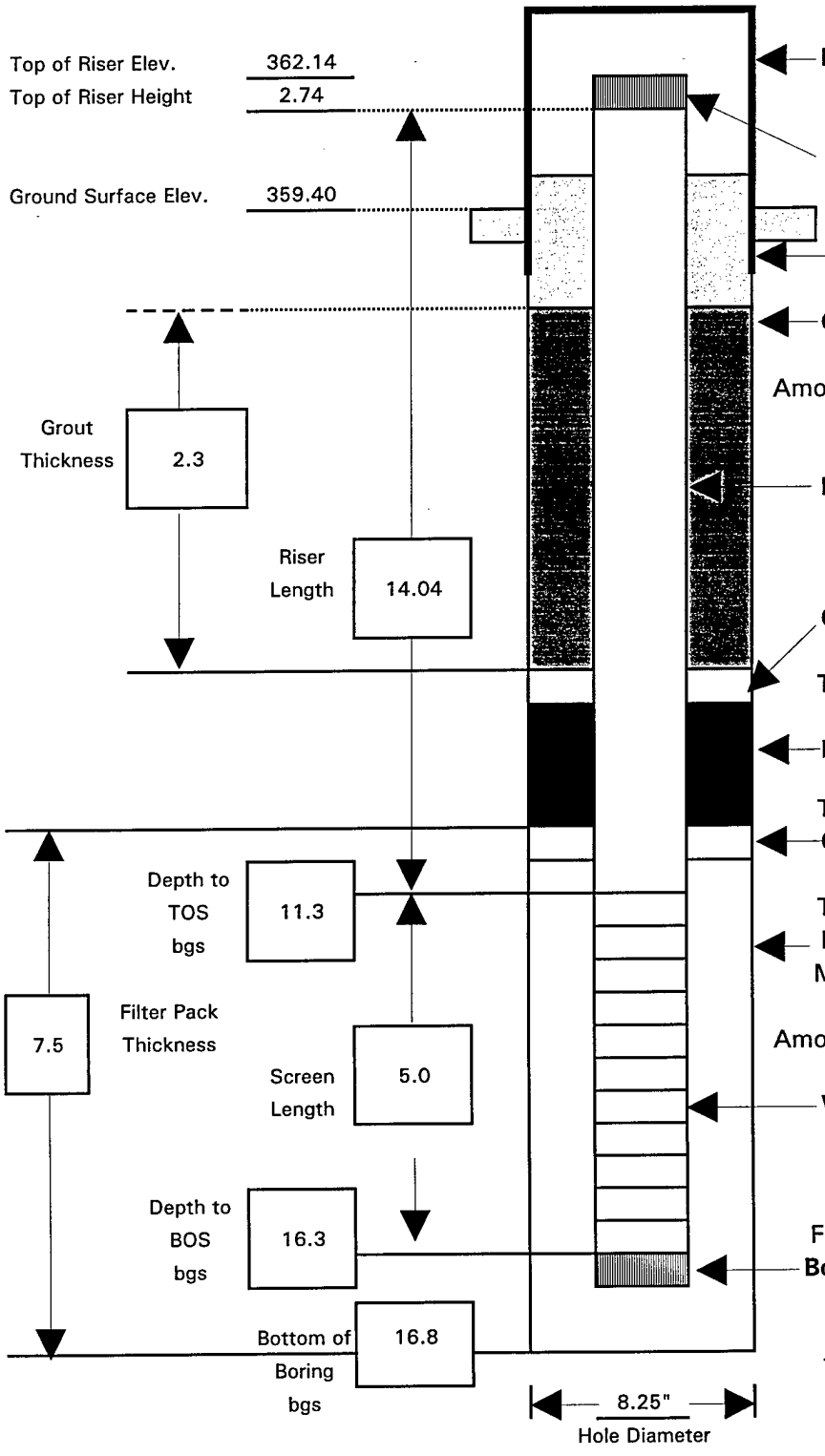
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ANG /Stewart Site 1 /DAHA-90-93-DO-008		MW-08
Logged By:	**Date/Time Started**	**Date/Time Finished**
M.Plumb/J.donovan	11/3/95 1400	11/3/95 1630

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545163.3200
Easting (X): 569006.9500



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Bentonite chips

Grout
Type: Bentonite chips
Amount Used: 6 lbs.

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 2.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 57 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 "
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

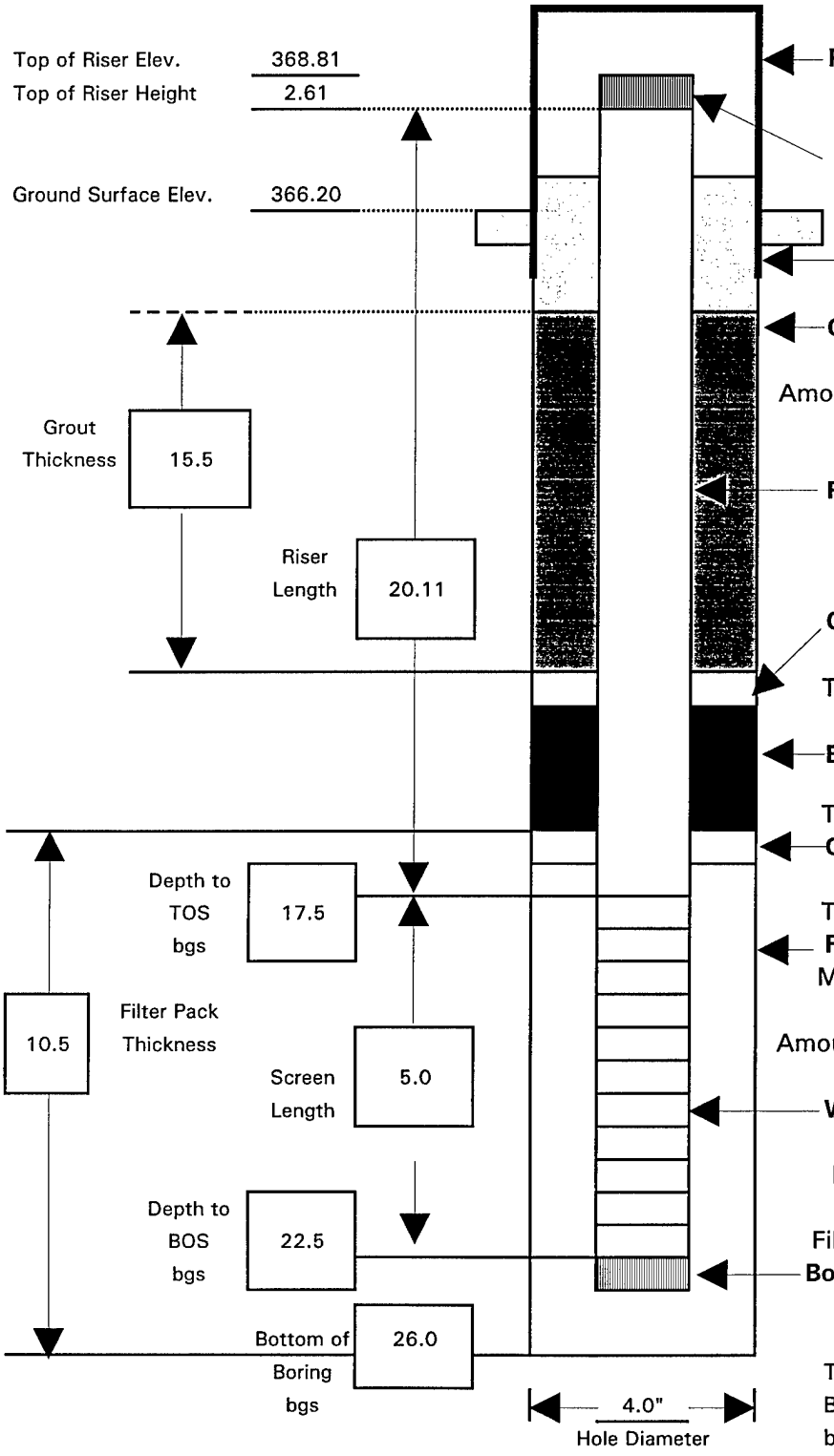
Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 2 /DAHA-90-93-DO-004		MW-09
Logged By:	**Date/Time Started**	**Date/Time Finished**
K.Kutawski	11/7/95 1400	11/8/95 730

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545707.4900
Easting (X): 569215.7700



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Bentonite chips

Grout
Type: Bentonite chips
Amount Used: 40 lbs.

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Not used
Thickness:

Bentonite Seal
Type: Bentonite chips
Thickness: 15.5

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 40 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

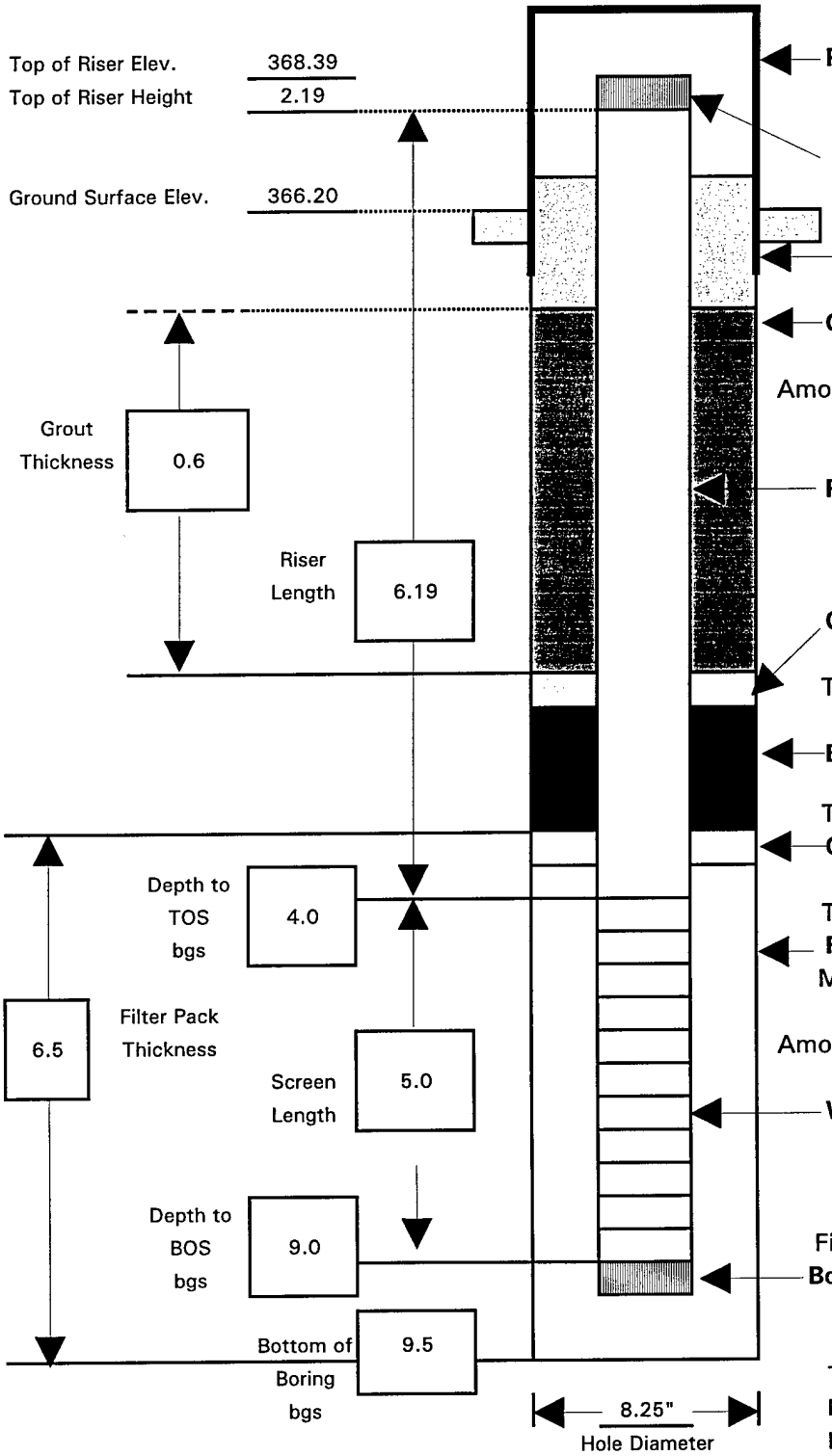
ANEPTEK CORPORATION
Well Completion Log

Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 2 /DAHA-90-93-DO-004		MW-10
Logged By:	**Date/Time Started**	**Date/Time Finished**
K.Kutawski	11/7/95 0900	11/8/95 830
Drilling Contractor:	**Drilling Rig Make/Model:**	**Drilling Method:**
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545709.2500
Easting (X): 569212.2200



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Bentonite chips

Grout
Type: Bentonite chips
Amount Used: 2 lbs.

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Not used
Thickness: 0.4

Bentonite Seal
Type: Bentonite chips
Thickness: 1.0

Choker Sand
Type: Not used
Thickness:

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 50 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

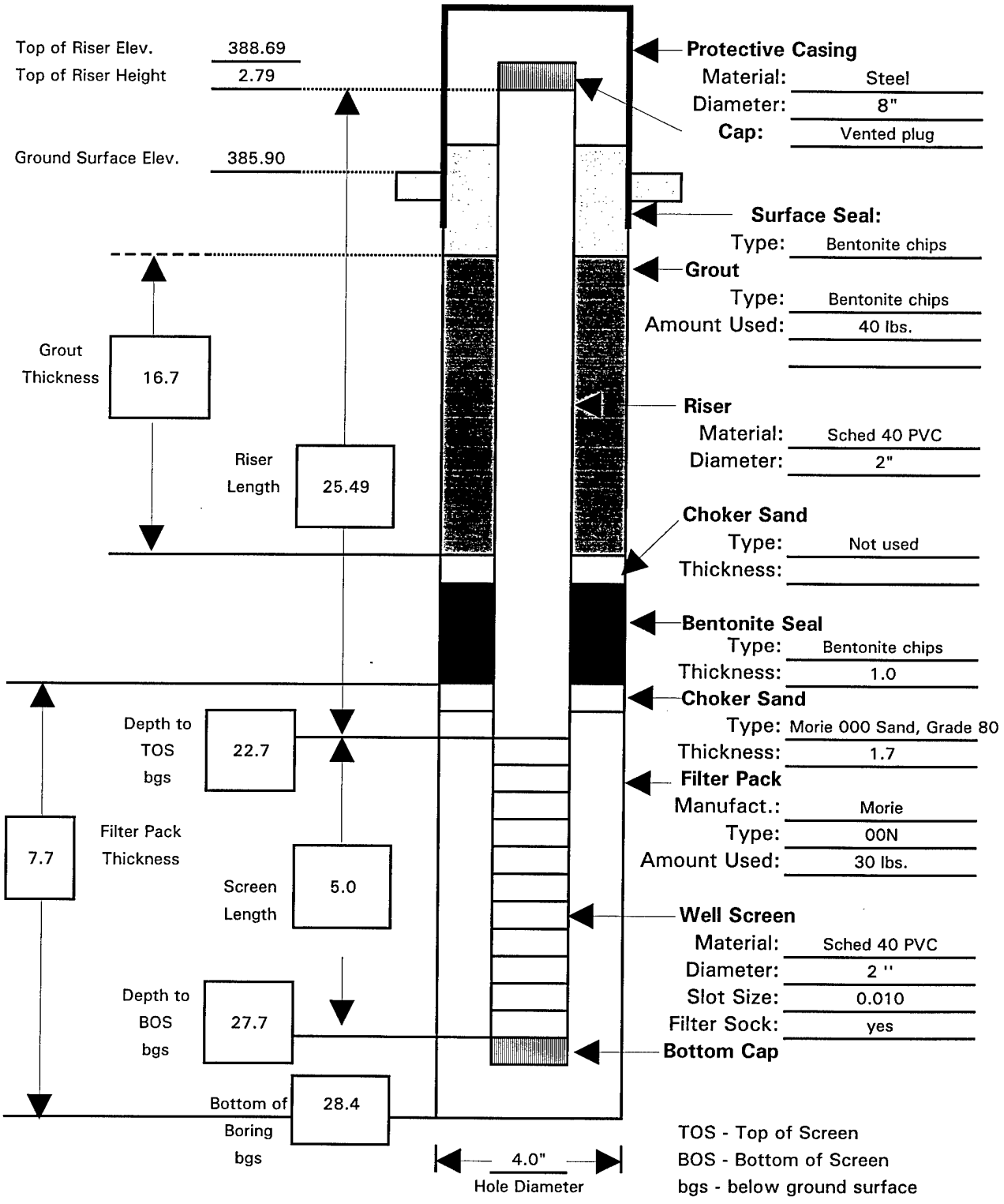
Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 1 /DAHA-90-93-DO-008		MW-11
Logged By:	**Date/Time Started**	**Date/Time Finished**
J.Donovan	11/9/95 0900	11/9/95 1630

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 546123.2900
Easting (X): 569216.3300



TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

Client/Project/Contract No.:	Well/Boring No.:
ANG /Stewart Site 1 /DAHA-90-93-DO-008	MW-12

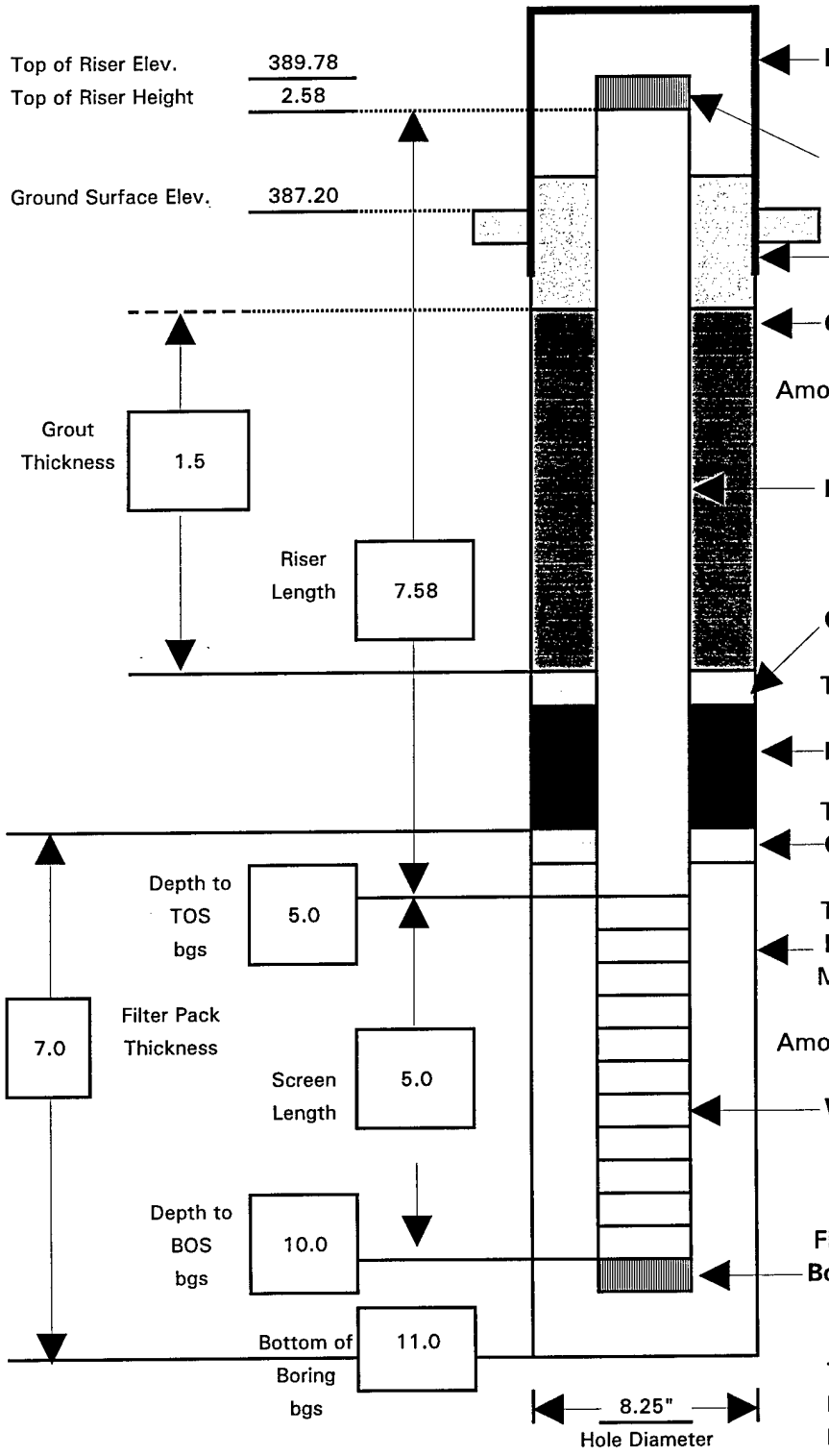
Logged By:	Date/Time Started	Date/Time Finished
J.Donovan	11/9/95	11/9/95

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 546134.0500
Easting (X): 569201.4500



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Cement

Grout
Type: Bentonite chips
Amount Used: 4 lbs.

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: Not used
Thickness:

Bentonite Seal
Type: Bentonite chips
Thickness: 1.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 0.5

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 53 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 "
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

ANEPTEK CORPORATION
Well Completion Log

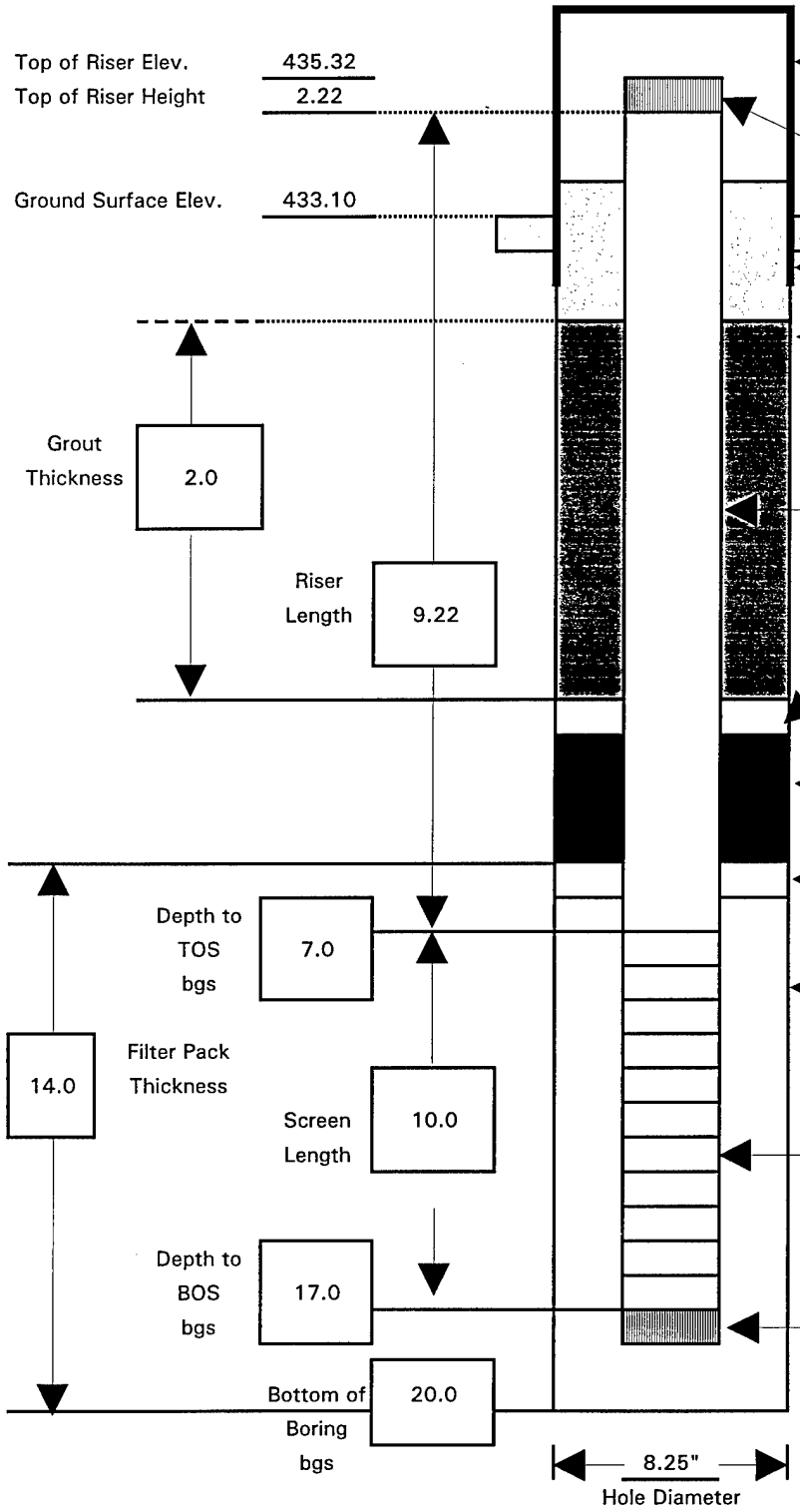
Client/Project/Contract No.:		Well/Boring No.:
ANG /Stewart Site 2 /DAHA-90-93-DO-004		MW-13/ SB-08
Logged By:	**Date/Time Started**	**Date/Time Finished**
J.Donovan	11/16/95 1424	11/16/95 1645

Drilling Contractor:	Drilling Rig Make/Model:	Drilling Method:
East Coast Thomas	CME Track Rig	HSA/ NX Core Barrel

All measurements in feet unless otherwise noted.

Survey Coordinates

Northing (Y): 545914.4900
Easting (X): 568747.4200



Protective Casing
Material: Steel
Diameter: 8"
Cap: Vented plug

Surface Seal:
Type: Cement

Grout
Type: Bentonite chips
Amount Used: 5 lbs.

Riser
Material: Sched 40 PVC
Diameter: 2"

Choker Sand
Type: orie 000 Sand,Grade 80
Thickness: 1.0

Bentonite Seal
Type: Bentonite chips
Thickness: 2.0

Choker Sand
Type: Morie 000 Sand, Grade 80
Thickness: 1.0

Filter Pack
Manufact.: Morie
Type: 00N
Amount Used: 105 lbs.

Well Screen
Material: Sched 40 PVC
Diameter: 2 ''
Slot Size: 0.010
Filter Sock: yes

Bottom Cap

TOS - Top of Screen
BOS - Bottom of Screen
bgs - below ground surface

APPENDIX F

WATER LEVEL DATA AND CALCULATIONS

APPENDIX F, TABLE F-1
GROUNDWATER ELEVATIONS - DECEMBER 8, 1995
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well/Piezometer Designation	Reference Point	Reference Point Elevation (ft msl)	Depth to Groundwater[1] (ft)	Groundwater Elevation (ft msl)
MW-01	Top of Riser	438.49	31.68	406.81
MW-04	Top of Riser	436.29	30.40	405.89
MW-05	Top of Riser	352.28	3.11	349.17
MW-06	Top of Riser	352.53	4.18	348.35
MW-07	Top of Riser	362.77	7.77	355.00
MW-08	Top of Riser	362.14	8.60	353.54
MW-09	Top of Riser	368.81	11.17	357.64
MW-10	Top of Riser	368.39	4.95	363.44
MW-11	Top of Riser	388.69	16.74	371.95
MW-12	Top of Riser	389.78	6.28	383.50
MW-13	Top of Riser	435.32	12.20	423.12
SW-2	Top Casing	435.58	24.65	410.93
SW-3	Top Casing	434.19	23.43	410.76
JMW-107	Top of Riser	367.04	NM	NM
JMW-108	Top Casing	370.70	2.97	367.73
JMW-109	Top of Riser	374.15	3.70	370.45
JTB-100 (a)	Top of Riser	436.00	11.61	424.39
JTB-100 (b)	Top of Riser	436.24	28.51	407.73
JTB-103(a)	Top Casing	435.53	20.78	414.75
JTB-103 (b)	Top Casing	435.53	24.14	411.39
JTB-105 (a)	Top Casing	394.43	NM	NM
JTB-105 (b)	Top Casing	394.43	NM	NM
JTB-105 (c)	Top Casing	394.43	NM	NM
JTB-106 (a)	Top Casing	389.85	15.47	374.38
JTB-106 (b)	Top Casing	389.85	15.04	374.81
JTB-107 (a)	Top Casing	367.92	6.78	361.14
JTB-107 (b)	Top Casing	367.92	6.75	361.17
JTB-108 (a)	Top Casing	370.31	NM	NM
JTB-108 (b)	Top Casing	370.31	NM	NM
JTB-109 (a)	Top Casing	373.96	4.20	369.76
JTB-109 (b)	Top Casing	373.96	3.69	370.27
SG-01	3 ft Mark	392.22	1.09	390.31
SG-02	3 ft Mark	337.11	0.84	334.95
SG-03	6 ft Mark	336.14	3.68	333.82
SG-04	6 ft Mark	336.22	3.93	334.15
SG-06	3 ft Mark	332.36	1.89	331.25

Notes: [1] Readings for stream gages are direct readings and are evaluated with respect to the elevations of the appropriate foot marks on the gage.
ft - feet
NM - Not Measured

APPENDIX F, TABLE F-2
GROUNDWATER ELEVATIONS - MARCH 19, 1996
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well/Piezometer Designation	Reference Point	Reference Point Elevation (ft msl)	Depth to Groundwater[1] (ft)	Groundwater Elevation (ft msl)
MW-01	Top of Riser	438.49	31.10	407.39
MW-04	Top of Riser	436.29	29.96	406.33
MW-05	Top of Riser	352.28	1.89	350.39
MW-06	Top of Riser	352.53	3.37	349.16
MW-07	Top of Riser	362.77	5.80	356.97
MW-08	Top of Riser	362.14	6.44	355.70
MW-09	Top of Riser	368.81	7.72	361.09
MW-10	Top of Riser	368.39	2.93	365.46
MW-11	Top of Riser	388.69	14.18	374.51
MW-12	Top of Riser	389.78	3.52	386.26
MW-13	Top of Riser	435.32	11.38	423.94
SW-2	Top Casing	435.58	23.59	411.99
SW-3	Top Casing	434.19	22.55	411.64
JMW-107	Top of Riser	367.04	NM	NM
JMW-108	Top Casing	370.70	2.08	368.62
JMW-109	Top of Riser	374.15	2.78	371.37
JTB-100 (a)	Top of Riser	436.00	NM	NM
JTB-100 (b)	Top of Riser	436.24	NM	NM
JTB-103(a)	Top Casing	435.53	27.30	408.23
JTB-103 (b)	Top Casing	435.53	27.23	408.30
JTB-105 (a)	Top Casing	394.43	NM	NM
JTB-105 (b)	Top Casing	394.43	NM	NM
JTB-105 (c)	Top Casing	394.43	NM	NM
JTB-106 (a)	Top Casing	389.85	11.90	377.95
JTB-106 (b)	Top Casing	389.85	11.75	378.10
JTB-107 (a)	Top Casing	367.92	5.48	362.44
JTB-107 (b)	Top Casing	367.92	4.93	362.99
JTB-108 (a)	Top Casing	370.31	NM	NM
JTB-108 (b)	Top Casing	370.31	NM	NM
JTB-109 (a)	Top Casing	373.96	3.29	370.67
JTB-109 (b)	Top Casing	373.96	3.15	370.81
SG-01	3 ft Mark	392.22	NM	NM
SG-02	3 ft Mark	337.11	NM	NM
SG-03	6 ft Mark	336.14	NM	NM
SG-04	6 ft Mark	336.22	NM	NM
SG-06	3 ft Mark	332.36	NM	NM

Notes: [1] Readings for stream gages are direct readings and are evaluated with respect to the elevations of the appropriate foot marks on the gage.
ft - feet
NM - Not Available

APPENDIX F, TABLE F-3
GROUNDWATER ELEVATIONS - APRIL 9, 1996
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well/Piezometer Designation	Reference Point	Reference Point Elevation (ft msl)	Depth to Groundwater[1] (ft)	Groundwater Elevation (ft msl)
MW-01	Top of Riser	438.49	31.12	407.37
MW-04	Top of Riser	436.29	29.99	406.30
MW-05	Top of Riser	352.28	2.04	350.24
MW-06	Top of Riser	352.53	3.74	348.79
MW-07	Top of Riser	362.77	6.07	356.70
MW-08	Top of Riser	362.14	6.86	355.28
MW-09	Top of Riser	368.81	8.29	360.52
MW-10	Top of Riser	368.39	3.80	364.59
MW-11	Top of Riser	388.69	14.60	374.09
MW-12	Top of Riser	389.78	3.15	386.63
MW-13	Top of Riser	435.32	11.65	423.67
SW-2	Top Casing	435.58	24.16	411.42
SW-3	Top Casing	434.19	22.71	411.48
JMW-107	Top of Riser	367.04	4.27	362.77
JMW-108	Top Casing	370.70	2.24	368.46
JMW-109	Top of Riser	374.15	2.82	371.33
JTB-100 (a)	Top of Riser	436.00	9.33	426.67
JTB-100 (b)	Top of Riser	436.24	28.71	407.53
JTB-103(a)	Top Casing	435.53	28.41	407.12
JTB-103 (b)	Top Casing	435.53	28.06	407.47
JTB-105 (a)	Top Casing	394.43	13.68	380.75
JTB-105 (b)	Top Casing	394.43	13.46	380.97
JTB-105 (c)	Top Casing	394.43	9.67	384.76
JTB-106 (a)	Top Casing	389.85	12.84	377.01
JTB-106 (b)	Top Casing	389.85	12.49	377.36
JTB-107 (a)	Top Casing	367.92	5.98	361.94
JTB-107 (b)	Top Casing	367.92	5.96	361.96
JTB-108 (a)	Top Casing	370.31	4.44	365.87
JTB-108 (b)	Top Casing	370.31	4.62	365.69
JTB-109 (a)	Top Casing	373.96	3.15	370.81
JTB-109 (b)	Top Casing	373.96	2.87	371.09
SG-01	3 ft Mark	392.22	1.61	390.83
SG-02	3 ft Mark	337.11	0.94	335.05
SG-03	6 ft Mark	336.14	3.70	333.84
SG-04	6 ft Mark	336.22	4.07	334.29
SG-06	3 ft Mark	332.36	3.21	332.57

Notes: [1] Readings for stream gages are direct readings and are evaluated with respect to the elevations of the appropriate foot marks on the gage.
ft - feet
NM - Not Measured

APPENDIX F, TABLE F-4
CALCULATED DECEMBER 8, 1995 WATER TABLE ELEVATIONS
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well Pair	Completion Interval	Elevation Head (Z) (ft msl)	Total Head (ft msl)	Pressure Head (P) (ft)	Calculated Water Table Elevation (ft msl)
MW-05	BR	317.40	349.17	31.77	348.08
MW-06	OB	340.40	348.35	7.95	
MW-07	BR	332.85	355.00	22.15	352.72
MW-08	OB	345.60	353.54	7.94	
MW-09	BR	346.20	357.64	11.44	366.26
MW-10	OB	359.70	363.44	3.74	
MW-11	BR	360.70	371.95	11.25	389.39
MW-12	OB	379.70	383.50	3.80	
MW-04	BR	380.70	405.89	25.19	411.79
JTB-100(b)	OB	390.40	407.73	17.33	
JTB-103(a)	BR	382.30	414.75	32.45	406.21
JTB-103(b)	OB	391.70	411.39	19.69	
JTB-106(a)	BR	360.00	374.38	14.38	375.10
JTB-106(b)	OB	369.00	374.81	5.81	
JTB-107(a)	BR	347.80	361.14	13.34	361.18
JTB-107(b)	OB	358.20	361.17	2.97	
JTB-109(a)	BR	353.30	369.76	16.46	370.68
JTB-109(b)	OB	362.90	370.27	7.37	

Notes:
Calculated water table elevation is based on the following equation:

$$H_{wt} = Z_s-[((Z_s-Z_d)/(P_s-P_d))] \times P_s$$

Where: H_{wt} - Calculated Water Table Elevation
$Z_{s,d}$ - Elevation Head in the shallow or deep well
$P_{s,d}$ - Elevation Head in the shallow or deep well

Key:
BR - Bedrock
OB - Overburden
ft - feet
msl - mean sea level

APPENDIX F, TABLE F-5
CALCULATED APRIL 9, 1996 WATER TABLE ELEVATIONS
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well Pair	Completion Interval	Elevation Head (Z) (ft msl)	Total Head (ft msl)	Pressure Head (P) (ft)	Calculated Water Table Elevation (ft msl)
MW-05	BR	317.40	350.24	32.84	348.29
MW-06	OB	340.40	348.79	8.39	
MW-07	BR	332.85	356.70	23.85	354.31
MW-08	OB	345.60	355.28	9.68	
MW-09	BR	346.20	360.52	14.32	366.70
MW-10	OB	359.70	364.59	4.89	
MW-11	BR	360.70	374.09	13.39	400.08
MW-12*	OB	379.70	386.63	6.93	
MW-04	BR	380.70	406.30	25.60	410.02
JTB-100(b)	OB	390.40	407.53	17.13	
JTB-103(a)	BR	382.30	407.12	24.82	408.08
JTB-103(b)	OB	391.70	407.47	15.77	
JTB-105(b)	OB	367.70	380.97	13.27	390.62
JTB-105(c)	OB	376.70	384.76	8.06	
JTB-106(a)	BR	360.00	377.01	17.01	377.70
JTB-106(b)	OB	369.00	377.36	8.36	
JTB-107(a)	BR	347.80	361.94	14.14	361.97
JTB-107(b)	OB	358.20	361.96	3.76	
JTB-108(a)	BR	346.80	365.87	19.07	365.50
JTB-108(b)	OB	355.80	365.69	9.89	
JTB-109(a)	BR	353.30	370.81	17.51	371.34
JTB-109(b)	OB	362.90	371.09	8.19	

Notes:
Calculated water table elevation is based on the following equation:

$$H_{wt} = Z_s - [((Z_s - Z_d)/(P_s - P_d))] \times P_s$$

Where: H_{wt} - Calculated Water Table Elevation
$Z_{s,d}$ - Elevation Head in the shallow or deep well
$P_{s,d}$ - Elevation Head in the shallow or deep well

Key:
BR - Bedrock
OB - Overburden
ft - feet
msl - mean sea level

APPENDIX F, TABLE F-6
CALCULATIONS OF VERTICAL GRADIENTS AT WELL PAIRS
BASED ON WATER ELEVATIONS DATA COLLECTED DECEMBER 8, 1995
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well/Piezometer Designation	Elevation Top of Screen (ft msl)	Elevation Center of Screen (ft msl)	Groundwater Elevation (ft msl)	Vertical Gradient (ft/ft)
MW-05	319.90	317.40	349.17	0.0357
MW-06	342.90	340.40	348.35	
MW-07	335.35	332.85	355	0.1145
MW-08	348.10	345.60	353.54	
MW-09	348.70	346.20	357.64	-0.4296
MW-10	362.20	359.70	363.44	
MW-11	363.20	360.70	371.95	-0.6079
MW-12	382.20	379.70	383.5	
SW-2	393.80	388.80	410.93	-0.3552
MW-13	426.10	421.10	423.12	
MW-04	383.20	380.70	405.89	-0.1897 [2]
JTB-100 (b)	391.40	390.40	407.73	
JTB-103(a)	383.30	382.30	414.75	0.3574
JTB-103 (b)	392.70	391.70	411.39	
JTB-105 (a)	357.20	356.20	NM	NM
JTB-105 (b)	368.70	367.70	NM	NM
JTB-105 (c)	377.70	376.70	NM	
JTB-106 (a)	361.00	360.00	374.38	-0.0478
JTB-106 (b)	370.00	369.00	374.81	
JTB-107 (a)	348.80	347.80	361.14	-0.0029
JTB-107 (b)	359.20	358.20	361.17	NM
JMW-107	359.72	357.22	NM	
JTB-108 (a)	347.80	346.80	NM	NM
JTB-108 (b)	356.80	355.80	NM	NM
JMW-108	362.13	359.63	NM	
JTB-109 (a)	354.30	353.30	369.76	-0.0531
JTB-109 (b)	363.90	362.90	370.27	NM
JMW-109	366.50	364.05	NM	

Notes: [1] By convention a positive gradient indicates a vertically upward gradient, and a negative gradient indicates vertically downward gradient.

[2] - Water level in JTB-100a does not appear to be representative of formation conditions, therefore the gradient calculation was based on comparison with nearby MW-04.

NM - Not Measured

ft - feet

msl - mean sea level

APPENDIX F, TABLE F-7
CALCULATIONS OF VERTICAL GRADIENTS AT WELL PAIRS
BASED ON WATER ELEVATIONS DATA COLLECTED MARCH 19, 1996
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well/Piezometer Designation	Elevation Top of Screen (ft msl)	Elevation Center of Screen (ft msl)	Groundwater Elevation (ft msl)	Vertical Gradient (ft/ft)
MW-05	319.90	317.40	350.39	0.0535
MW-06	342.90	340.40	349.16	
MW-07	335.35	332.85	356.97	0.0996
MW-08	348.10	345.60	355.70	
MW-09	348.70	346.20	361.09	-0.3237
MW-10	362.20	359.70	365.46	
MW-11	363.20	360.70	374.51	-0.6184
MW-12	382.20	379.70	386.26	
SW-2	393.80	388.80	411.99	-0.3401
MW-13	426.10	421.10	423.94	
MW-04	383.20	380.70	406.33	NM
JTB-100 (b)	391.40	390.40	NM	
JTB-103(a)	383.30	382.30	408.23	-0.0074
JTB-103 (b)	392.70	391.70	408.30	
JTB-105 (a)	357.20	356.20	NM	NM
JTB-105 (b)	368.70	367.70	NM	NM
JTB-105 (c)	377.70	376.70	NM	
JTB-106 (a)	361.00	360.00	377.95	-0.0167
JTB-106 (b)	370.00	369.00	378.10	
JTB-107 (a)	348.80	347.80	362.44	-0.0529
JTB-107 (b)	359.20	358.20	362.99	NM
JMW-107	359.72	357.22	NM	
JTB-108 (a)	347.80	346.80	NM	NM
JTB-108 (b)	356.80	355.80	NM	NM
JMW-108	362.13	359.63	NM	
JTB-109 (a)	354.30	353.30	370.67	-0.0146
JTB-109 (b)	363.90	362.90	370.81	NM
JMW-109	366.55	364.05	NM	

Notes: [1] By convention a positive gradient indicates a vertically upward gradient, and a negative gradient indicates vertically downward gradient.
ft - feet
msl - mean sea level
NM - Water levels not measured.

APPENDIX F, TABLE F-8
CALCULATIONS OF VERTICAL GRADIENT AT WELL PAIRS
BASED ON WATER ELEVATION DATA COLLECTED APRIL 9, 1996
STEWART AIR NATIONAL GUARD BASE
NEWBURGH, NEW YORK

Well/Piezometer Designation	Elevation Top of Screen (ft msl)	Elevation Center of Screen (ft msl)	Groundwater Elevation (ft msl)	Vertical Gradient (ft/ft)
MW-05	319.90	317.40	350.24	0.0630
MW-06	342.90	340.40	348.79	
MW-07	335.35	332.85	356.70	0.1114
MW-08	348.10	345.60	355.28	
MW-09	348.70	346.20	360.52	-0.3015
MW-10	362.20	359.70	364.59	
MW-11	363.20	360.70	374.09	-0.6600
MW-12	382.20	379.70	386.63	
SW-2	393.80	388.80	411.42	-0.3513
MW-13	426.10	421.10	423.67	
MW-04	383.20	380.70	406.30	-0.1268 [2]
JTB-100 (b)	391.40	390.40	407.53	
JTB-103(a)	383.30	382.30	407.12	-0.0372
JTB-103 (b)	392.70	391.70	407.47	
JTB-105 (a)	357.20	356.20	380.75	-0.0191
JTB-105 (b)	368.70	367.70	380.97	-0.4211
JTB-105 (c)	377.70	376.70	384.76	
JTB-106 (a)	361.00	360.00	377.01	-0.0389
JTB-106 (b)	370.00	369.00	377.36	
JTB-107 (a)	348.80	347.80	361.94	-0.0019
JTB-107 (b)	359.20	358.20	361.96	-0.8265
JMW-107	359.72	357.22	362.77	
JTB-108 (a)	347.80	346.80	365.87	0.0200
JTB-108 (b)	356.80	355.80	365.69	-0.7232
JMW-108	362.13	359.63	368.46	
JTB-109 (a)	354.30	353.30	370.81	-0.0292
JTB-109 (b)	363.90	362.90	371.09	-0.2087
JMW-109	366.55	364.05	371.33	

Notes: [1] By convention a positive gradient indicates a vertically upward gradient, and a negative gradient indicates vertically downward gradient.

[2] - Water level in JTB-100a does not appear to be representative of formation conditions, therefore the gradient calculation was based on nearby MW-04.

ft - feet

msl - mean sea level

$\beta = 180 -$

van Everdingen, R.O. 1963. *Groundwater Flow-Diagrams in Sections with Exaggerated Vertical Scale*. Geological Survey of Canada. Department of Mines and Technical Surveys Paper 63-27.

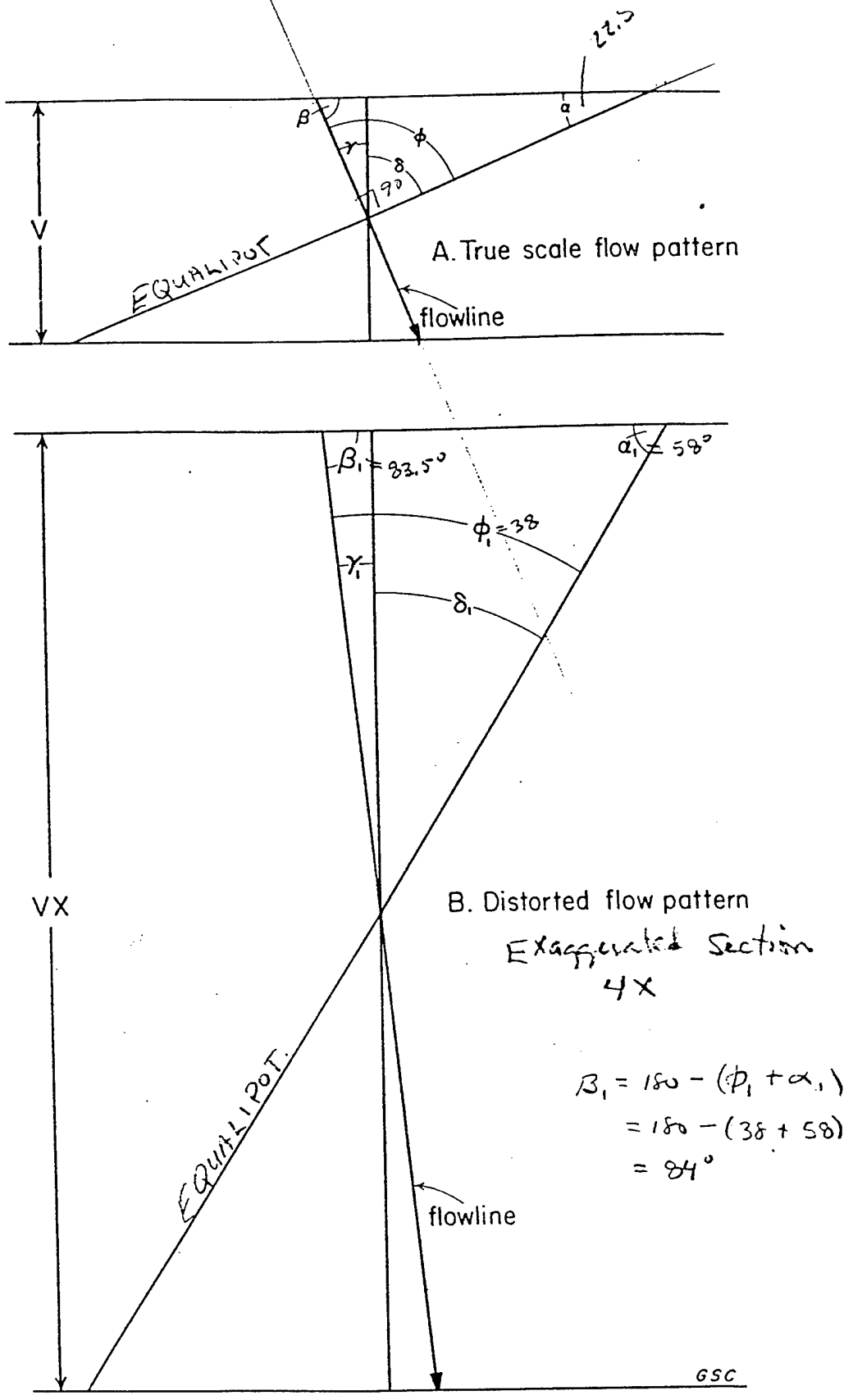


Figure 1. Relation of flowlines and equipotential lines in true-scale and distorted flow patterns

van Everdingen, R.O. 1963. *Groundwater Flow-Diagrams in Sections with Exaggerated Vertical Scale*. Geological Survey of Canada. Department of Mines and Technical Surveys Paper 63-27.

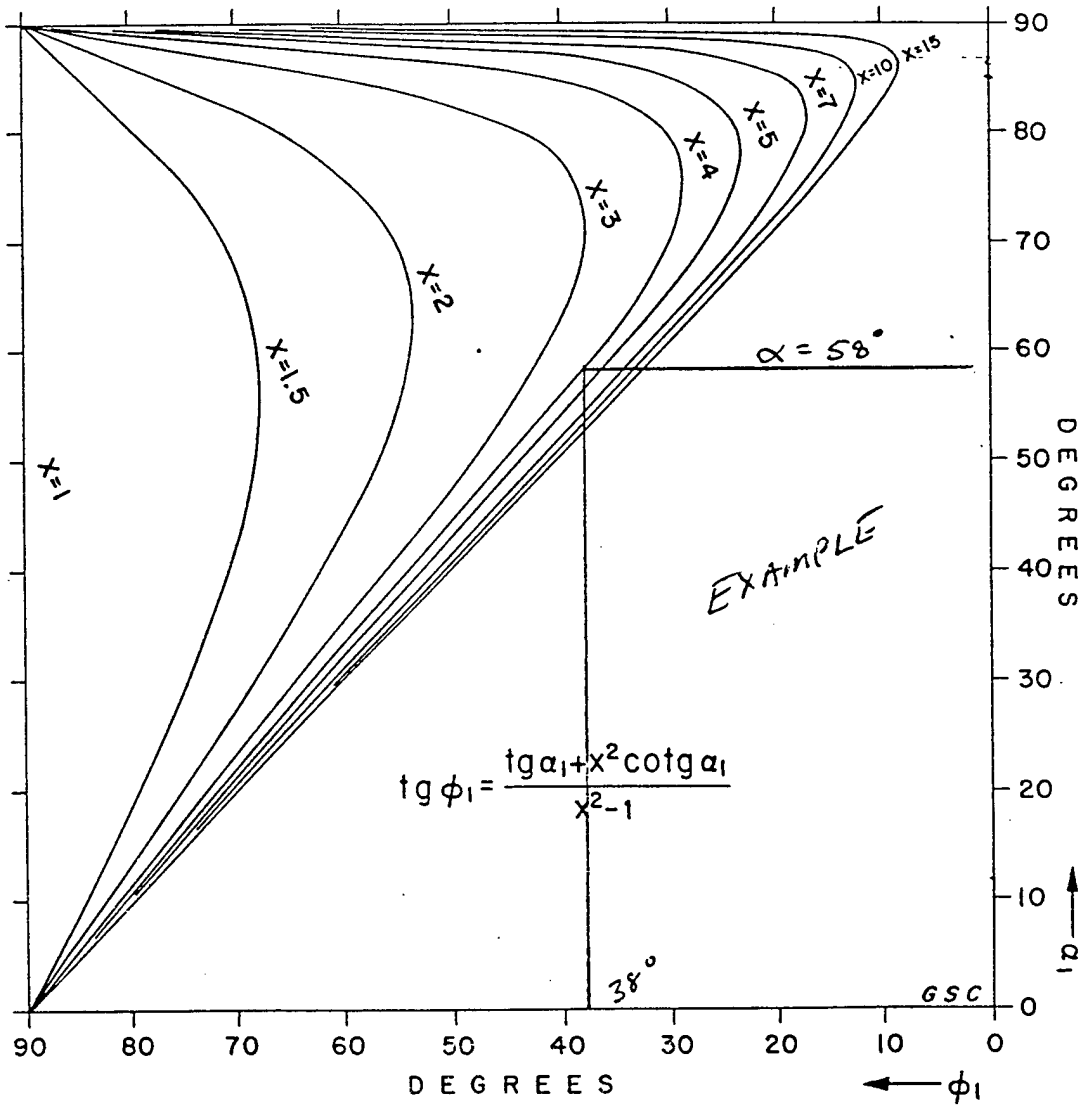


Figure 2. Nomograph for the determination of ϕ_1 from α_1 and X

APPENDIX G

AQUIFER TESTING RESULTS

APPENDIX TABLE 1

ANEPTEK OVERBURDEN WELL SLUG TEST INPUT DATA

WELL NUMBER	INPUT VARIABLE	MW-06	MW-08	MW-10	MW-12	MW-13
WELL GROUND SURFACE ELEVATION (MSL)		349.9	359.4	366.2	387.2	433.1
REFERENCE ELEVATION - TOP OF RISER (MSL)		352.53	362.14	368.39	389.78	435.32
DEPTH TO STATIC WATER LEVEL - TOR (FT)		4.04	8.32	1.44	5.85	11.88
DEPTH TO STATIC WATER LEVEL - GROUND SURFACE (FT)		1.41	5.58	-0.75	3.27	9.66
ELEVATION OF STATIC WATER LEVEL (MSL)		348.49	353.82	366.95	383.93	423.44
DEPTH TO TOP OF SCREEN FROM GROUND SURFACE (FT)		5	11.3	4	5	7
DEPTH TO BOTTOM OF SCREEN FROM GROUND SURFACE (FT)		10	16.3	9	10	17
ELEVATION OF TOP OF SCREEN (MSL)		344.9	348.1	362.2	382.2	426.1
ELEVATION OF BOTTOM OF SCREEN (MSL)		339.9	343.1	357.2	377.2	416.1
DEPTH TO BEDROCK (FT)		24.5	16	10.3	18	37.5
ELEVATION OF BEDROCK (MSL)		325.4	343.4	355.9	369.2	395.6
AQUIFER SATURATED THICKNESS (FT)	**H**	23.09	10.42	11.05	14.73	27.84
DEPTH TO TOP OF SCREEN RELATIVE TO TOP OF AQUIFER (FT)		3.59	5.72	4.75	1.73	-2.66
DEPTH TO BOTTOM OF SCREEN RELATIVE TO TOP OF AQUIFER (FT)		8.59	10.72	9.75	6.73	7.34
LENGTH OF WELL SCREEN (FT)	**Le**	5	5	5	5	10
LENGTH OF SATURATED WELL SCREEN (FT)		5	5	5	5	7.34
LENGTH OF SATURATED RISER (FT)		3.59	5.72	4.75	1.73	0
LENGTH OF SATURATED WELL SCREEN AND RISER (FT)	**Lw**	8.59	10.72	9.75	6.73	7.34
DIAMETER OF SCREEN (FT)	**2rc**	0.166	0.166	0.166	0.166	0.166
DIAMETER OF BOREHOLE (FT)	**2rw**	0.687	0.687	0.687	0.687	0.687
MEAN GRAIN-SIZE FILTER PACK (mm)		0.59	0.59	0.59	0.59	0.59
POROSITY OF FILTER PACK (%)		0.3	0.3	0.3	0.3	0.3

APPENDIX TABLE 2

ANEPTEK BEDROCK WELL SLUG TEST INPUT DATA

WELL NUMBER	INPUT VARIABLE	MW-01	MW-04	MW-05	MW-07	MW-09	MW-11
WELL GROUND SURFACE ELEVATION (MSL)		436.4	434.2	349.9	360.1	366.2	385.9
REFERENCE ELEVATION - TOP OF RISER (MSL)		438.49	436.29	352.28	362.77	368.81	388.69
DEPTH TO STATIC WATER LEVEL - TOR (FT)		31.87	30.37	3.02	7.56	10.91	16.29
DEPTH TO STATIC WATER LEVEL - GROUND SURFACE (FT)		29.78	28.28	0.64	4.89	8.3	13.5
ELEVATION OF STATIC WATER LEVEL (MSL)		406.62	405.92	349.26	355.21	357.9	372.4
DEPTH TO TOP OF SCREEN FROM GROUND SURFACE (FT)		37	51	30	24.75	17.5	22.7
DEPTH TO BOTTOM OF SCREEN FROM GROUND SURFACE (FT)		42	56	35	29.75	22.5	27.7
ELEVATION OF TOP OF SCREEN (MSL)		399.4	383.2	319.9	335.35	348.7	363.2
ELEVATION OF BOTTOM OF SCREEN (MSL)		394.4	378.2	314.9	330.35	343.7	358.2
DEPTH TO BEDROCK (FT)		33	45	21.5	16	10.3	18
ELEVATION OF BEDROCK (MSL)		403.4	389.2	328.4	344.1	355.9	367.9
DEPTH TO BASE OF FRACTURED ROCK (FT)		55	67	43.5	38	32.3	40
ELEVATION OF BASE OF FRACTURED ROCK (MSL)		381.4	367.2	306.4	322.1	333.9	345.9
AQUIFER SATURATED THICKNESS (FT)	**H**	22	22	22	22	22	22
DEPTH TO TOP OF SCREEN RELATIVE TO TOP OF AQUIFER (FT)		4	6	8.5	8.75	7.2	4.7
DEPTH TO BOTTOM OF SCREEN RELATIVE TO TOP OF AQUIFER (FT)		9	11	13.5	13.75	12.2	9.7
LENGTH OF WELL SCREEN (FT)	**Le**	5	5	5	5	5	5
LENGTH OF SATURATED WELL SCREEN (FT)		5	5	5	5	5	5
LENGTH OF SATURATED RISER (FT)		7.22	22.72	29.36	19.86	9.2	9.2
TOTAL LENGTH OF SATURATED WELL SCREEN AND RISER (FT)	**Lw**	12.22	27.72	34.36	24.86	14.2	14.2
DIAMETER OF SCREEN (FT)	**2rc**	0.166	0.166	0.166	0.166	0.166	0.166
DIAMETER OF BOREHOLE (FT)	**2rw**	0.33	0.33	0.33	0.33	0.33	0.33
MEAN GRAIN-SIZE FILTER PACK (mm)		0.59	0.59	0.59	0.59	0.59	0.59
POROSITY OF FILTER PACK (%)		0.3	0.3	0.3	0.3	0.3	0.3

APPENDIX TABLE 3

E.C. JORDAN OVERBURDEN WELL SLUG TEST INPUT DATA

WELL NUMBER	INPUT VARIABLE	JMW-107	JMW-108	JMW-109
WELL GROUND SURFACE ELEVATION (MSL)		364.1	368.1	371.8
REFERENCE ELEVATION - TOP OF RISER (MSL)		367.04	370.7	374.15
DEPTH TO STATIC WATER LEVEL - TOR (FT)		10.13	8.38	9.91
DEPTH TO STATIC WATER LEVEL - GROUND SURFACE (FT)		7.19	5.78	7.56
ELEVATION OF STATIC WATER LEVEL (MSL)		356.91	362.32	364.24
DEPTH TO TOP OF SCREEN FROM GROUND SURFACE (FT)		4.38	5.97	5.25
DEPTH TO BOTTOM OF SCREEN FROM GROUND SURFACE (FT)		9.38	10.97	10.25
ELEVATION OF TOP OF SCREEN (MSL)		359.72	362.13	366.55
ELEVATION OF BOTTOM OF SCREEN (MSL)		354.72	357.13	361.55
DEPTH TO BEDROCK (FT)		9.4	12.8	10.4
ELEVATION OF BEDROCK (MSL)		354.7	355.3	361.4
AQUIFER SATURATED THICKNESS (FT)	**H**	2.21	7.02	2.84
DEPTH TO TOP OF SCREEN RELATIVE TO TOP OF AQUIFER (FT)		-2.81	0.19	-2.31
DEPTH TO BOTTOM OF SCREEN RELATIVE TO TOP OF AQUIFER (FT)		2.19	5.19	2.69
LENGTH OF WELL SCREEN	**Le**	5	5	5
LENGTH OF SATURATED WELL SCREEN (FT)		2.19	5	2.69
LENGTH OF SATURATED RISER (FT)		0	0.19	0
LENGTH OF SATURATED WELL SCREEN AND RISER (FT)	**Lw**	2.19	5.19	2.69
DIAMETER OF SCREEN (FT)	**2rc**	0.166	0.166	0.166
DIAMETER OF BOREHOLE (FT)	**2rw**	0.66	0.66	0.66
MEAN GRAIN-SIZE FILTER PACK (mm)		0.59	0.59	0.59
POROSITY OF FILTER PACK (%)		0.3	0.3	0.3

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-04
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	6.49E-01	ft/day
	2.29E-04	cm/sec
Y-Intercept (Yo):	2.02E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	0.00	
Dimensionless Parameter B:	0.00	
Slope of Line [ln(Yo/Yt)/t]:	1.827E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	3.536	
Effective Radius [Re]:	5.67	ft
Volume Tested [rw<Vol<Re]:	5.04E+02	ft^3

Well/Aquifer Parameters

Depth of well:	27.72	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

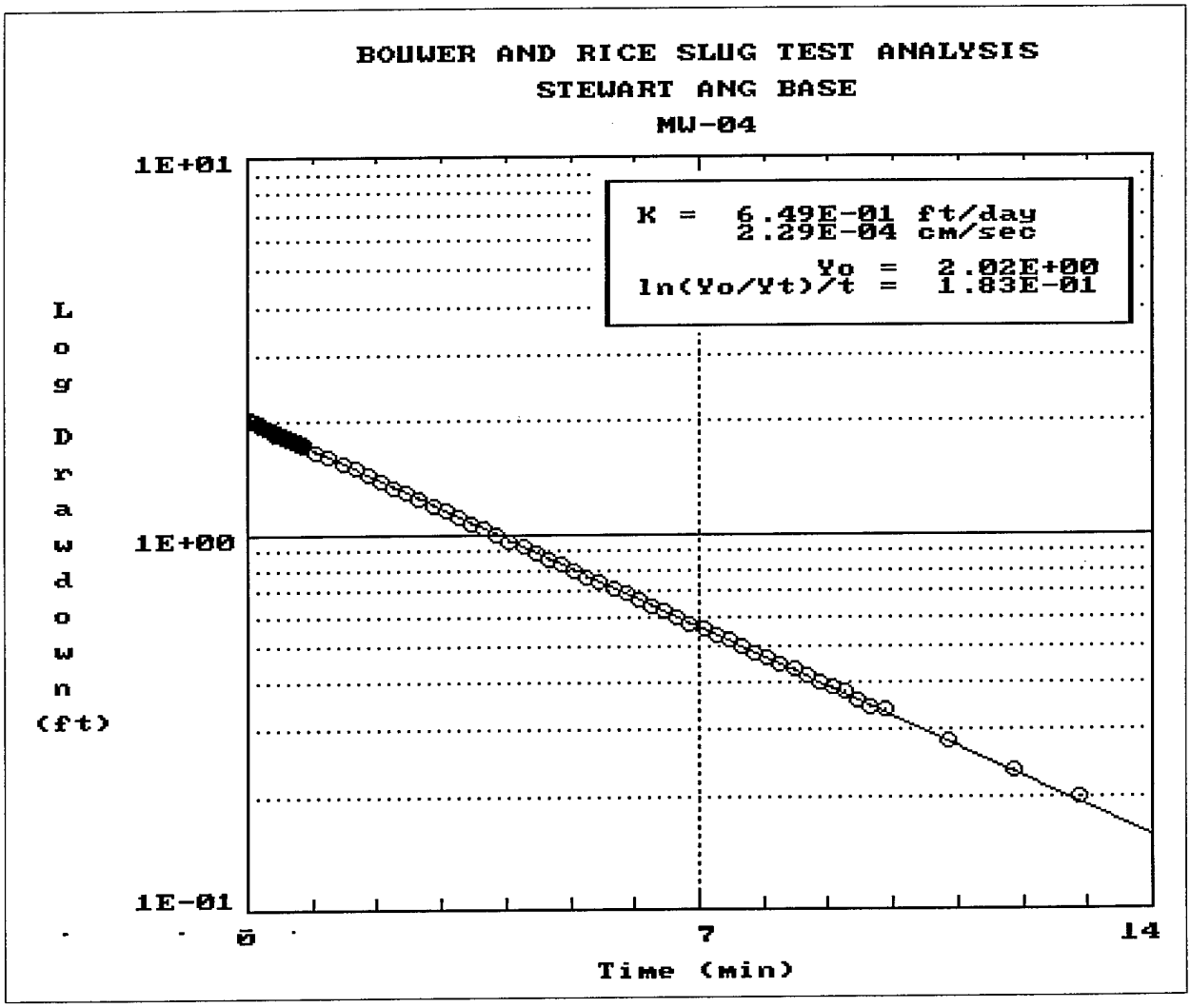
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	2.041	2	0.0084	2.034	3	0.0167	2.034
4	0.0250	2.028	5	0.0334	2.022	6	0.0417	2.022
7	0.0500	2.015	8	0.0584	2.015	9	0.0667	2.009
10	0.0750	2.009	11	0.0834	2.002	12	0.0917	1.996
13	0.1000	1.996	14	0.1084	1.996	15	0.1167	1.990
16	0.1250	1.990	17	0.1334	1.990	18	0.1417	1.977
19	0.1500	1.977	20	0.1584	1.977	21	0.1667	1.977
22	0.1750	1.964	23	0.1834	1.964	24	0.1917	1.964
25	0.2084	1.958	26	0.2250	1.951	27	0.2417	1.945
28	0.2584	1.932	29	0.2750	1.926	30	0.2917	1.926
31	0.3084	1.913	32	0.3250	1.913	33	0.3417	1.906
34	0.3584	1.900	35	0.3750	1.894	36	0.3917	1.894
37	0.4084	1.881	38	0.4250	1.874	39	0.4417	1.842
40	0.4584	1.868	41	0.4750	1.855	42	0.4917	1.849
43	0.5084	1.849	44	0.5250	1.842	45	0.5417	1.836
46	0.5584	1.830	47	0.5750	1.823	48	0.5917	1.817

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-04
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	0.6084	1.810	50	0.6250	1.804	51	0.6417	1.798
52	0.6584	1.798	53	0.6750	1.785	54	0.6917	1.785
55	0.7084	1.778	56	0.7250	1.772	57	0.7417	1.766
58	0.7584	1.759	59	0.7750	1.753	60	0.7917	1.753
61	0.8084	1.746	62	0.8250	1.740	63	0.8417	1.734
64	0.8584	1.727	65	1.0584	1.663	66	1.2584	1.606
67	1.4584	1.542	68	1.6584	1.490	69	1.8584	1.433
70	2.0584	1.382	71	2.2584	1.330	72	2.4584	1.286
73	2.6584	1.234	74	2.8584	1.190	75	3.0584	1.151
76	3.2584	1.106	77	3.4584	1.068	78	3.6584	1.030
79	3.8584	0.991	80	4.0584	0.953	81	4.2584	0.921
82	4.4584	0.889	83	4.6584	0.857	84	4.8584	0.825
85	5.0584	0.793	86	5.2584	0.767	87	5.4584	0.742
88	5.6584	0.716	89	5.8584	0.690	90	6.0584	0.665
91	6.2584	0.639	92	6.4584	0.620	93	6.6584	0.594
94	6.8584	0.575	95	7.0584	0.556	96	7.2584	0.537
97	7.4584	0.518	98	7.6584	0.499	99	7.8584	0.479
100	8.0584	0.467	101	8.2584	0.447	102	8.4584	0.435
103	8.6584	0.415	104	8.8584	0.403	105	9.0584	0.390
106	9.2584	0.377	107	9.4584	0.358	108	9.6584	0.345
109	9.8584	0.339	110	10.8584	0.281	111	11.8584	0.236
112	12.8584	0.198						

STEWART ANG BASE
MW-04
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-04 DUPLICATE
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	6.67E-01	ft/day
	2.35E-04	cm/sec
Y-Intercept (Yo):	2.09E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	0.00	
Dimensionless Parameter B:	0.00	
Slope of Line [ln(Yo/Yt)/t]:	1.877E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	3.536	
Effective Radius [Re]:	5.67	ft
Volume Tested [rw<Vol<Re]:	5.04E+02	ft^3

Well/Aquifer Parameters

Depth of well:	27.72	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

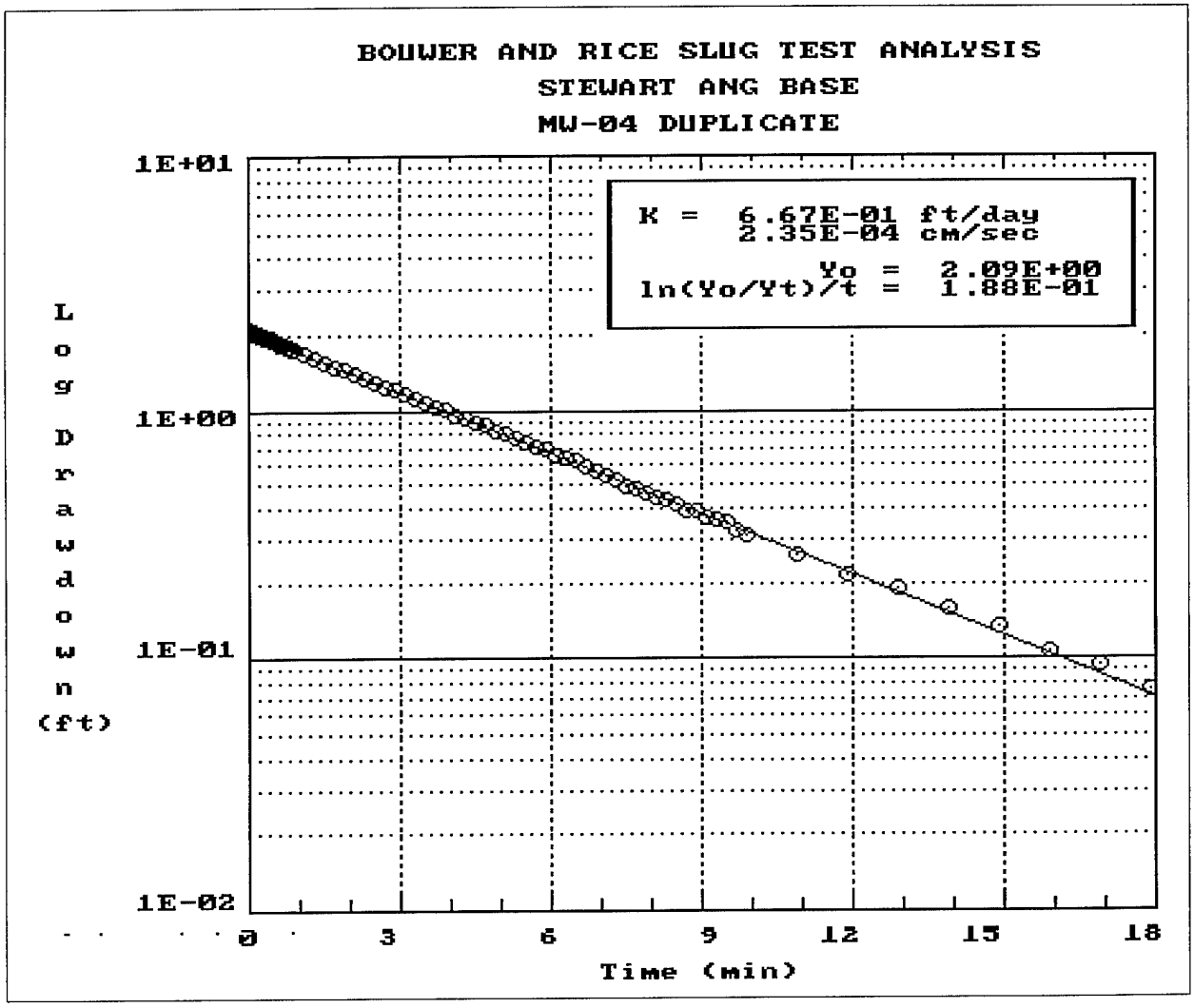
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	2.117	2	0.0083	2.098	3	0.0167	2.105
4	0.0250	2.098	5	0.0333	2.085	6	0.0417	2.098
7	0.0500	2.079	8	0.0583	2.085	9	0.0667	2.079
10	0.0750	2.079	11	0.0833	2.079	12	0.0917	2.066
13	0.1000	2.066	14	0.1083	2.073	15	0.1167	2.060
16	0.1250	2.060	17	0.1333	2.053	18	0.1417	2.047
19	0.1500	2.041	20	0.1583	2.034	21	0.1667	2.041
22	0.1750	2.041	23	0.1833	2.028	24	0.1917	2.034
25	0.2000	2.021	26	0.2083	2.028	27	0.2167	2.028
28	0.2250	2.015	29	0.2417	2.009	30	0.2583	2.002
31	0.2750	1.989	32	0.2917	1.996	33	0.3083	1.989
34	0.3250	1.970	35	0.3417	1.977	36	0.3583	1.964
37	0.3750	1.964	38	0.3917	1.951	39	0.4083	1.945
40	0.4250	1.945	41	0.4417	1.932	42	0.4583	1.925
43	0.4750	1.913	44	0.4917	1.913	45	0.5083	1.906
46	0.5250	1.906	47	0.5417	1.887	48	0.5583	1.881
49	0.5750	1.874	50	0.5917	1.874	51	0.6083	1.861

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-04 DUPLICATE
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	0.6250	1.868	53	0.6417	1.855	54	0.6583	1.842
55	0.6750	1.849	56	0.6917	1.836	57	0.7083	1.829
58	0.7250	1.823	59	0.7417	1.817	60	0.7583	1.810
61	0.7750	1.810	62	0.7917	1.804	63	0.8083	1.797
64	0.8250	1.797	65	0.8417	1.785	66	0.8583	1.785
67	0.8750	1.778	68	0.8917	1.778	69	1.0917	1.708
70	1.2917	1.637	71	1.4917	1.573	72	1.6917	1.509
73	1.8917	1.465	74	2.0917	1.401	75	2.2917	1.350
76	2.4917	1.305	77	2.6917	1.254	78	2.8917	1.209
79	3.0917	1.170	80	3.2917	1.119	81	3.4917	1.081
82	3.6917	1.036	83	3.8917	1.010	84	4.0917	0.959
85	4.2917	0.927	86	4.4917	0.902	87	4.6917	0.870
88	4.8917	0.825	89	5.0917	0.806	90	5.2917	0.774
91	5.4917	0.742	92	5.6917	0.716	93	5.8917	0.697
94	6.0917	0.658	95	6.2917	0.646	96	6.4917	0.626
97	6.6917	0.594	98	6.8917	0.575	99	7.0917	0.550
100	7.2917	0.524	101	7.4917	0.492	102	7.6917	0.486
103	7.8917	0.467	104	8.0917	0.447	105	8.2917	0.435
106	8.4917	0.415	107	8.6917	0.396	108	8.8917	0.390
109	9.0917	0.371	110	9.2917	0.358	111	9.4917	0.351
112	9.6917	0.326	113	9.8917	0.313	114	10.8917	0.262
115	11.8917	0.217	116	12.8917	0.191	117	13.8917	0.159
118	14.8917	0.134	119	15.8917	0.108	120	16.8917	0.095
121	17.8917	0.076						

STEWART ANG BASE
MW-04 DUPLICATE
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-05
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	1.02E-01	ft/day
	3.60E-05	cm/sec
Y-Intercept (Yo):	2.03E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	0.00	
Dimensionless Parameter B:	0.00	
Slope of Line [ln(Yo/Yt)/t]:	2.820E-02	1/min
Well Parameters (Rc^2 / 2*Le):	6.889E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	3.648	
Effective Radius [Re]:	6.33	ft
Volume Tested [rw<Vol<Re]:	6.30E+02	ft^3

Well/Aquifer Parameters

Depth of well:	34.36	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.166	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

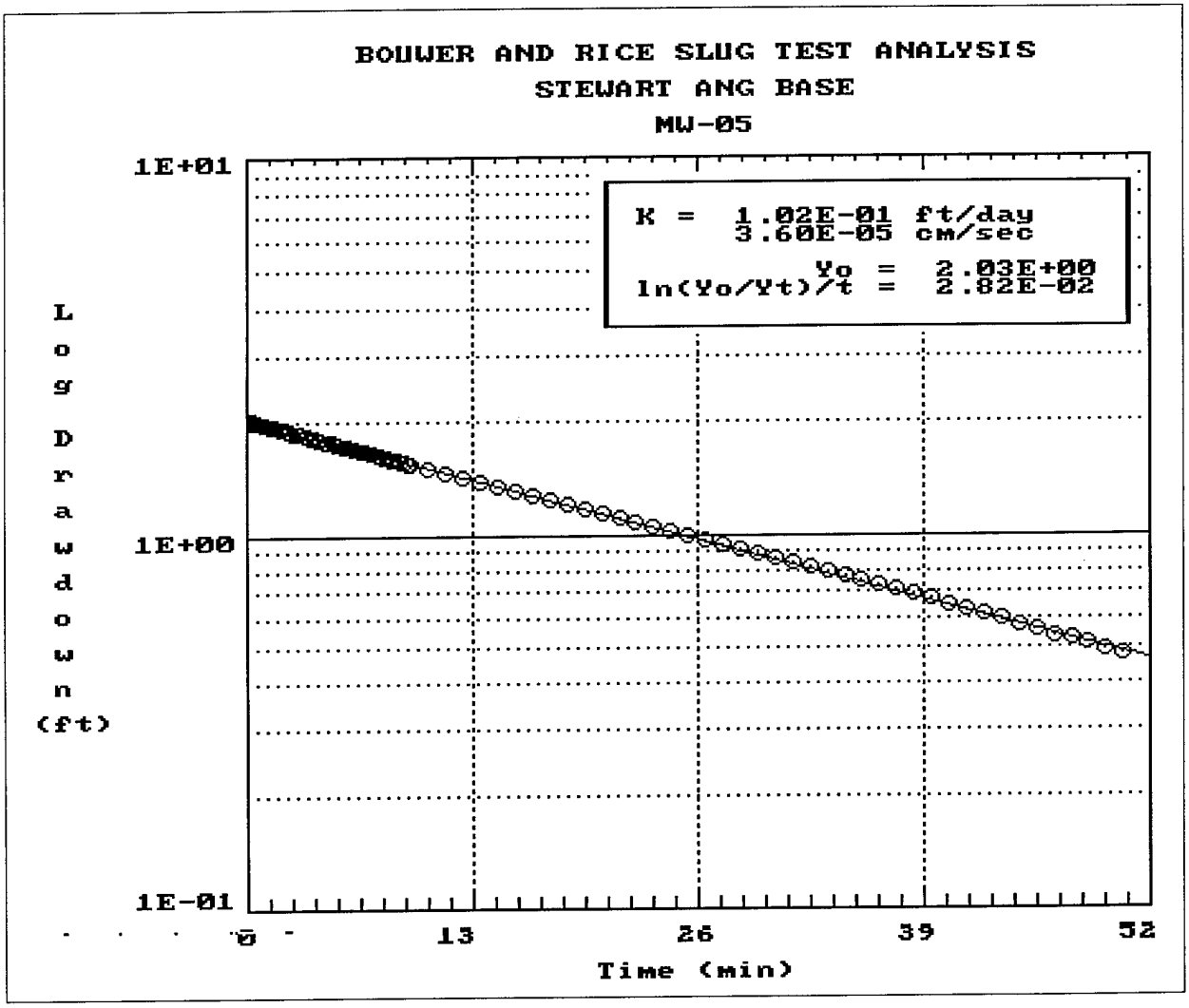
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	2.038	2	0.0166	2.031	3	0.0333	2.031
4	0.0500	2.031	5	0.0666	2.031	6	0.0833	2.031
7	0.1000	2.031	8	0.1166	2.025	9	0.1333	2.025
10	0.1500	2.025	11	0.1666	2.025	12	0.1833	2.025
13	0.2000	2.018	14	0.2166	2.018	15	0.2333	2.018
16	0.2500	2.018	17	0.2666	2.018	18	0.2833	2.018
19	0.3000	2.012	20	0.3166	2.012	21	0.3333	2.012
22	0.3500	2.012	23	0.3666	2.012	24	0.3833	2.012
25	0.4000	2.006	26	0.4166	2.006	27	0.4333	2.006
28	0.4500	2.006	29	0.6500	1.993	30	0.8500	1.980
31	1.0500	1.967	32	1.2500	1.954	33	1.4500	1.942
34	1.6500	1.935	35	1.8500	1.922	36	2.0500	1.909
37	2.2500	1.897	38	2.4500	1.890	39	2.6500	1.877
40	2.8500	1.865	41	3.0500	1.858	42	3.2500	1.845
43	3.4500	1.833	44	3.6500	1.826	45	3.8500	1.813
46	4.0500	1.801	47	4.2500	1.788	48	4.4500	1.781
49	4.6500	1.768	50	4.8500	1.762	51	5.0500	1.749

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-05
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	5.2500	1.743	53	5.4500	1.730	54	5.6500	1.717
55	5.8500	1.711	56	6.0500	1.704	57	6.2500	1.692
58	6.4500	1.679	59	6.6500	1.672	60	6.8500	1.666
61	7.0500	1.653	62	7.2500	1.647	63	7.4500	1.634
64	7.6500	1.627	65	7.8500	1.615	66	8.0500	1.608
67	8.2500	1.595	68	8.4500	1.589	69	8.6500	1.576
70	8.8500	1.570	71	9.0500	1.563	72	9.2500	1.551
73	9.4500	1.544	74	10.4500	1.506	75	11.4500	1.461
76	12.4500	1.422	77	13.4500	1.384	78	14.4500	1.345
79	15.4500	1.313	80	16.4500	1.275	81	17.4500	1.243
82	18.4500	1.211	83	19.4500	1.172	84	20.4500	1.140
85	21.4500	1.108	86	22.4500	1.083	87	23.4500	1.051
88	24.4500	1.025	89	25.4500	0.999	90	26.4500	0.967
91	27.4500	0.942	92	28.4500	0.916	93	29.4500	0.890
94	30.4500	0.865	95	31.4500	0.839	96	32.4500	0.820
97	33.4500	0.794	98	34.4500	0.775	99	35.4500	0.756
100	36.4500	0.730	101	37.4500	0.711	102	38.4500	0.692
103	39.4500	0.672	104	40.4500	0.647	105	41.4500	0.634
106	42.4500	0.615	107	43.4500	0.595	108	44.4500	0.576
109	45.4500	0.557	110	46.4500	0.538	111	47.4500	0.525
112	48.4500	0.512	113	49.4500	0.493	114	50.4500	0.480

STEWART ANG BASE
MW-05
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-06
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	4.47E-01	ft/day
	1.58E-04	cm/sec
Y-Intercept (Yo):	1.56E+00	ft
Well Screen Ratio (Le/rw):	14.6	
Dimensionless Parameter A:	1.99	
Dimensionless Parameter B:	0.30	
Slope of Line [ln(Yo/Yt)/t]:	2.481E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	1.796	
Effective Radius [Re]:	2.07	ft
Volume Tested [rw<Vol<Re]:	6.55E+01	ft^3

Well/Aquifer Parameters

Depth of well:	8.59	ft
Length of well screen:	5.00	ft
Saturated thickness:	23.09	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.687	ft

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.715	2	0.0083	1.702	3	0.0167	1.689
4	0.0250	1.670	5	0.0333	1.657	6	0.0417	1.651
7	0.0500	1.638	8	0.0583	1.632	9	0.0667	1.619
10	0.0750	1.613	11	0.0833	1.607	12	0.0917	1.594
13	0.1000	1.594	14	0.1083	1.581	15	0.1167	1.575
16	0.1250	1.568	17	0.1333	1.562	18	0.1417	1.556
19	0.1500	1.549	20	0.1583	1.543	21	0.1667	1.537
22	0.1750	1.530	23	0.1833	1.524	24	0.1917	1.518
25	0.2000	1.518	26	0.2083	1.505	27	0.2167	1.499
28	0.2250	1.492	29	0.2417	1.486	30	0.2583	1.473
31	0.2750	1.460	32	0.2917	1.454	33	0.3083	1.441
34	0.3250	1.435	35	0.3417	1.422	36	0.3583	1.416
37	0.3750	1.410	38	0.3917	1.397	39	0.4083	1.391
40	0.4250	1.378	41	0.4417	1.372	42	0.4583	1.365
43	0.4750	1.352	44	0.4917	1.346	45	0.5083	1.340
46	0.5250	1.333	47	0.5417	1.327	48	0.5583	1.314

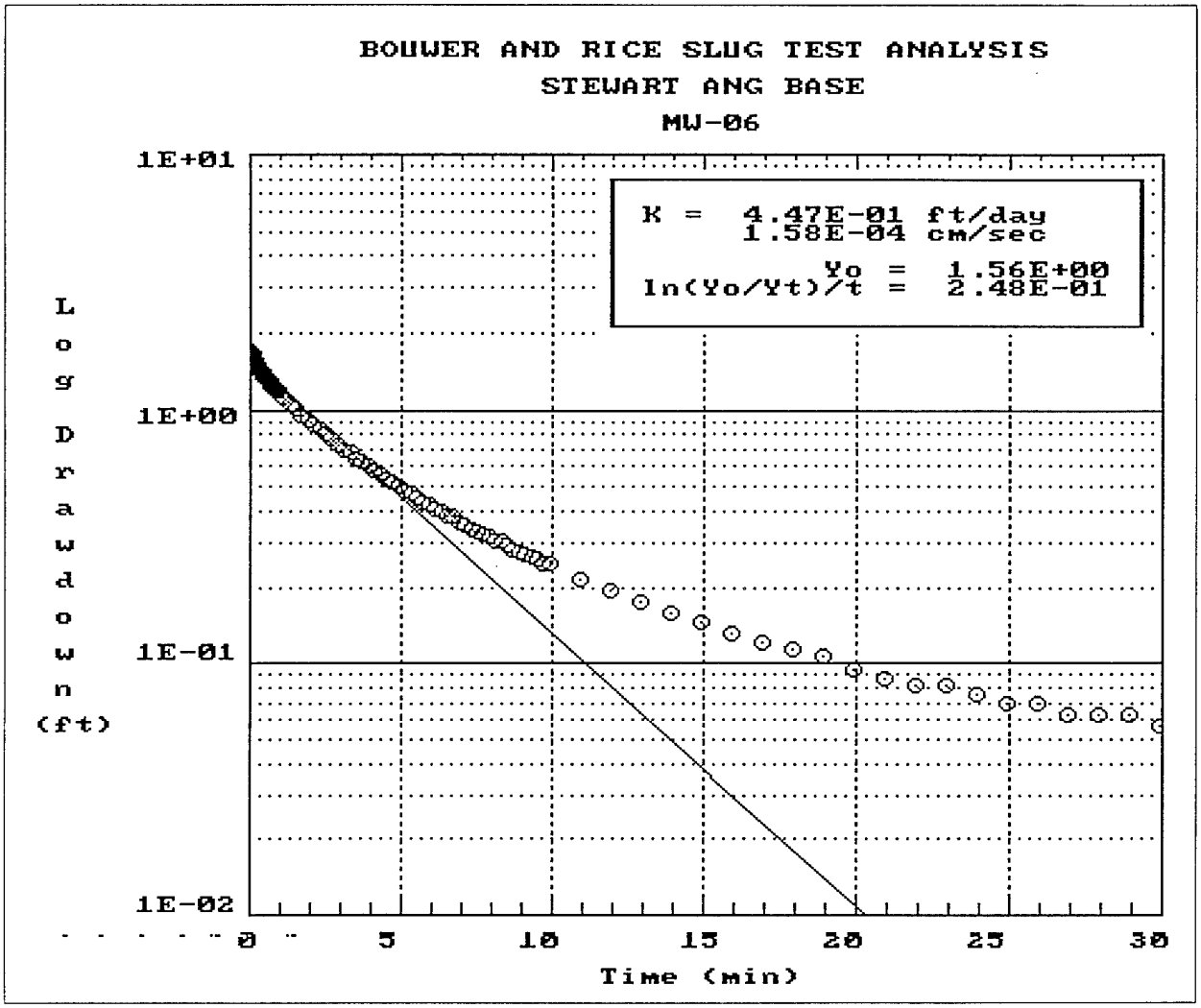
BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-06
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	0.5750	1.308	50	0.5917	1.302	51	0.6083	1.295
52	0.6250	1.289	53	0.6417	1.283	54	0.6583	1.276
55	0.6750	1.270	56	0.6917	1.264	57	0.7083	1.251
58	0.7250	1.251	59	0.7417	1.238	60	0.7583	1.232
61	0.7750	1.225	62	0.7917	1.225	63	0.8083	1.219
64	0.8250	1.213	65	0.8417	1.206	66	0.8583	1.200
67	0.8750	1.194	68	0.8917	1.187	69	1.0917	1.117
70	1.2917	1.060	71	1.4917	1.009	72	1.6917	0.959
73	1.8917	0.914	74	2.0917	0.876	75	2.2917	0.838
76	2.4917	0.800	77	2.6917	0.768	78	2.8917	0.736
79	3.0917	0.705	80	3.2917	0.679	81	3.4917	0.647
82	3.6917	0.628	83	3.8917	0.603	84	4.0917	0.584
85	4.2917	0.558	86	4.4917	0.539	87	4.6917	0.520
88	4.8917	0.508	89	5.0917	0.482	90	5.2917	0.469
91	5.4917	0.457	92	5.6917	0.438	93	5.8917	0.425
94	6.0917	0.412	95	6.2917	0.400	96	6.4917	0.387
97	6.6917	0.381	98	6.8917	0.362	99	7.0917	0.355
100	7.2917	0.342	101	7.4917	0.336	102	7.6917	0.323
103	7.8917	0.317	104	8.0917	0.304	105	8.2917	0.304
106	8.4917	0.292	107	8.6917	0.285	108	8.8917	0.279
109	9.0917	0.273	110	9.2917	0.266	111	9.4917	0.260
112	9.6917	0.247	113	9.8917	0.247	114	10.8917	0.215
115	11.8917	0.196	116	12.8917	0.177	117	13.8917	0.158
118	14.8917	0.146	119	15.8917	0.133	120	16.8917	0.120
121	17.8917	0.114	122	18.8917	0.107	123	19.8917	0.095
124	20.8917	0.088	125	21.8917	0.082	126	22.8917	0.082
127	23.8917	0.076	128	24.8917	0.069	129	25.8917	0.069
130	26.8917	0.063	131	27.8917	0.063	132	28.8917	0.063
133	29.8917	0.057						

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-06
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-07
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	5.33E-01	ft/day
	1.88E-04	cm/sec
Y-Intercept (Yo):	1.58E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	0.00	
Dimensionless Parameter B:	0.00	
Slope of Line [ln(Yo/Yt)/t]:	1.527E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	3.479	
Effective Radius [Re]:	5.35	ft
Volume Tested [rw<Vol<Re]:	4.49E+02	ft^3

Well/Aquifer Parameters

Depth of well:	24.86	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0010	1.656	2	0.0083	1.644	3	0.0166	1.637
4	0.0250	1.637	5	0.0333	1.624	6	0.0416	1.624
7	0.0500	1.618	8	0.0583	1.612	9	0.0666	1.605
10	0.0750	1.605	11	0.0833	1.599	12	0.0916	1.593
13	0.1000	1.586	14	0.1083	1.586	15	0.1166	1.580
16	0.1250	1.580	17	0.1333	1.573	18	0.1416	1.573
19	0.1500	1.567	20	0.1583	1.561	21	0.1750	1.561
22	0.1916	1.554	23	0.2083	1.542	24	0.2250	1.535
25	0.2416	1.529	26	0.2583	1.529	27	0.2750	1.522
28	0.2916	1.516	29	0.3083	1.510	30	0.3250	1.503
31	0.3416	1.497	32	0.3583	1.491	33	0.3750	1.491
34	0.3916	1.484	35	0.4083	1.478	36	0.4250	1.471
37	0.4416	1.471	38	0.4583	1.465	39	0.4750	1.459
40	0.4916	1.452	41	0.5083	1.446	42	0.5250	1.446
43	0.5416	1.440	44	0.5583	1.433	45	0.5750	1.433
46	0.5916	1.427	47	0.6083	1.421	48	0.6250	1.414

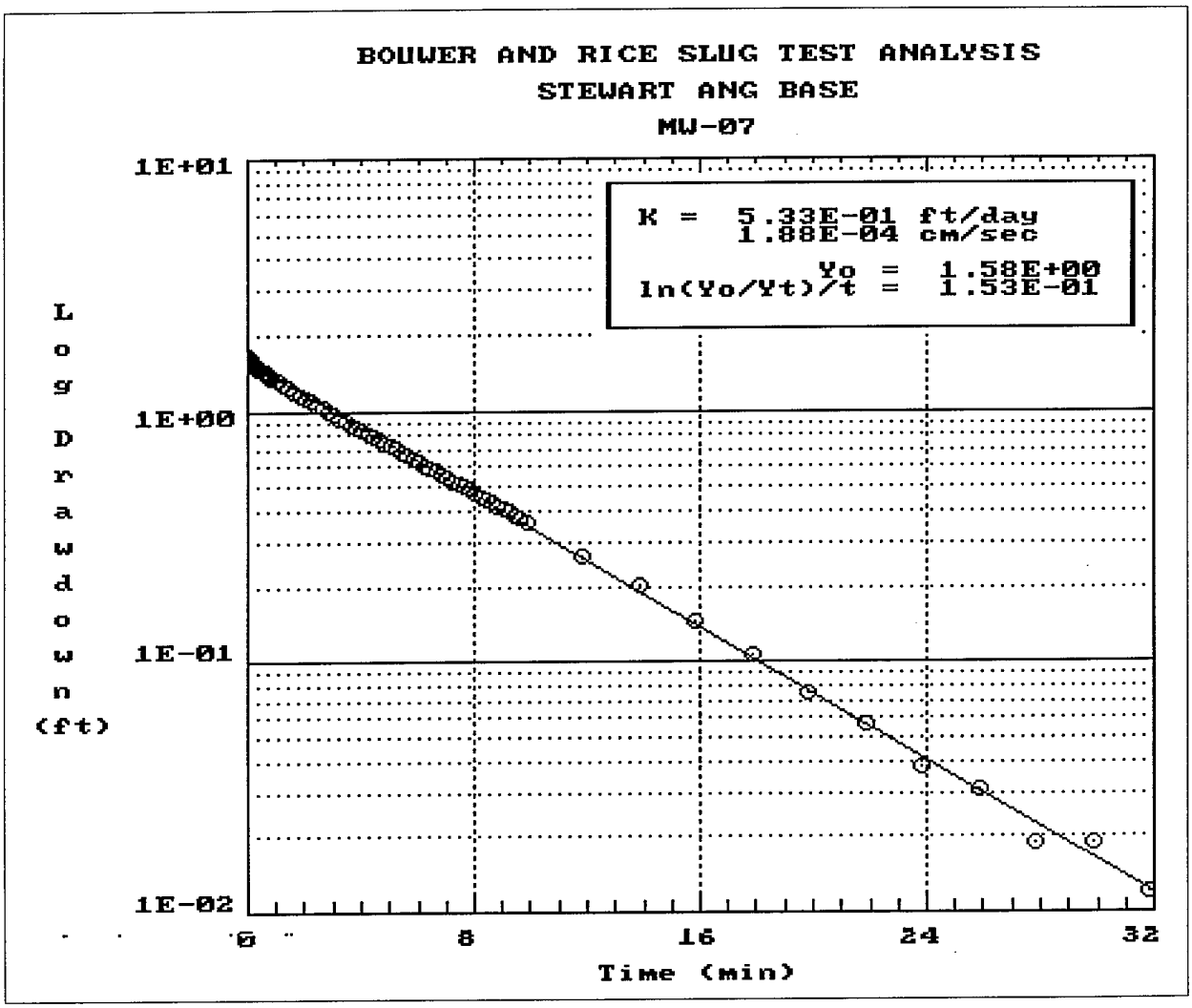
BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-07
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	0.6416	1.414	50	0.6583	1.408	51	0.6750	1.408
52	0.6916	1.401	53	0.7083	1.395	54	0.7250	1.389
55	0.7416	1.389	56	0.7583	1.382	57	0.7750	1.376
58	0.7916	1.376	59	0.8083	1.370	60	0.8250	1.363
61	1.0250	1.325	62	1.2250	1.274	63	1.4250	1.236
64	1.6250	1.197	65	1.8250	1.159	66	2.0250	1.127
67	2.2250	1.095	68	2.4250	1.057	69	2.6250	1.032
70	2.8250	0.994	71	3.0250	0.974	72	3.2250	0.943
73	3.4250	0.917	74	3.6250	0.885	75	3.8250	0.866
76	4.0250	0.841	77	4.2250	0.815	78	4.4250	0.790
79	4.6250	0.770	80	4.8250	0.751	81	5.0250	0.726
82	5.2250	0.707	83	5.4250	0.688	84	5.6250	0.669
85	5.8250	0.649	86	6.0250	0.630	87	6.2250	0.611
88	6.4250	0.598	89	6.6250	0.579	90	6.8250	0.560
91	7.0250	0.547	92	7.2250	0.528	93	7.4250	0.516
94	7.6250	0.503	95	7.8250	0.490	96	8.0250	0.477
97	8.2250	0.458	98	8.4250	0.446	99	8.6250	0.439
100	8.8250	0.420	101	9.0250	0.407	102	9.2250	0.401
103	9.4250	0.388	104	9.6250	0.375	105	9.8250	0.363
106	11.8250	0.267	107	13.8250	0.203	108	15.8250	0.146
109	17.8250	0.108	110	19.8250	0.076	111	21.8250	0.057
112	23.8250	0.038	113	25.8250	0.031	114	27.8250	0.019
115	29.8250	0.019	116	31.8250	0.012	117	0.0000	1.000

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-07
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-07 DUPLICATE
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	4.46E-01	ft/day
	1.57E-04	cm/sec
Y-Intercept (Yo):	1.58E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	0.00	
Dimensionless Parameter B:	0.00	
Slope of Line [ln(Yo/Yt)/t]:	1.277E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	3.479	
Effective Radius [Re]:	5.35	ft
Volume Tested [rw<Vol<Re]:	4.49E+02	ft^3

Well/Aquifer Parameters

Depth of well:	24.86	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

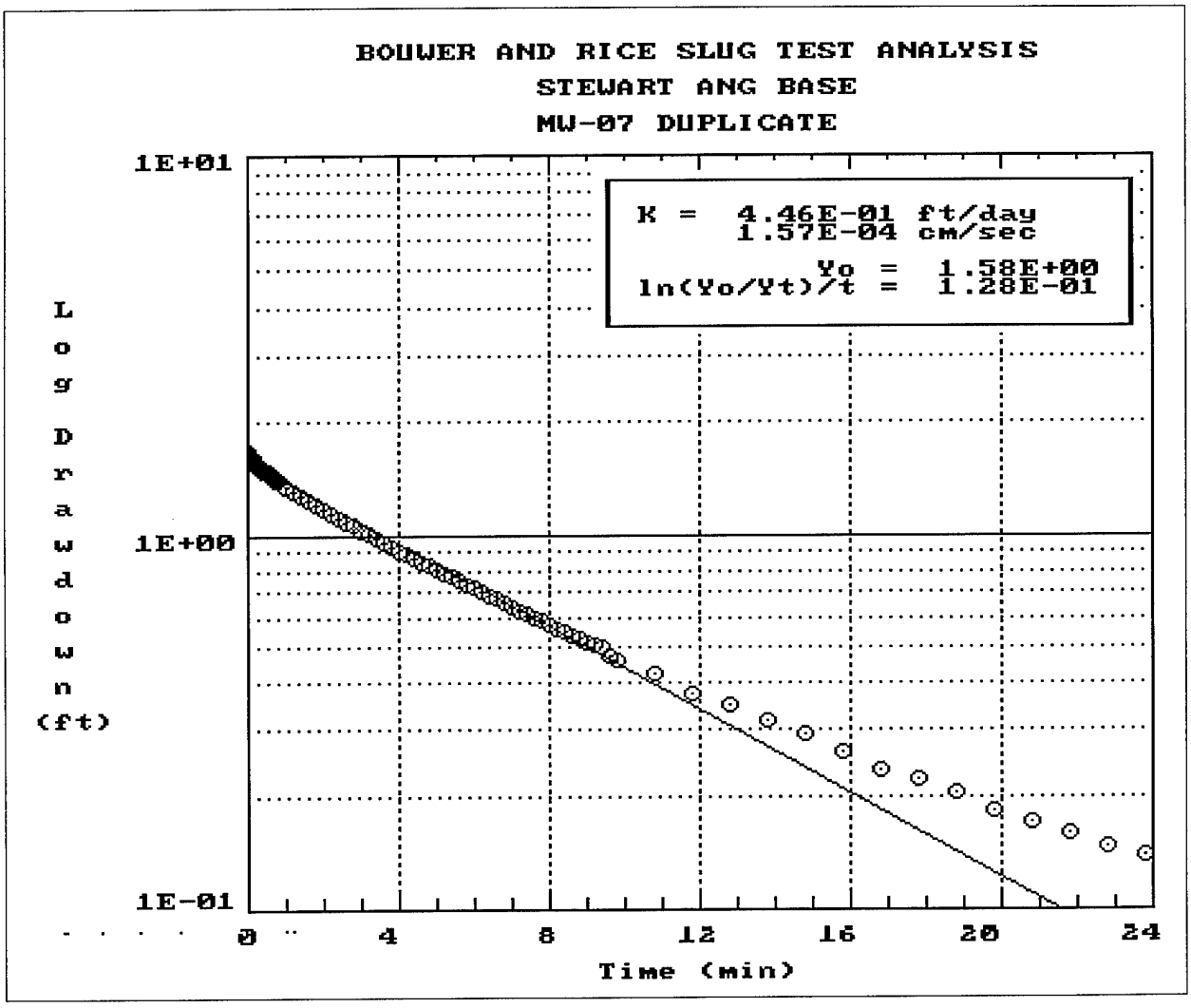
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.669	2	0.0083	1.656	3	0.0167	1.650
4	0.0250	1.644	5	0.0333	1.637	6	0.0417	1.631
7	0.0500	1.625	8	0.0583	1.625	9	0.0667	1.618
10	0.0750	1.612	11	0.0833	1.612	12	0.0917	1.605
13	0.1000	1.599	14	0.1083	1.599	15	0.1167	1.593
16	0.1250	1.593	17	0.1333	1.586	18	0.1417	1.580
19	0.1500	1.580	20	0.1667	1.574	21	0.1833	1.567
22	0.2000	1.561	23	0.2167	1.554	24	0.2333	1.548
25	0.2500	1.542	26	0.2667	1.535	27	0.2833	1.535
28	0.3000	1.529	29	0.3167	1.523	30	0.3333	1.516
31	0.3500	1.510	32	0.3667	1.503	33	0.3833	1.503
34	0.4000	1.497	35	0.4167	1.491	36	0.4333	1.484
37	0.4500	1.484	38	0.4667	1.478	39	0.4833	1.472
40	0.5000	1.472	41	0.5167	1.465	42	0.5333	1.459
43	0.5500	1.459	44	0.5667	1.452	45	0.5833	1.452
46	0.6000	1.446	47	0.6167	1.440	48	0.6333	1.440
49	0.6500	1.433	50	0.6667	1.427	51	0.6833	1.427

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-07 DUPLICATE
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	0.7000	1.421	53	0.7167	1.421	54	0.7333	1.414
55	0.7500	1.408	56	0.7667	1.408	57	0.7833	1.401
58	0.8000	1.401	59	0.8167	1.395	60	1.0167	1.350
61	1.2167	1.306	62	1.4167	1.274	63	1.6167	1.236
64	1.8167	1.204	65	2.0167	1.166	66	2.2167	1.140
67	2.4167	1.108	68	2.6167	1.076	69	2.8167	1.057
70	3.0167	1.025	71	3.2167	1.006	72	3.4167	0.981
73	3.6167	0.949	74	3.8167	0.930	75	4.0167	0.904
76	4.2167	0.892	77	4.4167	0.866	78	4.6167	0.847
79	4.8167	0.828	80	5.0167	0.809	81	5.2167	0.790
82	5.4167	0.771	83	5.6167	0.751	84	5.8167	0.732
85	6.0167	0.720	86	6.2167	0.700	87	6.4167	0.688
88	6.6167	0.675	89	6.8167	0.656	90	7.0167	0.637
91	7.2167	0.624	92	7.4167	0.611	93	7.6167	0.598
94	7.8167	0.586	95	8.0167	0.573	96	8.2167	0.560
97	8.4167	0.547	98	8.6167	0.535	99	8.8167	0.528
100	9.0167	0.516	101	9.2167	0.503	102	9.4167	0.497
103	9.6167	0.471	104	9.8167	0.458	105	10.8167	0.426
106	11.8167	0.375	107	12.8167	0.350	108	13.8167	0.318
109	14.8167	0.293	110	15.8167	0.261	111	16.8167	0.235
112	17.8167	0.223	113	18.8167	0.203	114	19.8167	0.184
115	20.8167	0.172	116	21.8167	0.159	117	22.8167	0.146
118	23.8167	0.140						

STEWART ANG BASE
MW-07 DUPLICATE
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-07-1996

STEWART ANG BASE
MW-08
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	1.30E+00	ft/day
	4.58E-04	cm/sec
Y-Intercept (Yo):	1.62E+00	ft
Well Screen Ratio (Le/rw):	14.6	
Dimensionless Parameter A:	0.00	
Dimensionless Parameter B:	0.00	
Slope of Line [ln(Yo/Yt)/t]:	5.455E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	2.372	
Effective Radius [Re]:	3.68	ft
Volume Tested [rw<Vol<Re]:	2.11E+02	ft^3

Well/Aquifer Parameters

Depth of well:	10.72	ft
Length of well screen:	5.00	ft
Saturated thickness:	10.42	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.687	ft

Time vs Drawdown Data

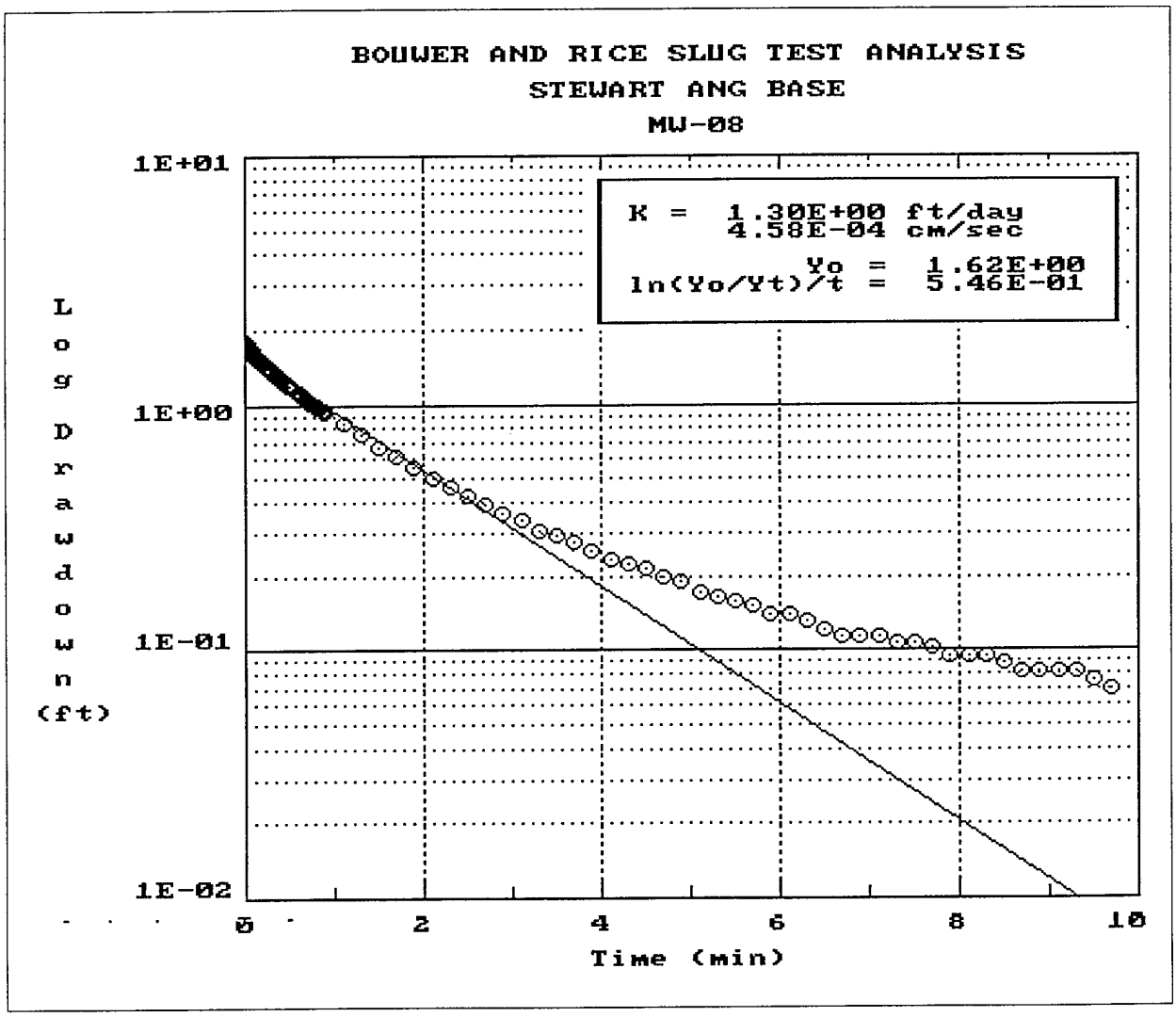
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.824	2	0.0083	1.773	3	0.0166	1.767
4	0.0250	1.748	5	0.0333	1.729	6	0.0416	1.703
7	0.0500	1.703	8	0.0583	1.678	9	0.0666	1.671
10	0.0750	1.646	11	0.0833	1.633	12	0.0916	1.614
13	0.1000	1.601	14	0.1083	1.588	15	0.1166	1.575
16	0.1250	1.575	17	0.1333	1.556	18	0.1416	1.550
19	0.1500	1.544	20	0.1583	1.531	21	0.1666	1.518
22	0.1750	1.499	23	0.1833	1.486	24	0.1916	1.486
25	0.2000	1.473	26	0.2083	1.467	27	0.2166	1.454
28	0.2250	1.448	29	0.2333	1.435	30	0.2500	1.416
31	0.2666	1.397	32	0.2833	1.384	33	0.3000	1.359
34	0.3166	1.346	35	0.3333	1.333	36	0.3500	1.320
37	0.3666	1.301	38	0.3833	1.295	39	0.4000	1.269
40	0.4166	1.263	41	0.4333	1.244	42	0.4500	1.237
43	0.4666	1.212	44	0.4833	1.199	45	0.5000	1.186
46	0.5166	1.173	47	0.5333	1.161	48	0.5500	1.148

STEWART ANG BASE
MW-08
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	0.5666	1.142	50	0.5833	1.129	51	0.6000	1.116
52	0.6166	1.110	53	0.6333	1.097	54	0.6500	1.078
55	0.6666	1.065	56	0.6833	1.065	57	0.7000	1.052
58	0.7166	1.033	59	0.7333	1.020	60	0.7500	1.014
61	0.7666	1.001	62	0.7833	1.001	63	0.8000	0.988
64	0.8166	0.976	65	0.8333	0.963	66	0.8500	0.956
67	0.8666	0.950	68	0.8833	0.944	69	0.9000	0.931
70	1.1000	0.842	71	1.3000	0.752	72	1.5000	0.676
73	1.7000	0.612	74	1.9000	0.561	75	2.1000	0.503
76	2.3000	0.459	77	2.5000	0.427	78	2.7000	0.395
79	2.9000	0.363	80	3.1000	0.338	81	3.3000	0.306
82	3.5000	0.293	83	3.7000	0.274	84	3.9000	0.255
85	4.1000	0.236	86	4.3000	0.223	87	4.5000	0.216
88	4.7000	0.197	89	4.9000	0.191	90	5.1000	0.172
91	5.3000	0.165	92	5.5000	0.159	93	5.7000	0.153
94	5.9000	0.140	95	6.1000	0.140	96	6.3000	0.133
97	6.5000	0.121	98	6.7000	0.114	99	6.9000	0.114
100	7.1000	0.114	101	7.3000	0.108	102	7.5000	0.108
103	7.7000	0.102	104	7.9000	0.095	105	8.1000	0.095
106	8.3000	0.095	107	8.5000	0.089	108	8.7000	0.082
109	8.9000	0.082	110	9.1000	0.082	111	9.3000	0.082
112	9.5000	0.076	113	9.7000	0.070	114	0.0000	1.000

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-07-1996

STEWART ANG BASE
MW-08
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-08 DUPLICATE
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	1.88E+00	ft/day
	6.64E-04	cm/sec
Y-Intercept (Yo):	1.75E+00	ft
Well Screen Ratio (Le/rw):	14.6	
Dimensionless Parameter A:	2.51	
Dimensionless Parameter B:	0.37	
Slope of Line [ln(Yo/Yt)/t]:	7.994E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.889E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	2.372	
Effective Radius [Re]:	3.68	ft
Volume Tested [rw<Vol<Re]:	2.11E+02	ft^3

Well/Aquifer Parameters

Depth of well:	10.72	ft
Length of well screen:	5.00	ft
Saturated thickness:	10.42	ft
Diameter of the well casing:	0.166	ft
Diameter of the well filter:	0.687	ft

Time vs Drawdown Data

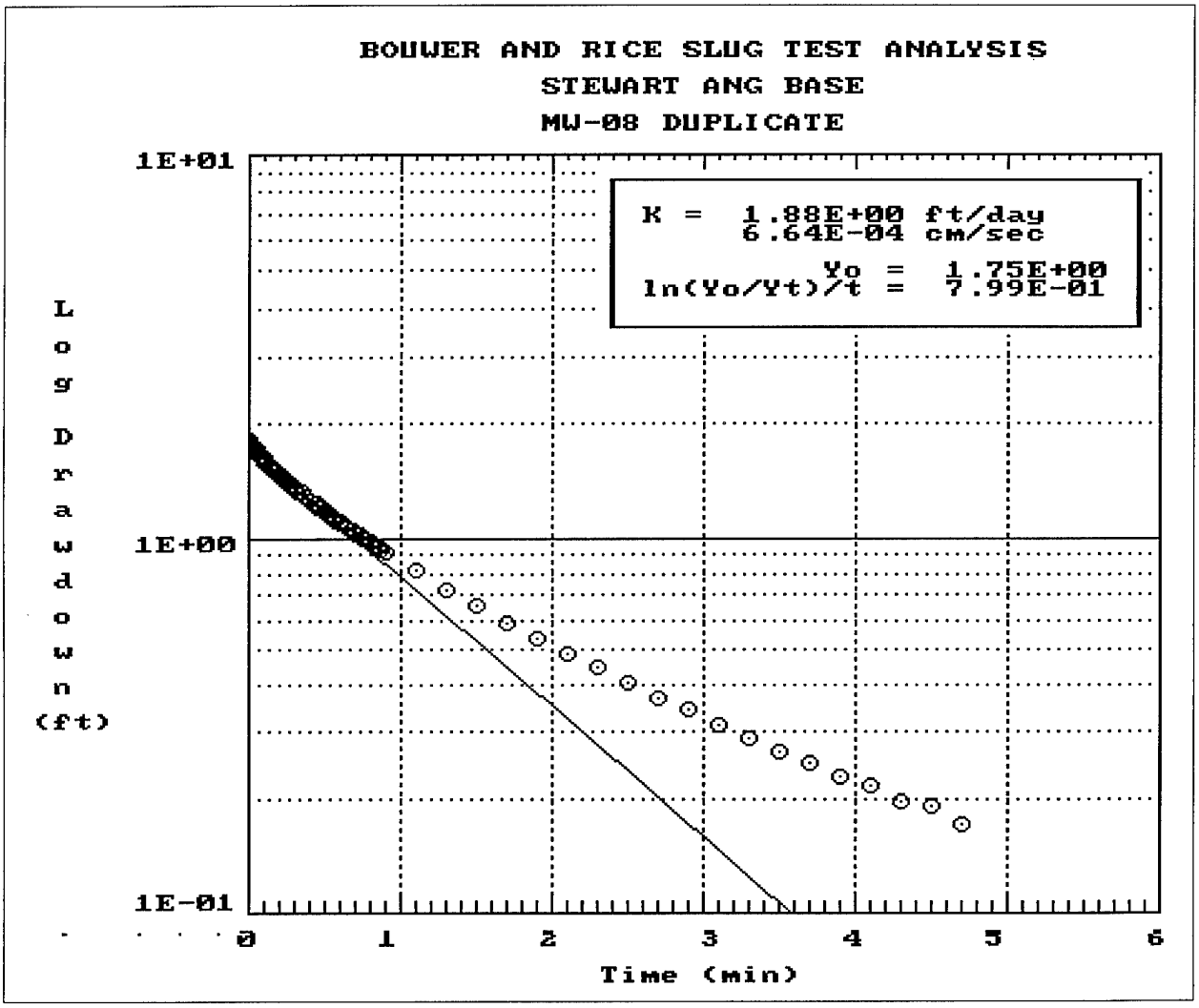
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.824	2	0.0083	1.786	3	0.0167	1.767
4	0.0250	1.741	5	0.0333	1.722	6	0.0417	1.710
7	0.0500	1.690	8	0.0583	1.678	9	0.0667	1.658
10	0.0750	1.646	11	0.0833	1.633	12	0.0917	1.620
13	0.1000	1.607	14	0.1083	1.595	15	0.1167	1.582
16	0.1250	1.569	17	0.1333	1.556	18	0.1417	1.550
19	0.1500	1.531	20	0.1583	1.524	21	0.1667	1.512
22	0.1750	1.505	23	0.1833	1.493	24	0.1917	1.480
25	0.2000	1.473	26	0.2083	1.461	27	0.2167	1.454
28	0.2250	1.442	29	0.2417	1.429	30	0.2583	1.403
31	0.2750	1.390	32	0.2917	1.371	33	0.3083	1.352
34	0.3250	1.333	35	0.3417	1.320	36	0.3583	1.320
37	0.3750	1.288	38	0.3917	1.256	39	0.4083	1.263
40	0.4250	1.244	41	0.4417	1.231	42	0.4583	1.212
43	0.4750	1.199	44	0.4917	1.186	45	0.5083	1.167
46	0.5250	1.161	47	0.5417	1.142	48	0.5583	1.129
49	0.5750	1.116	50	0.5917	1.110	51	0.6083	1.091

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-08 DUPLICATE
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	0.6250	1.084	53	0.6417	1.071	54	0.6583	1.065
55	0.6750	1.052	56	0.6917	1.039	57	0.7083	1.027
58	0.7250	1.020	59	0.7417	1.008	60	0.7583	0.995
61	0.7750	0.988	62	0.7917	0.976	63	0.8083	0.969
64	0.8250	0.957	65	0.8417	0.950	66	0.8583	0.937
67	0.8750	0.931	68	0.8917	0.918	69	1.0917	0.816
70	1.2917	0.727	71	1.4917	0.657	72	1.6917	0.593
73	1.8917	0.535	74	2.0917	0.484	75	2.2917	0.446
76	2.4917	0.408	77	2.6917	0.370	78	2.8917	0.344
79	3.0917	0.312	80	3.2917	0.287	81	3.4917	0.267
82	3.6917	0.248	83	3.8917	0.229	84	4.0917	0.216
85	4.2917	0.197	86	4.4917	0.191	87	4.6917	0.172

STEWART ANG BASE
MW-08 DUPLICATE
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-09
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	1.64E+00	ft/day
	5.79E-04	cm/sec
Y-Intercept (Yo):	2.00E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	2.51	
Dimensionless Parameter B:	0.37	
Slope of Line [ln(Yo/Yt)/t]:	6.164E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	2.652	
Effective Radius [Re]:	2.34	ft
Volume Tested [rw<Vol<Re]:	8.56E+01	ft^3

Well/Aquifer Parameters

Depth of well:	14.20	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

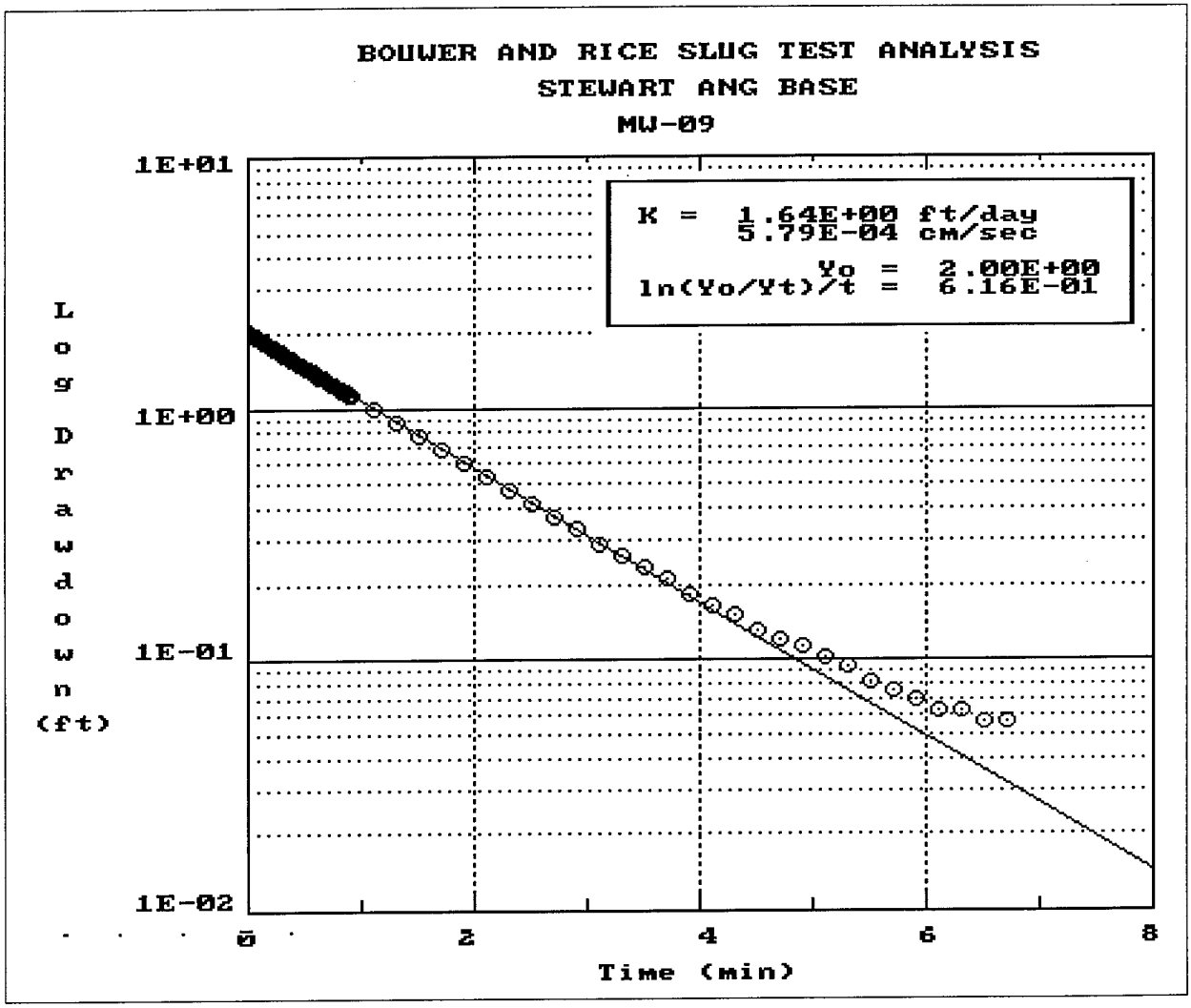
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	2.053	2	0.0083	2.028	3	0.0167	2.015
4	0.0250	2.002	5	0.0333	1.996	6	0.0417	1.977
7	0.0500	1.970	8	0.0583	1.957	9	0.0667	1.945
10	0.0750	1.932	11	0.0833	1.926	12	0.0917	1.913
13	0.1000	1.900	14	0.1083	1.894	15	0.1167	1.881
16	0.1250	1.868	17	0.1333	1.862	18	0.1417	1.849
19	0.1500	1.836	20	0.1583	1.830	21	0.1667	1.817
22	0.1750	1.804	23	0.1833	1.798	24	0.1917	1.785
25	0.2000	1.779	26	0.2083	1.766	27	0.2167	1.760
28	0.2250	1.747	29	0.2333	1.741	30	0.2417	1.728
31	0.2500	1.721	32	0.2667	1.702	33	0.2833	1.683
34	0.3000	1.664	35	0.3167	1.645	36	0.3333	1.626
37	0.3500	1.607	38	0.3667	1.594	39	0.3833	1.575
40	0.4000	1.556	41	0.4167	1.543	42	0.4333	1.524
43	0.4500	1.511	44	0.4667	1.492	45	0.4833	1.479
46	0.5000	1.460	47	0.5167	1.447	48	0.5333	1.428

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-09
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	0.5500	1.415	50	0.5667	1.396	51	0.5833	1.383
52	0.6000	1.371	53	0.6167	1.358	54	0.6333	1.339
55	0.6500	1.326	56	0.6667	1.313	57	0.6833	1.300
58	0.7000	1.288	59	0.7167	1.275	60	0.7333	1.256
61	0.7500	1.249	62	0.7667	1.230	63	0.7833	1.218
64	0.8000	1.205	65	0.8167	1.192	66	0.8333	1.179
67	0.8500	1.173	68	0.8667	1.160	69	0.8833	1.147
70	0.9000	1.135	71	0.9167	1.122	72	1.1167	0.994
73	1.3167	0.873	74	1.5167	0.771	75	1.7167	0.682
76	1.9167	0.605	77	2.1167	0.535	78	2.3167	0.471
79	2.5167	0.414	80	2.7167	0.369	81	2.9167	0.331
82	3.1167	0.286	83	3.3167	0.261	84	3.5167	0.235
85	3.7167	0.210	86	3.9167	0.184	87	4.1167	0.165
88	4.3167	0.153	89	4.5167	0.133	90	4.7167	0.121
91	4.9167	0.114	92	5.1167	0.102	93	5.3167	0.095
94	5.5167	0.082	95	5.7167	0.076	96	5.9167	0.070
97	6.1167	0.063	98	6.3167	0.063	99	6.5167	0.057
100	6.7167	0.057						

STEWART ANG BASE
MW-09
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-09 DUPLICATE
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	1.78E+00	ft/day
	6.29E-04	cm/sec
Y-Intercept (Yo):	1.97E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	2.51	
Dimensionless Parameter B:	0.37	
Slope of Line [ln(Yo/Yt)/t]:	6.699E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	2.652	
Effective Radius [Re]:	2.34	ft
Volume Tested [rw<Vol<Re]:	8.56E+01	ft^3

Well/Aquifer Parameters

Depth of well:	14.20	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

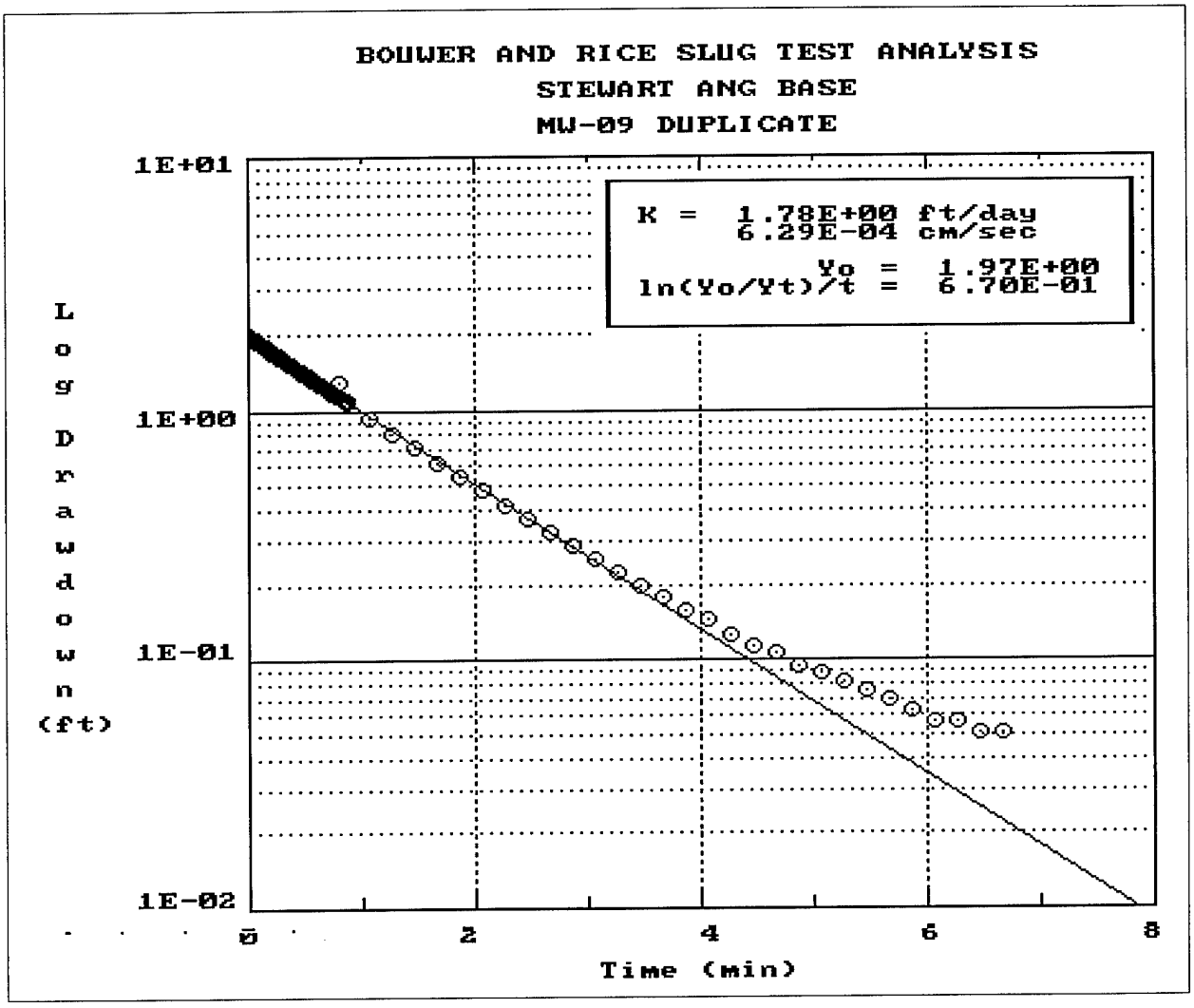
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.983	2	0.0083	1.983	3	0.0166	1.977
4	0.0250	1.964	5	0.0333	1.951	6	0.0416	1.938
7	0.0500	1.926	8	0.0583	1.913	9	0.0666	1.906
10	0.0750	1.894	11	0.0833	1.881	12	0.0916	1.868
13	0.1000	1.862	14	0.1083	1.849	15	0.1166	1.836
16	0.1250	1.823	17	0.1333	1.811	18	0.1416	1.804
19	0.1500	1.792	20	0.1583	1.779	21	0.1666	1.766
22	0.1750	1.760	23	0.1833	1.747	24	0.1916	1.741
25	0.2000	1.728	26	0.2083	1.715	27	0.2250	1.696
28	0.2416	1.677	29	0.2583	1.658	30	0.2750	1.632
31	0.2916	1.613	32	0.3083	1.600	33	0.3250	1.575
34	0.3416	1.562	35	0.3583	1.543	36	0.3750	1.524
37	0.3916	1.505	38	0.4083	1.492	39	0.4250	1.473
40	0.4416	1.454	41	0.4583	1.441	42	0.4750	1.422
43	0.4916	1.403	44	0.5083	1.390	45	0.5250	1.371
46	0.5416	1.358	47	0.5583	1.339	48	0.5750	1.326
49	0.5916	1.307	50	0.6083	1.294	51	0.6250	1.281

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-09 DUPLICATE
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	0.6416	1.262	53	0.6583	1.249	54	0.6750	1.237
55	0.6916	1.224	56	0.7083	1.211	57	0.7250	1.192
58	0.7416	1.179	59	0.7583	1.167	60	0.7750	1.154
61	0.7916	1.141	62	0.8083	1.307	63	0.8250	1.115
64	0.8416	1.103	65	0.8583	1.090	66	0.8750	1.077
67	1.0750	0.937	68	1.2750	0.816	69	1.4750	0.714
70	1.6750	0.624	71	1.8750	0.548	72	2.0750	0.478
73	2.2750	0.420	74	2.4750	0.369	75	2.6750	0.325
76	2.8750	0.286	77	3.0750	0.255	78	3.2750	0.223
79	3.4750	0.197	80	3.6750	0.178	81	3.8750	0.159
82	4.0750	0.146	83	4.2750	0.127	84	4.4750	0.114
85	4.6750	0.108	86	4.8750	0.095	87	5.0750	0.089
88	5.2750	0.082	89	5.4750	0.076	90	5.6750	0.070
91	5.8750	0.063	92	6.0750	0.057	93	6.2750	0.057
94	6.4750	0.051	95	6.6750	0.051	96	5.9167	0.070

STEWART ANG BASE
MW-09 DUPLICATE
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-10
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	7.17E-01	ft/day
	2.53E-04	cm/sec
Y-Intercept (Yo):	1.44E+00	ft
Well Screen Ratio (Le/rw):	14.6	
Dimensionless Parameter A:	1.99	
Dimensionless Parameter B:	0.30	
Slope of Line [ln(Yo/Yt)/t]:	3.526E-01	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	2.026	
Effective Radius [Re]:	2.61	ft
Volume Tested [rw<Vol<Re]:	1.05E+02	ft^3

Well/Aquifer Parameters

Depth of well:	9.75	ft
Length of well screen:	5.00	ft
Saturated thickness:	11.05	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.687	ft

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.447	2	0.0167	1.441	3	0.0334	1.428
4	0.0500	1.422	5	0.0667	1.416	6	0.0834	1.403
7	0.1000	1.396	8	0.1167	1.390	9	0.1334	1.377
10	0.1500	1.371	11	0.1667	1.358	12	0.1834	1.358
13	0.2000	1.346	14	0.2167	1.339	15	0.2334	1.333
16	0.2500	1.327	17	0.2667	1.320	18	0.2834	1.308
19	0.3000	1.301	20	0.3167	1.288	21	0.3334	1.282
22	0.3500	1.276	23	0.3667	1.263	24	0.3834	1.257
25	0.4000	1.250	26	0.4167	1.244	27	0.4334	1.238
28	0.4500	1.231	29	0.4667	1.225	30	0.4834	1.212
31	0.5000	1.206	32	0.5167	1.200	33	0.5334	1.193
34	0.7334	1.104	35	0.9334	1.028	36	1.1334	0.958
37	1.3334	0.895	38	1.5334	0.831	39	1.7334	0.774
40	1.9334	0.723	41	2.1334	0.711	42	2.3334	0.685
43	2.5334	0.660	44	2.7334	0.634	45	2.9334	0.615
46	3.1334	0.590	47	3.3334	0.577	48	3.5334	0.558

STEWART ANG BASE
MW-10
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	3.7334	0.539	50	3.9334	0.526	51	4.1334	0.520
52	4.3334	0.514	53	4.5334	0.507	54	4.7334	0.501
55	4.9334	0.488	56	5.1334	0.482	57	5.3334	0.476
58	5.5334	0.469	59	5.7334	0.469	60	5.9334	0.463
61	6.1334	0.457	62	6.3334	0.450	63	6.5334	0.438
64	6.7334	0.438	65	6.9334	0.431	66	7.1334	0.425
67	7.3334	0.425	68	7.5334	0.419	69	7.7334	0.412
70	7.9334	0.406	71	8.1334	0.406	72	8.3334	0.399
73	8.5334	0.393	74	8.7334	0.387	75	8.9334	0.387
76	9.1334	0.380	77	9.3334	0.374	78	9.5334	0.374
79	10.5334	0.349	80	11.5334	0.336	81	12.5334	0.317
82	13.5334	0.298	83	14.5334	0.285	84	15.5334	0.273
85	16.5334	0.260	86	17.5334	0.247	87	18.5334	0.247
88	19.5334	0.234	89	20.5334	0.222	90	21.5334	0.215
91	22.5334	0.203	92	23.5334	0.196	93	24.5334	0.184
94	25.5334	0.177	95	26.5334	0.165	96	0.0000	1.000

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-11
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	6.23E-02	ft/day
	2.20E-05	cm/sec
Y-Intercept (Yo):	2.08E+00	ft
Well Screen Ratio (Le/rw):	30.3	
Dimensionless Parameter A:	2.51	
Dimensionless Parameter B:	0.37	
Slope of Line [ln(Yo/Yt)/t]:	2.341E-02	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	2.652	
Effective Radius [Re]:	2.34	ft
Volume Tested [rw<Vol<Re]:	8.56E+01	ft^3

Well/Aquifer Parameters

Depth of well:	14.20	ft
Length of well screen:	5.00	ft
Saturated thickness:	22.00	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.330	ft

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	2.148	2	0.0083	2.142	3	0.0167	2.123
4	0.0250	2.104	5	0.0333	2.091	6	0.0417	2.085
7	0.0500	2.078	8	0.0583	2.072	9	0.0667	2.078
10	0.0750	2.078	11	0.0833	2.078	12	0.0917	2.078
13	0.1000	2.072	14	0.1083	2.072	15	0.1167	2.072
16	0.1250	2.072	17	0.1333	2.072	18	0.1417	2.072
19	0.1500	2.065	20	0.1583	2.065	21	0.1667	2.065
22	0.1750	2.065	23	0.1833	2.065	24	0.1917	2.065
25	0.2000	2.065	26	0.2083	2.065	27	0.2167	2.065
28	0.2250	2.065	29	0.2417	2.059	30	0.2583	2.059
31	0.2750	2.059	32	0.2917	2.059	33	0.3083	2.059
34	0.3250	2.059	35	0.3417	2.059	36	0.3583	2.046
37	0.3750	2.053	38	0.3917	2.053	39	0.4083	2.053
40	0.4250	2.053	41	0.4417	2.053	42	0.4583	2.053
43	0.4750	2.046	44	0.4917	2.046	45	0.5083	2.046
46	0.5250	2.046	47	0.5417	2.046	48	0.5583	2.027
49	0.5750	2.040	50	0.5917	2.046	51	0.6083	2.046

STEWART ANG BASE
MW-11
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	0.6250	2.040	53	0.6417	2.040	54	0.6583	2.040
55	0.6750	2.040	56	0.6917	2.040	57	0.7083	2.040
58	0.7250	2.034	59	0.7417	2.034	60	0.7583	2.034
61	0.7750	2.034	62	0.7917	2.034	63	0.8083	2.034
64	0.8250	2.034	65	0.8417	2.034	66	0.8583	2.027
67	0.8750	2.027	68	0.8917	2.027	69	1.0917	2.021
70	1.2917	2.008	71	1.4917	1.995	72	1.6917	1.989
73	1.8917	1.976	74	2.0917	1.951	75	2.2917	1.957
76	2.4917	1.951	77	2.6917	1.938	78	2.8917	1.925
79	3.0917	1.919	80	3.2917	1.912	81	3.4917	1.893
82	3.6917	1.893	83	3.8917	1.887	84	4.0917	1.874
85	4.2917	1.868	86	4.4917	1.855	87	4.6917	1.849
88	4.8917	1.842	89	5.0917	1.830	90	5.2917	1.823
91	5.4917	1.817	92	5.6917	1.804	93	5.8917	1.798
94	6.0917	1.785	95	6.2917	1.778	96	6.4917	1.772
97	6.6917	1.753	98	6.8917	1.759	99	7.0917	1.747
100	7.2917	1.740	101	7.4917	1.734	102	7.6917	1.721
103	7.8917	1.715	104	8.0917	1.708	105	8.2917	1.702
106	8.4917	1.696	107	8.6917	1.683	108	8.8917	1.676
109	9.0917	1.664	110	9.2917	1.683	111	9.4917	1.651
112	9.6917	1.645	113	9.8917	1.638	114	10.8917	1.600
115	11.8917	1.562	116	12.8917	1.523	117	13.8917	1.485
118	14.8917	1.453	119	15.8917	1.421	120	16.8917	1.389
121	17.8917	1.358	122	18.8917	1.326	123	19.8917	1.294
124	20.8917	1.268	125	21.8917	1.236	126	22.8917	1.211
127	23.8917	1.185	128	24.8917	1.160	129	25.8917	1.128
130	26.8917	1.103	131	27.8917	1.077	132	28.8917	1.058
133	29.8917	1.032	134	30.8917	1.007	135	31.8917	0.988
136	32.8917	0.962	137	33.8917	0.943	138	34.8917	0.924
139	35.8917	0.905	140	36.8917	0.879	141	37.8917	0.860
142	38.8917	0.841	143	39.8917	0.822	144	40.8917	0.803
145	41.8917	0.784	146	42.8917	0.771	147	43.8917	0.752
148	44.8917	0.733	149	45.8917	0.714	150	46.8917	0.701
151	47.8917	0.688	152	48.8917	0.669	153	49.8917	0.656
154	50.8917	0.643	155	51.8917	0.624	156	52.8917	0.612
157	53.8917	0.599	158	54.8917	0.580	159	55.8917	0.567
160	56.8917	0.561	161	57.8917	0.548	162	58.8917	0.529
163	59.8917	0.516	164	60.8917	0.510	165	61.8917	0.497
166	62.8917	0.484	167	63.8917	0.471	168	64.8917	0.459
169	65.8917	0.452	170	66.8917	0.439	171	67.8917	0.427
172	68.8917	0.414	173	69.8917	0.408	174	70.8917	0.395
175	71.8917	0.388	176	72.8917	0.382	177	73.8917	0.376
178	74.8917	0.363	179	75.8917	0.350	180	76.8917	0.350

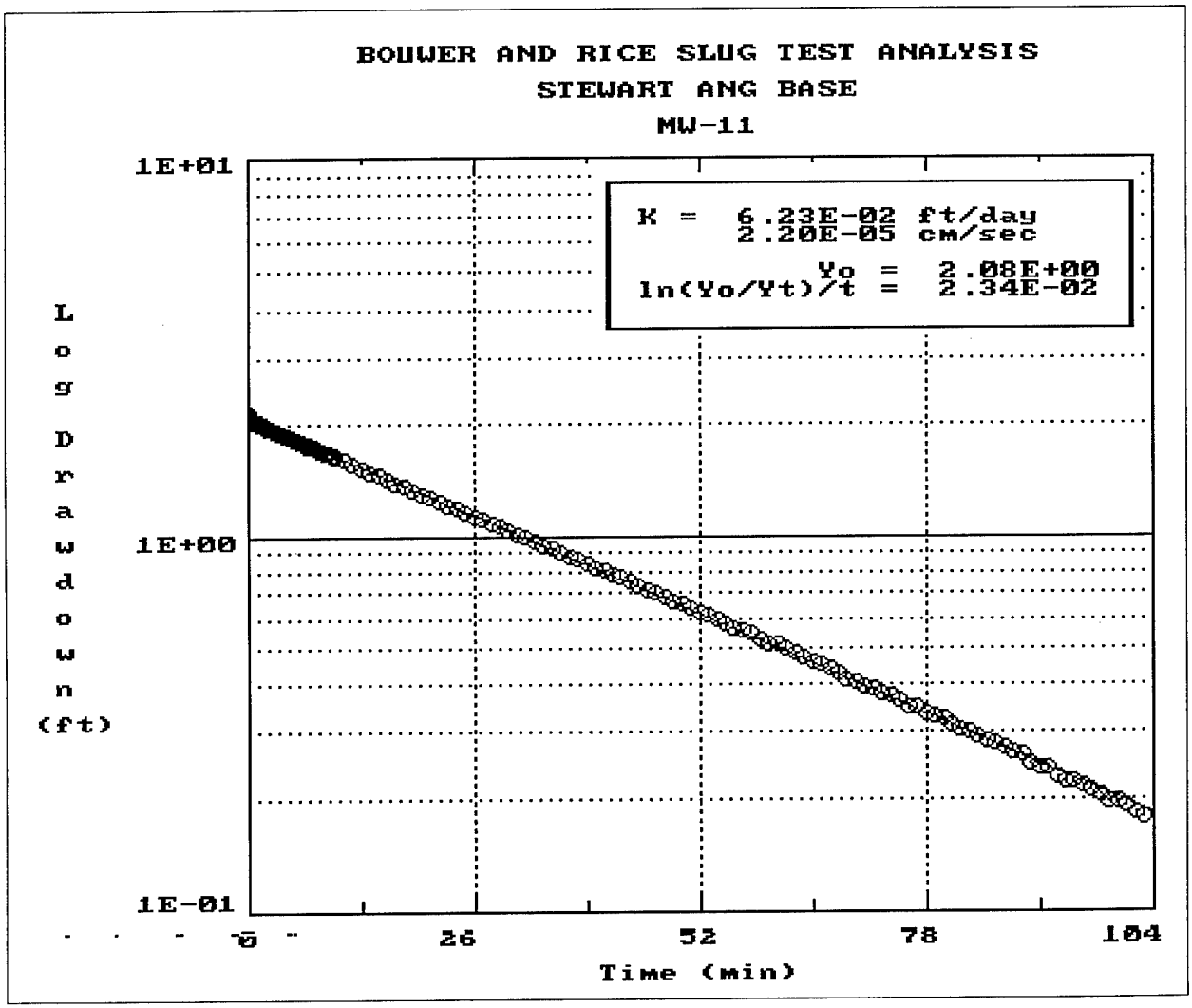
BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-11
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
181	77.8917	0.337	182	78.8917	0.331	183	79.8917	0.325
184	80.8917	0.312	185	81.8917	0.306	186	82.8917	0.299
187	83.8917	0.293	188	84.8917	0.286	189	85.8917	0.280
190	86.8917	0.274	191	87.8917	0.267	192	88.8917	0.261
193	89.8917	0.248	194	90.8917	0.242	195	91.8917	0.242
196	92.8917	0.229	197	93.8917	0.223	198	94.8917	0.223
199	95.8917	0.216	200	96.8917	0.210	201	97.8917	0.204
202	98.8917	0.197	203	99.8917	0.197	204	100.8917	0.191
205	101.8917	0.184	206	102.8917	0.178	207	0.0000	1.000

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-11
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-12
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	6.45E-02	ft/day
	2.27E-05	cm/sec
Y-Intercept (Yo):	1.86E+00	ft
Well Screen Ratio (Le/rw):	14.6	
Dimensionless Parameter A:	1.99	
Dimensionless Parameter B:	0.30	
Slope of Line [ln(Yo/Yt)/t]:	3.676E-02	1/min
Well Parameters (Rc^2 / 2*Le):	6.972E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	1.747	
Effective Radius [Re]:	1.97	ft
Volume Tested [rw<Vol<Re]:	5.92E+01	ft^3

Well/Aquifer Parameters

Depth of well:	6.73	ft
Length of well screen:	5.00	ft
Saturated thickness:	14.73	ft
Diameter of the well casing:	0.167	ft
Diameter of the well filter:	0.687	ft

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.987	2	0.0083	1.994	3	0.0167	1.987
4	0.0250	1.981	5	0.0333	1.981	6	0.0417	1.975
7	0.0500	1.968	8	0.0583	1.962	9	0.0667	1.962
10	0.0750	1.962	11	0.0833	1.956	12	0.0917	1.956
13	0.1000	1.949	14	0.1083	1.943	15	0.1167	1.943
16	0.1250	1.943	17	0.1333	1.943	18	0.1417	1.937
19	0.1500	1.937	20	0.1583	1.937	21	0.1667	1.930
22	0.1750	1.930	23	0.1833	1.930	24	0.1917	1.924
25	0.2000	1.924	26	0.2083	1.917	27	0.2167	1.917
28	0.2250	1.917	29	0.2417	1.911	30	0.2583	1.911
31	0.2750	1.905	32	0.2917	1.905	33	0.3083	1.898
34	0.3250	1.898	35	0.3417	1.892	36	0.3583	1.892
37	0.3750	1.892	38	0.3917	1.886	39	0.4083	1.886
40	0.4250	1.879	41	0.4417	1.879	42	0.4583	1.873
43	0.4750	1.873	44	0.4917	1.867	45	0.5083	1.867
46	0.5250	1.860	47	0.5417	1.860	48	0.5583	1.860
49	0.5750	1.854	50	0.5917	1.854	51	0.6083	1.848

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-12
Kim Kutawski, Aneptek Corp.

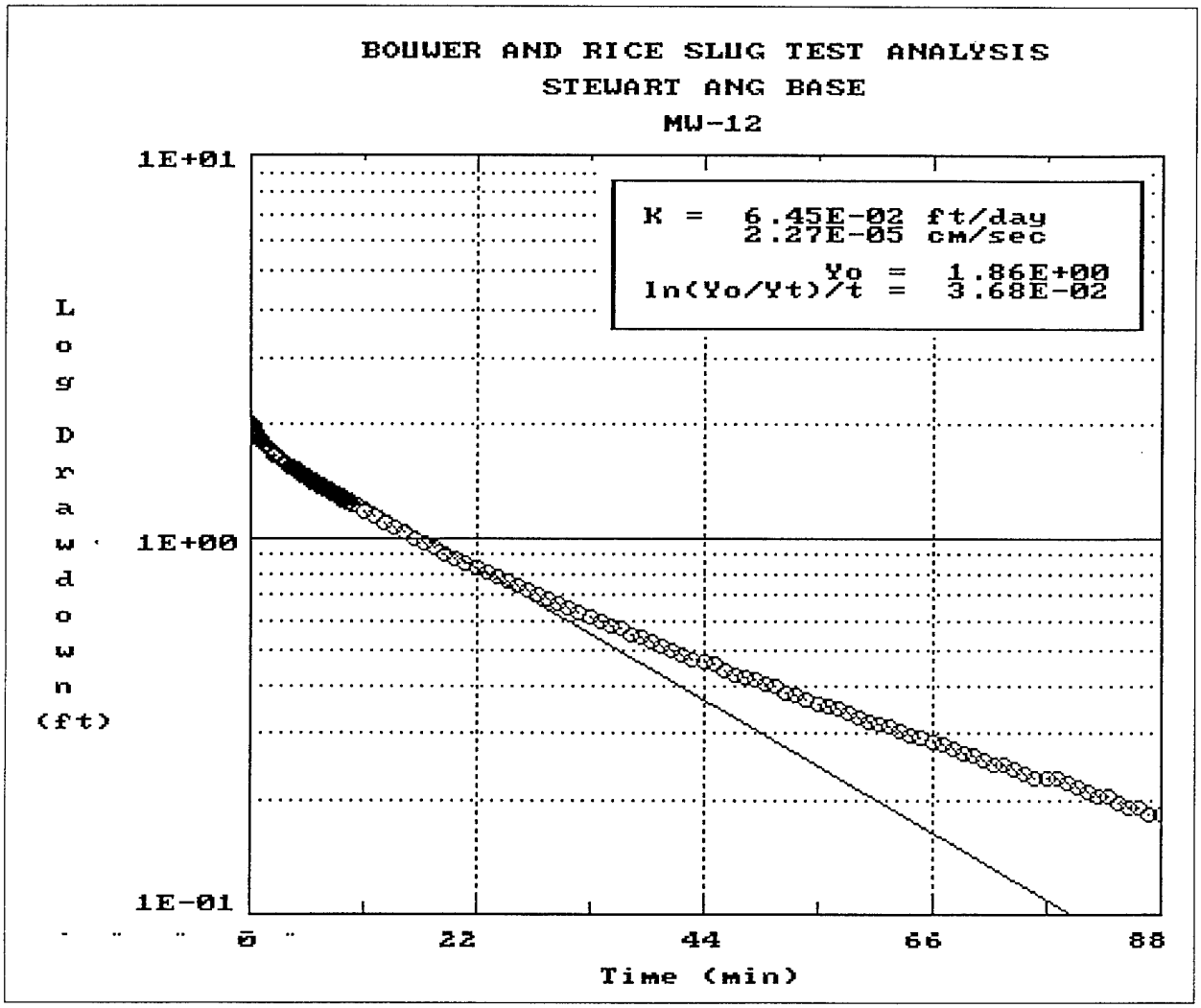
No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
52	0.6250	1.848	53	0.6417	1.841	54	0.6583	1.841
55	0.6750	1.841	56	0.6917	1.841	57	0.7083	1.835
58	0.7250	1.835	59	0.7417	1.829	60	0.7583	1.829
61	0.7750	1.829	62	0.7917	1.822	63	0.8083	1.822
64	0.8250	1.816	65	0.8417	1.816	66	0.8583	1.816
67	0.8750	1.809	68	0.8917	1.809	69	1.0917	1.784
70	1.2917	1.759	71	1.4917	1.740	72	1.6917	1.721
73	1.8917	1.695	74	2.0917	1.676	75	2.2917	1.663
76	2.4917	1.644	77	2.6917	1.625	78	2.8917	1.606
79	3.0917	1.594	80	3.2917	1.581	81	3.4917	1.568
82	3.6917	1.549	83	3.8917	1.536	84	4.0917	1.524
85	4.2917	1.511	86	4.4917	1.492	87	4.6917	1.479
88	4.8917	1.466	89	5.0917	1.460	90	5.2917	1.447
91	5.4917	1.435	92	5.6917	1.422	93	5.8917	1.409
94	6.0917	1.397	95	6.2917	1.390	96	6.4917	1.378
97	6.6917	1.371	98	6.8917	1.358	99	7.0917	1.346
100	7.2917	1.339	101	7.4917	1.327	102	7.6917	1.320
103	7.8917	1.308	104	8.0917	1.301	105	8.2917	1.289
106	8.4917	1.282	107	8.6917	1.270	108	8.8917	1.263
109	9.0917	1.257	110	9.2917	1.244	111	9.4917	1.231
112	9.6917	1.225	113	9.8917	1.219	114	10.8917	1.174
115	11.8917	1.136	116	12.8917	1.098	117	13.8917	1.060
118	14.8917	1.028	119	15.8917	0.996	120	16.8917	0.971
121	17.8917	0.939	122	18.8917	0.908	123	19.8917	0.882
124	20.8917	0.857	125	21.8917	0.831	126	22.8917	0.806
127	23.8917	0.787	128	24.8917	0.761	129	25.8917	0.742
130	26.8917	0.723	131	27.8917	0.704	132	28.8917	0.685
133	29.8917	0.666	134	30.8917	0.647	135	31.8917	0.628
136	32.8917	0.615	137	33.8917	0.596	138	34.8917	0.584
139	35.8917	0.571	140	36.8917	0.552	141	37.8917	0.539
142	38.8917	0.527	143	39.8917	0.514	144	40.8917	0.501
145	41.8917	0.488	146	42.8917	0.476	147	43.8917	0.469
148	44.8917	0.457	149	45.8917	0.444	150	46.8917	0.431
151	47.8917	0.425	152	48.8917	0.419	153	49.8917	0.406
154	50.8917	0.400	155	51.8917	0.387	156	52.8917	0.380
157	53.8917	0.368	158	54.8917	0.361	159	55.8917	0.355
160	56.8917	0.349	161	57.8917	0.342	162	58.8917	0.330
163	59.8917	0.323	164	60.8917	0.317	165	61.8917	0.311
166	62.8917	0.304	167	63.8917	0.298	168	64.8917	0.292
169	65.8917	0.285	170	66.8917	0.279	171	67.8917	0.273
172	68.8917	0.266	173	69.8917	0.260	174	70.8917	0.253
175	71.8917	0.247	176	72.8917	0.247	177	73.8917	0.241
178	74.8917	0.234	179	75.8917	0.228	180	76.8917	0.228

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-06-1996

STEWART ANG BASE
MW-12
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
181	77.8917	0.228	182	78.8917	0.222	183	79.8917	0.215
184	80.8917	0.209	185	81.8917	0.203	186	82.8917	0.203
187	83.8917	0.196	188	84.8917	0.190	189	85.8917	0.190
190	86.8917	0.184	191	87.8917	0.184	192	0.0000	1.000

STEWART ANG BASE
MW-12
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-13
Kim Kutawski, Aneptek Corp.

Results

Hydraulic Conductivity:	3.88E-01	ft/day
	1.37E-04	cm/sec
Y-Intercept (Yo):	4.61E-01	ft
Well Screen Ratio (Le/rw):	29.1	
Dimensionless Parameter A:	2.48	
Dimensionless Parameter B:	0.37	
Slope of Line [ln(Yo/Yt)/t]:	6.640E-02	1/min
Well Parameters (Rc^2 / 2*Le):	2.011E-03	ft
Dimensionless Ratio [ln(Re/rw)]:	2.016	
Effective Radius [Re]:	2.58	ft
Volume Tested [rw<Vol<Re]:	2.05E+02	ft^3

Well/Aquifer Parameters

Depth of well:	7.34	ft
Length of well screen:	10.00	ft
Saturated thickness:	27.84	ft
Diameter of the well casing:	0.166	ft
Diameter of the well filter:	0.687	ft
Porosity of filter pack:	0.30	

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0001	1.394	2	0.0084	1.368	3	0.0167	1.343
4	0.0250	1.330	5	0.0334	1.317	6	0.0417	1.304
7	0.0500	1.273	8	0.0584	1.254	9	0.0667	1.234
10	0.0750	1.222	11	0.0834	1.203	12	0.0917	1.190
13	0.1000	1.177	14	0.1084	1.158	15	0.1167	1.145
16	0.1250	1.133	17	0.1334	1.120	18	0.1417	1.107
19	0.1500	1.094	20	0.1584	1.075	21	0.1667	1.063
22	0.1750	1.050	23	0.1834	1.037	24	0.1917	1.024
25	0.2000	1.012	26	0.2084	0.999	27	0.2167	0.986
28	0.2250	0.974	29	0.2334	0.954	30	0.2417	0.948
31	0.2500	0.935	32	0.2584	0.923	33	0.2667	0.916
34	0.2750	0.903	35	0.2834	0.891	36	0.2917	0.884
37	0.3084	0.859	38	0.3250	0.840	39	0.3417	0.821
40	0.3584	0.802	41	0.3750	0.783	42	0.3917	0.763
43	0.4084	0.751	44	0.4250	0.738	45	0.4417	0.719
46	0.4584	0.706	47	0.4750	0.687	48	0.4917	0.681

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-13
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
49	0.5084	0.668	50	0.5250	0.655	51	0.5417	0.643
52	0.5584	0.630	53	0.5750	0.617	54	0.5917	0.611
55	0.6084	0.604	56	0.6250	0.592	57	0.6417	0.585
58	0.6584	0.579	59	0.6750	0.572	60	0.6917	0.566
61	0.7084	0.560	62	0.7250	0.553	63	0.7417	0.547
64	0.7584	0.541	65	0.7750	0.534	66	0.7917	0.528
67	0.8084	0.528	68	0.8250	0.522	69	0.8417	0.522
70	0.8584	0.522	71	0.8750	0.509	72	0.8917	0.509
73	0.9084	0.509	74	0.9250	0.502	75	0.9417	0.502
76	0.9584	0.496	77	1.1584	0.464	78	1.3584	0.439
79	1.5584	0.420	80	1.7584	0.407	81	1.9584	0.401
82	2.1584	0.394	83	2.3584	0.394	84	2.5584	0.375
85	2.7584	0.375	86	2.9584	0.369	87	3.1584	0.362
88	3.3584	0.362	89	3.5584	0.356	90	3.7584	0.350
91	3.9584	0.343	92	4.1584	0.350	93	4.3584	0.343
94	4.5584	0.343	95	4.7584	0.337	96	4.9584	0.337
97	5.1584	0.337	98	5.3584	0.331	99	5.5584	0.331
100	5.7584	0.331	101	5.9584	0.324	102	6.1584	0.324
103	6.3584	0.324	104	6.5584	0.318	105	6.7584	0.318
106	6.9584	0.318	107	7.1584	0.318	108	7.3584	0.318
109	7.5584	0.311	110	7.7584	0.311	111	7.9584	0.305
112	8.1584	0.311	113	8.3584	0.305	114	8.5584	0.305
115	8.7584	0.305	116	8.9584	0.299	117	9.1584	0.299
118	9.3584	0.299	119	9.5584	0.299	120	9.7584	0.299
121	9.9584	0.292	122	10.9584	0.286	123	11.9584	0.286
124	12.9584	0.280	125	13.9584	0.273	126	14.9584	0.273
127	15.9584	0.267	128	16.9584	0.267	129	17.9584	0.267
130	18.9584	0.261	131	19.9584	0.261	132	20.9584	0.261
133	21.9584	0.254	134	22.9584	0.254	135	23.9584	0.248
136	24.9584	0.241	137	25.9584	0.241	138	26.9584	0.241
139	27.9584	0.241	140	28.9584	0.241	141	29.9584	0.235
142	30.9584	0.235	143	31.9584	0.229	144	32.9584	0.229
145	33.9584	0.222	146	34.9584	0.229	147	35.9584	0.229
148	36.9584	0.222	149	37.9584	0.216	150	38.9584	0.216
151	39.9584	0.216	152	40.9584	0.210	153	41.9584	0.210
154	42.9584	0.210	155	43.9584	0.210	156	44.9584	0.210
157	45.9584	0.203	158	46.9584	0.203	159	47.9584	0.197
160	48.9584	0.197	161	49.9584	0.191	162	50.9584	0.197
163	51.9584	0.197	164	52.9584	0.191	165	53.9584	0.191
166	54.9584	0.184	167	55.9584	0.184	168	56.9584	0.191
169	57.9584	0.184	170	58.9584	0.184	171	59.9584	0.178
172	60.9584	0.184	173	61.9584	0.178	174	62.9584	0.178
175	63.9584	0.178	176	64.9584	0.171	177	65.9584	0.178

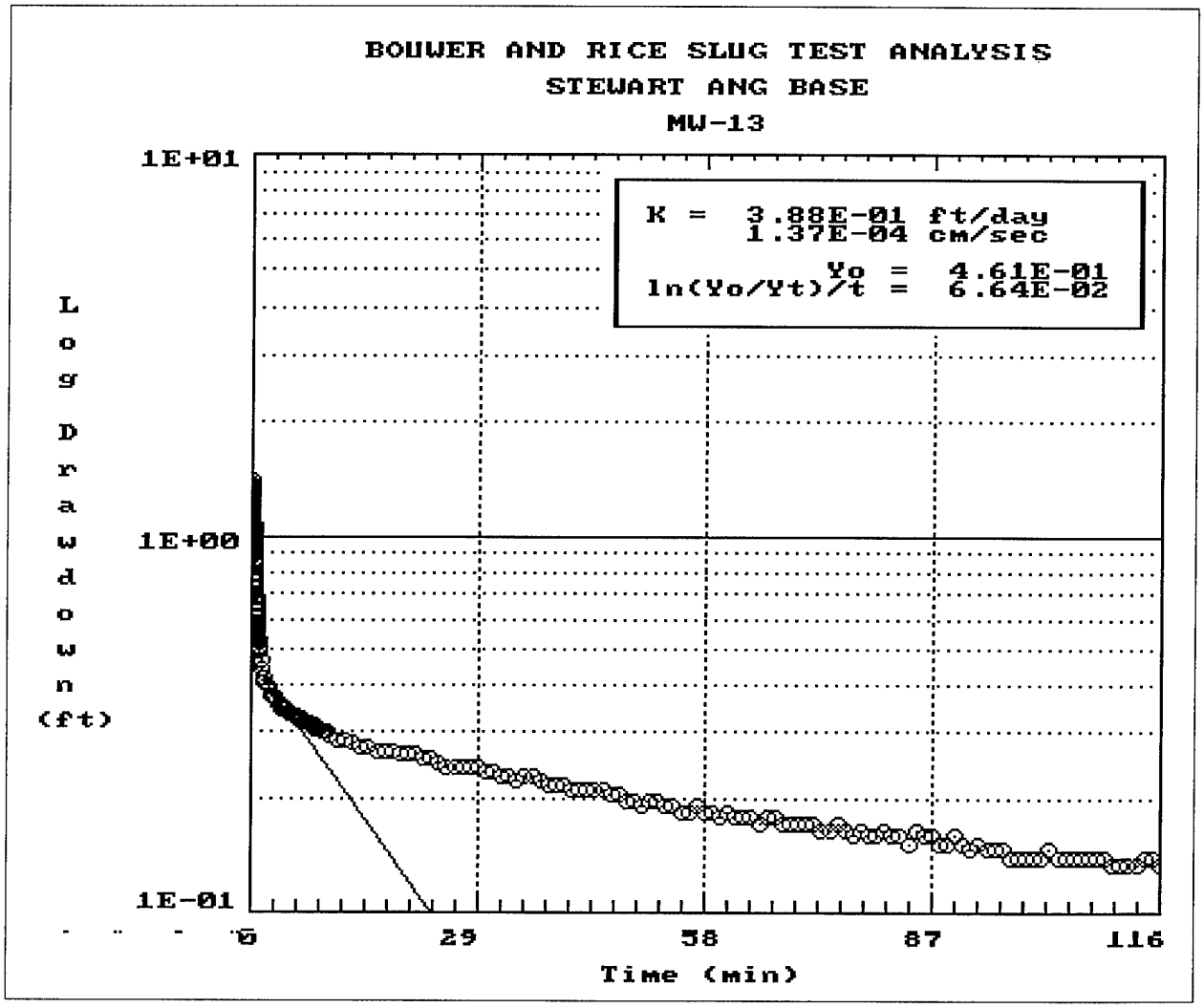
BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-13
Kim Kutawski, Aneptek Corp.

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
178	66.9584	0.178	179	67.9584	0.171	180	68.9584	0.171
181	69.9584	0.171	182	70.9584	0.171	183	71.9584	0.171
184	72.9584	0.165	185	73.9584	0.165	186	74.9584	0.171
187	75.9584	0.165	188	76.9584	0.159	189	77.9584	0.165
190	78.9584	0.159	191	79.9584	0.159	192	80.9584	0.165
193	81.9584	0.159	194	82.9584	0.159	195	83.9584	0.152
196	84.9584	0.165	197	85.9584	0.159	198	86.9584	0.159
199	87.9584	0.152	200	88.9584	0.152	201	89.9584	0.159
202	90.9584	0.152	203	91.9584	0.146	204	92.9584	0.152
205	93.9584	0.146	206	94.9584	0.146	207	95.9584	0.146
208	96.9584	0.140	209	97.9584	0.140	210	98.9584	0.140
211	99.9584	0.140	212	100.9584	0.140	213	101.9584	0.146
214	102.9584	0.140	215	103.9584	0.140	216	104.9584	0.140
217	105.9584	0.140	218	106.9584	0.140	219	107.9584	0.140
220	108.9584	0.140	221	109.9584	0.133	222	110.9584	0.133
223	111.9584	0.133	224	112.9584	0.133	225	113.9584	0.140
226	114.9584	0.140	227	115.9584	0.133	228	0.0000	1.000

BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 03-19-1996

STEWART ANG BASE
MW-13
Kim Kutawski, Aneptek Corp.



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 04-05-1996

Stewart ANG PPBA RI
JMW-107 RE-ANALYSIS
AMK - Aneptek Corp

Results

Hydraulic Conductivity:	4.66E-01	ft/day
	1.64E-04	cm/sec
Y-Intercept (Yo):	2.77E+00	ft
Well Screen Ratio (Le/rw):	15.2	
Dimensionless Parameter C:	1.51	
Slope of Line [ln(Yo/Yt)/t]:	5.853E-02	1/min
Well Parameters (Rc^2 / 2*Le):	3.749E-03	ft
Dimensionless Ratio [ln(Re/rw)]:	1.475	
Effective Radius [Re]:	1.44	ft
Volume Tested [rw<Vol<Re]:	3.10E+01	ft^3

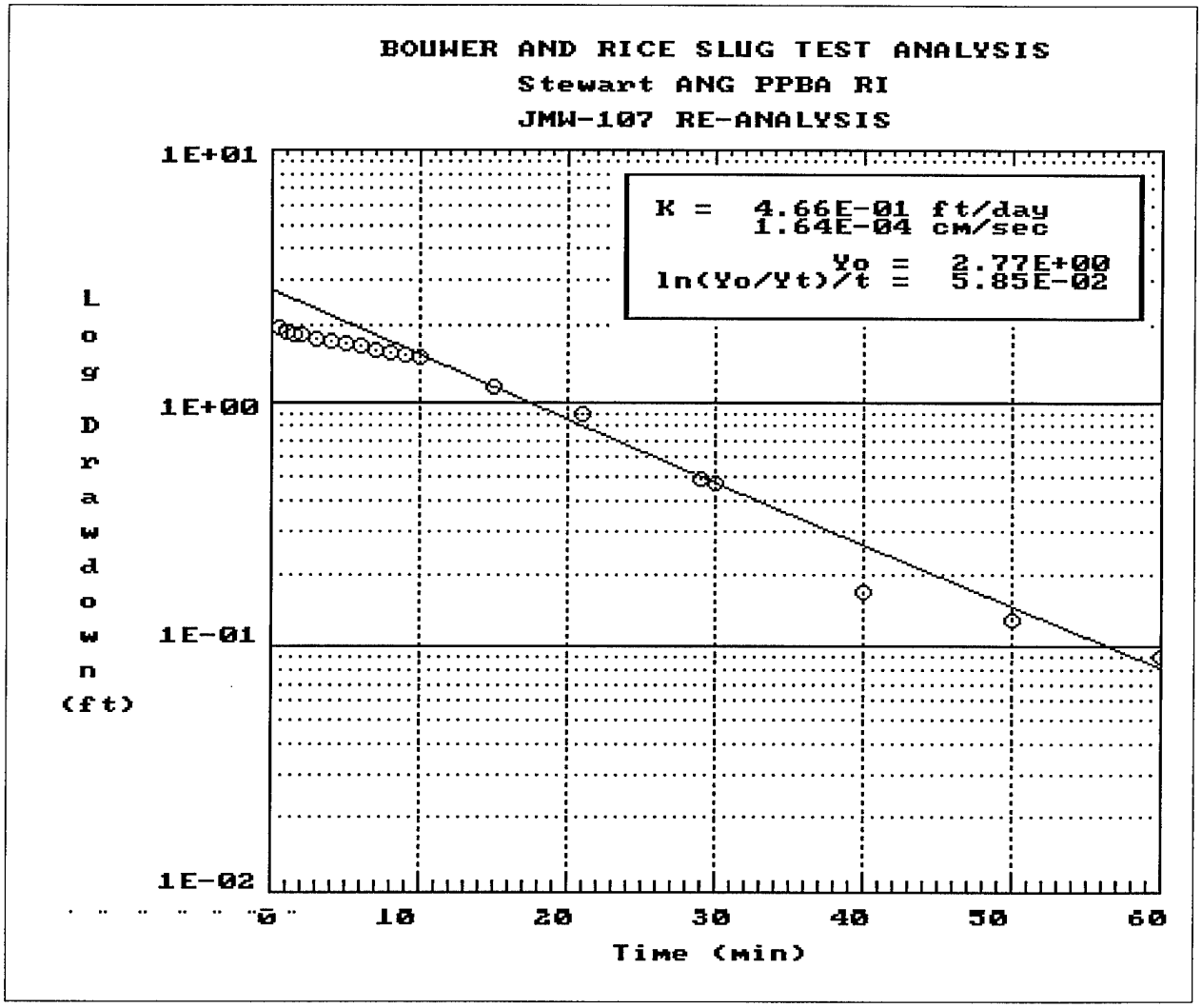
Well/Aquifer Parameters

Depth of well:	2.21	ft
Length of well screen:	5.00	ft
Saturated thickness:	2.21	ft
Diameter of the well casing:	0.166	ft
Diameter of the well filter:	0.660	ft
Porosity of filter pack:	0.30	

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.5000	1.980	2	1.0000	1.900	3	1.5000	1.860
4	2.0000	1.840	5	3.0000	1.780	6	4.0000	1.750
7	5.0000	1.690	8	6.0000	1.650	9	7.0000	1.610
10	8.0000	1.570	11	9.0000	1.530	12	10.0000	1.490
13	15.0000	1.140	14	21.0000	0.890	15	29.0000	0.490
16	30.0000	0.470	17	40.0000	0.170	18	50.0000	0.130
19	60.0000	0.090						

Stewart ANG PPBA RI
JMW-107 RE-ANALYSIS
AMK - Aneptek Corp



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 04-05-1996

Stewart ANG PPBA RI
JMW-108 RE-ANALYSIS
AMK - Aneptek Corp

Results

Hydraulic Conductivity:	1.16E-01	ft/day
	4.09E-05	cm/sec
Y-Intercept (Yo):	5.33E+00	ft
Well Screen Ratio (Le/rw):	15.2	
Dimensionless Parameter A:	2.01	
Dimensionless Parameter B:	0.31	
Slope of Line [ln(Yo/Yt)/t]:	6.620E-02	1/min
Well Parameters (Rc^2 / 2*Le):	6.889E-04	ft
Dimensionless Ratio [ln(Re/rw)]:	1.765	
Effective Radius [Re]:	1.93	ft
Volume Tested [rw<Vol<Re]:	5.67E+01	ft^3

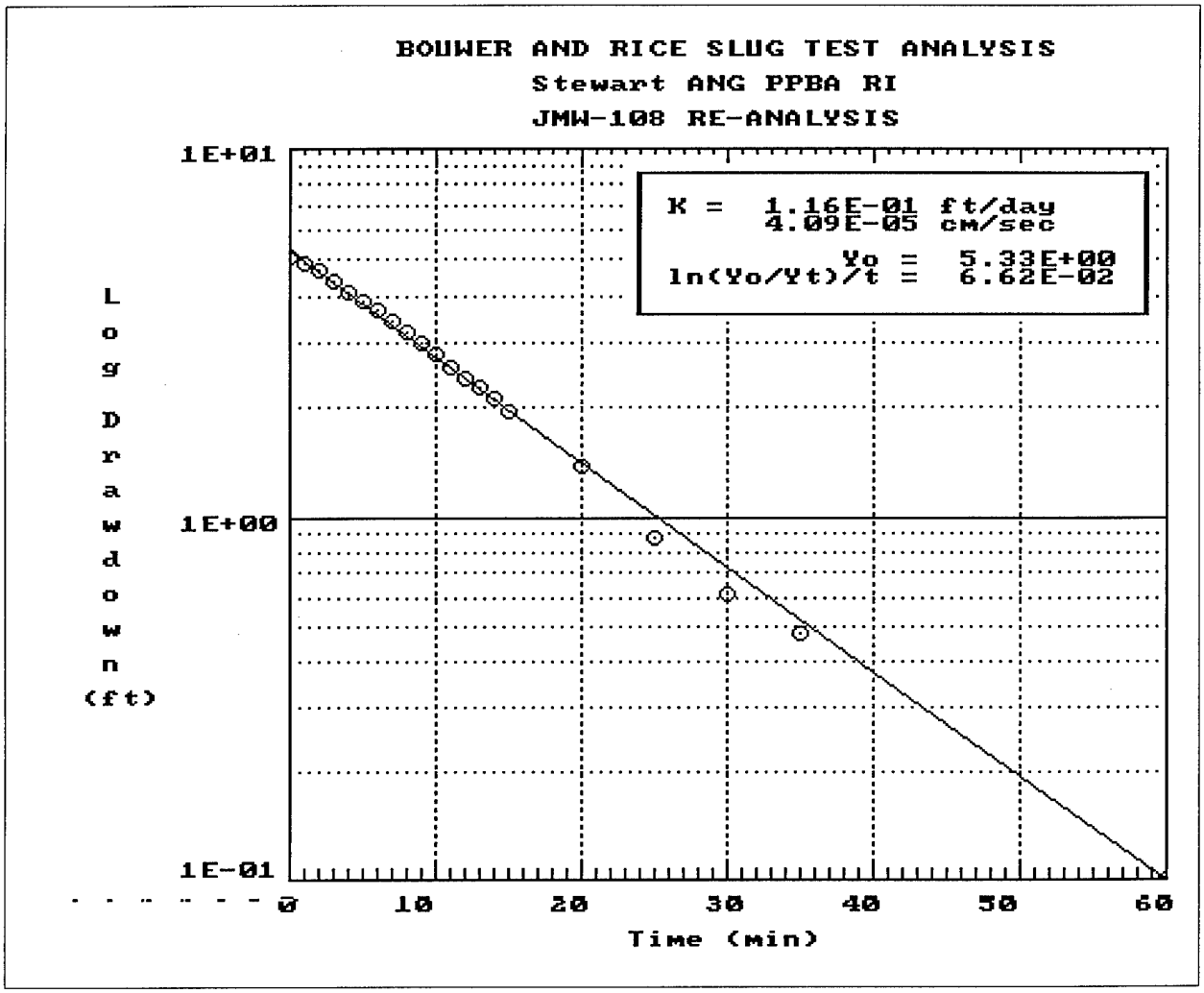
Well/Aquifer Parameters

Depth of well:	5.19	ft
Length of well screen:	5.00	ft
Saturated thickness:	7.02	ft
Diameter of the well casing:	0.166	ft
Diameter of the well filter:	0.660	ft

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0000	5.100	2	1.0000	4.880	3	2.0000	4.670
4	3.0000	4.410	5	4.0000	4.090	6	5.0000	3.880
7	6.0000	3.660	8	7.0000	3.420	9	8.0000	3.200
10	9.0000	2.970	11	10.0000	2.780	12	11.0000	2.580
13	12.0000	2.410	14	13.0000	2.260	15	14.0000	2.110
16	15.0000	1.950	17	20.0000	1.380	18	25.0000	0.880
19	30.0000	0.610	20	35.0000	0.480	21	60.0000	0.100

Stewart ANG PPBA RI
JMW-108 RE-ANALYSIS
AMK - Aneptek Corp



BOUWER AND RICE INTERACTIVE SLUG TEST ANALYSIS 04-05-1996

Stewart ANG PPBA RI
JMW-109 RE-ANALYSIS
AMK - Aneptek Corp

Results

Hydraulic Conductivity:	5.34E-01	ft/day
	1.88E-04	cm/sec
Y-Intercept (Yo):	1.91E+00	ft
Well Screen Ratio (Le/rw):	15.2	
Dimensionless Parameter A:	2.01	
Dimensionless Parameter B:	0.31	
Slope of Line [ln(Yo/Yt)/t]:	6.341E-02	1/min
Well Parameters (Rc^2 / 2*Le):	3.749E-03	ft
Dimensionless Ratio [ln(Re/rw)]:	1.561	
Effective Radius [Re]:	1.57	ft
Volume Tested [rw<Vol<Re]:	3.71E+01	ft^3

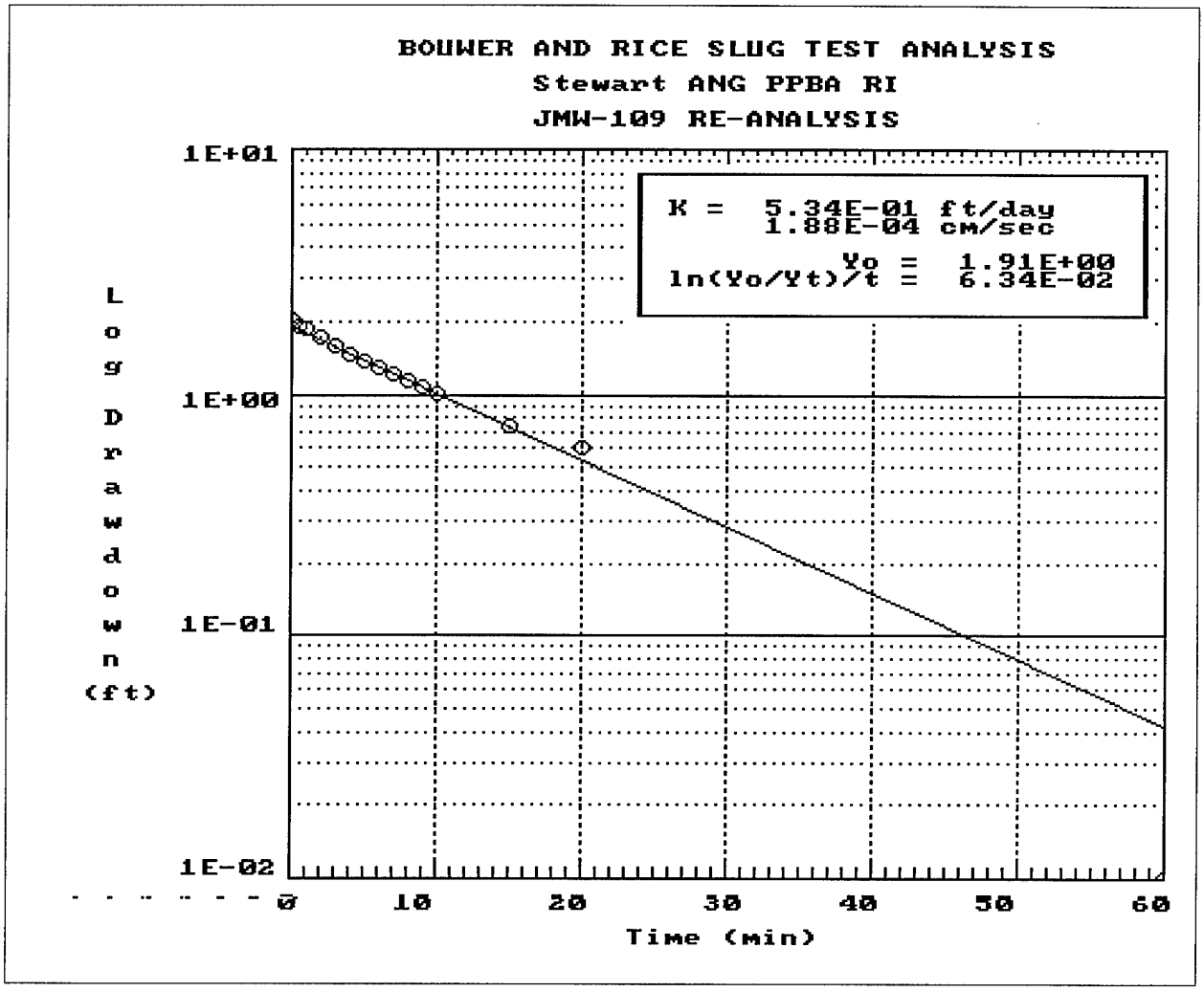
Well/Aquifer Parameters

Depth of well:	2.69	ft
Length of well screen:	5.00	ft
Saturated thickness:	2.84	ft
Diameter of the well casing:	0.166	ft
Diameter of the well filter:	0.660	ft
Porosity of filter pack:	0.30	

Time vs Drawdown Data

No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)	No.	Time (min)	Drawdown (ft)
1	0.0000	2.040	2	0.5000	1.930	3	1.0000	1.870
4	2.0000	1.730	5	3.0000	1.590	6	4.0000	1.480
7	5.0000	1.390	8	6.0000	1.300	9	7.0000	1.220
10	8.0000	1.150	11	9.0000	1.080	12	10.0000	1.010
13	15.0000	0.740	14	20.0000	0.610	15	60.0000	0.010

Stewart ANG PPBA RI
JMW-109 RE-ANALYSIS
AMK - Aneptek Corp



APPENDIX H

GEOPHYSICAL SURVEY REPORTS

GEOPHYSICS GPR INTERNATIONAL INC.

13 Highland Circle, Suite E
Needham Heights, MA
02194-3031

Tel.: (617) 455-0185
Fax: (617) 455-0522

September 22, 1995

Our Contract No. B95106

Mr. Michael Plumb
Aneptek, Inc.
209 West Central St
Natick, MA 01760

Re: Electromagnetic Survey, Stewart Air National Guard Base, Newburgh, New York

Dear Mr. Plumb:

Geophysics GPR International, Inc., under a directive of Aneptek, Inc., performed a electromagnetic (EM31) survey on September 7, 1995, near a fuel pump island on Base Road B, Stewart Air National Guard Base, Newburgh, New York. The objective of the survey was to locate a burial pit reported to contain steel "H" beams.

The EM31 method was chosen, based upon the reported shallow depth of burial of the beams (about ten feet) and proximity of a metal chainlink fence and a buried electrical utility. All electromagnetic and magnetic methods are influenced by surface and near-surface metallic objects and electrical sources with the EM31 meter to a lesser degree.

Additionally, at our own decision and expense, a GSSI SIR-3 radar system with 100-Mhz and 500-Mhz antennas and a Fisher TW-6 pipe and cable locator were mobilized to aid in the investigation.

Theory

The terrain conductivity method employs transmitting and receiving coils separated by a fixed distance. An alternating current is sent through the transmitting coil generating a primary magnetic field. This time-varying magnetic field induces the flow of small secondary currents in the earth, which in turn generate a secondary magnetic field.

Both the primary and secondary magnetic fields are detected by the receiving coil. Within certain limits, the component of the secondary magnetic field, which is out-of-phase (quadrature) with the primary field, is directly proportional to the apparent conductivity of the ground. The component of the secondary field, which is in-phase with the primary field, is related to the magnetic susceptibility and conductivity of the ground, often yielding anomalies near metallic objects. Thus, the terrain conductivity survey provides two readings at each station: the quadrature and the in-phase components of the secondary magnetic field.

Equipment

Geophysics GPR International, Inc. mobilized a geophysicist for this investigation. A Geonics EM-31 Terrain Conductivity Meter was employed for the EM survey. The readings were stored in an Omnidata digital data logger and transferred to a laptop computer. The EM-31 has an intercoil spacing of 12 feet, yielding an effective depth of penetration of about 18 feet.

The radar data were displayed and printed on a graphic recorder, and the fisher readings were observed.

Procedure and Interpretation

Aneptek established a general grid within which the terrain conductivity survey was conducted (see Att). Stations were marked every 50 feet within the site. We established closer-spaced control within this grid so that data collection lines could be run at a 5-foot spacing in a general east-west and north-south directions in order to have the receiver boom location at right angles to each other for the data collection.

Additionally, ground penetrating radar data were collected along lines chosen to cross the conjectured location of the pit containing the discarded H beams. To identify the possible pit and H beams, the geophysicist scanned the GPR display as the assistant pulled the antenna along the chosen traverses. Also, a Fisher TW-6 metal detector was used to test several areas for the presence of the buried H beams.

Results

1. Terrain Conductivity Surveys

The processed EM data are presented as two 11"x 17" color contour maps (see Att). The color plots allow rapid visual assimilation of the geophysical information. The contour maps show the variation of one parameter across the site: the EM-31 in-phase component of the induced magnetic field. One map is a display of the east-west readings and the other map is a display of the north-south readings. The out-of-phase component did not provide a useful response and is not shown.

Interpretation of the terrain conductivity data involved trying to identify the geophysical responses. The prominent geophysical responses at this site are clearly due to the chainlink fence at the northern edge and the buried electrical utility along the westerly edge of the investigated area.

The following comments can be made:

- The steel fence and the buried electrical utility strongly interfered with the EM response of the site along the northern and western edges of the surveyed area

- The pit reported to contain buried H beams was not located within the investigated area. There is a small anomaly centered about position 125N/30E on both plots, but this feature is too small to state with any degree of confidence that it may represent large buried metallic objects

- It is possible that if the H beam-containing pit is located within the areas of fence and cable interference, its anomalous response is masked. However, based upon our experience a large concentration of buried ferrous objects, such as lengths of H beams, should still be observable to a distinct degree through the surficial interference.

- The remainder of the area investigated by EM31 shows normal background readings

2. Ground Penetrating Radar Survey

The quality of the radar data was poor with the depth of penetration less than six feet. The site soil materials, together with the shallow water table, precluded quality records and good penetration.

- The GPR method appears to be restricted in its use at this particular area due to subsite conditions.

3. Pipe and Cable Locator Survey

- The Locator gave ambiguous readings within the suspected area, probably due to the depth of burial of the H beams about at the limit of detection by this method.

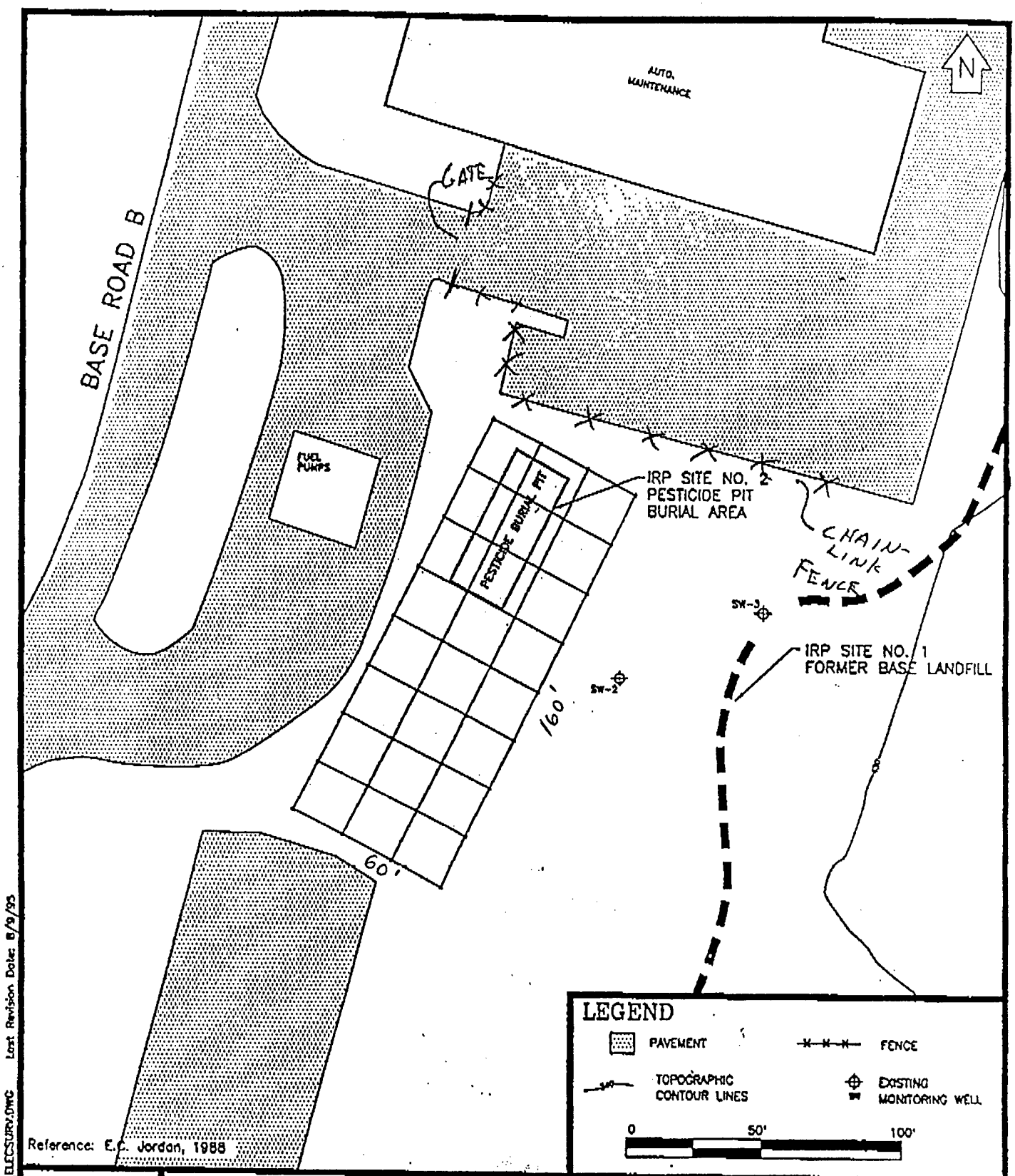
Geophysics GPR International is pleased to have performed this geophysical service and welcomes the opportunity to work again with your firm.

Sincerely,

L M Tyrala

Lester M. Tyrala,
District Manager

LMT/hp Att: Site Plan Map and EM31 colored contour maps



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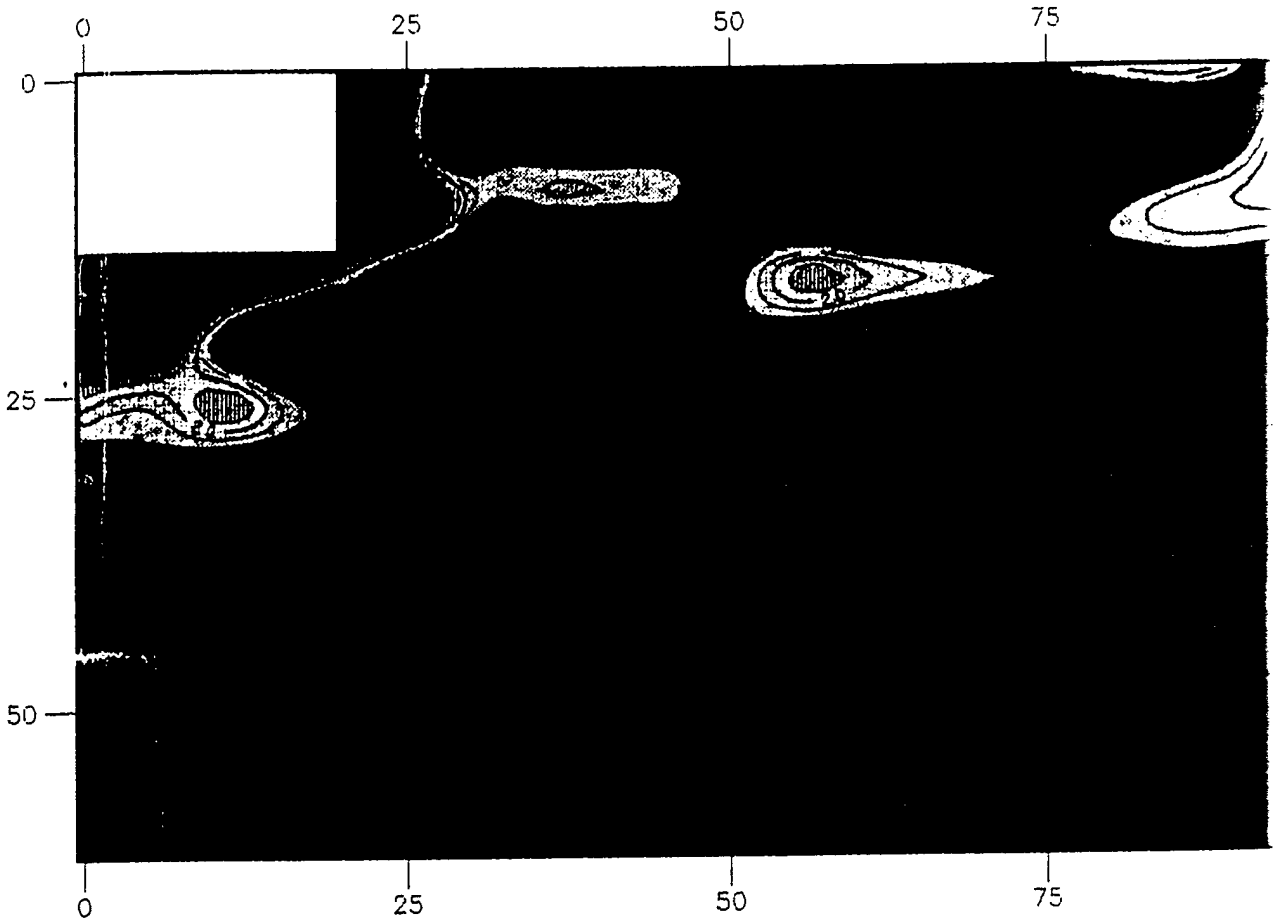
STEWART ANG BASE

ELECTROMAGNETIC SURVEY GRID

NEWBURGH, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-1

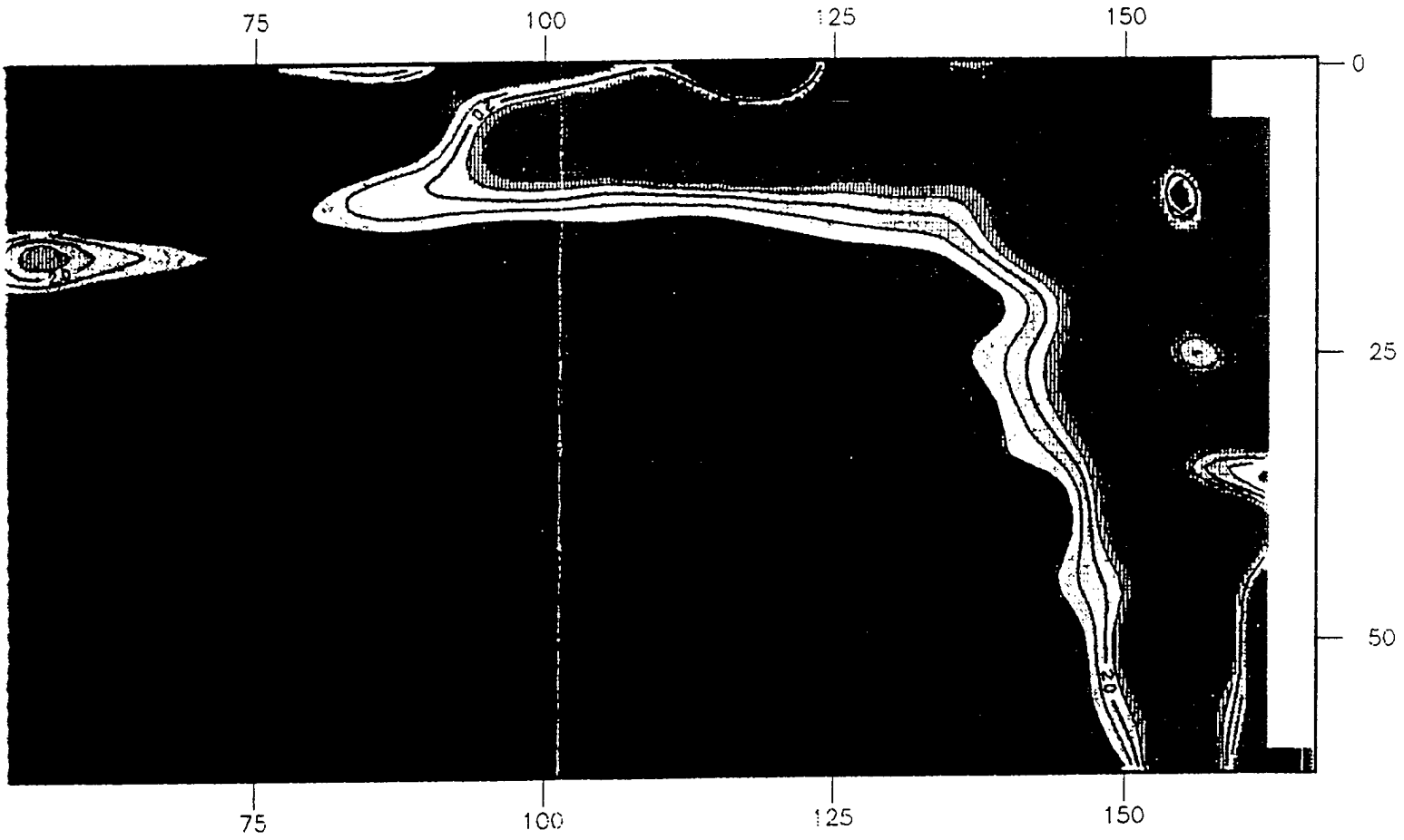


GEOPHYSICS GPR INTERNATIONAL INC B95106 95/09/18 09:58:50 JEAN-MARC CRESPY

ANEPTEK
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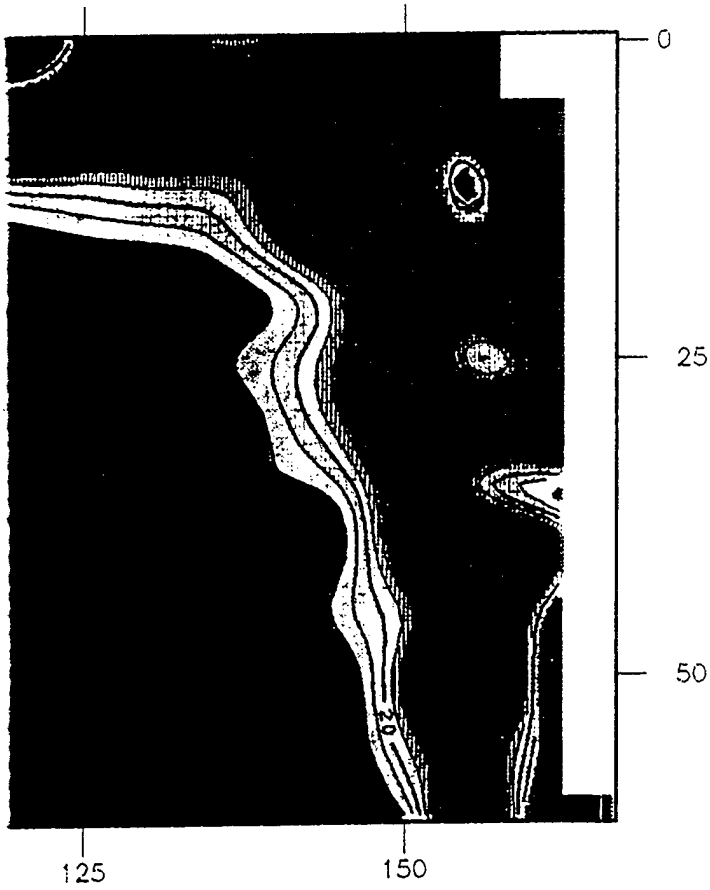
E-W



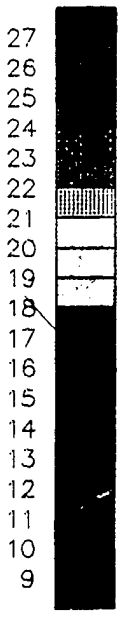
ANEPTEK CORPORATION
STEWART ANG BASE

NEWBURGH, NY
EM-31 SURVEY
IN PHASE MODE

E-W READINGS







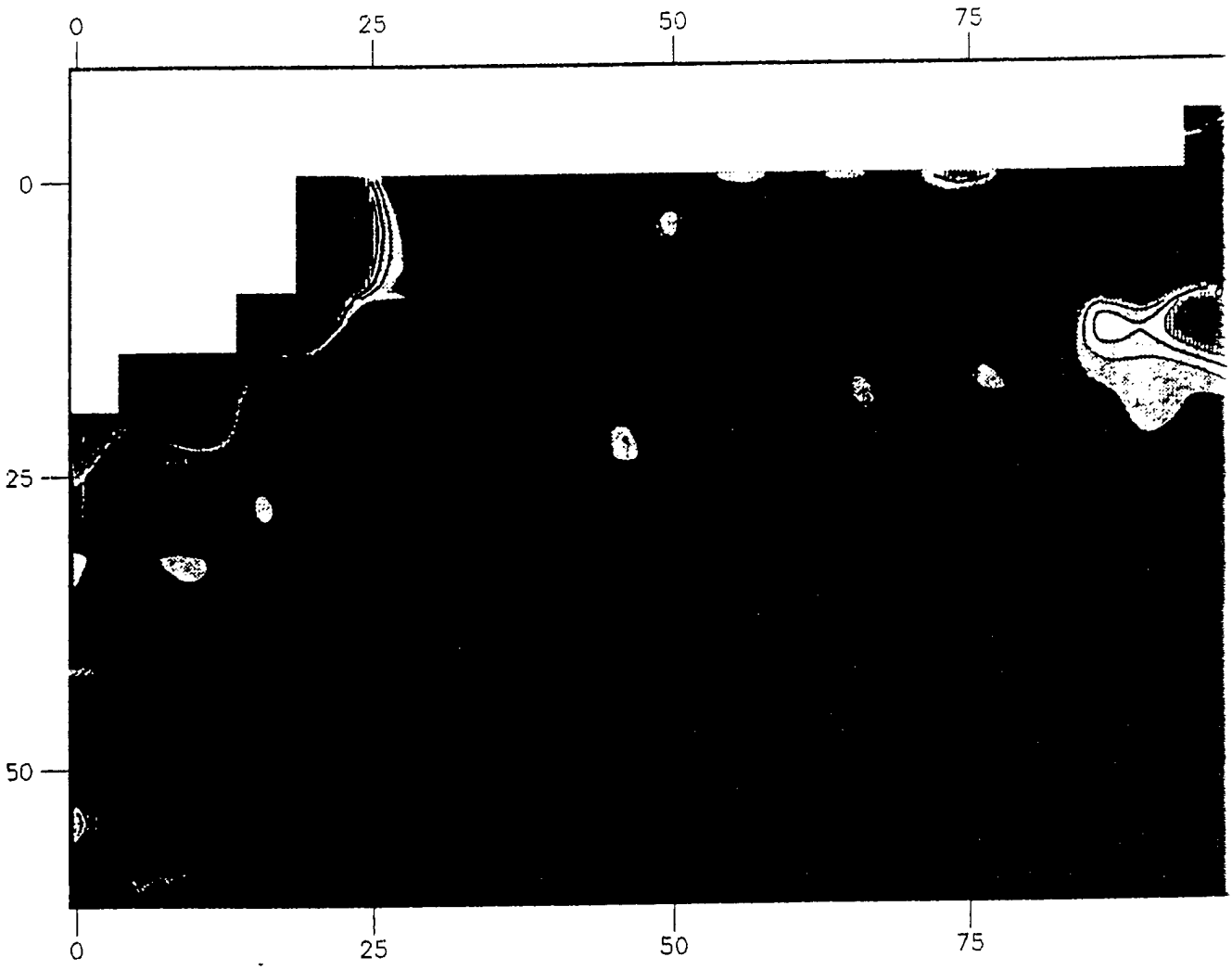
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(FEET)



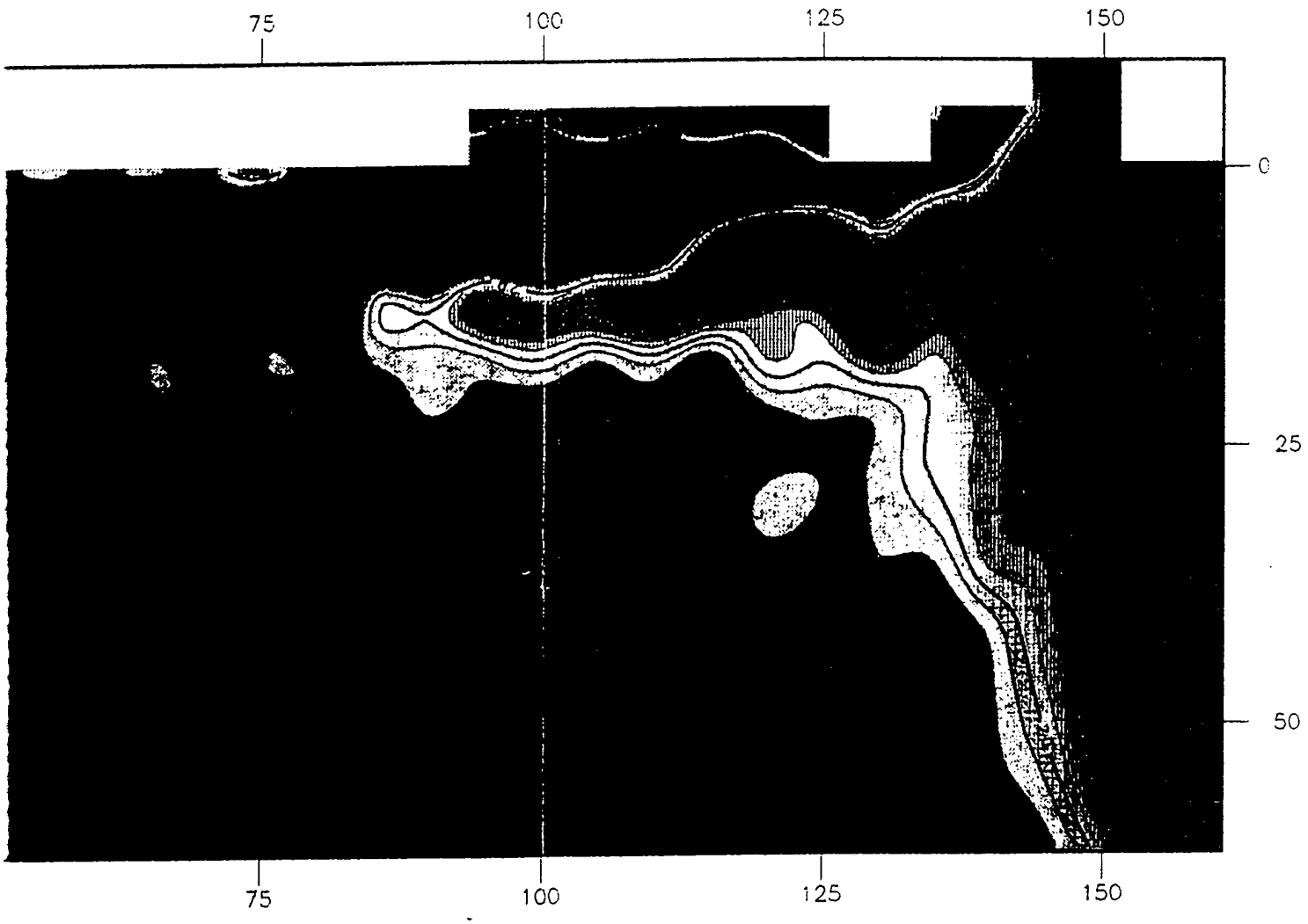
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25
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75
0
25
50
75
0
25
50
75

ANEPTEk
STEW

N
EI
IN

N-S

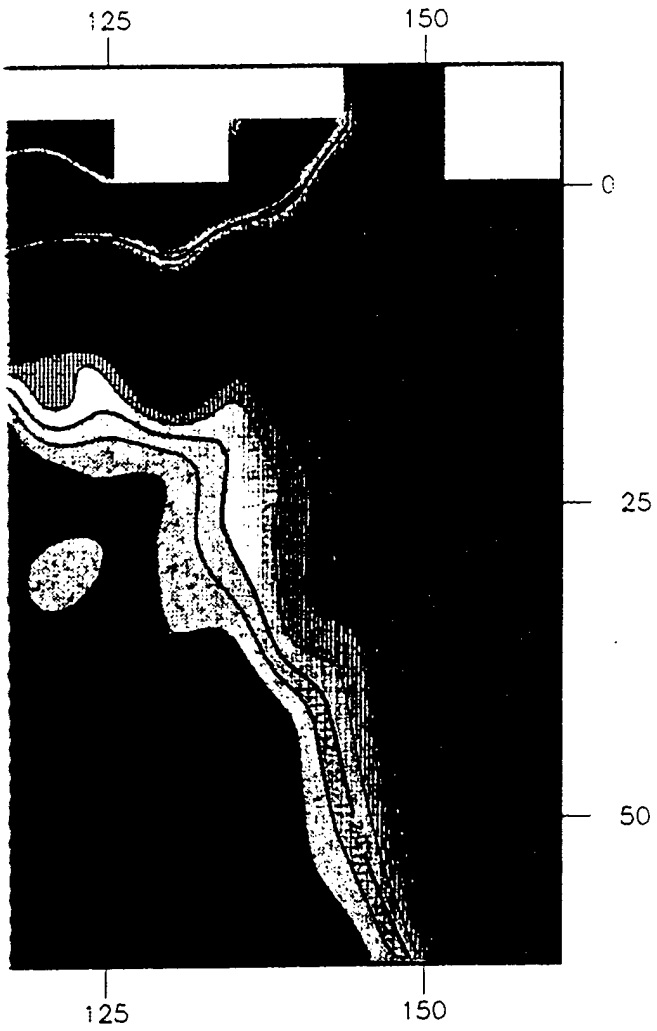


1

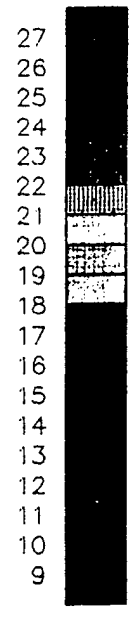
ANEPTEK CORPORATION
STEWART ANG BASE

NEWBURGH, NY
EM-31 SURVEY
IN PHASE MODE

N-S READINGS







Scale 1" = 15'

10 0 10

(FEET)



APPENDIX I

PESTICIDE SCREENING DATA

APPENDIX I

I.0 Immuno Assay Screening

I.1 Introduction

Pesticide immuno assay screening of all subsurface soils was performed during the RI to provide an indication of the relative pesticide concentrations in the soils and to aid in the selection of samples to be submitted to the off-site laboratory for chemical analysis. The immuno assay screening test kit used for the Site 2 RI is designed by Millipore Corporation to detect DDT in soils. The principal of the immuno assay screening is based on the use of antibodies produced by living organisms that bind to specific foreign substances or antigens introduced to the organism's body. These antibodies have a strong affinity to bind on to the specific antigen for which they were produced and can be extracted from an organism for use in the screening tests.

I.2 Test Procedure

To perform the test, the potentially contaminated soil sample is placed in a jar and mixed with a solvent to extract any contaminants present on soil particles. This extract is then placed into a test tube coated with a precise quantity of the appropriate antibody for the contaminant of interest. After addition of the sample extract to the test tube, any contaminant available in the extract solution will bind onto the available antibody binding sites along the test tube wall. An enzyme conjugate is then added which is made up of an enzyme that has been linked to the target analyte for which the test was designed. The enzyme does not interfere with the capability of the analyte to bind to the antibody binding sites. In accordance with the law of mass action, the more contaminant present in the sample, the fewer antibody binding sites will be taken up by the enzyme conjugate.

Next, the liquid is emptied out of the test tube to separate the unbound enzyme conjugate from that which is bound to the antibody binding sites along the test tube wall. Then a substrate is added to the test tube which reacts with the enzyme in the enzyme conjugate to produce a color in the liquid. The more conjugate which remains bound to the sides of the test tube, the more intense the color will be. Inversely, the more contaminant present in the extract, the less conjugate will be taken up at the binding sites, and a less intense color is produced. The resistance to the passage of light, or optical density, of the colored liquid is then measured using a differential photometer. The concentration of contaminant present in the original sample can then be approximated based on the optical density.

I.3 Calibration Procedure

The photometer is calibrated from blank and control samples of known concentrations. To calibrate the test, "blank" solution and control samples with known concentrations of DDT in soils of 0.2 ppm, 1.0 ppm, and 10.0 ppm, are provided with the DDT test kit. Interpretation of the

results each test involves obtaining the optical density of the blank sample and each control sample. The optical density of each control sample is then divided by that of the blank sample to obtain the $\%B_0$ for each known concentration. Next, a plot of concentration versus $\%B_0$ is generated, providing a calibration curve for samples analyzed as part of that sample batch. Due to changing characteristics of the calibration curve within varying concentration ranges, it is not valid to attempt to determine contaminant concentrations outside of the control limits of the test kit (i.e., 0.2 ppm and 10.0 ppm). Therefore, should analysis of a sample produce a $\%B_0$ which falls below that of the 10.0 ppm control sample, the concentration can only be reported as being greater than 10.0 ppm. Similarly, when the $\%B_0$ of the sample is found to be higher than that of the 0.2 ppm control sample, the concentration must be reported as being less than 0.2 ppm.

Although the test kit used during the Site 2 RI was developed specifically for DDT, the antibodies present in the kit bind not only to DDT, but also to DDT's metabolites and other structurally similar compounds. For this reason, the results of this screening technology provide concentrations of total pesticides in the soil sample analyzed. Therefore, a direct correlation of concentrations detected during onsite screening and laboratory analysis for TCL Pesticides and PCBs would not be expected as the TCL does not include all compounds to which the screening technology is sensitive. Compounds which provide positive results from the DDT soil screening technology used at Site 2 are listed in Table I-1.

I.4 Evaluation of Calibration Procedures Performed During the Site 2 RI

The results of all screening performed as part of the Site 2 RI are presented in Table 6-12 (see Section 6.2.2). A total of 72 soil samples from 12 soil borings were screened on-site using the immuno assay screening method. Samples were analyzed in 12 batches on 12 different days during the field program. Each day screening was performed, a new calibration curve was developed as described in Section 5.0 of this report. All calibration curves are presented in this Appendix following this discussion.

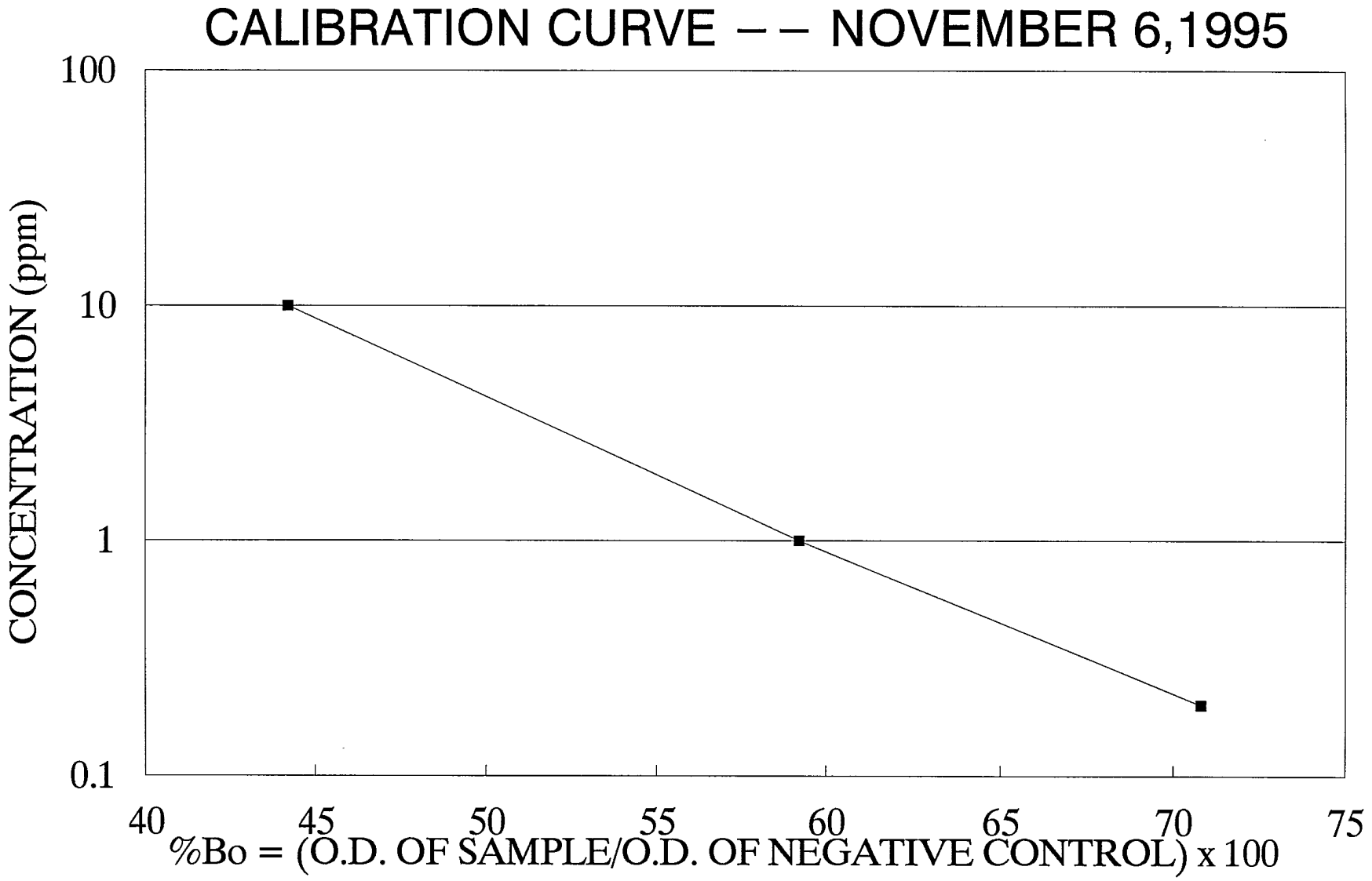
As noted in Section 6.2.2, Table 6-12, most of the $\%B_0$ values obtained from the analysis of the first four sample batches (analyzed from 10/2/95 through 10/6/95) are greater than 100%, which would suggest that the samples analyzed are actually less contaminated than the "blank" solution. When this problem was observed, Aneptek consulted with Millipore Corporation's technical consultants to identify and solve the problem. Initially, an effort was made to re-analyze a batch of samples to compare results for possible procedural error. Upon re-analysis of the samples collected from soil boring SB-02, the results were comparable to the original data set, providing the same total pesticide concentrations as the first analysis. Aneptek then sent split samples from soil borings SB-03 and SB-04, as well as samples of the "blank" solution and control samples provided with the kit to Millipore for confirmation analysis by their personnel. Results of the confirmation analysis indicated that the "blank" solution provided with the kits was contaminated, producing an optical density lower than that of the samples being analyzed. However, because field screening results were evaluated in relation to the $\%B_0$ of both the sample and the control samples, the effect of the contaminated "blank" solution was negated. Therefore, while the $\%B_0$

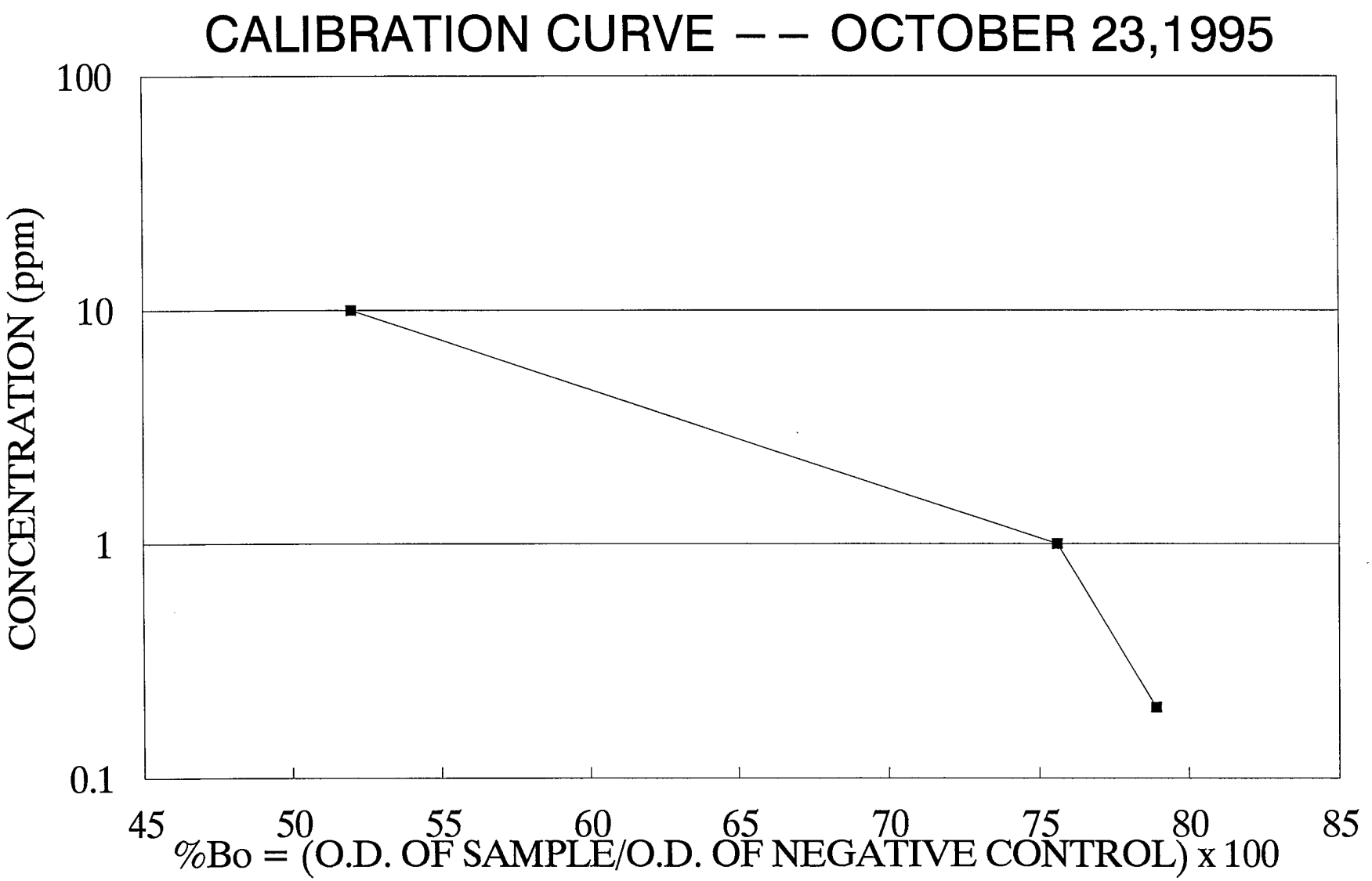
values for the initial sample batches appear too high, the sample total pesticide concentrations are still valid.

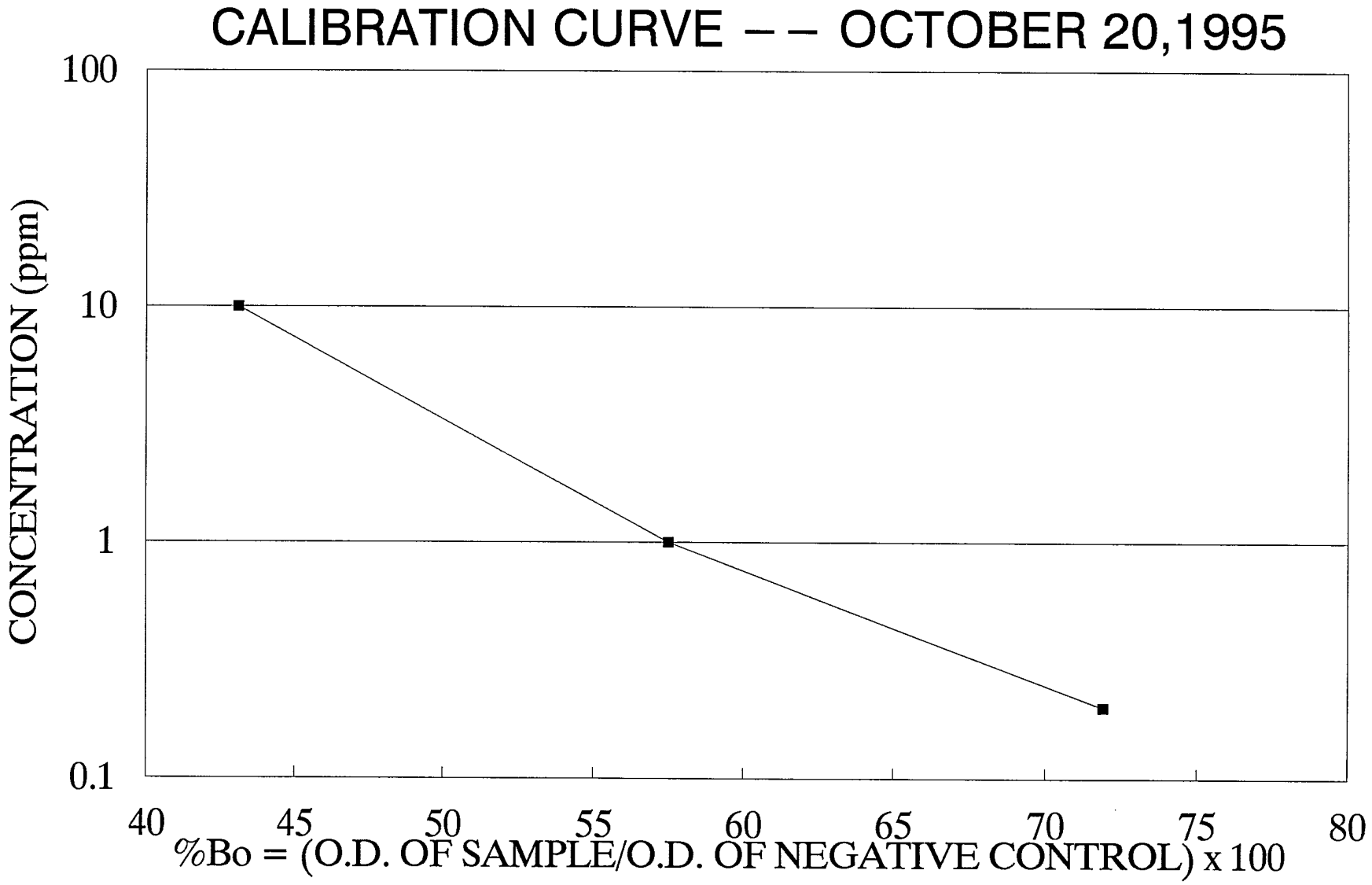
TABLE I-1
COMPOUNDS PRODUCING POSITIVE RESULTS IN SOIL DDT IMMUNO ASSAY SCREENING STEWART AIR NATIONAL GUARD BASE NEWBURGH, NEW YORK

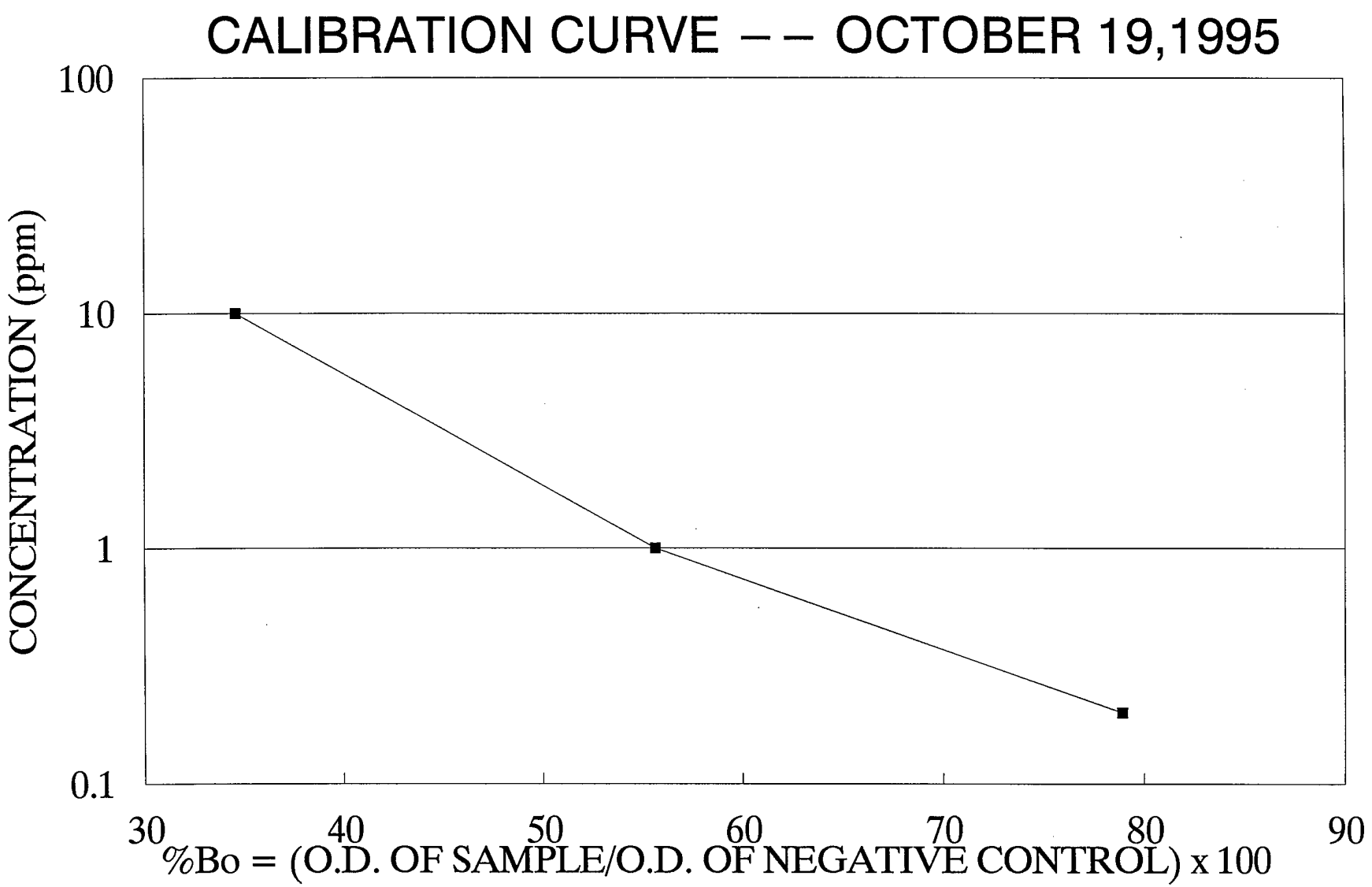
COMPOUND	LOWER LIMIT OF DETECTION (ppm)
4,4'-DDT	0.04
4,4'-DDD	0.01
4,4'-DDE	0.18
o,p'-DDT	4
o,p'-DDD	0.4
o,p'-DDE	3
DDA	0.002
Chloropropylate	0.007
Chlorobenzilate	0.03
Dicofol	0.14
Tetradifon	1.2
Thiobencarb	5
Tebuconazole	7
Neburon	17
Chloroxuron	24
Monolinuron	25
Diclofop	70

DDD - Dichlorodiphenyldichloroethane
DDE - Dichlorodiphenyldichloroethylene
DDT - Dichlorodiphenyltrichloroethane
ppm - parts per million

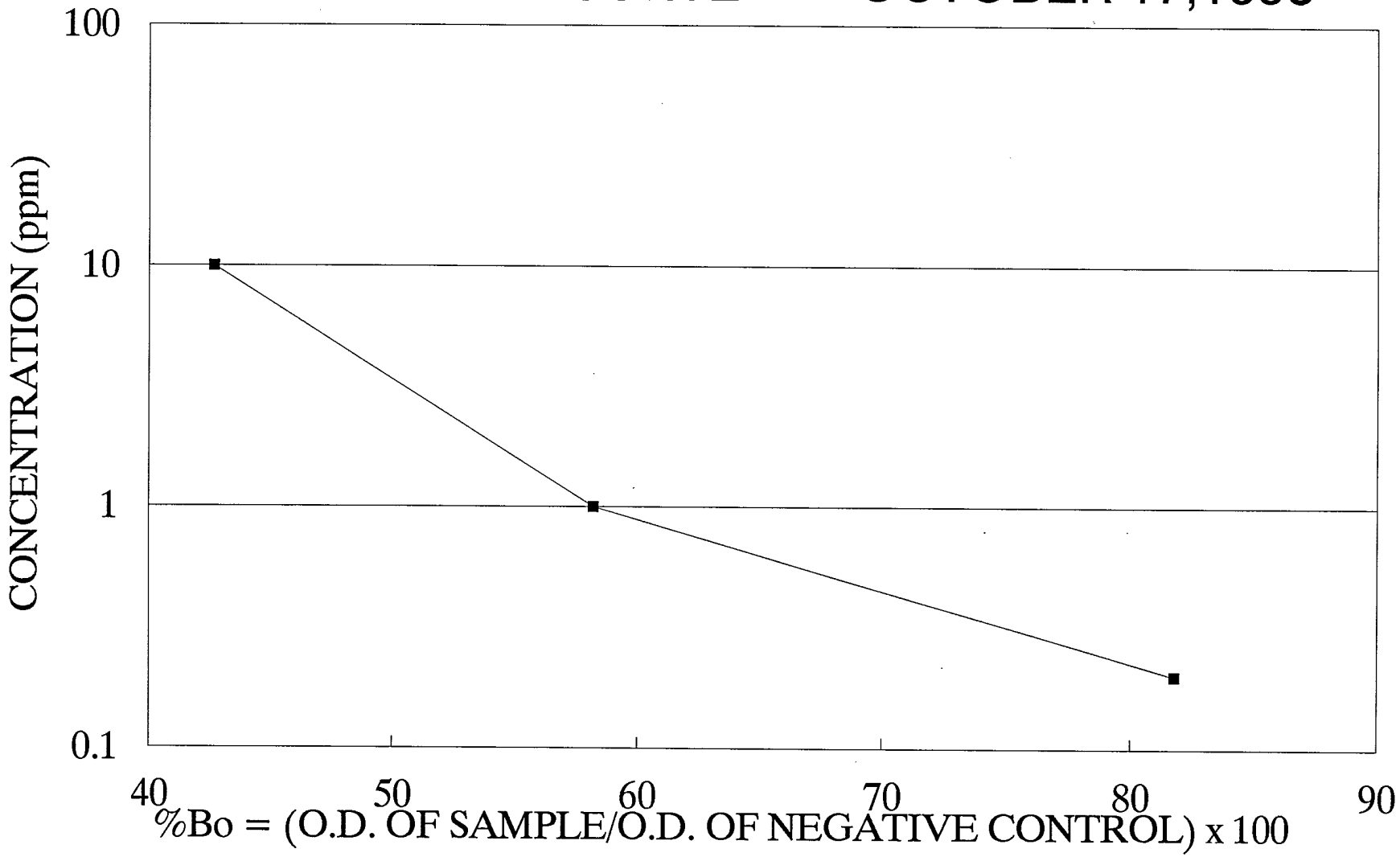

CALIBRATION CURVE -- NOVEMBER 6,1995
100
10
1
0.1
CONCENTRATION (ppm)
40
45
50
55
60
65
70
75
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100

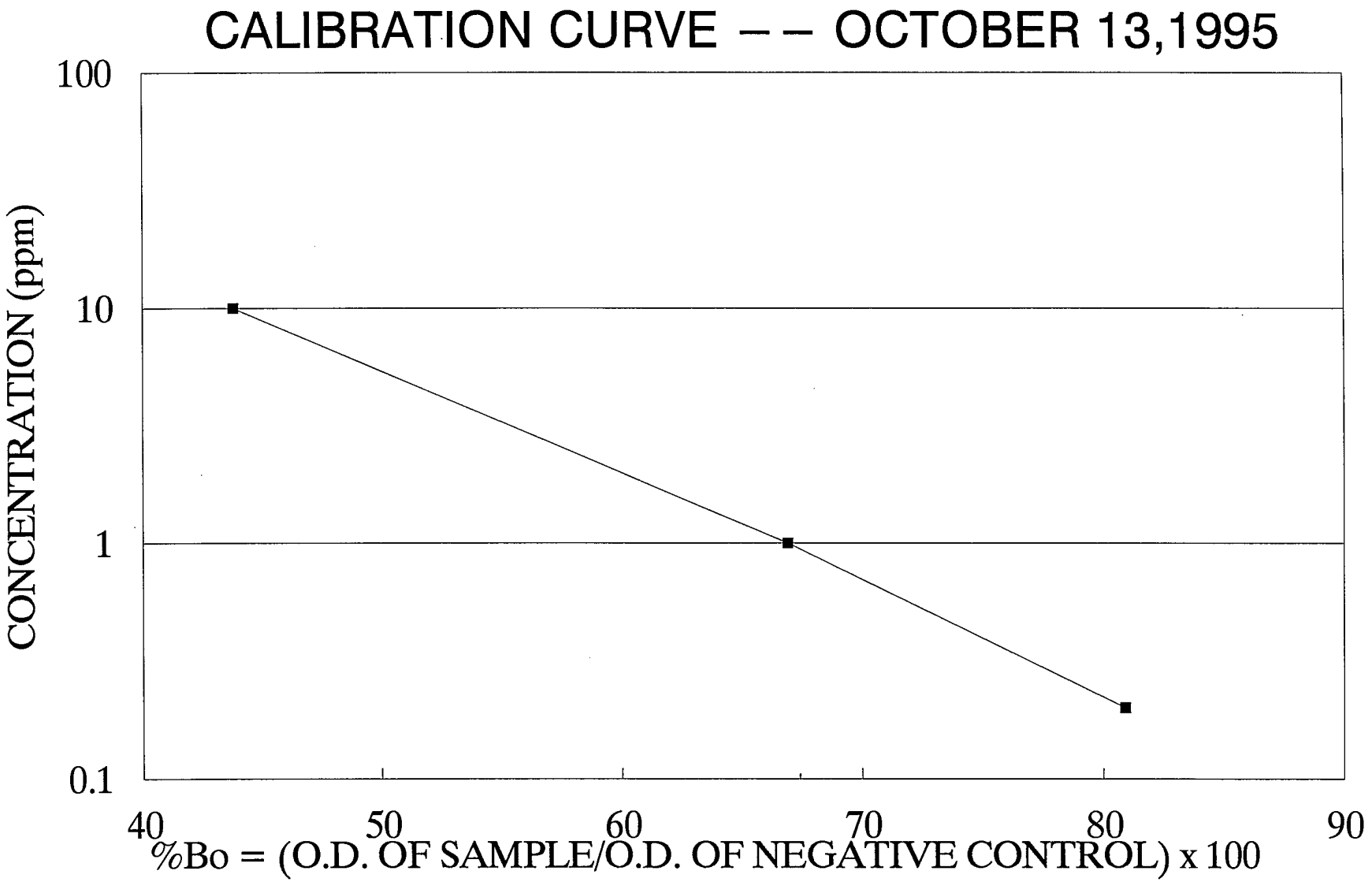

CALIBRATION CURVE -- OCTOBER 23,1995
100
10
1
0.1
CONCENTRATION (ppm)
45
50
55
60
65
70
75
80
85
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100

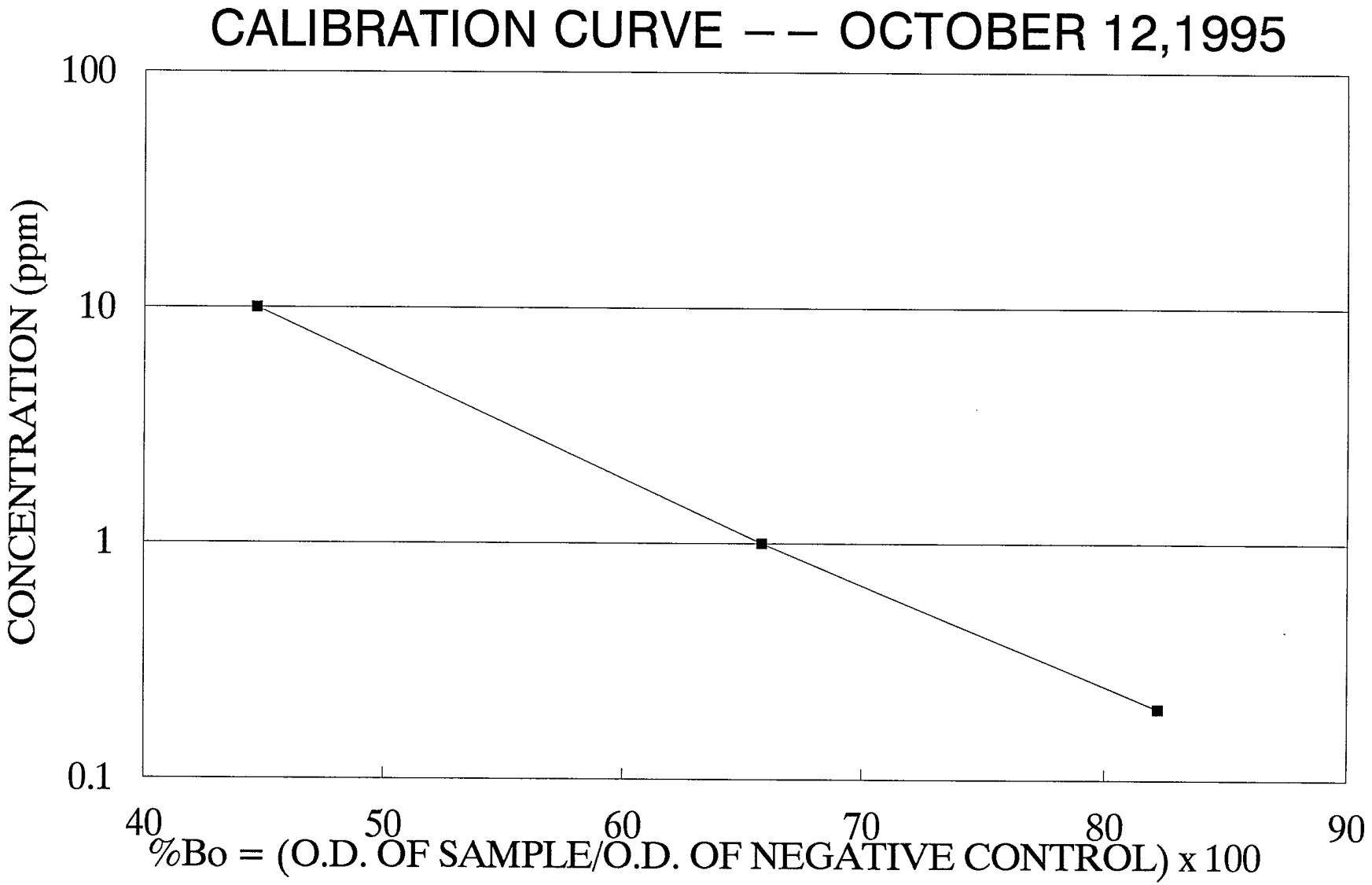

CALIBRATION CURVE -- OCTOBER 20,1995
100
10
1
0.1
CONCENTRATION (ppm)
40
45
50
55
60
65
70
75
80
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100

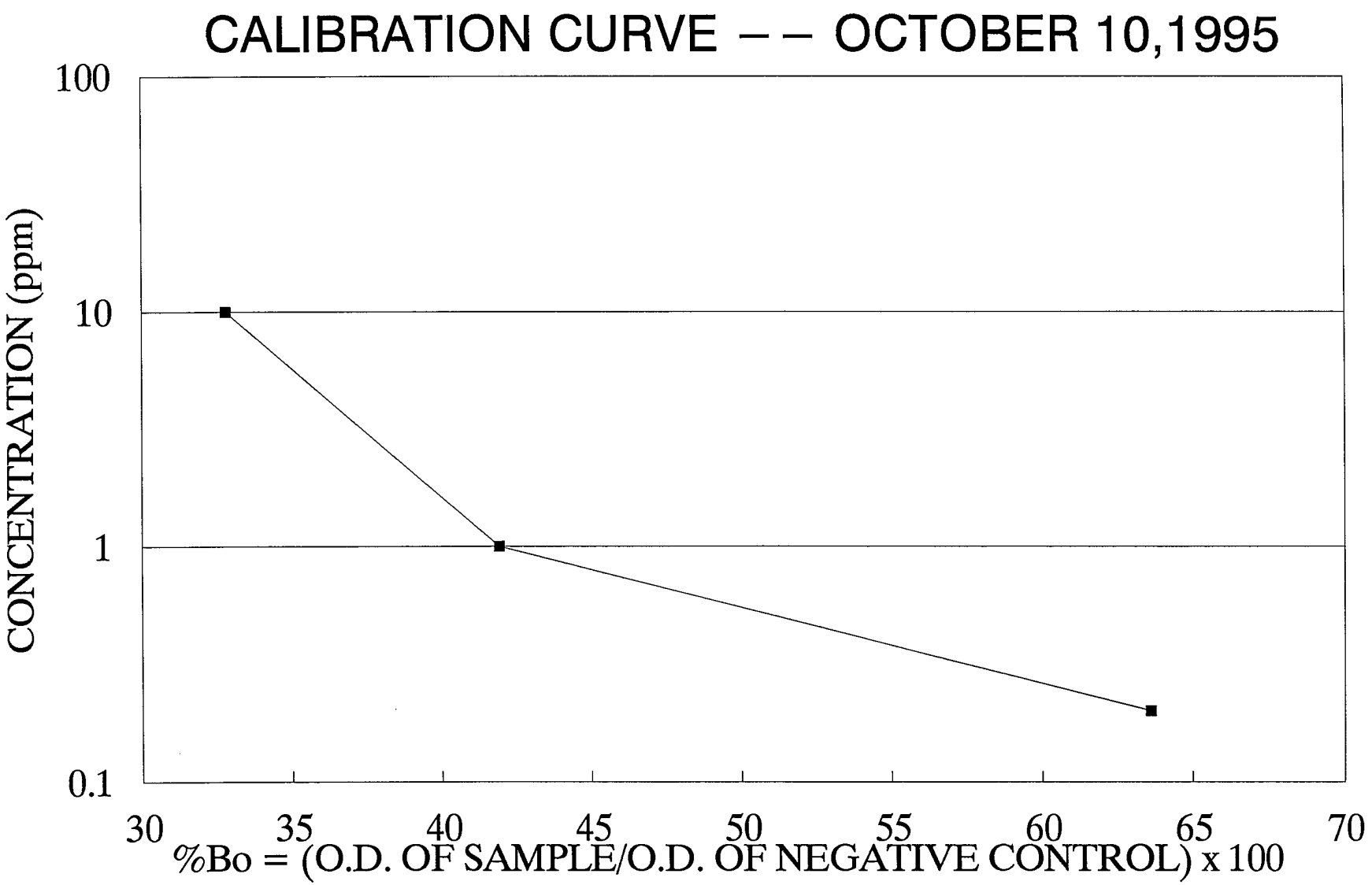

CALIBRATION CURVE -- OCTOBER 19,1995
100
10
1
0.1
CONCENTRATION (ppm)
30
40
50
60
70
80
90
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100

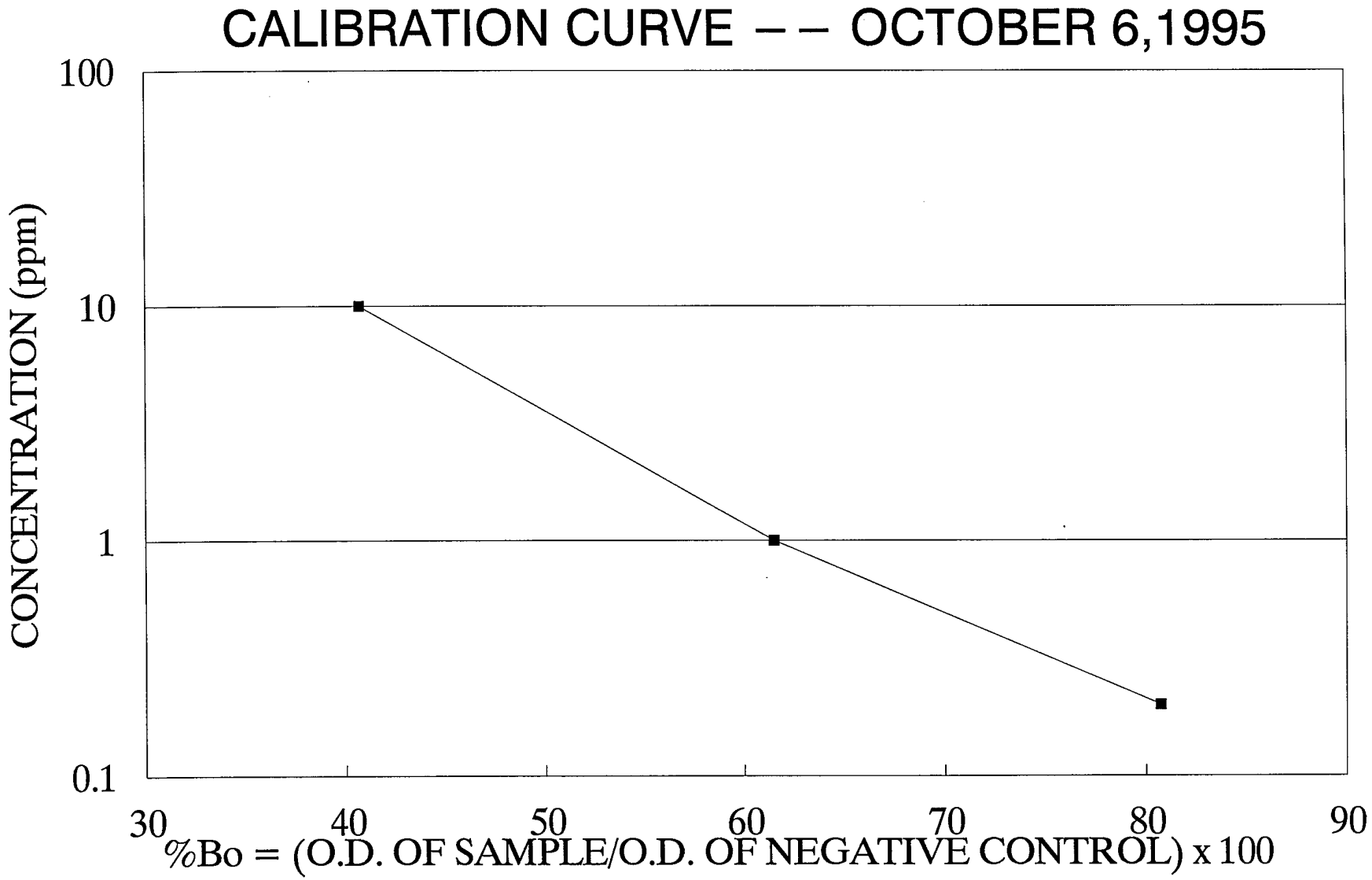
CALIBRATION CURVE -- OCTOBER 17,1995

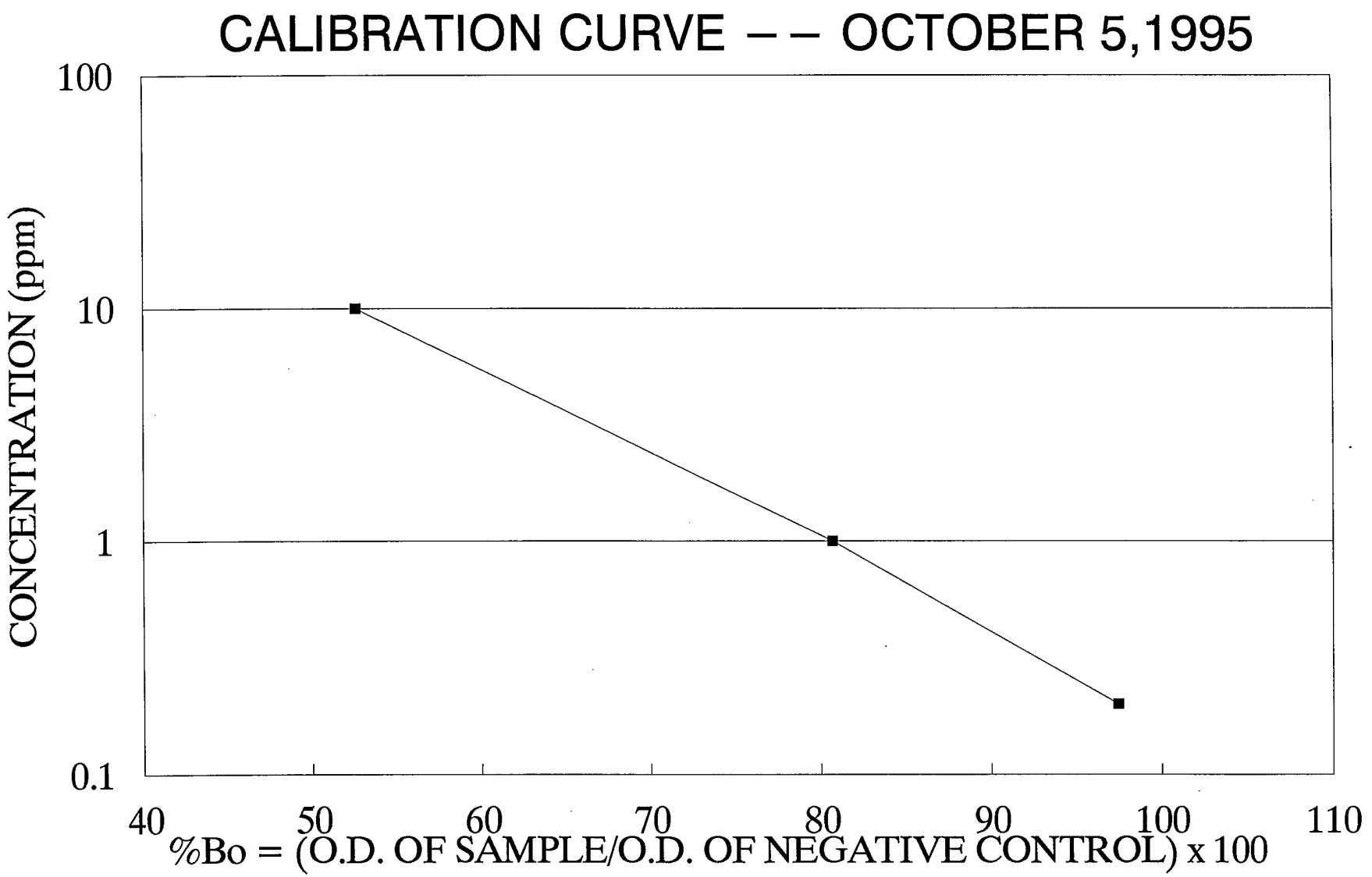


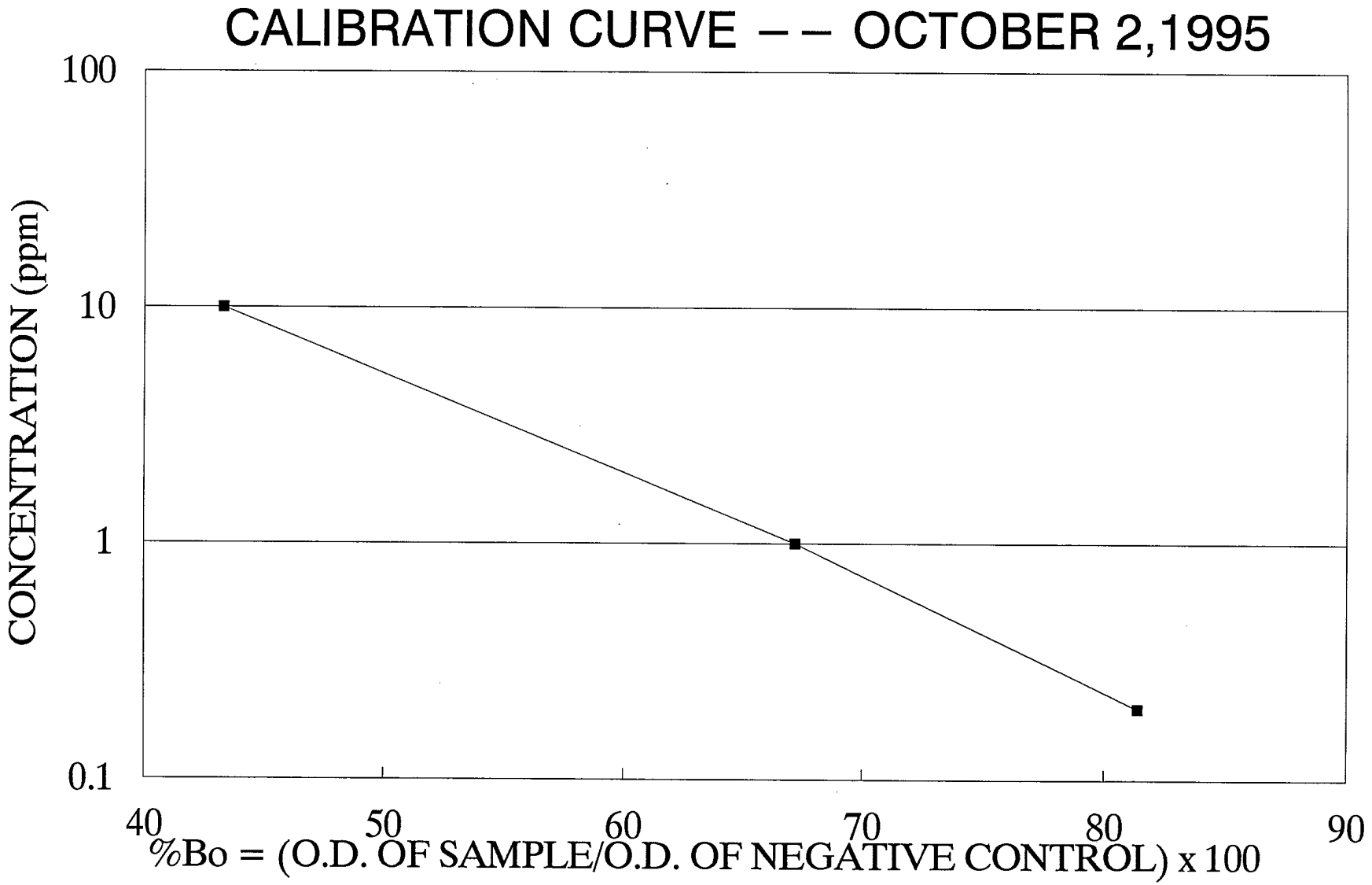

CALIBRATION CURVE -- OCTOBER 13,1995
100
10
1
0.1
CONCENTRATION (ppm)
40
50
60
70
80
90
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100


CALIBRATION CURVE -- OCTOBER 12,1995
100
10
1
0.1
CONCENTRATION (ppm)
40
50
60
70
80
90
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100


CALIBRATION CURVE -- OCTOBER 10,1995
CONCENTRATION (ppm)
100
10
1
0.1
30
35
40
45
50
55
60
65
70
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100


CALIBRATION CURVE -- OCTOBER 6,1995
100
10
1
0.1
CONCENTRATION (ppm)
30
40
50
60
70
80
90
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100


CALIBRATION CURVE -- OCTOBER 5,1995
100
10
1
0.1
CONCENTRATION (ppm)
40
50
60
70
80
90
100
110
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100


CALIBRATION CURVE -- OCTOBER 2,1995
100
10
1
0.1
CONCENTRATION (ppm)
40
50
60
70
80
90
%Bo = (O.D. OF SAMPLE/O.D. OF NEGATIVE CONTROL) x 100

APPENDIX J

CHAINS OF CUSTODY

EnviroTest Laboratories Inc. CHAIN OF CUSTODY RECORD

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CUSTOMER NAME: Aneptek Corporation
ADDRESS: 209 West Central
CITY, STATE, ZIP: Natick ~~West~~ KK MA 01760
NAME OF CONTACT: Mike Plumb
PHONE NO.: 567-6297 or 508-650 1048
PROJECT LOCATION: Stewart ANG, Newburgh MA
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
[redacted]
TEMP BLANK Y ☒ N ☐ °C
pH CHECK Y ☐ N ☐
REVIEWED BY:

NY PUBLIC WATER SUPPLIES
SOURCE ID:
ELRP TYPE:
FEDERAL ID:

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber 8oz Glass	2 oz. Opaque Glass	ANALYSIS REQUESTED
	10/3/95	1510		X	Water	RW-SS-100395	6	2		2	1	1							91.1, 91.2, 91.3, TAL Metals, Cn, TOC
					Water	TB-02	1	1											91.1
	10/3/95	1545		X	Soil	SS-01	2										1	1	91.1, 91.2, 91.3, TAL Metals, Cn, TOC
	10/3/95	1240		X	Soil	SS-02	2										1	1	" " " " " "
	10/3/95	1300		X	Soil	SS-03	2										1	1	" " " " " "
	10/4/95	0900		X	Soil	SS-04	2										1	1	" " " " " "
	10/4/95	0915		X	Soil	SS-05	2										1	1	" " " " " "
	10/4/95	0948		X	Soil	SS-06	2										1	1	" " " " " "
	10/4/95	1000		X	Soil	SS-07 (MS/MSD)	2										1	1	" " " " " "
	10/4/95	0930		X	Soil	SS-15	2										1	1	" " " " " "

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	ET	10/4/95					
[signature] Kim Kalafarski	Aneptek Corporation	10/4/95	1335				

COMMENTS

10/11/95

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: Aneptek Corporation
ADDRESS: 209 West Central St.
CITY, STATE, ZIP: Natick, MA 01760
NAME OF CONTACT: Mike Plumb
PHONE NO.: 508-650-1048
PROJECT LOCATION: Stewart ANG, Newbergh NY
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☐
OTHER ____

TURNAROUND
☐ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
[redacted]
TEMP BLANK Y N °C
PH CHECK Y N
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ANALYSIS REQUESTED

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber 8 oz Glass	2 oz. Clear Glass	ANALYSIS REQUESTED
	10/3/95	1000		X	Water	FB-TW-100395	6	2		2	1	1							91.2, 91.1, ~~ARK~~ 91.3, TAL Metals, Cn, TC
	10/2/95	1715		X	Soil	SB-01-02	2										1	1	91.1, 91.2, 91.3, TAL Metals, Cn, TOC
	10/3/95	1235		X	Soil	SB-01-18.5	2										1	1	" " " " " "
	10/3/95	1657		X	Soil	SB-01-32.5	2										1	1	" " " " " "
					Water	Trip Blank 01	1	1											91.1
					Water	Temp. Blank 01	1											1	

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	CL	9/10/95					
Kim S. Kaminski	Aneptek Corporation	10/4/95	12:45				
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME

COMMENTS ____

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

Envirotest Laboratories Inc. CHAIN OF CUSTODY RECORD

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CUSTOMER NAME: Aneptek Corporation
ADDRESS: 209 West Central St
CITY, STATE, ZIP: Natick MA 01760
NAME OF CONTACT: Mike Plumb
PHONE NO.: 508-650-1048
PROJECT LOCATION: Stewart ANG Base SITE 2
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
[redacted]
TEMP BLANK Y X N ____ C
pH CHECK Y ____ N ____
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber 8oz Glass	2 oz. Garnet Glass	ANALYSIS REQUESTED
	10/5/95	1100		X	Water	RB-SB-100595	6	2		2	1	1							91.1 91.2 91.3 TAL METALS Cn
	10/4/95	1634		X	Soil	SB-02-02										1	2		91.1 91.2 91.3 TAL Metals Cn TOC
	10/4/95	1645		X	Soil	SB-02-06										1	2		" " " " " "
	10/4/95	1655		X	Soil	SB-02-10.2										1	2		" " " " " "
	10/6/95	0743		X	Soil	SB-04-~~02~~ 02 KK										1	2		" " " " " "
	10/6/95	1046		X	Soil	SB-04-21										1	2		" " " " " "
	10/6/95	0800		X	Soil	SB-04-06 (MS/MSD)										2	2 KK		91.1 91.2 91.3 TAL Metals Cn TOC
	10/5/95	1323		X	Soil	SB-03-06										1	2		91.1 91.2 91.3 TAL Metals Cn TOC
	10/5/95	1323		X	Soil	SB-03-56										1	2		" " " " " "
	10/5/95	1605		X	Soil	SB-03-22										1	2		" " " " " "
				X	Water	TB-03-~~100595~~ KK	1												
	10/5/95	1315		X	Soil	SB-03-1.3										1	2		91.1 91.2 91.3 TAL Metals Cn TOC

	RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
1	[signature]	ETL	9/9/95		[signature] Kutawski	Aneptek	9/6/95	1600
2	[signature] Kutawski	ANEPTEK	10/6/95		[signature]	ANEPTEK	10/6/95	1530
3	[signature]	ANEPTEK	10/6/95	1530	[signature]	ETL	10/6/95	1530
4								

COMMENTS

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME	Aneptek
ADDRESS	209 W. Central St
CITY, STATE, ZIP	Natick MA 01760
NAME OF CONTACT	Mike Plumb
PHONE NO.	508/650-1048
PROJECT LOCATION	Steward ANGB
PROJECT NUMBER / PO NO.	

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y ___ N ___ °C
pH CHECK Y ___ N ___
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ETL#	SAMPLING DATE	SAMPLING TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	10/10	1445		X	Water	RB-SB-101095	5	2		2	1	1							91.1, 91.2, 91.3, TAL Metals, CN

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
	ER	9/19/95					
	Aneptek	10/10/95	1553				
					EL	10/10/95	3:54

COMMENTS ____

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: Aneptek Corporation
ADDRESS: 209 West Central St
CITY, STATE, ZIP: Natick, MA 01760
NAME OF CONTACT: Mike Plumb — PHONE NO.: 508-650-1048
PROJECT LOCATION: Stewart ANG Base, Newburgh, NY
PROJECT NUMBER / PO NO.: Stewart RI SITE #2

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y N °C
pH CHECK Y N
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID
ELRP TYPE
FEDERAL ID

ANALYSIS REQUESTED

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber 8oz Glass	2 oz. Qorpak Glass	
	10/10/95	1100		X	Soil	SB-05-02											1	2	91.1, 91.2, 91.3, Cn, TA, Metals, TA
	10/10/95	1115		X	Soil	SB-05-06											1	2	" " " " " " " "
	10/10/95	1417		X	Soil	SB-05-22											1	2	" " " " " " " "
	10/10/95	1746		X	Soil	SB-06-02											1	2	" " " " " " " "
	10/11/95	0950		X	Soil	SB-06-26.5											1	2	" " " " " " " "
	10/11/95	1240		X	Soil	SB-06-34.5											1	2	" " " " " " " "
					Water	TB-04		1										FRK (X)	" " " " " " " "
					Water	Temp Blank												1	" " " " " " " "
																			TB-04 91.1 only DMK

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
Kim D. Kutawski	Aneptek	10/12/95	12:03		FTL	10/12/95	12:35
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME

COMMENTS

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: Anepte K
ADDRESS: 209 West Central St.
CITY, STATE, ZIP: Natick, MA 01760
NAME OF CONTACT: Mike Plumb
PHONE NO.: 508/650-1048
PROJECT LOCATION: Stewart Air National Guard Base
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y N °C
pH CHECK Y N
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID
ELRP TYPE
FEDERAL ID

ETL#	SAMPLING DATE	SAMPLING TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber 125 mL Glass	8oz Glass Qampak	ANALYSIS REQUESTED
	10/12/95			X	Water	RB-SB-101295	6	2		2	1	1							91.1, 91.2, 91.3, CN, TAL Met.
	↓	1423		X	Soil	SB-07-02	3								1	1	1		TOC
		1615		X	Soil	SB-07-33	3								1	1	1		
		1511		X	Soil	SB-07-16	3								1	1	1		
	↓	1815		X	Soil	SB-17-33	3								1	1	1		
				X	Water	TB-05	2	2											11

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	Anepte K	10/13/95	1400				
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY [signature]	COMPANY ETL	DATE 10/13/95	TIME 14:20

COMMENTS

Envirotest Laboratories Inc. CHAIN OF CUSTODY RECORD

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CUSTOMER NAME: Aneptek Corporation
ADDRESS: 209 West Central St.
CITY, STATE, ZIP: Natick MA 01760
NAME OF CONTACT: Mike Plumb
PHONE NO.: 508-650-1048
PROJECT LOCATION: Stewart ANG Base SITE #7
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)

TEMP BLANK Y ✓ N ____ °C
pH CHECK Y ____ N ____
REVIEWED BY: ____

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ETL#	SAMPLING DATE	SAMPLING TIME AM/PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic GLASS	125ml Plastic Sterile	250ml Amber GLASS	2 oz. Qorpak GLASS	ANALYSIS REQUESTED
01	10/16	1015		✓	SOIL	MW-01-04	1											✓	91.1
				✓		MW-01-04	1										✓		91.2-91.3-TAL/METALS-CN
				✓		MW-01-04	1								✓				TOC
02	10/17	1029		✓		MW-01-18	1											✓	91.1
				✓		MW-01-18	1										✓		91.2-91.3-TAL/METALS-CN
				✓		MW-01-18	1								✓				TOC
03		1245		C		MW-01-31.6	1											✓	91.1
				✓		MW-01-31.6	1										✓		91.2-91.3-TAL/METALS-CN
				✓		MW-01-31.6	1								✓				TOC
04					WATER	TB-06	2	✗											91.1
					✓	TEMP BLANK	1												

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	EIL	9/19/95					
[signature]	ANEPTEK	10/17/95	1100				
				[signature]	EIL	10/18/95	11:15

COMMENTS ____

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: ANEPTEK

ADDRESS: 209 W. CENTRAL ST

CITY, STATE, ZIP: NATICK MA 01760

NAME OF CONTACT: MIKE PLUMB

PHONE NO.: (508)-650-1048

PROJECT LOCATION: STELLART AIR NATIONAL GUARD

PROJECT NUMBER / PO NO.:

REPORT TYPE

STANDARD ☐ ISRA ☐

NYASP A ☐ B ☐ CLP ☑

OTHER ____

TURNAROUND

☑ NORMAL ____

☐ QUICK ____

☐ VERBAL ____

LABORATORY # (Lab Use Only)

TEMP BLANK Y ☑ N ☐ ____ °C

pH CHECK Y ☐ N ☐

REVIEWED BY

NY PUBLIC WATER SUPPLIES

SOURCE ID

ELRP TYPE

FEDERAL ID

ANALYSIS REQUESTED

ETL#	SAMPLING DATE	SAMPLING TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass ~~VOA~~	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	10/17	1236		X	WATER	DW-01-101795	6	2		2	1	1							91.1, 91.2, 91.3, TAL MET, CN
				X	WATER	TB-DW-01		2											91.1
						TEMP BLANK												1	

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	ANEPTEK	10/18/95	1100				
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY [signature]	COMPANY ETL	DATE 10/18/95	TIME 1413

COMMENTS

EnviroTest Laboratories Inc. CHAIN OF CUSTODY RECORD

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CUSTOMER NAME: ANEPTEK

ADDRESS: 209 W. CENTRAL ST

CITY, STATE, ZIP: NATICK MA 01760

NAME OF CONTACT: MIKE PLUMB PHONE NO. 508(650-1048)

PROJECT LOCATION: STEWART ANG SITE 2

PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☐ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)

TEMP BLANK Y N ____ °C
pH CHECK Y N
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID
ELRP TYPE
FEDERAL ID

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	11/28/95	0900		X	WATER	MW-01-1128	8	3		2	2	1							TCL VOC, TCL SVOC & PEST PCB, TAL METALS, TOT METALS FILTERED AND CN
	11/28/95	1010		X	WATER	MW-10-1128	8	3		2	2	1							"
	11/28/95	1310		X	WATER	MW-109-1128	8	3		2	2	1							"
						TB-1128	2	2											TCL VOCs
	11/28/95	1350		X	WATER	MW-108-1128	3	3											TCL VOCs

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY Michael Plumb	COMPANY Aneptek	DATE 11/28/95	TIME 1538	RECEIVED BY	COMPANY ETL	DATE 11/28/95	TIME 1538

COMMENTS Temp Blank 4°C No

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: ANEPTEK CORP.
ADDRESS: 209 West Central STREET
CITY, STATE, ZIP: NATICK, MA 01760
NAME OF CONTACT: MIKE PLUMB
PHONE NO.: (508) 650-1048
PROJECT LOCATION: STEWART ANG BASE - SITE 2
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☐ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y ___ N ___ ___ °C
pH CHECK Y ___ N ___
REVIEWED BY: ____

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ETL#	SAMPLING DATE	SAMPLING TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	11/27	1445		X	WATER	MW-09-1127 (MS/MD)	24	9	~~6~~	6	6	3							TCL VOC, TCL SVOC, TAL METALS (Total), PEST/PCB, TAL CYANIDE
						TB-1127	2	2											TCL VOCs

ANALYSIS CHAIN

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY Michael Plumb	COMPANY Aneptek	DATE 11/28/95	TIME 1538	RECEIVED BY	COMPANY IEL	DATE 11/28/95	TIME 3:38

COMMENTS: Temp Blank 4°C

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

Envirotest Laboratories Inc. CHAIN OF CUSTODY RECORD

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CUSTOMER NAME	ANDTEK CORPORATION
ADDRESS	209 West Central Street
CITY, STATE, ZIP	NATICK MA 01760
NAME OF CONTACT	MIKE PLUMB
PHONE NO.	(508) 650-1048
PROJECT LOCATION	STEWART AND BASE - SITE 2
PROJECT NUMBER / PO NO.	

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☐ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y N °C
pH CHECK Y N
REVIEWED BY

NY PUBLIC WATER SUPPLIES
SOURCE ID
ELRP TYPE
FEDERAL ID

ETL#	SAMPLING DATE	SAMPLING TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
01	11/28/95	1330		X	WATER	MW-108-1128	5 ~~8~~	~~3~~	amb	2	2	1							TCL VOCs, TCL SVOCs, TAL Metals, TAL Pesticides/PCBs and CN

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[illegible]	Andtek	11/28/95	1538	[signature]	ETL	11/28/95	3:38

COMMENTS Temp Blank 4°C

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: ANEPTEK
ADDRESS: 209 W. CENTRAL ST
CITY, STATE, ZIP: NATICK MA 01760
NAME OF CONTACT: MIKE PLUMB
PHONE NO.: 508-650-1048
PROJECT LOCATION: STEWART ANG
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☑
OTHER ____

TURNAROUND
☑ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y ____ N ____ °C
pH CHECK Y ____ N ____
REVIEWED BY: ____

NY PUBLIC WATER SUPPLIES
SOURCE ID: ____
ELRP TYPE: ____
FEDERAL ID: ____

ETL#	SAMPLING DATE	TIME AM/PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	11/28	1820		4	AQUEOUS	SW-02-1128	8	8		2	2	1							TCL, SVOC, PEST/PCB, CN, TAL + METALS (UNFILTERED)
	11/28	1830		4	"	SW-12-1128	5	5		2	2	1							" " " " "

J.D.

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	ETL	11/29/95	12:52				
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
				Todd Richmond	ETL	11-29-95	12:05

COMMENTS ____

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: ANDTEK CORP.
ADDRESS: 209 West Central Street
CITY, STATE, ZIP: Natick MA 01760
NAME OF CONTACT: Mike Plumb
PHONE NO.: (508) 650-1048
PROJECT LOCATION: STEWART ANG BASE - Site 2
PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☒ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
TEMP BLANK Y N °C
pH CHECK Y N
REVIEWED BY:

NY PUBLIC WATER SUPPLIES
SOURCE ID
ELRP TYPE
FEDERAL ID

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	11/28/94	1730		X	Water	SW-03-1128	8	3		2	2	1							TCL VOCs, TCL SVOCs + PEST/PCBs, TAL Metals (Filtered) and CN
	11/28/94	1700		X	Water	MW-13-1128	8	3		2	2	1							"
	11/28/94	1830		X	WATER	SW-12-1128	3	3											TCL VOCs
	11/28/94	1820		X	WATER	SW-02-1128	3	3											TCL VOCs
	11/29/94				WATER	TB-1129	3	3											TCL VOCs

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
	ETC	11/29/94	12:03				
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY: Todd Reinhardt	COMPANY: ETC	DATE: 11-29-94	TIME: 12:05

COMMENTS

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

EnviroTest Laboratories Inc.

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CHAIN OF CUSTODY RECORD

CUSTOMER NAME: Fitzgerald

ADDRESS: 201 West Central St.

CITY, STATE, ZIP: Natick MA 01760

NAME OF CONTACT: Mike Plumley PHONE NO.: (508) 655-1015

PROJECT LOCATION: Stewart Ave Site 2

PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☒ ISRA ☐
NYASP A ☐ B ☐ CLP ☐
OTHER ____

TURNAROUND
☐ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
[redacted]
TEMP BLANK Y ✓ N ____ ____ °C
pH CHECK Y ____ N ____
REVIEWED BY [redacted]

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ETL#	SAMPLING DATE	SAMPLING TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	12/6/95	1410	X		Soil	IDW-01-120695	2			1								1	TCLP/org/met
	12/6/95	1415	X		Soil	IDW-02-120695	2			*								1	" "
	12/6/95	1420	X		Soil	IDW-03-120695	2			1								1	" "
	12/6/95	1425	X		Soil	IDW-04-120695	2			1								1	" "
						(Dup)	2			1								1	
						(Trip)	2			1								1	

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[illegible]	ET	12/5/95	12[illegible]	Michael Blank	Anchem	12/5/95	1640
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
Michael Blank	Anchem	12/7/95	1240	[illegible]	ET	12/7/95	12:37

COMMENTS

Envirotest Laboratories Inc. CHAIN OF CUSTODY RECORD

315 Fullerton Avenue, Newburgh, NY 12550 (914) 562-0890 FAX (914) 562-0841

CUSTOMER NAME: Anteck Corp

ADDRESS: 209 West Central Street

CITY, STATE, ZIP: Natick MA 01760

NAME OF CONTACT: Mike Plumb

PHONE NO.: (508) 650-1048

PROJECT LOCATION: Stewart Airg Base Site 2

PROJECT NUMBER / PO NO.:

REPORT TYPE
STANDARD ☐ ISRA ☐
NYASP A ☐ B ☐ CLP ☒
OTHER ____

TURNAROUND
☑ NORMAL ____
☐ QUICK ____
☐ VERBAL ____

LABORATORY # (Lab Use Only)
[redacted]
TEMP BLANK Y ____ N ____ °C
pH CHECK Y ____ N ____
REVIEWED BY: ____

NY PUBLIC WATER SUPPLIES
SOURCE ID ____
ELRP TYPE ____
FEDERAL ID ____

ETL#	SAMPLING DATE	TIME AM PM	COMP	GRAB	MATRIX	CLIENT I.D.	Total Number of Containers	40ml Glass HCL	Liter Amber Sulfuric Acid	Liter Amber Organic Washed	Liter Plastic Nitric Acid	Liter Plastic Sodium Hydroxide	Liter Plastic	Liter Plastic Sulfuric Acid	250ml Plastic	125ml Plastic Sterile	250ml Amber	2 oz. Qorpak	ANALYSIS REQUESTED
	3/20/96	1200		Y	water	MW-01-0320	9	3		3	2	1							TCL VOC, TCL SVOC, Pest/PCB, TAL metals (total) TAL metals (field filtered)
	3/20/96	1445		Y	water	SW-02-0320	9	3		3	2	1							"
	3/20/96	1545		Y	water	MW-13-0320(MS/MSD)	24	9		9	4	2							"
	3/20/96	1455		Y	water	SW-12-0320	9	3		3	2	1							"
	3/21/96	0900		Y	water	SW-03-0321	9	3		3	2	1							"
	3/21/96	0955		Y	water	TMW-109-0321	9	3			2	1							"
	3/21/96	1020		Y	water	MW-09-0321	9	3		3	2	1							"
	3/21/96	1035		Y	water	MW-10-0321	9	3		3	2	1							"
	3/21/96	1055		Y	water	TMW-108-0321	9	3		3	2	1							"
						TP01		2											

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
[signature]	E12	3/21/96	1530	Michael Plumb	Anteck	3/19/96	
[signature]	Anteck	3/21/96	1415				
				[signature]	E12	3/21/96	1416

COMMENTS ____

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

APPENDIX K

ANALYTICAL DATA

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-02	154139-03	154139-04	154139-05	154139-06
SAMPLE LOCATION:		SB-02-02	SB-02-06	SB-02-10.2	SB-04-02	SB-04-21
COMPOUND	CRQL					
Chloromethane	10	11 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 UJ4	11 UJ4	11 UJ4	11 U	11 U
Chloroethane	10	11 UJ4	11 UJ4	11 UJ4	11 U	11 U
Methylene Chloride	10	11 U	11 U	11 U5	11 U5	11 U5
Acetone	10	11 U5	11 U5	16 U6	11 U5	17 U6
Carbon Disulfide	10	11 UJ4	2 J4	2 J4	11 UJ4	3 J4
1,1-Dichloroethene	10	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U	11 U	11 U
Chloroform	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	11 U	11 U	11 U	11 U
2-Butanone	10	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	11 U
Trichloroethene	10	11 U	11 U	11 U	11 U	11 U
Dibromochloromethane	10	11 U	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U	11 U	11 U
Benzene	10	11 U	11 U	11 U	11 U	2
trans-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	11 U
Bromoform	10	11 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 UJ15	11 U	11 UJ15
2-Hexanone	10	11 U	11 U	11 UJ15	11 U	11 UJ15
Tetrachloroethene	10	11 U	11 U	11 UJ15	11 U	11 UJ15
1,1,2,2-Tetrachloroethane	10	11 U	11 U	11 UJ15	11 U	11 UJ15
Toluene	10	11 U	11 U	11 UJ15	11 U	1 J15
Chlorobenzene	10	11 U	11 U	11 UJ15	11 U	11 UJ15
Ethylbenzene	10	11 U	11 U	11 UJ15	11 U	11 UJ15
Styrene	10	11 U	11 U	11 UJ15	11 U	11 UJ15
Total Xylenes	10	1	11 U	11 UJ15	11 U	11 UJ15
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-07	154139-08	154139-09	154139-10	154139-12
SAMPLE LOCATION:		SB-04-06	SB-03-06	SB-03-56	SB-03-22	SB-03-1.3
COMPOUND	CRQL					
Chloromethane	10	11 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U	11 U	11 U
Methylene Chloride	10	11 U5	11 U5	11 U5	11 U5	11 U5
Acetone	10	11 U5	18 U6	11 U5	14 U6	15 U6
Carbon Disulfide	10	11 UJ4	1 J4	2 J4	2 J4	11 UJ4
1,1-Dichloroethene	10	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U	11 U	11 U
Chloroform	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	11 U	11 U	11 U	11 U
2-Butanone	10	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	11 U
Trichloroethene	10	11 U	11 U	11 U	11 U	11 U
Dibromochloromethane	10	11 U	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U	11 U	11 U
Benzene	10	11 U	11 U	11 U	1	11 U
trans-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	11 U
Bromoform	10	11 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 UJ15	11 U
2-Hexanone	10	11 U	11 U	11 U	11 UJ15	11 U
Tetrachloroethene	10	11 U	11 U	11 U	11 UJ15	11 U
1,1,2,2-Tetrachloroethane	10	11 U	11 U	11 U	11 UJ15	11 U
Toluene	10	11 U	11 U	11 U	11 UJ15	11 U
Chlorobenzene	10	11 U	11 U	11 U	11 UJ15	11 U
Ethylbenzene	10	11 U	11 U	11 U	11 UJ15	11 U
Styrene	10	11 U	11 U	11 U	11 UJ15	11 U
Total Xylenes	10	2	1	11 U	1 J15	2
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(ug/L)

SAMPLE NUMBER:		154139-01	154139-11
SAMPLE LOCATION:		RBSB100595	TB-03
COMPOUND	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	1	1
Acetone	10	5	3
Carbon Disulfide	10	10 UJ4	10 UJ4
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	10 U
Carbon Tetrachloride	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	10 U	10 U
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	1

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-02	154139-03	154139-04	154139-05	154139-06
SAMPLE LOCATION.		SB-02-02	SB-02-06	SB-02-10.2	SB-04-02	SB-04-21
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	330	370 U	370 U	360 U	370 U	370 U
Phenol	330	370 U	370 U	360 U	370 U	370 U
2-Chlorophenol	330	370 U	370 U	360 U	370 U	370 U
1,3-Dichlorobenzene	330	370 U	370 U	360 U	370 U	370 U
1,4-Dichlorobenzene	330	370 U	370 U	360 U	370 U	370 U
1,2-Dichlorobenzene	330	370 U	370 U	360 U	370 U	370 U
2,2-Oxybis(1-chloropropane)	330	370 U	370 U	360 U	370 U	370 U
2-Methylphenol	330	370 U	370 U	360 U	370 U	370 U
Hexachloroethane	330	370 U	370 U	360 U	370 U	370 U
N-Nitroso-di-n-propylamine	330	370 U	370 U	360 U	370 U	370 U
4-Methylphenol	330	370 U	370 U	360 U	370 U	370 U
Nitrobenzene	330	370 U	370 U	360 U	370 U	370 U
Isophorone	330	370 U	370 U	360 U	370 U	370 U
2-Nitrophenol	330	370 U	370 U	360 U	370 U	370 U
2,4-Dimethylphenol	330	370 U	370 U	360 U	370 U	370 U
bis(2-Chloroethoxy)methane	330	370 U	370 U	360 U	370 U	370 U
2,4-Dichlorophenol	330	370 U	370 U	360 U	370 U	370 U
1,2,4-Trichlorobenzene	330	370 U	370 U	360 U	370 U	370 U
Naphthalene	330	370 U	370 U	360 U	370 U	370 U
4-Chloroaniline	330	370 U	370 U	360 U	370 U	370 U
Hexachlorobutadiene	330	370 U	370 U	360 U	370 U	370 U
4-Chloro-3-Methylphenol	330	370 U	370 U	360 U	370 U	370 U
2-Methylnaphthalene	330	370 U	370 U	360 U	370 U	370 U
Hexachlorocyclopentadiene	330	370 UJ4	370 UJ4	360 UJ4	370 UJ4	370 UJ4
2,4,6-Trichlorophenol	330	370 U	370 U	360 U	370 U	370 U
2,4,5-Trichlorophenol	800	940 U	920 U	900 U	930 U	920 U
2-Chloronaphthalene	330	370 U	370 U	360 U	370 U	370 U
2-Nitroaniline	800	940 U	920 U	900 U	930 U	920 U
Acenaphthylene	330	370 U	370 U	360 U	370 U	370 U
Dimethylphthalate	330	370 U	370 U	360 U	370 U	370 U
2,6-Dinitrotoluene	330	370 U	370 U	360 U	370 U	370 U
Acenaphthene	330	370 U	370 U	360 U	370 U	370 U
3-Nitroaniline	800	940 UJ4	920 UJ4	900 UJ4	930 UJ4	920 UJ4
2,4-Dinitrophenol	800	940 UJ4	920 UJ4	900 UJ4	930 UJ4	920 UJ4

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-02	154139-03	154139-04	154139-05	154139-06
SAMPLE LOCATION:		SB-02-02	SB-02-06	SB-02-10.2	SB-04-02	SB-04-21
COMPOUND	CRQL					
Dibenzofuran	330	370 U	370 U	360 U	370 U	370 U
2,4-Dinitrotoluene	330	370 U	370 U	360 U	370 U	370 U
4-Nitrophenol	800	940 UJ4	920 UJ4	900 UJ4	930 UJ4	920 UJ4
Fluorene	330	370 U	370 U	360 U	370 U	370 U
4-Chlorophenyl-Phenylether	330	370 U	370 U	360 U	370 U	370 U
Diethylphthalate	330	370 U	370 U	360 U	370 U	370 U
4-Nitroaniline	800	940 U	920 U	900 U	930 U	920 U
4,6-Dinitro-2-Methylphenol	800	940 U	920 U	900 U	930 U	920 U
N-nitrosodiphenylamine(1)	330	370 U	370 U	360 U	370 U	370 U
4-Bromophenyl-Phenylether	330	370 U	370 U	360 U	370 U	370 U
Hexachlorobenzene	330	370 U	370 U	360 U	370 U	370 U
Pentachlorophenol	800	940 UJ4	920 UJ4	900 UJ4	930 UJ4	920 UJ4
Phenanthrene	330	370 U	370 U	360 U	370 U	370 U
Anthracene	330	370 U	370 U	360 U	370 U	370 U
Carbazole	330	370 U	370 U	360 U	370 U	370 U
Di-n-butylphthalate	330	370 U	370 U	360 U	370 U	370 U5
Fluoranthene	330	370 U	370 U	360 U	370 U	370 U
Pyrene	330	370 U	370 U	360 U	370 U	370 U
Butylbenzylphthalate	330	370 U	370 U	360 U	370 U	370 U
3,3'-Dichlorobenzidine	330	370 U	370 U	360 U	370 U	370 U
Benzo(a)anthracene	330	370 U	370 U	360 U	370 U	370 U
Chrysene	330	370 U	370 U	360 U	370 U	370 U
Bis(2-ethylhexyl)phthalate	330	370 U5	370 U	360 U	370 U5	370 U5
Di-n-octylphthalate	330	370 U	370 U	360 U	370 U	370 U
Benzo(b)fluoranthene	330	370 U	370 U	360 U	370 U	370 U
Benzo(k)fluoranthene	330	370 U	370 U	360 U	370 U	370 U
Benzo(a)pyrene	330	370 U	370 U	360 U	370 U	370 U
Indeno(1,2,3-cd)pyrene	330	370 U	370 U	360 U	370 U	370 U
Dibenz(a,h)anthracene	330	370 U	370 U	360 U	370 U	370 U
Benzo(g,h,i)perylene	330	370 U	370 U	360 U	370 U	370 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-07	154139-08	154139-09	154139-10	154139-12
SAMPLE LOCATION:		SB-04-06	SB-03-06	SB-03-56	SB-03-22	SB-03-1.3
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	330	370 U	380 U	370 U	370 U	360 U
Phenol	330	370 U	380 U	370 U	370 U	360 U
2-Chlorophenol	330	370 U	380 U	370 U	370 U	360 U
1,3-Dichlorobenzene	330	370 U	380 U	370 U	370 U	360 U
1,4-Dichlorobenzene	330	370 U	380 U	370 U	370 U	360 U
1,2-Dichlorobenzene	330	370 U	380 U	370 U	370 U	360 U
2,2-Oxybis(1-chloropropane)	330	370 U	380 U	370 U	370 U	360 U
2-Methylphenol	330	370 U	380 U	370 U	370 U	360 U
Hexachloroethane	330	370 U	380 U	370 U	370 U	360 U
N-Nitroso-di-n-propylamine	330	370 U	380 U	370 U	370 U	360 U
4-Methylphenol	330	370 U	380 U	370 U	370 U	360 U
Nitrobenzene	330	370 U	380 U	370 U	370 U	360 U
Isophorone	330	370 U	380 U	370 U	370 U	360 U
2-Nitrophenol	330	370 U	380 U	370 U	370 U	360 U
2,4-Dimethylphenol	330	370 U	380 U	370 U	370 U	360 U
bis(2-Chloroethoxy)methane	330	370 U	380 U	370 U	370 U	360 U
2,4-Dichlorophenol	330	370 U	380 U	370 U	370 U	360 U
1,2,4-Trichlorobenzene	330	370 U	380 U	370 U	370 U	360 U
Naphthalene	330	370 U	380 U	370 U	370 U	360 U
4-Chloroaniline	330	370 U	380 U	370 U	370 U	360 U
Hexachlorobutadiene	330	370 U	380 U	370 U	370 U	360 U
4-Chloro-3-Methylphenol	330	370 U	380 U	370 U	370 U	360 U
2-Methylnaphthalene	330	370 U	380 U	370 U	370 U	360 U
Hexachlorocyclopentadiene	330	370 UJ4	380 UJ4	370 UJ4	370 UJ4	360 U
2,4,6-Trichlorophenol	330	370 U	380 U	370 U	370 U	360 U
2,4,5-Trichlorophenol	800	920 U	960 U	940 U	940 U	900 U
2-Chloronaphthalene	330	370 U	380 U	370 U	370 U	360 U
2-Nitroaniline	800	920 U	960 U	940 U	940 U	900 U
Acenaphthylene	330	370 U	380 U	370 U	370 U	360 U
Dimethylphthalate	330	370 U	380 U	370 U	370 U	360 U
2,6-Dinitrotoluene	330	370 U	380 U	370 U	370 U	360 U
Acenaphthene	330	370 U	380 U	370 U	370 U	360 U
3-Nitroaniline	800	920 UJ4	960 UJ4	940 UJ4	940 UJ4	900 UJ4
2,4-Dinitrophenol	800	920 UJ4	960 UJ4	940 UJ4	940 UJ4	900 UJ4

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-07	154139-08	154139-09	154139-10	154139-12
SAMPLE LOCATION:		SB-04-06	SB-03-06	SB-03-56	SB-03-22	SB-03-1.3
COMPOUND	CRQL					
Dibenzofuran	330	370 U	380 U	370 U	370 U	360 U
2,4-Dinitrotoluene	330	370 U	380 U	370 U	370 U	360 U
4-Nitrophenol	800	920 UJ4	960 UJ4	940 UJ4	940 UJ4	900 R2
Fluorene	330	370 U	380 U	370 U	370 U	360 U
4-Chlorophenyl-Phenylether	330	370 U	380 U	370 U	370 U	360 U
Diethylphthalate	330	370 U	380 U	370 U	370 U	360 U
4-Nitroaniline	800	920 U	960 U	940 U	940 U	900 U
4,6-Dinitro-2-Methylphenol	800	920 U	960 U	940 U	940 U	900 U
N-nitrosodiphenylamine(1)	330	370 U	380 U	370 U	370 U	360 U
4-Bromophenyl-Phenylether	330	370 U	380 U	370 U	370 U	360 U
Hexachlorobenzene	330	370 U	380 U	370 U	370 U	360 U
Pentachlorophenol	800	920 UJ4	960 UJ4	940 UJ4	940 UJ4	900 UJ4
Phenanthrene	330	370 U	380 U	370 U	370 U	360 U
Anthracene	330	370 U	380 U	370 U	370 U	360 U
Carbazole	330	370 U	380 U	370 U	370 U	360 U
Di-n-butylphthalate	330	370 U	380 U	370 U	370 U5	360 U5
Fluoranthene	330	370 U	380 U	370 U	370 U	360 U
Pyrene	330	370 U	380 U	370 U	370 U	360 U
Butylbenzylphthalate	330	370 U	380 U	370 U	370 U	360 U
3,3'-Dichlorobenzidine	330	370 U	380 U	370 U	370 U	360 U
Benzo(a)anthracene	330	370 U	380 U	370 U	370 U	360 U
Chrysene	330	370 U	380 U	370 U	370 U	360 U
Bis(2-ethylhexyl)phthalate	330	370 U5	380 U5	370 U5	370 U	360 U5
Di-n-octylphthalate	330	370 U	380 U	370 U	370 U	360 U
Benzo(b)fluoranthene	330	370 U	380 U	370 U	370 U	360 U
Benzo(k)fluoranthene	330	370 U	380 U	370 U	370 U	360 U
Benzo(a)pyrene	330	370 U	380 U	370 U	370 U	360 U
Indeno(1,2,3-cd)pyrene	330	370 U	380 U	370 U	370 U	360 U
Dibenz(a,h)anthracene	330	370 U	380 U	370 U	370 U	360 U
Benzo(g,h,i)perylene	330	370 U	380 U	370 U	370 U	360 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(ug/L)

SAMPLE NUMBER:		154139-01
SAMPLE LOCATION:		RBSB100595
COMPOUND	CRQL	
bis(2-Chloroethyl)ether	10	10 U
Phenol	10	10 U
2-Chlorophenol	10	10 U
1,3-Dichlorobenzene	10	10 U
1,4-Dichlorobenzene	10	10 U
1,2-Dichlorobenzene	10	10 U
2,2-Oxybis(1-chloropropane)	10	10 U
2-Methylphenol	10	10 U
Hexachloroethane	10	10 U
N-Nitroso-di-n-propylamine	10	10 U
4-Methylphenol	10	10 U
Nitrobenzene	10	10 U
Isophorone	10	10 U
2-Nitrophenol	10	10 U
2,4-Dimethylphenol	10	10 U
bis(2-Chloroethoxy)methane	10	10 U
2,4-Dichlorophenol	10	10 U
1,2,4-Trichlorobenzene	10	10 U
Naphthalene	10	10 U
4-Chloroaniline	10	10 U
Hexachlorobutadiene	10	10 U
4-Chloro-3-Methylphenol	10	10 U
2-Methylnaphthalene	10	10 U
Hexachlorocyclopentadiene	10	10 U
2,4,6-Trichlorophenol	10	10 U
2,4,5-Trichlorophenol	25	25 U
2-Chloronaphthalene	10	10 U
2-Nitroaniline	25	25 U
Acenaphthylene	10	10 U
Dimethylphthalate	10	10 U
2,6-Dinitrotoluene	10	10 U
Acenaphthene	10	10 U
3-Nitroaniline	25	25 UJ4
2,4-Dinitrophenol	25	25 UJ4

SITE: STEWART ANG
SDG: AC139/154139
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(ug/L)

SAMPLE NUMBER:		154139-01
SAMPLE LOCATION:		RBSB100595
COMPOUND	CRQL	
Dibenzofuran	10	10 U
2,4-Dinitrotoluene	10	10 U
4-Nitrophenol	25	25 R2
Fluorene	10	10 U
4-Chlorophenyl-Phenylether	10	10 U
Diethylphthalate	10	10 U
4-Nitroaniline	25	25 U
4,6-Dinitro-2-Methylphenol	25	25 U
N-nitrosodiphenylamine(1)	10	10 U
4-Bromophenyl-Phenylether	10	10 U
Hexachlorobenzene	10	10 U
Pentachlorophenol	25	25 UJ4
Phenanthrene	10	10 U
Anthracene	10	10 U
Carbazole	10	10 U
Di-n-butylphthalate	10	10 U
Fluoranthene	10	10 U
Pyrene	10	10 U
Butylbenzylphthalate	10	10 U
3,3'-Dichlorobenzidine	10	10 U
Benzo(a)anthracene	10	10 U
Chrysene	10	10 U
Bis(2-ethylhexyl)phthalate	10	3
Di-n-octylphthalate	10	10 U
Benzo(b)fluoranthene	10	10 U
Benzo(k)fluoranthene	10	10 U
Benzo(a)pyrene	10	10 U
Indeno(1,2,3-cd)pyrene	10	10 U
Dibenz(a,h)anthracene	10	10 U
Benzo(g,h,i)perylene	10	10 U
DILUTION FACTOR:		1

SITE: STEWART ANG, SITE 2 PESTICIDE/PCB SOIL ANALYSIS
SDG: AC009 (ug/kg)
LABORATORY: ENVIROTEST LABORATORIES, INC.

SAMPLE NUMBER:		154139-02	154139-03	154139-04	154139-05	154139-06
SAMPLE LOCATION:		SB-02-02	SB-02-06	SB-02-10.2	SB-04-02	SB-04-21
COMPOUND	CRQL					
alpha-BHC	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
beta-BHC	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
delta-BHC	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
gamma-BHC(Lindane)	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
Heptachlor	1.7	1.9 U	1.8 U	1.8 U5	1.9 U5	1.8 U5
Aldrin	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
Heptachlor Epoxide	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
Endosulfan I	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
Dieldrin	3.3	3.7 U	0.2	3.6 U	9.1 J25	3.7 U
4,4'-DDE	3.3	18	2.3 JN25	2.3	5.1	3.7 U
Endrin	3.3	3.7 U	3.7 U	3.6 U	3.7 U	3.7 U
Endosulfan II	3.3	3.7 U	3.7 U	3.6 U	3.7 U	3.7 U
4,4'-DDD	3.3	2.0 J25	1.1 JN25	1.2 JN25	6.1 JN25	3.7 U
Endofulfan Sulfate	3.3	3.7 U	3.7 U	3.6 U	3.7 U	3.7 U
4,4'-DDT	3.3	3.7 U	3.6 J25	3.6	15	3.7 U
Methoxychlor	17	19 U	18 U	18 U	19 U	18 U
Endrin Ketone	3.3	3.7 U	3.7 U	3.6 U	3.7 U	3.7 U
Endrin Aldehyde	3.3	3.7 U	3.7 U	3.6 U	3.7 U	3.7 U
alpha-Chlordane	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
gamma-Chlordane	1.7	1.9 U	1.8 U	1.8 U	1.9 U	1.8 U
Toxaphene	170	190 U	180 U	180 U	190 U	180 U
Aroclor-1016	33	37 U	37 U	36 U	37 U	37 U
Aroclor-1221	67	75 U	73 U	72 U	74 U	73 U
Aroclor-1232	33	37 U	37 U	36 U	37 U	37 U
Aroclor-1242	33	37 U	37 U	36 U	37 U	37 U
Aroclor-1248	33	37 U	37 U	36 U	37 U	37 U
Aroclor-1254	33	37 U	37 U	36 U	37 U	37 U
Aroclor-1260	33	37 U	37 U	36 U	37 U	37 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG, SITE 2
SDG: AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154139-07	154139-08	154139-09	154139-10	154139-12
SAMPLE LOCATION:		SB-04-06	SB-03-06	SB-03-56	SB-03-22	SB-03-1.3
COMPOUND	CRQL					
alpha-BHC	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
beta-BHC	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
delta-BHC	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
gamma-BHC(Lindane)	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
Heptachlor	1.7	1.8 U5	1.9 U5	1.9 U5	1.9 U5	1.8 U5
Aldrin	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
Heptachlor Epoxide	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
Endosulfan I	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
Dieldrin	3.3	3.7 U	3.8 U	3.7 U	3.7 U	0.67
4,4'-DDE	3.3	3.7 U	3.8 U	0.41 JN25	3.7 U	3.4
Endrin	3.3	3.7 U	3.8 U	3.7 U	3.7 U	3.6 U
Endosulfan II	3.3	3.7 U	3.8 U	3.7 U	3.7 U	3.6 U
4,4'-DDD	3.3	3.7 U	3.8 U	3.7 U	3.7 U	1.5 JN25
Endofulfan Sulfate	3.3	3.7 U	3.8 U	3.7 U	3.7 U	3.6 U
4,4'-DDT	3.3	3.7 U	3.8 U	3.7 U	3.7 U	8.1
Methoxychlor	17	18 U	19 U	19 U	19 U	18 U
Endrin Ketone	3.3	3.7 U	3.8 U	3.7 U	3.7 U	3.6 U
Endrin Aldehyde	3.3	3.7 U	3.8 U	3.7 U	3.7 U	3.6 U
alpha-Chlordane	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
gamma-Chlordane	1.7	1.8 U	1.9 U	1.9 U	1.9 U	1.8 U
Toxaphene	170	180 U	190 U	190 U	190 U	180 U
Aroclor-1016	33	37 U	38 U	37 U	37 U	36 U
Aroclor-1221	67	73 U	77 U	75 U	75 U	72 U
Aroclor-1232	33	37 U	38 U	37 U	37 U	36 U
Aroclor-1242	33	37 U	38 U	37 U	37 U	36 U
Aroclor-1248	33	37 U	38 U	37 U	37 U	36 U
Aroclor-1254	33	37 U	38 U	37 U	37 U	36 U
Aroclor-1260	33	37 U	38 U	37 U	37 U	36 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG, SITE 2
SDG: AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154139-01
SAMPLE LOCATION:		RB-SB-100595
COMPOUND	CRQL	
alpha-BHC	0.05	0.05 U
beta-BHC	0.05	0.05 U
delta-BHC	0.05	0.05 U
gamma-BHC(Lindane)	0.05	0.05 U
Heptachlor	0.05	0.05 U
Aldrin	0.05	0.05 U
Heptachlor Epoxide	0.05	0.05 U
Endosulfan I	0.05	0.05 U
Dieldrin	0.10	0.10 U
4,4'-DDE	0.10	0.10 U
Endrin	0.10	0.10 U
Endosulfan II	0.10	0.10 U
4,4'-DDD	0.10	0.10 U
Endofulfan Sulfate	0.10	0.10 U
4,4'-DDT	0.10	0.10 U
Methoxychlor	0.50	0.50 U
Endrin Ketone	0.10	0.10 U
Endrin Aldehyde	0.10	0.10 U
alpha-Chlordane	0.05	0.05 U
gamma-Chlordane	0.05	0.05 U
Toxaphene	5.0	5.0 U
Aroclor-1016	1.0	1.0 U
Aroclor-1221	2.0	2.0 U
Aroclor-1232	1.0	1.0 U
Aroclor-1242	1.0	1.0 U
Aroclor-1248	1.0	1.0 U
Aroclor-1254	1.0	1.0 U
Aroclor-1260	1.0	1.0 U
DILUTION FACTOR:		1

SITE: STEWART ANG, SITE 2
SDG: ANE139
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154139-02	154139-03	154139-04	154139-05	154139-06	
SAMPLE LOCATION:			SB0202	SB0206	SB0210	SB0402	SB0421	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg						CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	6860	8280	7280	8820	11200	40
Antimony	P	4.22	7.7 J5	4.7 UJ5	8 J5	5.5 J5	9.3 UJ5	12
Arsenic	F	0.5	3.6	3.4	0.54 U	4	4.2	2
Barium	P	0.14	27.1	30.9	28.1	34.1	51.1	40
Beryllium	P	0.22	0.43	0.42	0.44	0.56	0.8	1
Cadmium	P	0.48	0.54 U	0.54 U	0.52 U	0.53 U	1.1 U	1
Calcium	P	2.06	25000 R3	27000 R3	26400 R3	20600 R3	25800 R3	1000
Chromium	P	1.86	10.2	12.2	10.4	12	16.3	2
Cobalt	P	1.28	7.4	8.1	7.3	8.7	9.5	10
Copper	P	0.48	18.8 J12	19.5 J12	19.4 J12	21 J12	26.7 J12	5
Iron	P	1.04	16800	19300	17500	20000	23600	20
Lead	F	0.16	10 R5	9.7 R5	0.17 R5	14.1 R5	13.9 R5	0.6
Magnesium	P	2.8	4110	5920	5710	5060	6970	1000
Manganese	P	0.18	481	541	534	664	642	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	16.1	17.2	15.4	18.5	23.9	8
Potassium	P	12.1	593	779	671	744	1290	1000
Selenium	F	0.56	0.63 U	0.63 U	0.6 U	0.62 U	0.61 U	1
Silver	P	0.38	0.67	0.69	0.83	0.6	1.2	2
Sodium	P	4.56	30.2 R3	40.2 R3	37.6 R3	41.3 R3	30.1 R3	1000
Thallium	F	0.12	0.4 J5	0.19 J5, J10	0.13 UJ5	0.14 J5	0.13 UJ5	2
Vanadium	P	0.62	9.7	10	9.5	12.2 J12	14.7	10
Zinc	P	0.26	48.3	46	.40.8	54.1	58.9	4
Cyanide	C	1.0	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
CA - MIDI-DISTILLATION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG, SITE 2
SDG: ANE139
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154139-07	154139-08	154139-09	154139-10	154139-12	
SAMPLE LOCATION:			SB0406	SB0306	SB0356	SB0322	SB0313 (SB0213)	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg						CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	6200	9050	9100	10400	9400	40
Antimony	P	4.22	6.1 J5	7.6 J5	6.2 J5	7.7 J5	4.6 UJ5	12
Arsenic	F	0.5	0.55 U	3	3.4	4.3	3.8	2
Barium	P	0.14	18.2	31.1	32.6	48.5 J12	29.1	40
Beryllium	P	0.22	0.41	0.49	0.52	0.65	0.55	1
Cadmium	P	0.48	0.53 U	0.55 U	0.54 U	0.54 U	0.52 U	1
Calcium	P	2.06	21700 R3	27400 R3	27300 R3	35000	16200 R3	1000
Chromium	P	1.86	8.7 J2	13.4	11.9	14.3	12.3	2
Cobalt	P	1.28	6.4	8.7	9.1	9.7	9	10
Copper	P	0.48	19.5 J12	21.5 J12	21 J12	22.4 J12	22.4 J12	5
Iron	P	1.04	15300	20800	20900	22200	20400	20
Lead	F	0.16	1.7 R5	8.1 R5	10.3 R5	10.9 R5	10.2 R5	0.6
Magnesium	P	2.8	3660	6500	6490	6670	5030	1000
Manganese	P	0.18	392	520	508	542	592	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	14.4	17.6	18.8	21.3	16.1	8
Potassium	P	12.1	530	886	883	1060	651	1000
Selenium	F	0.56	0.62 U	0.64 U	0.63 U	0.63 U	0.6 U	1
Silver	P	0.38	0.91	0.77	0.92	0.63	0.71	2
Sodium	P	4.56	42.7 R3	43.9 R3	43.7 R3	48.1 R3	34.7 R3	1000
Thallium	F	0.12	0.13 UJ5	0.22 J5	0.18 J5	0.26 J5	0.16 J5	2
Vanadium	P	0.62	8.7	12.1 J12	12.2 J12	13.5 J12	12.6 J12	10
Zinc	P	0.26	42.9	54	55.5	56.6	55.1	4
Cyanide	C	1.0	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
CA - MIDI-DISTILLATION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
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SITE: STEWART ANG, SITE 2
SDG: ANE139
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER: 154139-01
SAMPLE LOCATION: RB-SB-100595

INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS ug/L		CONTRACT DETECTION LIMITS (ug/L)
Aluminum	P	17.4	67.8	200
Antimony	P	21.1	21.1 U	60
Arsenic	F	2.5	2.5 U	10
Barium	P	0.7	11.6	200
Beryllium	P	1.1	1.1 U	5
Cadmium	P	2.4	2.4 U	5
Calcium	P	10.3	30500	5000
Chromium	P	9.3	9.3 UJ2	10
Cobalt	P	6.4	6.4 U	50
Copper	P	2.4	3.8	25
Iron	P	5.2	279	100
Lead	F	0.8	0.8 R3	3
Magnesium	P	14	4610	5000
Manganese	P	0.9	16.7	15
Mercury	CV	0.2	0.2 U	0.2
Nickel	P	12.7	12.7 U	40
Potassium	P	60.7	1660	5000
Selenium	F	2.8	2.8 U	5
Silver	P	1.9	1.9 U	10
Sodium	P	22.8	30100	5000
Thallium	F	0.6	0.6 U	10
Vanadium	P	3.1	3.1	50
Zinc	P	1.3	36.3	20
Cyanide	C	10	10 U	10

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
CA - MIDI-DISTILLATION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: ANE139
LABORATORY: ENVIROTEST LABORATORIES, INC

TOC ANALYSIS

SAMPLE NUMBER:	154139-02	154139-03	154139-04	154139-05	154139-06
SAMPLE LOCATION:	SB0202	SB0206	SB0210	SB0402	SB0421
TOC	0.42%	0.63%	0.79%	0.78%	0.87%

SAMPLE NUMBER:	154139-07	154139-08	154139-09	154139-10	154139-12
SAMPLE LOCATION:	SB0406	SB0306	SB0356	SB0322	SB0213* (SB-03-1.3)
TOC	1.17%	0.79%	0.52%	0.69%	0.62%

SITE: STEWART ANG
SDG: 154009/AN009
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-02	154009-03	154009-04	154009-08	154009-09
SAMPLE LOCATION:		SB-01-02	SB-01-18.5	SB-01-32.5	SS-01	SS-02
COMPOUND	CRQL					
Chloromethane	10	11 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U	11 U	11 U
Methylene Chloride	10	11 U	11 U5	11 U	11 U	11 U
Acetone	10	11 U5	13 U6	11 U5	11 U5	12 U6
Carbon Disulfide	10	11 UJ4	1 J4	11 UJ4	11 UJ4	11 UJ4
1,1-Dichloroethene	10	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U	11 U	11 U
Chloroform	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	11 U	11 U	11 U	11 U
2-Butanone	10	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	10	11 U	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	11 U
Trichloroethene	10	11 U	11 U	11 U	11 U	11 U
Dibromochloromethane	10	11 U	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U	11 U	11 U
Benzene	10	11 U	11 U	11 U	11 U	11 U
trans-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	11 U
Bromoform	10	11 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	11 U	11 U	11 U	11 U
Tetrachloroethene	10	11 U	11 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	11 U	11 U	11 U	11 U	11 U
Toluene	10	11 U	11 U	11 U	11 U	11 U
Chlorobenzene	10	11 U	11 U	11 U	11 U	11 U
Ethylbenzene	10	11 U	11 U	11 U	11 U	11 U
Styrene	10	11 U	11 U	11 U	11 U	11 U
Total Xylenes	10	1	11 U	11 U	11 U	11 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: 154009/AN009
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-10	154009-11	154009-12	154009-13	154009-14
SAMPLE LOCATION:		SS-03	SS-04	SS-05	SS-06	SS-07
COMPOUND	CRQL					
Chloromethane	10	11 U	12 U	12 U	12 U	11 U
Bromomethane	10	11 U	12 U	12 U	12 U	11 U
Vinyl Chloride	10	11 U	12 U	12 U	12 U	11 U
Chloroethane	10	11 U	12 U	12 U	12 U	11 U
Methylene Chloride	10	11 U	12 U	12 U	12 U	11 U
Acetone	10	11 U5	13 U6	12 U5	12 U5	26 U6
Carbon Disulfide	10	11 UJ4	12 UJ4	12 UJ4	12 UJ4	11 UJ4
1,1-Dichloroethene	10	11 U	12 U	12 U	12 U	11 U
1,1-Dichloroethane	10	11 U	12 U	12 U	12 U	11 U
1,2-Dichloroethene (total)	10	11 U	12 U	12 U	12 U	11 U
Chloroform	10	11 U	12 U	12 U	12 U	11 U
1,2-Dichloroethane	10	11 U	12 U	12 U	12 U	11 U
2-Butanone	10	11 U	12 U	12 U	12 U	11 U
1,1,1-Trichloroethane	10	11 U	12 U	12 U	12 U	11 U
Carbon Tetrachloride	10	11 U	12 U	12 U	12 U	11 U
Bromodichloromethane	10	11 U	12 U	12 U	12 U	11 U
1,2-Dichloropropane	10	11 U	12 U	12 U	12 U	11 U
cis-1,3-Dichloropropene	10	11 U	12 U	12 U	12 U	11 U
Trichloroethene	10	11 U	12 U	12 U	12 U	11 U
Dibromochloromethane	10	11 U	12 U	12 U	12 U	11 U
1,1,2-Trichloroethane	10	11 U	12 U	12 U	12 U	11 U
Benzene	10	11 U	12 U	12 U	12 U	11 U
trans-1,3-Dichloropropene	10	11 U	12 U	12 U	12 U	11 U
Bromoform	10	11 U	12 U	12 U	12 U	11 U
4-Methyl-2-Pentanone	10	11 U	12 U	12 U	12 U	11 U
2-Hexanone	10	11 U	12 U	12 U	12 U	11 U
Tetrachloroethene	10	11 U	12 U	12 U	12 U	11 U
1,1,2,2-Tetrachloroethane	10	11 U	12 U	12 U	12 U	11 U
Toluene	10	11 U	12 U	12 U	12 U	11 U
Chlorobenzene	10	11 U	12 U	12 U	12 U	11 U
Ethylbenzene	10	11 U	12 U	12 U	12 U	11 U
Styrene	10	11 U	12 U	12 U	12 U	11 U
Total Xylenes	10	11 U	12 U	3	2	5
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: 154009/AN009
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-15
SAMPLE LOCATION:		SS-15
COMPOUND	CRQL	
Chloromethane	10	12 U
Bromomethane	10	12 U
Vinyl Chloride	10	12 U
Chloroethane	10	12 U
Methylene Chloride	10	12 U
Acetone	10	12 U5
Carbon Disulfide	10	12 UJ4
1,1-Dichloroethene	10	12 U
1,1-Dichloroethane	10	12 U
1,2-Dichloroethene (total)	10	12 U
Chloroform	10	12 U
1,2-Dichloroethane	10	12 U
2-Butanone	10	12 U
1,1,1-Trichloroethane	10	12 U
Carbon Tetrachloride	10	12 U
Bromodichloromethane	10	12 U
1,2-Dichloropropane	10	12 U
cis-1,3-Dichloropropene	10	12 U
Trichloroethene	10	12 U
Dibromochloromethane	10	12 U
1,1,2-Trichloroethane	10	12 U
Benzene	10	12 U
trans-1,3-Dichloropropene	10	12 U
Bromoform	10	12 U
4-Methyl-2-Pentanone	10	12 U
2-Hexanone	10	12 U
Tetrachloroethene	10	12 U
1,1,2,2-Tetrachloroethane	10	12 U
Toluene	10	12 U
Chlorobenzene	10	12 U
Ethylbenzene	10	12 U
Styrene	10	12 U
Total Xylenes	10	2
DILUTION FACTOR:		1

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SITE: STEWART ANG
SDG: 154009/AN009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SAMPLE NUMBER:		154009-01	154009-05	154009-06	154009-07
SAMPLE LOCATION:		FBTW100395	TRIP BLK01	RWSS100395	TB-02
COMPOUND	CRQL				
Chloromethane	10	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U
Methylene Chloride	10	10 U	1	10 U	1
Acetone	10	4	7	5	10 U
Carbon Disulfide	10	10 UJ4	10 UJ4	10 UJ4	10 UJ4
1,1-Dichloroethene	10	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	10 U	10 U	10 U	10 U
Chloroform	10	43	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U
Bromodichloromethane	10	4	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U	10 U
Total Xylenes	10	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-02	154009-03	154009-04	154009-08	154009-09
SAMPLE LOCATION:		SB-01-02	SB-01-18.5	SB-01-32.5	SS-01	SS-02
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	330	360 U	360 U	360 U	360 U	360 U
Phenol	330	360 U	360 U	360 U	360 U	360 U
2-Chlorophenol	330	360 U	360 U	360 U	360 U	360 U
1,3-Dichlorobenzene	330	360 U	360 U	360 U	360 U	360 U
1,4-Dichlorobenzene	330	360 U	360 U	360 U	360 U	360 U
1,2-Dichlorobenzene	330	360 U	360 U	360 U	360 U	360 U
2,2-Oxybis(1-chloropropane)	330	360 U	360 U	360 U	360 U	360 U
2-Methylphenol	330	360 U	360 U	360 U	360 U	360 U
Hexachloroethane	330	360 U	360 U	360 U	360 U	360 U
N-Nitroso-di-n-propylamine	330	360 U	360 U	360 U	360 U	360 U
4-Methylphenol	330	360 U	360 U	360 U	360 U	360 U
Nitrobenzene	330	360 U	360 U	360 U	360 U	360 U
Isophorone	330	360 U	360 U	360 U	360 U	360 U
2-Nitrophenol	330	360 U	360 U	360 U	360 U	360 U
2,4-Dimethylphenol	330	360 U	360 U	360 U	360 U	360 U
bis(2-Chloroethoxy)methane	330	360 U	360 U	360 U	360 U	360 U
2,4-Dichlorophenol	330	360 U	360 U	360 U	360 U	360 U
1,2,4-Trichlorobenzene	330	360 U	360 U	360 U	360 U	360 U
Naphthalene	330	360 U	360 U	360 U	360 U	360 U
4-Chloroaniline	330	360 U	360 U	360 U	360 U	360 U
Hexachlorobutadiene	330	360 U	360 U	360 U	360 U	360 U
4-Chloro-3-Methylphenol	330	360 U	360 U	360 U	360 U	360 U
2-Methylnaphthalene	330	360 U	360 U	360 U	360 U	360 U
Hexachlorocyclopentadiene	330	360 UJ4	360 UJ4	360 UJ4	360 UJ4	360 UJ4
2,4,6-Trichlorophenol	330	360 U	360 U	360 U	360 U	360 U
2,4,5-Trichlorophenol	800	910 U	910 U	910 U	900 U	900 U
2-Chloronaphthalene	330	360 U	360 U	360 U	360 U	360 U
2-Nitroaniline	800	910 U	910 U	910 U	900 U	900 U
Acenaphthylene	330	360 U	360 U	360 U	360 U	360 U
Dimethylphthalate	330	360 U	360 U	360 U	360 U	360 U
2,6-Dinitrotoluene	330	360 U	360 U	360 U	360 U	360 U
Acenaphthene	330	360 U	360 U	360 U	360 U	360 U
3-Nitroaniline	800	910 UJ4	910 UJ4	910 UJ4	900 UJ4	900 UJ4
2,4-Dinitrophenol	800	910 UJ4	910 UJ4	910 UJ4	900 UJ4	900 UJ4

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-02	154009-03	154009-04	154009-08	154009-09
SAMPLE LOCATION:		SB-01-02	SB-01-18.5	SB-01-32.5	SS-01	SS-02
COMPOUND	CRQL					
Dibenzofuran	330	360 U	360 U	360 U	360 U	360 U
2,4-Dinitrotoluene	330	360 U	360 U	360 U	360 U	360 U
4-Nitrophenol	800	910 UJ4	910 UJ4	910 UJ4	900 UJ4	900 UJ4
Fluorene	330	360 U	360 U	360 U	360 U	360 U
4-Chlorophenyl-Phenylether	330	360 U	360 U	360 U	360 U	360 U
Diethylphthalate	330	360 U	360 U	360 U	360 U	360 U
4-Nitroaniline	800	910 UJ4	910 UJ4	910 UJ4	900 UJ4	900 UJ4
4,6-Dinitro-2-Methylphenol	800	910 U	910 U	910 U	900 U	900 U
N-nitrosodiphenylamine(1)	330	360 U	360 U	360 U	360 U	360 U
4-Bromophenyl-Phenylether	330	360 U	360 U	360 U	360 U	360 U
Hexachlorobenzene	330	360 U	360 U	360 U	360 U	360 U
Pentachlorophenol	800	910 UJ4	910 UJ4	910 UJ4	900 UJ4	900 UJ4
Phenanthrene	330	360 U	360 U	360 U	360 U	360 U
Anthracene	330	360 U	360 U	360 U	360 U	360 U
Carbazole	330	360 U	360 U	360 U	360 U	360 U
Di-n-butylphthalate	330	360 U	43	360 U	54	360 U
Fluoranthene	330	360 U	360 U	360 U	360 U	360 U
Pyrene	330	360 U	360 U	360 U	360 U	360 U
Butylbenzylphthalate	330	360 U	360 U	360 U	360 U	360 U
3,3'-Dichlorobenzidine	330	360 U	360 U	360 U	360 U	360 U
Benzo(a)anthracene	330	360 U	360 U	360 U	360 U	360 U
Chrysene	330	360 U	360 U	360 U	360 U	360 U
Bis(2-ethylhexyl)phthalate	330	360 U	360 U	360 U5	360 U5	360 U5
Di-n-octylphthalate	330	360 U	360 U	360 U	360 U	360 U
Benzo(b)fluoranthene	330	360 U	360 U	360 U	360 U	360 U
Benzo(k)fluoranthene	330	360 U	360 U	360 U	360 U	360 U
Benzo(a)pyrene	330	360 U	360 U	360 U	360 U	360 U
Indeno(1,2,3-cd)pyrene	330	360 U	360 U	360 U	360 U	360 U
Dibenz(a,h)anthracene	330	360 U	360 U	360 U	360 U	360 U
Benzo(g,h,i)perylene	330	360 UJ4	360 UJ4	360 UJ4	360 UJ4	360 UJ4
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-10	154009-11	154009-12	154009-13	154009-14
SAMPLE LOCATION:		SS-03	SS-04	SS-05	SS-06	SS-07
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	330	380 U	400 U	400 U	390 U	380 U
Phenol	330	380 U	400 U	400 U	390 U	380 U
2-Chlorophenol	330	380 U	400 U	400 U	390 U	380 U
1,3-Dichlorobenzene	330	380 U	400 U	400 U	390 U	380 U
1,4-Dichlorobenzene	330	380 U	400 U	400 U	390 U	380 U
1,2-Dichlorobenzene	330	380 U	400 U	400 U	390 U	380 U
2,2-Oxybis(1-chloropropane)	330	380 U	400 U	400 U	390 U	380 U
2-Methylphenol	330	380 U	400 U	400 U	390 U	380 U
Hexachloroethane	330	380 U	400 U	400 U	390 U	380 U
N-Nitroso-di-n-propylamine	330	380 U	400 U	400 U	390 U	380 U
4-Methylphenol	330	380 U	400 U	400 U	390 U	380 U
Nitrobenzene	330	380 U	400 U	400 U	390 U	380 U
Isophorone	330	380 U	400 U	400 U	390 U	380 U
2-Nitrophenol	330	380 U	400 U	400 U	390 U	380 U
2,4-Dimethylphenol	330	380 U	400 U	400 U	390 U	380 U
bis(2-Chloroethoxy)methane	330	380 U	400 U	400 U	390 U	380 U
2,4-Dichlorophenol	330	380 U	400 U	400 U	390 U	380 U
1,2,4-Trichlorobenzene	330	380 U	400 U	400 U	390 U	380 U
Naphthalene	330	380 U	400 U	400 U	390 U	380 U
4-Chloroaniline	330	380 U	400 U	400 U	390 U	380 U
Hexachlorobutadiene	330	380 U	400 U	400 U	390 U	380 U
4-Chloro-3-Methylphenol	330	380 U	400 U	400 U	390 U	380 U
2-Methylnaphthalene	330	380 U	400 U	400 U	390 U	380 U
Hexachlorocyclopentadiene	330	380 UJ4	400 UJ4	400 UJ4	390 UJ4	380 UJ4
2,4,6-Trichlorophenol	330	380 U	400 U	400 U	390 U	380 U
2,4,5-Trichlorophenol	800	950 U	990 U	990 U	970 U	960 U
2-Chloronaphthalene	330	380 U	400 U	400 U	390 U	380 U
2-Nitroaniline	800	950 U	990 U	990 U	970 U	960 U
Acenaphthylene	330	380 U	400 U	400 U	390 U	380 U
Dimethylphthalate	330	380 U	400 U	400 U	390 U	380 U
2,6-Dinitrotoluene	330	380 U	400 U	400 U	390 U	380 U
Acenaphthene	330	380 U	400 U	400 U	390 U	380 U
3-Nitroaniline	800	950 UJ4	990 UJ4	990 UJ4	970 UJ4	960 UJ4
2,4-Dinitrophenol	800	950 UJ4	990 UJ4	990 UJ4	970 UJ4	960 UJ4

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-10	154009-11	154009-12	154009-13	154009-14
SAMPLE LOCATION:		SS-03	SS-04	SS-05	SS-06	SS-07
COMPOUND	CRQL					
Dibenzofuran	330	380 U	400 U	400 U	390 U	380 U
2,4-Dinitrotoluene	330	380 U	400 U	400 U	390 U	380 U
4-Nitrophenol	800	950 UJ4	990 UJ4	990 UJ4	970 UJ4	960 UJ4
Fluorene	330	380 U	400 U	400 U	390 U	380 U
4-Chlorophenyl-Phenylether	330	380 U	400 U	400 U	390 U	380 U
Diethylphthalate	330	380 U	400 U	400 U	390 U	380 U
4-Nitroaniline	800	950 UJ4	990 UJ4	990 UJ4	970 UJ4	960 UJ4
4,6-Dinitro-2-Methylphenol	800	950 U	990 U	990 U	970 U	960 U
N-nitrosodiphenylamine(1)	330	380 U	400 U	400 U	390 U	380 U
4-Bromophenyl-Phenylether	330	380 U	400 U	400 U	390 U	380 U
Hexachlorobenzene	330	380 U	400 U	400 U	390 U	380 U
Pentachlorophenol	800	950 UJ4	990 UJ4	990 UJ4	970 UJ4	960 UJ4
Phenanthrene	330	380 U	210	400 U	390 U	380 U
Anthracene	330	380 U	400 U	400 U	390 U	380 U
Carbazole	330	380 U	92	400 U	390 U	380 U
Di-n-butylphthalate	330	380 U	400 U	400 U	40	52
Fluoranthene	330	51	480	400 U	44	380 U
Pyrene	330	39	370	400 U	390 U	380 U
Butylbenzylphthalate	330	380 U	400 U	400 U	390 U	380 U
3,3'-Dichlorobenzidine	330	380 U	400 U	400 U	390 U	380 U
Benzo(a)anthracene	330	380 U	170	400 U	390 U	380 U
Chrysene	330	380 U	260	400 U	390 U	380 U
Bis(2-ethylhexyl)phthalate	330	380 U	400 U5	400 U	390 U5	380 U
Di-n-octylphthalate	330	380 U	400 U	400 U	390 U	380 U
Benzo(b)fluoranthene	330	380 U	310	400 U	390 U	380 U
Benzo(k)fluoranthene	330	380 U	160	400 U	390 U	380 U
Benzo(a)pyrene	330	380 U	220	400 U	390 U	380 U
Indeno(1,2,3-cd)pyrene	330	380 U	180	400 U	390 U	380 U
Dibenz(a,h)anthracene	330	380 U	56	400 U	390 U	380 U
Benzo(g,h,i)perylene	330	380 UJ4	210 J4	400 UJ4	390 UJ4	380 UJ4
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-15
SAMPLE LOCATION:		SS-15
COMPOUND	CRQL	
bis(2-Chloroethyl)ether	330	410 U
Phenol	330	410 U
2-Chlorophenol	330	410 U
1,3-Dichlorobenzene	330	410 U
1,4-Dichlorobenzene	330	410 U
1,2-Dichlorobenzene	330	410 U
2,2-Oxybis(1-chloropropane)	330	410 U
2-Methylphenol	330	410 U
Hexachloroethane	330	410 U
N-Nitroso-di-n-propylamine	330	410 U
4-Methylphenol	330	410 U
Nitrobenzene	330	410 U
Isophorone	330	410 U
2-Nitrophenol	330	410 U
2,4-Dimethylphenol	330	410 U
bis(2-Chloroethoxy)methane	330	410 U
2,4-Dichlorophenol	330	410 U
1,2,4-Trichlorobenzene	330	410 U
Naphthalene	330	410 U
4-Chloroaniline	330	410 U
Hexachlorobutadiene	330	410 U
4-Chloro-3-Methylphenol	330	410 U
2-Methylnaphthalene	330	410 U
Hexachlorocyclopentadiene	330	410 UJ4
2,4,6-Trichlorophenol	330	410 U
2,4,5-Trichlorophenol	800	1000 U
2-Chloronaphthalene	330	410 U
2-Nitroaniline	800	1000 U
Acenaphthylene	330	410 U
Dimethylphthalate	330	410 U
2,6-Dinitrotoluene	330	410 U
Acenaphthene	330	410 U
3-Nitroaniline	800	1000 UJ4
2,4-Dinitrophenol	800	1000 UJ4

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-15
SAMPLE LOCATION:		SS-15
COMPOUND	CRQL	
Dibenzofuran	330	410 U
2,4-Dinitrotoluene	330	410 U
4-Nitrophenol	800	1000 UJ4
Fluorene	330	410 U
4-Chlorophenyl-Phenylether	330	410 U
Diethylphthalate	330	410 U
4-Nitroaniline	800	1000 UJ4
4,6-Dinitro-2-Methylphenol	800	1000 U
N-nitrosodiphenylamine(1)	330	410 U
4-Bromophenyl-Phenylether	330	410 U
Hexachlorobenzene	330	410 U
Pentachlorophenol	800	1000 UJ4
Phenanthrene	330	410 U
Anthracene	330	410 U
Carbazole	330	410 U
Di-n-butylphthalate	330	410 U
Fluoranthene	330	410 U
Pyrene	330	410 U
Butylbenzylphthalate	330	410 U
3,3'-Dichlorobenzidine	330	410 U
Benzo(a)anthracene	330	410 U
Chrysene	330	410 U
Bis(2-ethylhexyl)phthalate	330	410 U
Di-n-octylphthalate	330	410 U
Benzo(b)fluoranthene	330	410 U
Benzo(k)fluoranthene	330	410 U
Benzo(a)pyrene	330	410 U
Indeno(1,2,3-cd)pyrene	330	410 U
Dibenz(a,h)anthracene	330	410 U
Benzo(g,h,i)perylene	330	410 UJ4
DILUTION FACTOR:		1

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154009-01	154009-06
SAMPLE LOCATION:		FBTW100395	RWSS100395
COMPOUND	CRQL		
bis(2-Chloroethyl)ether	10	10 U	10 U
Phenol	10	10 U	10 U
2-Chlorophenol	10	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U
2,2-Oxybis(1-chloropropane)	10	10 U	10 U
2-Methylphenol	10	10 U	10 U
Hexachloroethane	10	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U
4-Methylphenol	10	10 U	10 U
Nitrobenzene	10	10 U	10 U
Isophorone	10	10 U	10 U
2-Nitrophenol	10	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U
Naphthalene	10	10 U	10 U
4-Chloroaniline	10	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U
Hexachlorocyclopentadiene	10	10 UJ4	10 UJ4
2,4,6-Trichlorophenol	10	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U
2-Nitroaniline	25	25 U	25 U
Acenaphthylene	10	10 U	10 U
Dimethylphthalate	10	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U
Acenaphthene	10	10 U	10 U
3-Nitroaniline	25	25 UJ4	25 UJ4
2,4-Dinitrophenol	25	25 UJ4	25 UJ4

SITE: STEWART ANG
SDG: 154009/AC009
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154009-01	154009-06
SAMPLE LOCATION:		FBTW100395	RWSS100395
COMPOUND	CRQL		
Dibenzofuran	10	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U
4-Nitrophenol	25	25 UJ4	25 UJ4
Fluorene	10	10 U	10 U
4-Chlorophenyl-Phenylether	10	10 U	10 U
Diethylphthalate	10	10 U	10 U
4-Nitroaniline	25	25 UJ4	25 UJ4
4,6-Dinitro-2-Methylphenol	25	25 U	25 U
N-nitrosodiphenylamine(1)	10	10 U	10 U
4-Bromophenyl-Phenylether	10	10 U	10 U
Hexachlorobenzene	10	10 U	10 U
Pentachlorophenol	25	25 UJ4	25 UJ4
Phenanthrene	10	10 U	10 U
Anthracene	10	10 U	10 U
Carbazole	10	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U
Fluoranthene	10	10 U	10 U
Pyrene	10	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U
Chrysene	10	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	10 U	1
Di-n-octylphthalate	10	10 U	10 U
Benzo(b)fluoranthene	10	10 U	10 U
Benzo(k)fluoranthene	10	10 U	10 U
Benzo(a)pyrene	10	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U
Benzo(g,h,i)perylene	10	10 UJ4	10 UJ4
DILUTION FACTOR:		1	1

SITE: STEWART ANG
SDG: AC009
LABORATORY: ENVIROTEST LABORATORIES, INC

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-10	154009-11	154009-12	154009-13	154009-14
SAMPLE LOCATION:		SS-03	SS-04	SS-05	SS-06	SS-07
COMPOUND	CRQL					
alpha-BHC	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
beta-BHC	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
delta-BHC	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
gamma-BHC(Lindane)	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
Heptachlor	1.7	1.9 U5	2.0 U5	2.0 U	1.9 U5	1.9 U5
Aldrin	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
Heptachlor Epoxide	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
Endosulfan I	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
Dieldrin	3.3	0.20 R25	86	5.6	5.7 J25	1.3 R25
4,4'-DDE	3.3	4.6	18	2.1	9.4	4.4 J25
Endrin	3.3	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U
Endosulfan II	3.3	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U
4,4'-DDD	3.3	1.4 JN25	6.2 J25	4.0 U	4.4	3.8 U
Endofulfan Sulfate	3.3	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U
4,4'-DDT	3.3	6.5	36	0.59 R25	16	1.4 J25
Methoxychlor	17	19 U	20 U	20 U	19 U	19 U
Endrin Ketone	3.3	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U
Endrin Aldehyde	3.3	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U
alpha-Chlordane	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
gamma-Chlordane	1.7	1.9 U	2.0 U	2.0 U	1.9 U	1.9 U
Toxaphene	170	190 U	200 U	200 U	190 U	190 U
Aroclor-1016	33	38 U	40 U	40 U	39 U	38 U
Aroclor-1221	67	76 U	79 U	79 U	78 U	77 U
Aroclor-1232	33	38 U	40 U	40 U	39 U	38 U
Aroclor-1242	33	38 U	40 U	40 U	39 U	38 U
Aroclor-1248	33	38 U	40 U	40 U	39 U	38 U
Aroclor-1254	33	38 U	40 U	40 U	39 U	38 U
Aroclor-1260	33	38 U	40 U	40 U	39 U	38 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC009
LABORATORY: ENVIROTEST LABORATORIES, INC

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-02	154009-03	154009-04	154009-08	154009-09
SAMPLE LOCATION:		SB-01-02	SB-01-18.5	SB-01-32.5	SS-01	SS-02
COMPOUND	CRQL					
alpha-BHC	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
beta-BHC	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
delta-BHC	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-BHC(Lindane)	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Heptachlor	1.7	1.8 U	1.8 U5	1.8 U5	1.8 U5	1.8 U5
Aldrin	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Heptachlor Epoxide	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Endosulfan I	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Dieldrin	3.3	3.6 U	3.6 U	3.6 U	0.49 J25	2.5 JN25
4,4'-DDE	3.3	1.9	3.6 U	3.6 U	0.58 JN25	2.6
Endrin	3.3	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
Endosulfan II	3.3	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
4,4'-DDD	3.3	3.6 U	3.6 U	3.6 U	3.6 U	6.1
Endofulfan Sulfate	3.3	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
4,4'-DDT	3.3	2.3 J25	3.6 U	3.6 U	0.5 J25	2.1 J25
Methoxychlor	17	18 U	18 U	18 U	18 U	18 U
Endrin Ketone	3.3	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
Endrin Aldehyde	3.3	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
alpha-Chlordane	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-Chlordane	1.7	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Toxaphene	170	180 U	180 U	180 U	180 U	180 U
Aroclor-1016	33	36 U	36 U	36 U	36 U	36 U
Aroclor-1221	67	72 U	72 U	72 U	72 U	72 U
Aroclor-1232	33	36 U	36 U	36 U	36 U	36 U
Aroclor-1242	33	36 U	36 U	36 U	36 U	36 U
Aroclor-1248	33	36 U	36 U	36 U	36 U	36 U
Aroclor-1254	33	36 U	36 U	36 U	36 U	36 U
Aroclor-1260	33	36 U	36 U	36 U	36 U	36 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC009
LABORATORY: ENVIROTEST LABORATORIES, INC

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154009-15
SAMPLE LOCATION:		SS-15
COMPOUND	CRQL	
alpha-BHC	1.7	2.1 UJ8
beta-BHC	1.7	2.1 UJ8
delta-BHC	1.7	2.1 UJ8
gamma-BHC(Lindane)	1.7	2.1 UJ8
Heptachlor	1.7	2.1 U5, UJ8
Aldrin	1.7	2.1 UJ8
Heptachlor Epoxide	1.7	2.1 UJ8
Endosulfan I	1.7	2.1 UJ8
Dieldrin	3.3	4.3 J8
4,4'-DDE	3.3	1.9 J8, 25
Endrin	3.3	4.1 UJ8
Endosulfan II	3.3	4.1 UJ8
4,4'-DDD	3.3	4.1 UJ8
Endofulfan Sulfate	3.3	4.1 UJ8
4,4'-DDT	3.3	0.29 R25
Methoxychlor	17	21 UJ8
Endrin Ketone	3.3	4.1 UJ8
Endrin Aldehyde	3.3	4.1 UJ8
alpha-Chlordane	1.7	2.1 UJ8
gamma-Chlordane	1.7	2.1 UJ8
Toxaphene	170	210 UJ8
Aroclor-1016	33	41 UJ8
Aroclor-1221	67	82 UJ8
Aroclor-1232	33	41 UJ8
Aroclor-1242	33	41 UJ8
Aroclor-1248	33	41 UJ8
Aroclor-1254	33	41 UJ8
Aroclor-1260	33	41 UJ8

DILUTION FACTOR: 1

SITE: STEWART ANG
SDG: AC009
LABORATORY: ENVIROTEST LABORATORIES, INC

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154009-01	154009-06
SAMPLE LOCATION:		FB-TW-100395	RW-SS-100395
COMPOUND	CRQL		
alpha-BHC	0.05	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U
gamma-BHC(Lindane)	0.05	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U
Heptachlor Epoxide	0.05	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U
Endofulfan Sulfate	0.10	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U
Endrin Ketone	0.10	0.10 U	0.10 U
Endrin Aldehyde	0.10	0.10 U	0.10 U
alpha-Chlordane	0.05	0.05 U	0.05 U
gamma-Chlordane	0.05	0.05 U	0.05 U
Toxaphene	5.0	5.0 U	5.0 U
Aroclor-1016	1.0	1.0 U	1.0 U
Aroclor-1221	2.0	2.0 U	2.0 U
Aroclor-1232	1.0	1.0 U	1.0 U
Aroclor-1242	1.0	1.0 U	1.0 U
Aroclor-1248	1.0	1.0 U	1.0 U
Aroclor-1254	1.0	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U
DILUTION FACTOR:		1	1

SITE: STEWART ANG
SDG: ANE009
LABORATORY: ENVIROTEST LABORATORIES, INC

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154009-02	154009-03	154009-04	154009-08	154009-09	
SAMPLE LOCATION:			SB0102	SB1185	SB1325	SS-01	SS-02	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg						CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	10300	11900	9860	12500	10000	40
Antimony	P	4.22	9.1 UJ2, 5	9.1 UJ2, 5	4.6 UJ2, 5	4.5 UJ2, 5	9.1 UJ2, 5	12
Arsenic	F	0.5	4.1	3.9	3.3	3.6	4.2	2
Barium	P	0.14	34.2	53.8	52.4	45.1	33.6	40
Beryllium	P	0.22	0.66	0.74	0.48	0.51	0.67	1
Cadmium	P	0.48	1 U	1 U	0.52 U	0.52 U	1 U	1
Calcium	P	2.06	31600 R3	22000 R3	21300 R3	3420 R3	16000 R3	1000
Chromium	P	1.86	16.3	15.6	15.1	15.6	14	2
Cobalt	P	1.28	10.7	9.7	9.2	8.3	9.7	10
Copper	P	0.48	23.9	23.7	20.5	20.1	19.9	5
Iron	P	1.04	22100	24000	21400	21500	22200	20
Lead	F	0.16	11.1	10.7	10.3	14.6	17.6	0.6
Magnesium	P	2.8	5830	7190	5740	5030	6070	1000
Manganese	P	0.18	541	568	535	672	566	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	20.6	23.3	21.5	20.5	21.5	8
Potassium	P	12.1	919	1420	1040	921	632	1000
Selenium	F	0.56	0.61 UJ5, 10	0.61 UJ5, 10	0.61 UJ5, 10	0.6 UJ5	0.6 UJ5, 10	1
Silver	P	0.38	0.82 U	0.82 U	0.63	0.5	0.82 U	2
Sodium	P	4.56	57.9 R3	53.3 R3	54.3 R3	39.3 R3	38.2 R3	1000
Thallium	F	0.12	1.1 J5, 10	0.56 J5, 10	0.29 J5, 10	0.13 J5	0.13 UJ5, 10	2
Vanadium	P	0.62	12.7	14.5	12	17.5	13.5	10
Zinc	P	0.26	62.3	61.7	53.3	61.4	64.3	4
Cyanide	C	1	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
CA - MIDI-DISTILLATION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: ANE009
LABORATORY: ENVIROTEST LABORATORIES, INC

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154009-10	154009-11	154009-12	154009-13	154009-14	
SAMPLE LOCATION:			SS-03	SS-04	SS-05	SS-06	SS-07	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg						CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	12100	11200	11900	10300	14100	40
Antimony	P	4.22	9.6 UJ2, 5	5 UJ2, 5	10 UJ2, 5	4.9 UJ2, 5	4.9 UJ2, 5	12
Arsenic	F	0.5	4.4	2.8	4.7	5.2	2.6	2
Barium	P	0.14	42	50.6	59.4	44.5	70.3	40
Beryllium	P	0.22	0.84	0.46	0.74	0.39	0.63	1
Cadmium	P	0.48	1.1 U	0.57 U	1.1 U	0.56 U	0.55 U	1
Calcium	P	2.06	1700 R3	2130 R3	11100 R3	4740 R3	2480 R3	1000
Chromium	P	1.86	15.2	12.8	14.4	13.5	13.3	2
Cobalt	P	1.28	10.6	8.5	10.3	10	7.6	10
Copper	P	0.48	24.2	15.5	24.8	22	14.1	5
Iron	P	1.04	23400	19500	23600	21500	19600	20
Lead	F	0.16	13.6	21.5	16.9	17.7	15.7	0.6
Magnesium	P	2.8	4570	3570	4650	4390	3570	1000
Manganese	P	0.18	605	724	1240	647	753	3
Mercury	CV	0.04	0.04 U	0.05	0.05 U	0.05 U	0.05 U	0.1
Nickel	P	2.54	28.6	17.1	21.1	22.4	17.4	8
Potassium	P	12.1	636	624	909	950	654	1000
Selenium	F	0.56	0.64 UJ5, 10	0.67 UJ5	0.67 UJ5, 10	0.65 UJ5, 10	0.64 UJ5	1
Silver	P	0.38	0.87 U	0.67	0.9 U	0.46	0.51	2
Sodium	P	4.56	26.5 R3	37 R3	47.5 R3	26.8 R3	49.3 R3	1000
Thallium	F	0.12	0.14 UJ5	0.14 UJ5	0.17 J5, 10	0.14 UJ5	0.6 J5, 10	2
Vanadium	P	0.62	14.3	17.6	16	14.3	17.2	10
Zinc	P	0.26	58.1	60.7	95.5	61.7	57.7	4
Cyanide	C	1	1.1 U	1.2 U	1.2 U	1.2 U	1.1 U	0.5

ANALYICAL METHOD
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SITE: STEWART ANG
SDG: ANE009
LABORATORY: ENVIROTEST LABORATORIES, INC

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154009-15	
SAMPLE LOCATION:			SS-15	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg		CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	13400	40
Antimony	P	4.22	10.4 UJ2, 5	12
Arsenic	F	0.5	4	2
Barium	P	0.14	60	40
Beryllium	P	0.22	1.1	1
Cadmium	P	0.48	1.2 U	1
Calcium	P	2.06	11200 R3	1000
Chromium	P	1.86	17.2	2
Cobalt	P	1.28	12.2	10
Copper	P	0.48	27.7	5
Iron	P	1.04	26600	20
Lead	F	0.16	15.9	0.6
Magnesium	P	2.8	5190	1000
Manganese	P	0.18	1170	3
Mercury	CV	0.04	0.05 U	0.1
Nickel	P	2.54	26.3	8
Potassium	P	12.1	1020	1000
Selenium	F	0.56	0.69 UJ5, 10	1
Silver	P	0.38	0.93 U	2
Sodium	P	4.56	48.1 R3	1000
Thallium	F	0.12	0.15 UJ5, 10	2
Vanadium	P	0.62	17.7	10
Zinc	P	0.26	76.9	4
Cyanide	C	1	1.2 U	0.5

ANALYICAL METHOD
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SITE: STEWART ANG
SDG: ANE009
LABORATORY: ENVIROTEST LABORATORIES, INC

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:			154009-01	154009-06	
SAMPLE LOCATION:			FBTW100395	RWSS100395	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS ug/L			CONTRACT DETECTION LIMITS (ug/L)
Aluminum	P	17.4	281	49.1	200
Antimony	P	21.1	21.1 UJ2	21.1 UJ2	60
Arsenic	F	2.5	2.5 U	2.5 U	10
Barium	P	0.7	10.9	11.8	200
Beryllium	P	1.1	1.1 U	1.1 U	5
Cadmium	P	2.4	2.4 U	2.4 U	5
Calcium	P	10.3	11900	32700	5000
Chromium	P	9.3	9.3 UJ2	9.3 UJ2	10
Cobalt	P	6.4	6.4 U	6.4 U	50
Copper	P	2.4	10.4	2.5	25
Iron	P	5.2	986	86	100
Lead	F	0.8	0.8 U	1 J10	3
Magnesium	P	14	1090	4810	5000
Manganese	P	0.9	11.9	14.7	15
Mercury	CV	0.2	0.2 U	0.2 U	0.2
Nickel	P	12.7	12.7 U	12.7 U	40
Potassium	P	60.7	1300	1750	5000
Selenium	F	2.8	2.8 U	2.8 UJ10	5
Silver	P	1.9	1.9 U	1.9 U	10
Sodium	P	22.8	10100	31000	5000
Thallium	F	0.6	0.6 U	0.6 U	10
Vanadium	P	3.1	4.1	3.1 U	50
Zinc	P	1.3	18.5	15.2	20
Cyanide	C	10	10 U	10 U	10

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
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CA - MIDI-DISTILLATION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
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U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: ANE009
LABORATORY: ENVIROTEST LABORATORIES, INC

TOC ANALYSIS

SAMPLE NUMBER:	154009-02	154009-03	154009-04	154009-08	154009-09
SAMPLE LOCATION:	SB0102	SB1185	SB1325	SS-01	SS-02
TOC	0.44%	0.97%	0.82%	0.76%	1.07%

SAMPLE NUMBER:	154009-10	154009-11	154009-12	154009-13	154009-14
SAMPLE LOCATION:	SS-03	SS-04	SS-05	SS-06	SS-07
TOC	0.15%	1.36%	0.77%	1.72%	2.26%

SAMPLE NUMBER:	154009-15
SAMPLE LOCATION:	SS-15
TOC	1.21%

SITE: STEWART ANG BASE
SDG: AC204/154204
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154204-01
SAMPLE LOCATION:		RBSB101095
COMPOUND	CRQL	
Chloromethane	10	10 U
Bromomethane	10	10 U
Vinyl Chloride	10	10 U
Chloroethane	10	10 U
Methylene Chloride	10	10 U
Acetone	10	2
Carbon Disulfide	10	10 UJ4
1,1-Dichloroethene	10	10 U
1,1-Dichloroethane	10	10 U
1,2-Dichloroethene (total)	10	10 U
Chloroform	10	10 U
1,2-Dichloroethane	10	10 U
2-Butanone	10	10 U
1,1,1-Trichloroethane	10	10 U
Carbon Tetrachloride	10	10 U
Bromodichloromethane	10	10 U
1,2-Dichloropropane	10	10 U
cis-1,3-Dichloropropene	10	10 U
Trichloroethene	10	10 U
Dibromochloromethane	10	10 U
1,1,2-Trichloroethane	10	10 U
Benzene	10	10 U
trans-1,3-Dichloropropene	10	10 U
Bromoform	10	10 U
4-Methyl-2-Pentanone	10	10 U
2-Hexanone	10	10 U
Tetrachloroethene	10	10 U
1,1,2,2-Tetrachloroethane	10	10 U
Toluene	10	10 U
Chlorobenzene	10	10 U
Ethylbenzene	10	10 U
Styrene	10	10 U
Total Xylenes	10	10 U
DILUTION FACTOR:		1

SITE: STEWART ANG BASE
SDG: AC204/154204
LABORATORY: ENVIROTEST LABORATORIES INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154204-01
SAMPLE LOCATION:		RBSB10195
COMPOUND	CRQL	
bis(2-Chloroethyl)ether	10	10 U
Phenol	10	10 U
2-Chlorophenol	10	10 U
1,3-Dichlorobenzene	10	10 U
1,4-Dichlorobenzene	10	10 U
1,2-Dichlorobenzene	10	10 U
2,2-Oxybis(1-chloropropane)	10	10 U
2-Methylphenol	10	10 U
Hexachloroethane	10	10 U
N-Nitroso-di-n-propylamine	10	10 U
4-Methylphenol	10	10 U
Nitrobenzene	10	10 U
Isophorone	10	10 U
2-Nitrophenol	10	10 U
2,4-Dimethylphenol	10	10 U
bis(2-Chloroethoxy)methane	10	10 U
2,4-Dichlorophenol	10	10 U
1,2,4-Trichlorobenzene	10	10 U
Naphthalene	10	10 U
4-Chloroaniline	10	10 U
Hexachlorobutadiene	10	10 U
4-Chloro-3-Methylphenol	10	10 U
2-Methylnaphthalene	10	10 U
Hexachlorocyclopentadiene	10	10 U
2,4,6-Trichlorophenol	10	10 U
2,4,5-Trichlorophenol	25	25 U
2-Chloronaphthalene	10	10 U
2-Nitroaniline	25	25 U
Acenaphthylene	10	10 U
Dimethylphthalate	10	10 U
2,6-Dinitrotoluene	10	10 U
Acenaphthene	10	10 U
3-Nitroaniline	25	25 UJ4
2,4-Dinitrophenol	25	25 UJ4

SITE: STEWART ANG BASE
SDG: AC204/154204
LABORATORY: ENVIROTEST LABORATORIES INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154204-01
SAMPLE LOCATION:		RBSB101095
COMPOUND	CRQL	
Dibenzofuran	10	10 U
2,4-Dinitrotoluene	10	10 U
4-Nitrophenol	25	25 R2
Fluorene	10	10 U
4-Chlorophenyl-Phenylether	10	10 U
Diethylphthalate	10	10 U
4-Nitroaniline	25	25 U
4,6-Dinitro-2-Methylphenol	25	25 U
N-nitrosodiphenylamine(1)	10	10 U
4-Bromophenyl-Phenylether	10	10 U
Hexachlorobenzene	10	10 U
Pentachlorophenol	25	25 UJ4
Phenanthrene	10	10 U
Anthracene	10	10 U
Carbazole	10	10 U
Di-n-butylphthalate	10	10 U
Fluoranthene	10	10 U
Pyrene	10	10 U
Butylbenzylphthalate	10	10 U
3,3'-Dichlorobenzidine	10	10 U
Benzo(a)anthracene	10	10 U
Chrysene	10	10 U
Bis(2-ethylhexyl)phthalate	10	9
Di-n-octylphthalate	10	10 U
Benzo(b)fluoranthene	10	10 U
Benzo(k)fluoranthene	10	10 U
Benzo(a)pyrene	10	10 U
Indeno(1,2,3-cd)pyrene	10	10 U
Dibenz(a,h)anthracene	10	10 U
Benzo(g,h,i)perylene	10	10 U
DILUTION FACTOR:		1

SITE: STEWART ANG BASE
SDG: AC204/154204
LABORATORY: ENVIROTEST LABORATORIES, INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154204-01
SAMPLE LOCATION:		RB-SB-101095
COMPOUND	CRQL	
alpha-BHC	0.05	0.05 U
beta-BHC	0.05	0.05 U
delta-BHC	0.05	0.05 U
gamma-BHC(Lindane)	0.05	0.05 U
Heptachlor	0.05	0.005 JN25
Aldrin	0.05	0.05 U
Heptachlor Epoxide	0.05	0.05 U
Endosulfan I	0.05	0.05 U
Dieldrin	0.10	0.10 U
4,4'-DDE	0.10	0.10 U
Endrin	0.10	0.10 U
Endosulfan II	0.10	0.10 U
4,4'-DDD	0.10	0.10 U
Endofulfan Sulfate	0.10	0.10 U
4,4'-DDT	0.10	0.10 U
Methoxychlor	0.50	0.50 U
Endrin Ketone	0.10	0.10 U
Endrin Aldehyde	0.10	0.10 U
alpha-Chlordane	0.05	0.05 U
gamma-Chlordane	0.05	0.05 U
Toxaphene	5.0	5.0 U
Aroclor-1016	1.0	1.0 U
Aroclor-1221	2.0	2.0 U
Aroclor-1232	1.0	1.0 U
Aroclor-1242	1.0	1.0 U
Aroclor-1248	1.0	1.0 U
Aroclor-1254	1.0	1.0 U
Aroclor-1260	1.0	1.0 U
DILUTION FACTOR:		1

SITE: STEWART ANG BASE INORGANIC AQUEOUS ANALYSIS
SDG: ANE204/154204 (UG/L)
LABORATORY: ENVIROTEST LABORATORIES, INC.

SAMPLE NUMBER:		154204-01		
SAMPLE LOCATION:		RBSB101095		
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L		CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	17.4	26.8	200
Antimony	PM	21.1	23.4 U	60
Arsenic	FM	2.5	2.8 U	10
Barium	PM	0.7	15.1	200
Beryllium	PM	1.1	1.2 U	5
Cadmium	PM	2.4	2.7 U	5
Calcium	PM	10.3	32500	5000
Chromium	PM	9.3	10.3 U	10
Cobalt	PM	6.4	7.1 U	50
Copper	PM	2.4	5.1	25
Iron	PM	5.2	129	100
Lead	FM	0.8	0.89 U	3
Magnesium	PM	14	4990	5000
Manganese	PM	0.9	17.6	15
Mercury	CV	0.2	0.2 U	0.2
Nickel	PM	12.7	14.1 U	40
Potassium	PM	60.7	1760	5000
Selenium	FM	2.8	3.1 U	5
Silver	PM	1.9	2.4	10
Sodium	PM	22.8	30900	5000
Thallium	FM	0.6	0.67 U	10
Vanadium	PM	3.1	3.4 U	50
Zinc	PM	1.3	13.3	20
Cyanide	C	10	10 U	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
M - MICROWAVE DIGESTION
CA - MIDI-DISTILLATION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THI QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-01	154290-02	154290-03	154290-04	154290-05
SAMPLE LOCATION:		SB-05-02	SB-05-06	SB-05-22	SB-06-02	SB-06-26.5
COMPOUND	CRQL					
Chloromethane	10	11 U	11 U	11 U	11 U	22 U
Bromomethane	10	11 U	11 U	11 U	11 U	22 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U	22 U
Chloroethane	10	11 U	11 U	11 U	11 U	22 U
Methylene Chloride	10	1	2	2	11 U	22 U
Acetone	10	11 U5	18 U6	13 U6	11 U5	22 U5
Carbon Disulfide	10	11 UJ4	11 U	11 U	11 U	22 U
1,1-Dichloroethene	10	11 U	11 U	11 U	11 U	22 U
1,1-Dichloroethane	10	11 U	11 U	11 U	11 U	22 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U	11 U	22 U
Chloroform	10	11 U	11 U	11 U	11 U	22 U
1,2-Dichloroethane	10	11 U	11 U	11 U	11 U	22 U
2-Butanone	10	11 U	4	11 U	11 U	22 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U	11 U	22 U
Carbon Tetrachloride	10	11 U	11 U	11 U	11 U	22 U
Bromodichloromethane	10	11 U	11 U	11 U	11 U	22 U
1,2-Dichloropropane	10	11 U	11 U	11 U	11 U	22 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	22 U
Trichloroethene	10	11 U	11 U	11 U	11 U	22 U
Dibromochloromethane	10	11 U	11 U	11 U	11 U	22 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U	11 U	22 U
Benzene	10	11 U	11 U	11 U	11 U	22 U
trans-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U	22 U
Bromoform	10	11 U	11 U	11 U	11 U	22 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U	22 U
2-Hexanone	10	11 U	11 U	11 U	11 U	22 U
Tetrachloroethene	10	11 U	11 U	11 U	11 U	22 U
1,1,2,2-Tetrachloroethane	10	11 U	11 U	11 U	11 U	22 U
Toluene	10	11 U	11 U	11 U	3	22 U
Chlorobenzene	10	11 U	11 U	11 U	11 U	22 U
Ethylbenzene	10	11 U	11 U	11 U	11 U	17
Styrene	10	11 U	11 U	11 U	11 U	22 U
Total Xylenes	10	11 U	11 U	11 U	3	22 U
DILUTION FACTOR:		1	1	1	1	2

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-06	154372-02	154372-03	154372-04	154372-05
SAMPLE LOCATION:		SB-06-34.5	SB-07-02	SB-07-33	SB-07-16	SB-17-33
COMPOUND	CRQL					
Chloromethane	10	12 U	11 U	11 U	11 U	11 U
Bromomethane	10	12 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	12 U	11 U	11 U	11 U	11 U
Chloroethane	10	12 U	11 U	11 U	11 U	11 U
Methylene Chloride	10	1	11 U	1	1	1
Acetone	10	12 U5	11 U5	11 U5	35 U6	11 U5
Carbon Disulfide	10	12 U	11 U	11 U	1	11 U
1,1-Dichloroethene	10	12 U	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	12 U	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	12 U	11 U	11 U	11 U	11 U
Chloroform	10	2	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	12 U	11 U	11 U	11 U	11 U
2-Butanone	10	12 U	11 U	11 U	3	11 U
1,1,1-Trichloroethane	10	12 U	11 U	11 U	11 U	11 U
Carbon Tetrachloride	10	12 U	11 U	11 U	11 U	11 U
Bromodichloromethane	10	12 U	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	12 U	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	12 U	11 U	11 U	11 U	11 U
Trichloroethene	10	12 U	11 U	11 U	11 U	11 U
Dibromochloromethane	10	12 U	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	12 U	11 U	11 U	11 U	11 U
Benzene	10	12 U	11 U	11 U	7	1
trans-1,3-Dichloropropene	10	12 U	11 U	11 U	11 U	11 U
Bromoform	10	12 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	12 U	11 U	11 U	11 U	11 U
2-Hexanone	10	12 U	11 U	11 U	11 U	11 U
Tetrachloroethene	10	12 U	11 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	12 U	11 U	11 U	11 U	11 U
Toluene	10	12 U	1	11 U	1	2
Chlorobenzene	10	12 U	11 U	11 U	11 U	11 U
Ethylbenzene	10	12 U	11 U	11 U	11 U	11 U
Styrene	10	12 U	11 U	11 U	11 U	11 U
Total Xylenes	10	12 U	3	11 U	2	11 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154290-07	154372-01	154372-06
SAMPLE LOCATION:		TB-04	RBSB101295	TB-05
COMPOUND	CRQL			
Chloromethane	10	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U
Methylene Chloride	10	10 U	10 U	10 U
Acetone	10	4	2	10 U
Carbon Disulfide	10	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	10 U	10 U	10 U
Chloroform	10	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U
Total Xylenes	10	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-01	154290-02	154290-03	154290-04	154290-05
SAMPLE LOCATION:		SB-05-02	SB-05-06	SB-05-22	SB-06-02	SB-06-26.5
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	330	370 U	370 U	370 U	360 U	360 U
Phenol	330	370 U	370 U	370 U	360 U	360 U
2-Chlorophenol	330	370 U	370 U	370 U	360 U	360 U
1,3-Dichlorobenzene	330	370 U	370 U	370 U	360 U	360 U
1,4-Dichlorobenzene	330	370 U	370 U	370 U	360 U	360 U
1,2-Dichlorobenzene	330	370 U	370 U	370 U	360 U	360 U
2,2-Oxybis(1-chloropropane)	330	370 U	370 U	370 U	360 U	360 U
2-Methylphenol	330	370 U	370 U	370 U	360 U	360 U
Hexachloroethane	330	370 U	370 U	370 U	360 U	360 U
N-Nitroso-di-n-propylamine	330	370 U	370 U	370 U	360 U	360 U
4-Methylphenol	330	370 U	370 U	370 U	360 U	360 U
Nitrobenzene	330	370 U	370 U	370 U	360 U	360 U
Isophorone	330	370 U	370 U	370 U	360 U	360 U
2-Nitrophenol	330	370 U	370 U	370 U	360 U	360 U
2,4-Dimethylphenol	330	370 U	370 U	370 U	360 U	360 U
bis(2-Chloroethoxy)methane	330	370 U	370 U	370 U	360 U	360 U
2,4-Dichlorophenol	330	370 U	370 U	370 U	360 U	360 U
1,2,4-Trichlorobenzene	330	370 U	370 U	370 U	360 U	360 U
Naphthalene	330	370 U	370 U	370 U	360 U	1500
4-Chloroaniline	330	370 U	370 U	370 U	360 U	360 U
Hexachlorobutadiene	330	370 U	370 U	370 U	360 U	360 U
4-Chloro-3-Methylphenol	330	370 U	370 U	370 U	360 U	360 U
2-Methylnaphthalene	330	370 U	370 U	370 U	360 U	2300
Hexachlorocyclopentadiene	330	370 UJ4	370 UJ4	370 UJ4	360 UJ4	360 UJ4
2,4,6-Trichlorophenol	330	370 U	370 U	370 U	360 U	360 U
2,4,5-Trichlorophenol	800	920 U	920 U	930 U	900 U	910 U
2-Chloronaphthalene	330	370 U	370 U	370 U	360 U	360 U
2-Nitroaniline	800	920 U	920 U	930 U	900 U	910 U
Acenaphthylene	330	370 U	370 U	370 U	360 U	360 U
Dimethylphthalate	330	370 U	370 U	370 U	360 U	360 U
2,6-Dinitrotoluene	330	370 U	370 U	370 U	360 U	360 U
Acenaphthene	330	370 U	370 U	370 U	360 U	360 U
3-Nitroaniline	800	920 UJ4	920 UJ4	930 UJ4	900 UJ4	910 UJ4
2,4-Dinitrophenol	800	920 UJ4	920 UJ4	930 UJ4	900 UJ4	910 UJ4

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-01	154290-02	154290-03	154290-04	154290-05
SAMPLE LOCATION:		SB-05-02	SB-05-06	SB-05-22	SB-06-02	SB-06-26.5
COMPOUND	CRQL					
Dibenzofuran	330	370 U	370 U	370 U	360 U	360 U
2,4-Dinitrotoluene	330	370 U	370 U	370 U	360 U	360 U
4-Nitrophenol	800	920 UJ4	920 UJ4	930 UJ4	900 UJ4	910 UJ4
Fluorene	330	370 U	370 U	370 U	360 U	360 U
4-Chlorophenyl-Phenylether	330	370 U	370 U	370 U	360 U	360 U
Diethylphthalate	330	370 U	370 U	370 U	360 U	360 U
4-Nitroaniline	800	920 U	920 U	930 U	900 U	910 U
4,6-Dinitro-2-Methylphenol	800	920 U	920 U	930 U	900 U	910 U
N-nitrosodiphenylamine(1)	330	370 U	370 U	370 U	360 U	360 U
4-Bromophenyl-Phenylether	330	370 U	370 U	370 U	360 U	360 U
Hexachlorobenzene	330	370 U	370 U	370 U	360 U	360 U
Pentachlorophenol	800	920 UJ4	920 UJ4	930 UJ4	900 UJ4	910 UJ4
Phenanthrene	330	370 U	370 U	370 U	360 U	360 U
Anthracene	330	370 U	370 U	370 U	360 U	360 U
Carbazole	330	370 U	370 U	370 U	360 U	360 U
Di-n-butylphthalate	330	370 U	370 U	370 U	37	360 U
Fluoranthene	330	370 U	370 U	370 U	360 U	360 U
Pyrene	330	370 U	370 U	370 U	360 U	360 U
Butylbenzylphthalate	330	370 U	370 U	370 U	360 U	360 U
3,3'-Dichlorobenzidine	330	370 U	370 U	370 U	360 U	360 U
Benzo(a)anthracene	330	370 U	370 U	370 U	360 U	360 U
Chrysene	330	370 U	370 U	370 U	360 U	360 U
Bis(2-ethylhexyl)phthalate	330	370 U5	370 U5	370 U5	360 U5	360 U5
Di-n-octylphthalate	330	370 U	370 U	370 U	360 U	360 U
Benzo(b)fluoranthene	330	370 U	370 U	370 U	360 U	360 U
Benzo(k)fluoranthene	330	370 U	370 U	370 U	360 U	360 U
Benzo(a)pyrene	330	370 U	370 U	370 U	360 U	360 U
Indeno(1,2,3-cd)pyrene	330	370 U	370 U	370 U	360 U	360 U
Dibenz(a,h)anthracene	330	370 U	370 U	370 U	360 U	360 U
Benzo(g,h,i)perylene	330	370 U	370 U	370 U	360 U	360 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-06	154372-02	154372-03	1543272-04	154372-05
SAMPLE LOCATION:		SB-06-34.5	SB-07-02	SB-07-33	SB-07-16	SB-17-33
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	330	390 U	370 U	360 U	370 U	360 U
Phenol	330	390 U	370 U	360 U	370 U	360 U
2-Chlorophenol	330	390 U	370 U	360 U	370 U	360 U
1,3-Dichlorobenzene	330	390 U	370 U	360 U	370 U	360 U
1,4-Dichlorobenzene	330	390 U	370 U	360 U	370 U	360 U
1,2-Dichlorobenzene	330	390 U	370 U	360 U	370 U	360 U
2,2-Oxybis(1-chloropropane)	330	390 U	370 U	360 U	370 U	360 U
2-Methylphenol	330	390 U	370 U	360 U	370 U	360 U
Hexachloroethane	330	390 U	370 U	360 U	370 U	360 U
N-Nitroso-di-n-propylamine	330	390 U	370 U	360 U	370 U	360 U
4-Methylphenol	330	390 U	370 U	360 U	370 U	360 U
Nitrobenzene	330	390 U	370 U	360 U	370 U	360 U
Isophorone	330	390 U	370 U	360 U	370 U	360 U
2-Nitrophenol	330	390 U	370 U	360 U	370 U	360 U
2,4-Dimethylphenol	330	390 U	370 U	360 U	370 U	360 U
bis(2-Chloroethoxy)methane	330	390 U	370 U	360 U	370 U	360 U
2,4-Dichlorophenol	330	390 U	370 U	360 U	370 U	360 U
1,2,4-Trichlorobenzene	330	390 U	370 U	360 U	370 U	360 U
Naphthalene	330	390 U	370 U	360 U	590	360 U
4-Chloroaniline	330	390 U	370 U	360 U	370 U	360 U
Hexachlorobutadiene	330	390 U	370 U	360 U	370 U	360 U
4-Chloro-3-Methylphenol	330	390 U	370 U	360 U	370 U	360 U
2-Methylnaphthalene	330	390 U	370 U	360 U	100	360 U
Hexachlorocyclopentadiene	330	390 UJ4	370 UJ4	360 UJ4	370 UJ4	360 UJ4
2,4,6-Trichlorophenol	330	390 U	370 U	360 U	370 U	360 U
2,4,5-Trichlorophenol	800	970 U	920 U	910 U	920 U	910 U
2-Chloronaphthalene	330	390 U	370 U	360 U	370 U	360 U
2-Nitroaniline	800	970 U	920 U	910 U	920 U	910 U
Acenaphthylene	330	390 U	370 U	360 U	370 U	360 U
Dimethylphthalate	330	390 U	370 U	360 U	370 U	360 U
2,6-Dinitrotoluene	330	390 U	370 U	360 U	370 U	360 U
Acenaphthene	330	390 U	370 U	360 U	370 U	360 U
3-Nitroaniline	800	970 UJ4	920 UJ4	910 UJ4	920 UJ4	910 UJ4
2,4-Dinitrophenol	800	970 UJ4	920 UJ4	910 UJ4	920 UJ4	910 UJ4

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-06	154372-02	154372-03	1543272-04	154372-05
SAMPLE LOCATION:		SB-06-34.5	SB-07-02	SB-07-33	SB-07-16	SB-17-33
COMPOUND	CRQL					
Dibenzofuran	330	390 U	370 U	360 U	370 U	360 U
2,4-Dinitrotoluene	330	390 U	370 U	360 U	370 U	360 U
4-Nitrophenol	800	970 UJ4	920 UJ4	910 UJ4	920 UJ4	910 UJ4
Fluorene	330	390 U	370 U	360 U	370 U	360 U
4-Chlorophenyl-Phenylether	330	390 U	370 U	360 U	370 U	360 U
Diethylphthalate	330	390 U	370 U	360 U	370 U	360 U
4-Nitroaniline	800	970 U	920 U	910 U	920 U	910 U
4,6-Dinitro-2-Methylphenol	800	970 U	920 U	910 U	920 U	910 U
N-nitrosodiphenylamine(1)	330	390 U	370 U	360 U	370 U	360 U
4-Bromophenyl-Phenylether	330	390 U	370 U	360 U	370 U	360 U
Hexachlorobenzene	330	390 U	370 U	360 U	370 U	360 U
Pentachlorophenol	800	970 UJ4	920 UJ4	910 UJ4	920 UJ4	910 UJ4
Phenanthrene	330	390 U	370 U	360 U	370 U	360 U
Anthracene	330	390 U	370 U	360 U	370 U	360 U
Carbazole	330	390 U	370 U	360 U	370 U	360 U
Di-n-butylphthalate	330	390 U	370 U	360 U	2300	360 U
Fluoranthene	330	390 U	44	360 U	370 U	360 U
Pyrene	330	390 U	41	360 U	370 U	360 U
Butylbenzylphthalate	330	390 U	370 U	360 U	370 U	360 U
3,3'-Dichlorobenzidine	330	390 U	370 U	360 U	370 U	360 U
Benzo(a)anthracene	330	390 U	370 U	360 U	370 U	360 U
Chrysene	330	390 U	370 U	360 U	370 U	360 U
Bis(2-ethylhexyl)phthalate	330	390 U5	370 U	360 U	370 U5	360 U
Di-n-octylphthalate	330	390 U	370 U	360 U	370 U	360 U
Benzo(b)fluoranthene	330	390 U	370 U	360 U	370 U	360 U
Benzo(k)fluoranthene	330	390 U	370 U	360 U	370 U	360 U
Benzo(a)pyrene	330	390 U	370 U	360 U	370 U	360 U
Indeno(1,2,3-cd)pyrene	330	390 U	370 U	360 U	370 U	360 U
Dibenz(a,h)anthracene	330	390 U	370 U	360 U	370 U	360 U
Benzo(g,h,i)perylene	330	390 U	370 U	360 U	370 U	360 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154372-01
SAMPLE LOCATION:		RBSB101295
COMPOUND	CRQL	
bis(2-Chloroethyl)ether	10	10 U
Phenol	10	10 U
2-Chlorophenol	10	10 U
1,3-Dichlorobenzene	10	10 U
1,4-Dichlorobenzene	10	10 U
1,2-Dichlorobenzene	10	10 U
2,2-Oxybis(1-chloropropane)	10	10 U
2-Methylphenol	10	10 U
Hexachloroethane	10	10 U
N-Nitroso-di-n-propylamine	10	10 U
4-Methylphenol	10	10 U
Nitrobenzene	10	10 U
Isophorone	10	10 U
2-Nitrophenol	10	10 U
2,4-Dimethylphenol	10	10 U
bis(2-Chloroethoxy)methane	10	10 U
2,4-Dichlorophenol	10	10 U
1,2,4-Trichlorobenzene	10	10 U
Naphthalene	10	10 U
4-Chloroaniline	10	10 U
Hexachlorobutadiene	10	10 UJ4
4-Chloro-3-Methylphenol	10	10 U
2-Methylnaphthalene	10	10 U
Hexachlorocyclopentadiene	10	10 U
2,4,6-Trichlorophenol	10	10 U
2,4,5-Trichlorophenol	25	25 U
2-Chloronaphthalene	10	10 U
2-Nitroaniline	25	25 U
Acenaphthylene	10	10 U
Dimethylphthalate	10	10 U
2,6-Dinitrotoluene	10	10 U
Acenaphthene	10	10 U
3-Nitroaniline	25	25 UJ4
2,4-Dinitrophenol	25	25 UJ4

SITE: STEWART ANG BASE
SDG: 154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154372-01
SAMPLE LOCATION:		RBSB101295
COMPOUND	CRQL	
Dibenzofuran	10	10 U
2,4-Dinitrotoluene	10	10 U
4-Nitrophenol	25	25 UJ4
Fluorene	10	10 U
4-Chlorophenyl-Phenylether	10	10 U
Diethylphthalate	10	10 U
4-Nitroaniline	25	25 U
4,6-Dinitro-2-Methylphenol	25	25 U
N-nitrosodiphenylamine(1)	10	10 U
4-Bromophenyl-Phenylether	10	10 U
Hexachlorobenzene	10	10 U
Pentachlorophenol	25	25 UJ4
Phenanthrene	10	10 U
Anthracene	10	10 U
Carbazole	10	10 U
Di-n-butylphthalate	10	10 U
Fluoranthene	10	10 U
Pyrene	10	10 U
Butylbenzylphthalate	10	10 U
3,3'-Dichlorobenzidine	10	10 U
Benzo(a)anthracene	10	10 U
Chrysene	10	10 U
Bis(2-ethylhexyl)phthalate	10	3
Di-n-octylphthalate	10	10 U
Benzo(b)fluoranthene	10	10 U
Benzo(k)fluoranthene	10	10 U
Benzo(a)pyrene	10	10 U
Indeno(1,2,3-cd)pyrene	10	10 U
Dibenz(a,h)anthracene	10	10 U
Benzo(g,h,i)perylene	10	10 U
DILUTION FACTOR:		1

SITE: STEWART ANG BASE
SDG: AC290/154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC.

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-01	154290-02	154290-03	154290-04	154290-05
SAMPLE LOCATION:		SB-05-02	SB-05-06	SB-05-22	SB-06-02	SB-06-26.5
COMPOUND	CRQL					
alpha-BHC	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
beta-BHC	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
delta-BHC	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
gamma-BHC(Lindane)	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
Heptachlor	1.7	1.8 U5	1.8 U	1.9 U5	1.8 U5	1.8 U5
Aldrin	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
Heptachlor Epoxide	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
Endosulfan I	1.7	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U
Dieldrin	3.3	0.32 JN25	11	7.0 J25	3.6 U	7.2 R25
4,4'-DDE	3.3	1.5	3.5 J25	35 J25	0.15 JN25	43 J25
Endrin	3.3	3.7 U	3.7 U	3.7 U	3.6 U	3.6 U
Endosulfan II	3.3	3.7 U	3.7 U	3.7 U	3.6 U	3.6 U
4,4'-DDD	3.3	0.75	44	19	0.41 JN25	890 JN25
Endofulfan Sulfate	3.3	3.7 U	3.7 U	3.7 U	3.6 U	3.6 U
4,4'-DDT	3.3	5.6 U6	18	49	3.6 U5, UJ20	4300
Methoxychlor	17	18 U	18 U	19 U	18 U	18 U
Endrin Ketone	3.3	3.7 U	3.7 U	3.7 U	3.6 U	3.6 U
Endrin Aldehyde	3.3	3.7 U	3.7 U	3.7 U	3.6 U	3.6 U
alpha-Chlordane	1.7	1.8 U	1.8 U	1.9 U	1.8 U	4.4 JN25
gamma-Chlordane	1.7	1.8 U	1.8 U	1.9 U	1.8 U	2.9 R25
Toxaphene	170	180 U	180 U	190 U	180 U	180 U
Aroclor-1016	33	37 U	37 U	37 U	36 U	36 U
Aroclor-1221	67	73 U	73 U	74 U	72 U	72 U
Aroclor-1232	33	37 U	37 U	37 U	36 U	36 U
Aroclor-1242	33	37 U	37 U	37 U	36 U	36 U
Aroclor-1248	33	37 U	37 U	37 U	36 U	36 U
Aroclor-1254	33	37 U	37 U	37 U	36 U	36 U
Aroclor-1260	33	37 U	37 U	37 U	36 U	36 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: AC290/154290/154372
LABORATORY: ENVIROTEST LABORATORIES, INC.

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154290-06	154372-02	154372-03	154372-04	154372-05
SAMPLE LOCATION:		SB-06-34.5	SB-07-02	SB-07-33	SB-07-16	SB-17-33
COMPOUND	CRQL					
alpha-BHC	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
beta-BHC	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
delta-BHC	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-BHC(Lindane)	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
Heptachlor	1.7	1.9 U5	1.8 U5	1.8 U5	1.8 U5	1.8 U5
Aldrin	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
Heptachlor Epoxide	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
Endosulfan I	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
Dieldrin	3.3	3.9 U	6.0 JN25	3.6 U	3.7 U	3.6 U
4,4'-DDE	3.3	0.64 JN25	190 J25	1.5 JN25	8.4	1.4
Endrin	3.3	3.9 U	3.7 U	3.6 U	3.7 U	3.6 U
Endosulfan II	3.3	3.9 U	3.7 U	3.6 U	3.7 U	3.6 U
4,4'-DDD	3.3	9.9 JN25	150 JN25	57 JN25	11 J25	69 JN25
Endofulfan Sulfate	3.3	3.9 U	3.7 U	3.6 U	3.7 U	3.6 U
4,4'-DDT	3.3	19	680	69	48	58
Methoxychlor	17	19 U	18 U	18 U	18 U	18 U
Endrin Ketone	3.3	3.9 U	3.7 U	3.6 U	3.7 U	3.6 U
Endrin Aldehyde	3.3	3.9 U	3.7 U	3.6 U	3.7 U	3.6 U
alpha-Chlordane	1.7	1.9 U	1.1 R25	1.8 U	1.8 U	1.8 U
gamma-Chlordane	1.7	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U
Toxaphene	170	190 U	180 U	180 U	180 U	180 U
Aroclor-1016	33	39 U	37 U	36 U	37 U	36 U
Aroclor-1221	67	78 U	73 U	72 U	73 U	72 U
Aroclor-1232	33	39 U	37 U	36 U	37 U	36 U
Aroclor-1242	33	39 U	37 U	36 U	37 U	36 U
Aroclor-1248	33	39 U	37 U	36 U	37 U	36 U
Aroclor-1254	33	39 U	37 U	36 U	37 U	36 U
Aroclor-1260	33	39 U	37 U	36 U	37 U	36 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: AC290/154290/154372 PESTICIDE/PCB AQUEOUS ANALYSIS
LABORATORY: ENVIROTEST LABORATORIES, INC. (UG/L)

SAMPLE NUMBER:		154372-01
SAMPLE LOCATION:		RB-SB-101295
COMPOUND	CRQL	
alpha-BHC	0.05	0.054 U
beta-BHC	0.05	0.054 U
delta-BHC	0.05	0.054 U
gamma-BHC(Lindane)	0.05	0.054 U
Heptachlor	0.05	0.003 JN25
Aldrin	0.05	0.054 U
Heptachlor Epoxide	0.05	0.054 U
Endosulfan I	0.05	0.054 U
Dieldrin	0.10	0.11 U
4,4'-DDE	0.10	0.11 U
Endrin	0.10	0.11 U
Endosulfan II	0.10	0.11 U
4,4'-DDD	0.10	0.02
Endofulfan Sulfate	0.10	0.11 U
4,4'-DDT	0.10	0.025 J20, JN25
Methoxychlor	0.50	0.54 U
Endrin Ketone	0.10	0.11 U
Endrin Aldehyde	0.10	0.11 U
alpha-Chlordane	0.05	0.054 U
gamma-Chlordane	0.05	0.054 U
Toxaphene	5.0	5.4 U
Aroclor-1016	1.0	1.1 U
Aroclor-1221	2.0	2.2 U
Aroclor-1232	1.0	1.1 U
Aroclor-1242	1.0	1.1 U
Aroclor-1248	1.0	1.1 U
Aroclor-1254	1.0	1.1 U
Aroclor-1260	1.0	1.1 U
DILUTION FACTOR:		1

SITE: STEWART ANG BASE
SDG: ANE290
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154290-01	154290-02	154290-03	154290-04	154290-05	
SAMPLE LOCATION:			SB0502	SB0506	SB0522	SB0602	SB6265	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg						CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	8220	10500	9330	9770	10300	40
Antimony	P	4.22	4.6 UJ2, 5	9.2 UJ2, 5	4.7 UJ2, 5	9.1 UJ2, 5	4.6 UJ2, 5	12
Arsenic	F	0.5	4.2	2.6	5	5.2	3.1	2
Barium	P	0.14	33.3	53.8	59.2	37.3	47.3	40
Beryllium	P	0.22	0.25	0.59	0.24 U	0.47 U	0.31	1
Cadmium	P	0.48	0.53 U	1.1 U	0.53 U	1 U	0.52 U	1
Calcium	P	2.06	17400 R3	25800 R3	24600 R3	11000 R3	21800 R3	1000
Chromium	P	1.86	12	17.2	15.2	19.7	16.3	2
Cobalt	P	1.28	8.4	12.9	10	11.7	9.4	10
Copper	P	0.48	19.7	26.6	23.7	24.9	20.3	5
Iron	P	1.04	19400	22700	20700	22600	21600	20
Lead	F	0.16	10.2 J5	11.6 J5	15.1 J5	12.5 J5	9.6 J5	0.6
Magnesium	P	2.8	4830	6390	6220	5150	5860	1000
Manganese	P	0.18	652	579	537	1070	557	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	17	26.7	20.9	22.6	20.6	8
Potassium	P	12.1	761	900	935	777	1140 J12	1000
Selenium	F	0.56	0.61 U	0.61 U	0.62 U	0.6 U	0.61 U	1
Silver	P	0.38	1.1	1.7	0.52	1.1	1	2
Sodium	P	4.56	44.2 R3	50.2 R3	48.7 R3	60.9 R3	51 R3	1000
Thallium	F	0.12	0.34 J5, 10	0.13 UJ5, 10	0.15 J5, 10	0.14 J5, 10	0.18 J5, 10	2
Vanadium	P	0.62	11	10.4	11.9	12.9	12.8	10
Zinc	P	0.3	53.5 J12	62 J12	51.1 J12	61.9 J12	55.3 J12	4
Cyanide	C	1.0	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG BASE
SDG: ANE290
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154290-06	154372-02	154372-03	154372-04	154372-05	
SAMPLE LOCATION:			SB6345	SB0702	SB0733	SB0716	SB1733	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg						CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	15600	9520	10500	8590	9360	40
Antimony	P	4.22	9.8 UJ2, 5	4.6 UJ2, 5	4.6 UJ2,5	4.6 UJ2,5	4.6 UJ2,5	12
Arsenic	F	0.5	6.4	4.4	4	3.9	4	2
Barium	P	0.14	63.1	42.2	49.9	33	51.5	40
Beryllium	P	0.22	0.69	0.24 U	0.44	0.32	0.4	1
Cadmium	P	0.48	1.1 U	0.53 U	0.52 U	0.53 U	0.52 U	1
Calcium	P	2.06	2630 R3	11200 R3	21400	28300	21700	1000
Chromium	P	1.86	27.5	13.7	15	14.8	13.8	2
Cobalt	P	1.28	16.1	8.8	10.1	7.6	9	10
Copper	P	0.48	36.8	20.9	21.4	19.4	23.8	5
Iron	P	1.04	31000	21000	21100	19400	19200	20
Lead	F	0.16	13.5 J5	13.9 J5	14.2 J5	8.2 J5	10.8 J5	0.6
Magnesium	P	2.8	7600	4510	5810	5990	5270	1000
Manganese	P	0.18	1250	895	566	543	522	3
Mercury	CV	0.04	0.05 U	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	31	19	21.3	17.9	18.6	8
Potassium	P	12.1	1520	668	1010	870	994	1000
Selenium	F	0.56	0.65 U	0.61 U	0.61 U	0.62 UJ10	0.61 U	1
Silver	P	0.38	1.4	0.42 U	0.41 U	0.58	0.72	2
Sodium	P	4.56	70.8 R3	33.8 R3	45.6 R3	51.1 R3	46.4 R3	1000
Thallium	F	0.12	0.14 J5, 10	0.14 J5, 10	0.13 J5	0.13 UJ5,10	0.14 J5	2
Vanadium	P	0.62	19	12.7	11.9	10.2	11	10
Zinc	P	0.3	82.6 J12	57.5 J12	57.1 J12	51.5 J12	52.1 J12	4
Cyanide	C	1.0	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG BASE
SDG: ANE290
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154372-01		
SAMPLE LOCATION:		RBSB101295		
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L		CONTRACT DETECTION LIMITS (ug/L)
Aluminum	P	17.4	317	200
Antimony	P	21.1	21.1 UJ2	60
Arsenic	F	2.5	2.5 U	10
Barium	P	0.7	0.7 U	200
Beryllium	P	1.1	1.1 U	5
Cadmium	P	2.4	2.4 U	5
Calcium	P	10.3	1390	5000
Chromium	P	9.3	9.3 U	10
Cobalt	P	6.4	6.4 U	50
Copper	P	2.4	8.3	25
Iron	P	5.2	409	100
Lead	F	0.8	0.8 U	3
Magnesium	P	14	230	5000
Manganese	P	0.9	11.6	15
Mercury	CV	0.2	0.2 U	0.2
Nickel	P	12.7	12.7 U	40
Potassium	P	60.7	194	5000
Selenium	F	2.8	2.8 U	5
Silver	P	1.9	1.9 U	10
Sodium	P	22.8	1220	5000
Thallium	F	0.6	0.6 U	10
Vanadium	P	3.1	3.1 U	50
Zinc	P	1.3	31.4	20
Cyanide	C	10	10 U	10

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: ANE290/154290/372
LABORATORY: ENVIROTEST LABORATORIES, INC

TOC ANALYSIS

SAMPLE NUMBER:	154290-01	154290-02	154290-03	154290-04	154290-05
SAMPLE LOCATION:	SB0502	SB0506	SB0522	SB0602	SB0626.5
TOC	0.65%	0.58%	0.94%	0.55%	0.75%

SAMPLE NUMBER:	154290-06	154372-02	154372-03	154372-04	154372-05
SAMPLE LOCATION:	SB0634.5	SB0702	SB0733	SB0716	SB1733
TOC	0.19%	0.78%	1.10%	0.82%	0.64%

SITE: STEWART ANG BASE
SDG: 154477/154478
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154478-01	154478-02	154478-03
SAMPLE LOCATION:		MW-01-04	MW-01-18	MW-01-31.6
COMPOUND	CRQL			
Chloromethane	10	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U
Methylene Chloride	10	11 U	1	11 U
Acetone	10	11 U5	14 U6	11 U5
Carbon Disulfide	10	11 U	11 U	11 U
1,1-Dichloroethene	10	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U
Chloroform	10	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	11 U	11 U
2-Butanone	10	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	11 U	11 U
Bromodichloromethane	10	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U
Trichloroethene	10	11 U	11 U	11 U
Dibromochloromethane	10	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U
Benzene	10	11 U	11 U	11 U
trans-1,3-Dichloropropene	10	11 U	11 U	11 U
Bromoform	10	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	11 UJ15	11 UJ15
2-Hexanone	10	11 U	11 UJ15	11 UJ15
Tetrachloroethene	10	11 U	11 UJ15	11 UJ15
1,1,2,2-Tetrachloroethane	10	11 U	11 UJ8, 15	11 UJ8, 15
Toluene	10	1	11 UJ15	11 UJ15
Chlorobenzene	10	11 U	11 UJ8, 15	11 UJ8, 15
Ethylbenzene	10	11 U	11 UJ8, 15	11 UJ8, 15
Styrene	10	11 U	11 UJ8, 15	11 UJ8, 15
Total Xylenes	10	11 U	11 UJ8, 15	11 UJ8, 15
DILUTION FACTOR:		1	1	1

SITE: STEWART ANG BASE
SDG: 154477/154478
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154477-01	154477-02	154478-04
SAMPLE LOCATION:		DW011017	TB-DW-01	TB-06
COMPOUND	CRQL			
Chloromethane	10	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U
Methylene Chloride	10	10 U	2	10 U
Acetone	10	10 R2	9 J2	10 U
Carbon Disulfide	10	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	10 U	10 U	10 U
Chloroform	10	2	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U
Total Xylenes	10	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1

SITE: STEWART ANG BASE
SDG: 154477/154478
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154478-01	154478-02	154478-03
SAMPLE LOCATION:		MW-01-04	MW-01-18	MW-01-31.6
COMPOUND	CRQL			
bis(2-Chloroethyl)ether	330	360 U	360 U	370 U
Phenol	330	360 U	360 U	370 U
2-Chlorophenol	330	360 U	360 U	370 U
1,3-Dichlorobenzene	330	360 U	360 U	370 U
1,4-Dichlorobenzene	330	360 U	360 U	370 U
1,2-Dichlorobenzene	330	360 U	360 U	370 U
2,2-Oxybis(1-chloropropane)	330	360 U	360 U	370 U
2-Methylphenol	330	360 U	360 U	370 U
Hexachloroethane	330	360 U	360 U	370 U
N-Nitroso-di-n-propylamine	330	360 U	360 U	370 U
4-Methylphenol	330	360 U	360 U	370 U
Nitrobenzene	330	360 U	360 U	370 U
Isophorone	330	360 U	360 U	370 U
2-Nitrophenol	330	360 U	360 U	370 U
2,4-Dimethylphenol	330	360 U	360 U	370 U
bis(2-Chloroethoxy)methane	330	360 U	360 U	370 U
2,4-Dichlorophenol	330	360 U	360 U	370 U
1,2,4-Trichlorobenzene	330	360 U	360 U	370 U
Naphthalene	330	360 U	360 U	370 U
4-Chloroaniline	330	360 UJ4	360 UJ4	370 UJ4
Hexachlorobutadiene	330	360 U	360 U	370 U
4-Chloro-3-Methylphenol	330	360 U	360 U	370 U
2-Methylnaphthalene	330	360 U	360 U	370 U
Hexachlorocyclopentadiene	330	360 U	360 U	370 U
2,4,6-Trichlorophenol	330	360 U	360 U	370 U
2,4,5-Trichlorophenol	800	900 U	910 U	920 U
2-Chloronaphthalene	330	360 U	360 U	370 U
2-Nitroaniline	800	900 UJ4	910 UJ4	920 UJ4
Acenaphthylene	330	360 U	360 U	370 U
Dimethylphthalate	330	360 U	360 U	370 U
2,6-Dinitrotoluene	330	360 U	360 U	370 U
Acenaphthene	330	360 U	360 U	370 U
3-Nitroaniline	800	900 R2	910 R2	920 R2
2,4-Dinitrophenol	800	900 UJ4	910 UJ4	920 UJ4

SITE: STEWART ANG BASE
SDG: 154477/154478
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154478-01	154478-02	154478-03
SAMPLE LOCATION:		MW-01-04	MW-01-18	MW-01-31.6
COMPOUND	CRQL			
Dibenzofuran	330	360 U	360 U	370 U
2,4-Dinitrotoluene	330	360 U	360 U	370 U
4-Nitrophenol	800	900 U	910 U	920 U
Fluorene	330	360 U	360 U	370 U
4-Chlorophenyl-Phenylether	330	360 U	360 U	370 U
Diethylphthalate	330	360 U	360 U	370 U
4-Nitroaniline	800	900 U	910 U	920 U
4,6-Dinitro-2-Methylphenol	800	900 U	910 U	920 U
N-nitrosodiphenylamine(1)	330	360 U	360 U	370 U
4-Bromophenyl-Phenylether	330	360 U	360 U	370 U
Hexachlorobenzene	330	360 U	360 U	370 U
Pentachlorophenol	800	900 UJ4	910 UJ4	920 UJ4
Phenanthrene	330	360 U	360 U	370 U
Anthracene	330	360 U	360 U	370 U
Carbazole	330	360 UJ4	360 UJ4	370 UJ4
Di-n-butylphthalate	330	360 U5	360 U5	370 U5
Fluoranthene	330	360 U	360 U	370 U
Pyrene	330	360 U	360 U	370 U
Butylbenzylphthalate	330	360 U	360 U	370 U
3,3'-Dichlorobenzidine	330	360 UJ4	360 UJ4	370 UJ4
Benzo(a)anthracene	330	360 U	360 U	370 U
Chrysene	330	360 U	360 U	370 U
Bis(2-ethylhexyl)phthalate	330	360 U	360 U5	370 U
Di-n-octylphthalate	330	360 UJ4	360 UJ4	370 UJ4
Benzo(b)fluoranthene	330	360 U	360 U	370 U
Benzo(k)fluoranthene	330	360 U	360 U	370 U
Benzo(a)pyrene	330	360 U	360 U	370 U
Indeno(1,2,3-cd)pyrene	330	360 U	360 U	370 U
Dibenz(a,h)anthracene	330	360 U	360 U	370 U
Benzo(g,h,i)perylene	330	360 U	360 U	370 U
DILUTION FACTOR:		1	1	1

SITE: STEWART ANG BASE
SDG: 154477/154478
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154477-01
SAMPLE LOCATION:		DW01101795
COMPOUND	CRQL	
bis(2-Chloroethyl)ether	10	10 U
Phenol	10	10 U
2-Chlorophenol	10	10 U
1,3-Dichlorobenzene	10	10 U
1,4-Dichlorobenzene	10	10 U
1,2-Dichlorobenzene	10	10 U
2,2-Oxybis(1-chloropropane)	10	10 U
2-Methylphenol	10	10 U
Hexachloroethane	10	10 U
N-Nitroso-di-n-propylamine	10	10 U
4-Methylphenol	10	10 U
Nitrobenzene	10	10 U
Isophorone	10	10 U
2-Nitrophenol	10	10 U
2,4-Dimethylphenol	10	10 U
bis(2-Chloroethoxy)methane	10	10 U
2,4-Dichlorophenol	10	10 U
1,2,4-Trichlorobenzene	10	10 U
Naphthalene	10	2
4-Chloroaniline	10	10 U
Hexachlorobutadiene	10	10 U
4-Chloro-3-Methylphenol	10	10 U
2-Methylnaphthalene	10	2
Hexachlorocyclopentadiene	10	10 U
2,4,6-Trichlorophenol	10	10 U
2,4,5-Trichlorophenol	25	25 U
2-Chloronaphthalene	10	10 U
2-Nitroaniline	25	25 U
Acenaphthylene	10	10 U
Dimethylphthalate	10	10 U
2,6-Dinitrotoluene	10	10 U
Acenaphthene	10	10 U
3-Nitroaniline	25	25 UJ4
2,4-Dinitrophenol	25	25 UJ4

SITE: STEWART ANG BASE
SDG: 154477/154478
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154477-01
SAMPLE LOCATION:		DW01101795
COMPOUND	CRQL	
Dibenzofuran	10	10 U
2,4-Dinitrotoluene	10	10 U
4-Nitrophenol	25	25 UJ4
Fluorene	10	10 U
4-Chlorophenyl-Phenylether	10	10 U
Diethylphthalate	10	10 U
4-Nitroaniline	25	25 U
4,6-Dinitro-2-Methylphenol	25	25 U
N-nitrosodiphenylamine(1)	10	10 U
4-Bromophenyl-Phenylether	10	10 U
Hexachlorobenzene	10	10 U
Pentachlorophenol	25	25 UJ4
Phenanthrene	10	10 U
Anthracene	10	10 U
Carbazole	10	10 U
Di-n-butylphthalate	10	10 U
Fluoranthene	10	10 U
Pyrene	10	10 U
Butylbenzylphthalate	10	10 U
3,3'-Dichlorobenzidine	10	10 U
Benzo(a)anthracene	10	10 U
Chrysene	10	10 U
Bis(2-ethylhexyl)phthalate	10	79
Di-n-octylphthalate	10	10 U
Benzo(b)fluoranthene	10	10 U
Benzo(k)fluoranthene	10	10 U
Benzo(a)pyrene	10	10 U
Indeno(1,2,3-cd)pyrene	10	10 U
Dibenz(a,h)anthracene	10	10 UJ4
Benzo(g,h,i)perylene	10	10 U
DILUTION FACTOR:		1

SITE: STEWART ANG BASE
SDG: AC477/154477/478
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154478-01	154478-02	154478-03
SAMPLE LOCATION:		MW-01-04	MW-01-18	MW-01-31.6
COMPOUND	CRQL			
alpha-BHC	1.7	1.8 UJ20	1.8 UJ20	1.8 UJ20
beta-BHC	1.7	1.8 UJ20	1.8 UJ20	1.8 UJ20
delta-BHC	1.7	1.8 U	1.8 U	1.8 U
gamma-BHC(Lindane)	1.7	1.8 U	1.8 U	1.8 U
Heptachlor	1.7	1.8 U5	1.8 U5	1.8 U5
Aldrin	1.7	1.8 U	1.8 U	1.8 U
Heptachlor Epoxide	1.7	1.8 U	1.8 U	1.8 U
Endosulfan I	1.7	1.8 U	1.8 U	1.8 U
Dieldrin	3.3	3.6 U	3.7 U	3.7 U
4,4'-DDE	3.3	3.6 U	3.7 U	3.7 U
Endrin	3.3	3.6 UJ20	3.7 UJ20	3.7 UJ20
Endosulfan II	3.3	3.6 U	3.7 U	3.7 U
4,4'-DDD	3.3	3.6 U	3.7 U	3.7 U
Endofulfan Sulfate	3.3	3.6 U	3.7 U	3.7 U
4,4'-DDT	3.3	3.6 UJ20	3.7 UJ20	3.7 UJ20
Methoxychlor	17	18 UJ20	18 UJ20	18 UJ20
Endrin Ketone	3.3	3.6 U	3.7 U	3.7 U
Endrin Aldehyde	3.3	3.6 U	3.7 U	3.7 U
alpha-Chlordane	1.7	1.8 U	1.8 U	1.8 U
gamma-Chlordane	1.7	1.8 U	1.8 U	1.8 U
Toxaphene	170	180 U	180 U	180 U
Aroclor-1016	33	36 U	37 U	37 U
Aroclor-1221	67	72 U	73 U	73 U
Aroclor-1232	33	36 U	37 U	37 U
Aroclor-1242	33	36 U	37 U	37 U
Aroclor-1248	33	36 U	37 U	37 U
Aroclor-1254	33	36 U	37 U	37 U
Aroclor-1260	33	36 U	37 U	37 U
DILUTION FACTOR:		1	1	1

SITE: STEWART ANG BASE
SDG: AC477/154477/478
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154477-01
SAMPLE LOCATION:		DW-01-1017
COMPOUND	CRQL	
alpha-BHC	0.05	0.05 UJ8, 20
beta-BHC	0.05	0.05 UJ8, 20
delta-BHC	0.05	0.05 UJ8
gamma-BHC(Lindane)	0.05	0.05 UJ8
Heptachlor	0.05	0.009 J25, J8
Aldrin	0.05	0.05 UJ8
Heptachlor Epoxide	0.05	0.05 UJ8
Endosulfan I	0.05	0.05 UJ8
Dieldrin	0.10	0.10 UJ8
4,4'-DDE	0.10	0.44 J8
Endrin	0.10	0.10 UJ8, 20
Endosulfan II	0.10	0.10 UJ8
4,4'-DDD	0.10	3.3 J8, JN25
Endofulfan Sulfate	0.10	0.10 UJ8
4,4'-DDT	0.10	3.4 J8, 20
Methoxychlor	0.50	0.50 UJ8, 20
Endrin Ketone	0.10	0.10 UJ8
Endrin Aldehyde	0.10	0.10 UJ8
alpha-Chlordane	0.05	0.014 R25
gamma-Chlordane	0.05	0.01 R25
Toxaphene	5.0	5.0 UJ8
Aroclor-1016	1.0	1.0 UJ8
Aroclor-1221	2.0	2.0 UJ8
Aroclor-1232	1.0	1.0 UJ8
Aroclor-1242	1.0	1.0 UJ8
Aroclor-1248	1.0	1.0 UJ8
Aroclor-1254	1.0	1.0 UJ8
Aroclor-1260	1.0	1.0 UJ8
DILUTION FACTOR:		1

SITE: STEWART ANG BASE
SDG: ANE477/154477/478
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154478-01	154478-02	154478-03	
SAMPLE LOCATION:			MW0104	MW0118	MW1316	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg				CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	9970	10600	11100	40
Antimony	P	4.22	9.1 UJ5	14.6 J5	9.2 UJ5	12
Arsenic	F	0.5	6.2	5.3	4.8	2
Barium	P	0.14	43.4	47.7	50.6	40
Beryllium	P	0.22	0.86	0.96	0.82	1
Cadmium	P	0.48	1 U	1 U	1.1 U	1
Calcium	P	2.06	21800	23100	23400	1000
Chromium	P	1.86	15 J2	16.1 J2	17.5	2
Cobalt	P	1.28	11.8	10.6	11.6	10
Copper	P	0.48	25 J12	26.4 J12	28 J12	5
Iron	P	1.04	22400	23900	24800	20
Lead	F	0.16	12.5 J5	12.2 J5	11.8 J5	0.6
Magnesium	P	2.8	6430	7130	7160	1000
Manganese	P	0.18	524	614	623	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	23.7	24.4	24.9	8
Potassium	P	12.1	886	870	960	1000
Selenium	F	0.56	0.3 U	0.31 U	0.31 U	1
Silver	P	0.38	1.2 J2	0.83 U	1.3 J2	2
Sodium	P	4.56	19.1	41.6	49.7	1000
Thallium	F	0.12	0.55 J5, 10	0.67 J5, 10	0.48 J5, 10	2
Vanadium	P	0.62	11	12.5	13.1	10
Zinc	P	0.3	54.8	63.2	62.7	4
Cyanide	C	1.0	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG BASE
SDG: ANE477/154477/478
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER: 154477-01
SAMPLE LOCATION: DW01101795

INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L		CONTRACT DETECTION LIMITS
Aluminum	PM	17.4	320000 J15, 16	200
Antimony	PM	21.1	234 U	60
Arsenic	FM	2.5	103 J14, 15	10
Barium	PM	0.7	1760 J14, 16	200
Beryllium	PM	1.1	20.3 J14, 16	5
Cadmium	PM	2.4	26.7 U	5
Calcium	PM	10.3	444000 J15, 16	5000
Chromium	PM	9.3	632 J14, 15, 16	10
Cobalt	PM	6.4	309 J14, 16	50
Copper	PM	2.4	2430 J15, 16	25
Iron	PM	5.2	625000 J15, 16	1000
Lead	FM	0.8	342 J15	3
Magnesium	PM	14	187000 J15, 16	5000
Manganese	PM	0.9	15500 J15, 16	15
Mercury	CV	0.2	0.75 J14, 15	0.2
Nickel	PM	12.7	735 J14, 15, 16	40
Potassium	PM	60.7	59600 J15, 16	5000
Selenium	FM	2.8	15.6 UJ10	5
Silver	PM	1.9	21.1 U	10
Sodium	PM	22.8	18000 J16	5000
Thallium	FM	0.6	3.6 J14	10
Vanadium	PM	3.1	602 J14, 15, 16	50
Zinc	PM	1.3	2980 J15, 16	20
Cyanide	C	10	50 U	10

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: ANE478
LABORATORY: ENVIROTEST LABORATORIES, INC

TOC ANALYSIS

SAMPLE NUMBER:	155478-01	154478-02	154478-03
SAMPLE LOCATION:	MW0104	MW0118	MW1316
TOC	0.94%	0.86%	0.46%

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155787-02	155787-04	155787-05	155787-06	155787-08
SAMPLE LOCATION:		MW091127	MW011128	MW101128	MW1091128	MW1081128
COMPOUND	CRQL					
Chloromethane	10	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 UJ4	10 U	10 U	10 U	10 U
Vinyl Chloride	10	2	10 U	10 U	7	10 U
Chloroethane	10	2 J4	10 U	10 U	2	10 U
Methylene Chloride	10	10 U	10 U	10 U	10 U	10 U
Acetone	10	10 R2	10 R2	10 R2	10 R2	10 R2
Carbon Disulfide	10	10 U	1	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	2	10 U	10 U	2	10 U
1,2-Dichloroethene (total)	10	10 U	10 U	10 U	10 U	10 U
Chloroform	10	10 U	4	10 U	3	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	3	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	4	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 UJ4	10 R2	10 R2	10 R2	10 R2
2-Hexanone	10	3 J4	10 R2	10 R2	10 R2	10 R2
Tetrachloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U	10 U	10 U
Styrene	10	10 U	1C U	10 U	10 U	10 U
m, p - Xylene	10	10 U	10 U	10 U	10 U	10 U
o - Xylene	10	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155816-01	155816-02	155816-03	155816-04	155816-05
SAMPLE LOCATION:		SW031128	MW131128	SW121128	SW021128	TB-1129
COMPOUND	CRQL					
Chloromethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Bromomethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1, 4	10 U
Vinyl Chloride	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1, 4	10 U
Chloroethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Methylene Chloride	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Acetone	10	10 R2	10 R2	10 R2	10 R2	10 R2
Carbon Disulfide	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,1-Dichloroethene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,1-Dichloroethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,2-Dichloroethene (total)	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Chloroform	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,2-Dichloroethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
2-Butanone	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,1,1-Trichloroethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Carbon Tetrachloride	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Bromodichloromethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,2-Dichloropropane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
cis-1,3-Dichloropropene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Trichloroethene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Dibromochloromethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,1,2-Trichloroethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Benzene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
trans-1,3-Dichloropropene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Bromoform	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
4-Methyl-2-Pentanone	10	10 R2	10 R2	10 R2	10 R2	10 R2
2-Hexanone	10	10 R2	10 R2	10 R2	10 R2	10 R2
Tetrachloroethene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
1,1,2,2-Tetrachloroethane	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Toluene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Chlorobenzene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
Ethylbenzene	10	10 UJ1	10 UJ1	17 J1	15 J1	10 U
Styrene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
m, p - Xylene	10	10 UJ1, 4	10 UJ1, 4	10 UJ1, 4	10 UJ1, 4	10 UJ4
o - Xylene	10	10 UJ1	10 UJ1	10 UJ1	10 UJ1	10 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155787-03	155787-07
SAMPLE LOCATION:		TB-1127	TB-1128
COMPOUND	CRQL		
Chloromethane	10	10 U	10 U
Bromomethane	10	10 UJ4	10 UJ4
Vinyl Chloride	10	10 U	10 U
Chloroethane	10	10 UJ4	10 UJ4
Methylene Chloride	10	10 U	10 U
Acetone	10	10 R2	10 R2
Carbon Disulfide	10	10 U	10 U
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	10 U
Carbon Tetrachloride	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	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U
Bromoform	10	10 U	10 U
4-Methyl-2-Pentanone	10	10 UJ4	10 UJ4
2-Hexanone	10	10 UJ4	10 UJ4
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
m, p - Xylene	10	10 U	10 U
o - Xylene	10	10 U	10 U
DILUTION FACTOR:		1	1

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155787-01	155787-02	155787-04	155787-05	155787-06
SAMPLE LOCATION:		MW1081128	MW091127	MW011128	MW101128	MW1091128
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
2,2-Oxybis(1-chloropropane)	10	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U5	10 U5	10 U5	10 U5	10 U5
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U
2,4-Dinitrophenol	25	25 U	25 U	25 U	25 U	25 U

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155787-01	155787-02	155787-04	155787-05	155787-06
SAMPLE LOCATION:		MW1081128	MW091127	MW011128	MW101128	MW1091128
COMPOUND	CRQL					
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	25	25 U	25 U	25 U	25 U	25 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-Phenylether	10	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-Methylphenol	25	25 U	25 U	25 U	25 U	25 U
N-nitrosodiphenylamine(1)	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25	25 U	25 U	25 U	25 U	25 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U
Carbazole	10	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	16 U6	14 U6	77	10 U5	10 U5
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155816-01	155816-02	155816-06	155816-07
SAMPLE LOCATION:		SW031128	MW131128	SW021128	SW121128
COMPOUND	CRQL				
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	2	7
2-Chlorophenol	10	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U
2,2-Oxybis(1-chloropropane)	10	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	7	9
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	37 J13	72 J13
4-Chloroaniline	10	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	4	25 J13	41 J13
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U
2-Nitroaniline	25	25 U	25 U	25 U	25 U
Acenaphthylene	10	10 U	10 U	10 U	10 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U
Acenaphthene	10	10 U	10 U	10 U	10 U
3-Nitroaniline	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4
2,4-Dinitrophenol	25	25 U	25 U	25 U	25 U

SITE: STEWART ANG
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155816-01	155816-02	155816-06	155816-07
SAMPLE LOCATION:		SW031128	MW131128	SW021128	SW121128
COMPOUND	CRQL				
Dibenzofuran	10	10 U	10 U	2	2
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U
4-Nitrophenol	25	25 U	25 U	25 U	25 U
Fluorene	10	10 U	10 U	1	1
4-Chlorophenyl-Phenylether	10	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	1	10 U	10 U
4-Nitroaniline	25	25 U	25 U	25 U	25 U
4,6-Dinitro-2-Methylphenol	25	25 U	25 U	25 U	25 U
N-nitrosodiphenylamine(1)	10	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	10	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U
Pentachlorophenol	25	25 U	25 U	25 U	25 U
Phenanthrene	10	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U
Carbazole	10	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	1	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	10 U5	10 U5	10 U5	10 U5
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155787-01	155787-02	155787-04	155787-05	155787-06
SAMPLE LOCATION:		MW-108-1128	MW-09-1127	MW-01-1128	MW-10-1128	MW-109-1128
COMPOUND	CRQL					
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 UJ19, 20	0.05 UJ19, 20	0.05 UJ19, 20	0.05 UJ19, 20	0.05 UJ19, 20
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC(Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor Epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 UJ29	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.14 J29	0.10 U	0.10 U
Endrin	0.10	0.10 UJ20	0.10 UJ20	0.10 UJ20	0.10 UJ20	0.10 UJ20
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.027 JN25	0.21 JN25	1.3 JN25	0.089 JN25	0.013 JN25
Endofulfan Sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.13	0.52 J10	3.20 J20, 25	0.22	0.098
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin Ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin Aldehyde	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.05	0.05 U	0.05 U	0.007	0.05 U	0.05 U
gamma-Chlordane	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Aroclor-1016	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: AC787/155787/155816
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		155816-01	155816-02	155816-06	155816-07
SAMPLE LOCATION:		SW-03-1128	MW-13-1128	SW-02-1128	SW-12-1128
COMPOUND	CRQL				
alpha-BHC	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 UJ8, 19, 20	0.05 UJ19, 20	0.05 UJ19, 20	0.05 UJ19, 20
delta-BHC	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
gamma-BHC(Lindane)	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
Heptachlor Epoxide	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 UJ8	0.10 U	0.10 UJ29	0.10 UJ29
4,4'-DDE	0.10	0.10 UJ8	0.10 U	0.78 J29	0.79 J29
Endrin	0.10	0.039 J8	0.10 UJ20	0.10 UJ20	0.11 R25
Endosulfan II	0.10	0.10 UJ8	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	1.4 JN25	0.31 JN25	4.6 JN25	7.1 JN25
Endofulfan Sulfate	0.10	0.10 UJ8	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	6.4 J8, 20	0.58	4.60 J13, 20	8.4 J13, 20
Methoxychlor	0.50	0.50 UJ8	0.50 U	0.50 U	0.50 U
Endrin Ketone	0.10	0.10 UJ8	0.10 U	0.10 U	0.10 U
Endrin Aldehyde	0.10	0.10 UJ8	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.05	0.05 UJ8	0.05 U	0.017 R25	0.05 U
gamma-Chlordane	0.05	0.05 UJ8	0.05 U	0.05 U	0.05 U
Toxaphene	5.0	5.0 UJ8	5.0 U	5.0 U	5.0 U
Aroclor-1016	1.0	1.0 UJ8	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0	2.0 UJ8	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0	1.0 UJ8	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0	1.0 UJ8	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0	1.0 UJ8	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0	1.0 UJ8	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 UJ8	1.0 U	1.0 U	1.0 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: ANE787/816
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:			155787-01	155787-02	155787-04	155787-05	155787-06	
SAMPLE LOCATION:			TMW108-1128	TMW-09-1127	TMW-01-1128	TMW-10-1128	TMW-109-1128	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L						CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	17.4	1020	5170	8200	5020	454	200
Antimony	PM	21.1	23.4 U	30	23.4 U	23.4 U	23.4 U	60
Arsenic	FM	1.1	2	3.2	15.9	3.9	2.3	10
Barium	PM	0.7	53.2	93.7	67	68.4	21.8	200
Beryllium	PM	1.1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	5
Cadmium	PM	2.4	2.7 U	4.8	2.7 U	2.7 U	2.7 U	5
Calcium	PM	10.3	141000	183000	83800	101000	104000	5000
Chromium	PM	9.3	10.3 U	10.3 U	23.6	10.3 U	10.3 U	10
Cobalt	PM	6.4	7.1 U	9.1	10	7.1 U	7.2	50
Copper	PM	2.4	17.8	24.8	21.4	14.3	6.4	25
Iron	PM	5.2	2000	9450	12000	9460	745	1000
Lead	FM	0.1	2.1	8.4	9	4.4	0.11 U	3
Magnesium	PM	14	17200	27100	8110	15600	12000	5000
Manganese	PM	0.9	57.5	2060	328	426	928 J17	15
Mercury	CV	0.2	0.2 U	0.23	0.2 U	0.2 U	0.2 U	0.2
Nickel	PM	12.7	14.1 U	43.6	14.3	14.1	14.1 U	40
Potassium	PM	60.7	2010	5150 J12	2930	1880	1430	5000
Selenium	FM	1.4	1.6 UJ5	1.6 UJ5	1.6 UJ5, 10	1.6 UJ5	1.6 UJ5	5
Silver	PM	1.9	2.1 U	3.8 J2	2.1 U	2.1 U	2.1 U	10
Sodium	PM	22.8	62400	125000	53500	133000	14700 J17	5000
Thallium	FM	1.1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	10
Vanadium	PM	3.1	6	20.9	43.9	17.2	3.4 U	50
Zinc	PM	1.3	90.6 J5, 7, 17	273 J5, 7, 17	225 J5, 7, 17	795 J5, 7	208 J5, 7	20
Cyanide	C	10	10 U	10 U	32	12	30	10

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
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SITE: STEWART ANG BASE
SDG: ANE787/816
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:			155787-09	155787-10	155787-11	155787-12	155787-13	
SAMPLE LOCATION:			DMW108-1128	DMW-09-1127	DMW-01-1128	DMW-10-1128	DMW-109-1128	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L						CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	17.4	44.9	191	305	25.7	69	200
Antimony	PM	21.1	23.4 U	25.4	23.4 U	23.4 U	23.4 U	60
Arsenic	FM	1.1	1.6	1.2 U	11.7	1.4	1.2 U	10
Barium	PM	0.7	46.6	62.2	12.7	36.8	19.4	200
Beryllium	PM	1.1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	5
Cadmium	PM	2.4	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	5
Calcium	PM	10.3	141000	187000	38500	96000	101000	5000
Chromium	PM	9.3	10.3 U	10.3 U	10.7	10.3 U	10.3 U	10
Cobalt	PM	6.4	7.1 U	7.1 U	7.1 U	7.1 U	7.1 U	50
Copper	PM	2.4	3.4	4.8	4.8	5.8	4.5	25
Iron	PM	5.2	28	381	81	82.5	102	1000
Lead	FM	0.1	0.11 U	1.4	0.58	1.2	0.47	3
Magnesium	PM	14	16900	24700	2450	13500	12100	5000
Manganese	PM	0.9	22.7	1830	13.9	61.5	1140 J17	15
Mercury	CV	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2
Nickel	PM	12.7	14.1 U	34.7	14.1 U	14.1 U	14.1 U	40
Potassium	PM	60.7	1730	3740	1860	984	1320	5000
Selenium	FM	1.4	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	5
Silver	PM	1.9	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	10
Sodium	PM	22.8	62400	132000	54100	128000	16200 J17	5000
Thallium	FM	1.1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	10
Vanadium	PM	3.1	5.2	3.4 U	24.9	3.4 U	3.4 U	50
Zinc	PM	1.3	130 J5, 6, 7, 17	305 J5, 6, 7, 17	292 J5, 6, 7, 17	60.5 J5, 6, 7	115 J5,6,7	20
Cyanide	C	10	NR	NR	NR	NR	NR	10

ANALYTICAL METHOD
F - FURNACE
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SITE: STEWART ANG BASE
SDG: ANE787/816
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:			155816-01	155816-02	155816-06	155816-07	155816-08	
SAMPLE LOCATION:			TSW031128	TMW131128	TSW021128	TSW121128	DSW031128	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L						CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	17.4	9420	11500	1230	797	78.3	200
Antimony	PM	21.1	23.8	24	42.7	23.4 U	23.4 U	60
Arsenic	FM	1.1	4.8	16.1	3	2.5	1.2 U	10
Barium	PM	0.7	57.2	289 J12	29.5	25.2	18.3	200
Beryllium	PM	1.1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	5
Cadmium	PM	2.4	2.7 U	3.1	2.7 U	2.7 U	2.7 U	5
Calcium	PM	10.3	173000	211000	189000	183000	157000	5000
Chromium	PM	9.3	17.2 J2	22.1 J2	10.3 UJ2	10.3 UJ2	10.3 UJ2	10
Cobalt	PM	6.4	10.1	18.2	7.1 U	7.1 U	7.1 U	50
Copper	PM	2.4	29.7 J12	41.1 J12	7	5.7	6.9	25
Iron	PM	5.2	17900	32600	2160	1520	59.5	1000
Lead	FM	0.1	10.9	14.3	3	2.9	2	3
Magnesium	PM	14	37900	37400	43500	43000	32800	5000
Manganese	PM	0.9	1580	1540	3000	3040	1110	15
Mercury	CV	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2
Nickel	PM	12.7	29.8	36.7	14.1	14.1 U	14.1 U	40
Potassium	PM	60.7	4380	8400 J12	2320	2120	2330	5000
Selenium	FM	1.4	1.6 UJ5, 10	1.6 UJ5, 10	1.6 UJ5, 10	1.6 UJ5, 10	1.6 UJ5, 10	5
Silver	PM	1.9	5 J2	5.4 J2	5.4 J2	4.3 J2	5.3 J2	10
Sodium	PM	22.8	13000	12400	16500	16500	12700	5000
Thallium	FM	1.1	1.3 J5	1.2 UJ5	1.2 UJ5	1.2 UJ5	1.2 UJ5	10
Vanadium	PM	3.1	37.4	47.7	15	10.7	11.5	50
Zinc	PM	1.3	265 J5, 6, 7	139 J5, 6, 7	194 J5, 6, 7	96.8 R17	117 J5, 6, 7	20
Cyanide	C	10	10 U	10 U	10 U	10 U	NR	10

ANALYICAL METHOD
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SITE: STEWART ANG BASE
SDG: ANE787/816
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:			155816-01	155816-10	155816-11	
SAMPLE LOCATION:			TSW031128	DSW121128	DSW021128	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L				CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	17.4	19.3 U	119	19.3 U	200
Antimony	PM	21.1	23.4 U	23.4 U	28.3	60
Arsenic	FM	1.1	8.1	2.7	1.2 U	10
Barium	PM	0.7	228 J12	20.3	18	200
Beryllium	PM	1.1	1.2 U	1.2 U	1.2 U	5
Cadmium	PM	2.4	2.7 U	3.2	2.8	5
Calcium	PM	10.3	172000	189000	188000	5000
Chromium	PM	9.3	10.3 UJ2	10.3 UJ2	10.3 UJ2	10
Cobalt	PM	6.4	7.1 U	7.1 U	7.1 U	50
Copper	PM	2.4	4.2	7.2	4.2	25
Iron	PM	5.2	4820	298	195	1000
Lead	FM	0.1	0.33	1.4	1.3	3
Magnesium	PM	14	30100	43400	44800	5000
Manganese	PM	0.9	732	3000	3080	15
Mercury	CV	0.2	0.2 U	0.2 U	0.2 U	0.2
Nickel	PM	12.7	14.1 U	14.1 U	14.1 U	40
Potassium	PM	60.7	7750 J12	2140	1970	5000
Selenium	FM	1.4	1.6 UJ5	1.6 UJ5, 10	1.6 UJ5, 10	5
Silver	PM	1.9	3.9 J2	7.2 J2	5.7 J2	10
Sodium	PM	22.8	12900	16800	17200	5000
Thallium	FM	1.1	1.2 UJ5	1.2 UJ5	1.2 UJ5	10
Vanadium	PM	3.1	11.2	11.5	7.4	50
Zinc	PM	1.3	42.4 J5, 6, 7	206 R17	52.2 J5, 6, 7	20
Cyanide	C	10	NR	NR	NR	10

ANALYTICAL METHOD
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SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
Chloromethane	10	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U	11 U
Methylene Chloride	10	11 U5	25	11 U	11 U5
Acetone	10	13 U6	17 U6	11 U5	11 U5
Carbon Disulfide	10	1	11 U	11 U	1
1,1-Dichloroethene	10	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U	11 U
Chloroform	10	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	11 U	11 U	11 U
2-Butanone	10	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	11 U	11 U	11 U
Bromodichloromethane	10	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U
Trichloroethene	10	11 U	11 U	11 U	11 U
Dibromochloromethane	10	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U	11 U
Benzene	10	11 U	11 U	11 U	1
trans-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U
Bromoform	10	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	11 U	11 U	11 U
Tetrachloroethene	10	11 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	11 U	11 U	11 U	11 U
Toluene	10	11 U	11 U	11 U	1
Chlorobenzene	10	3	11 U	11 U	11 U
Ethylbenzene	10	4	11 U	11 U	11 U
Styrene	10	11 U	11 U	11 U	11 U
Total Xylenes	10	11 U5	11 U5	11 U	11 U5
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154598-01	154678-03
SAMPLE LOCATION:		TRIP BLK01	TRIP BLK02
COMPOUND	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	10 U	10 U
Acetone	10	10 U	10 U
Carbon Disulfide	10	10 U	10 U
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	10 U
Carbon Tetrachloride	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	10 U	10 U
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	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
bis(2-Chloroethyl)ether	330	370 U	380 U	360 U	360 U
Phenol	330	370 U	380 U	360 U	360 U
2-Chlorophenol	330	370 U	380 U	360 U	360 U
1,3-Dichlorobenzene	330	370 U	380 U	360 U	360 U
1,4-Dichlorobenzene	330	370 U	380 U	360 U	360 U
1,2-Dichlorobenzene	330	370 U	380 U	360 U	360 U
2,2-Oxybis(1-chloropropane)	330	370 U	380 U	360 UJ4	360 UJ4
2-Methylphenol	330	370 U	380 U	360 U	360 U
Hexachloroethane	330	370 U	380 U	360 U	360 U
N-Nitroso-di-n-propylamine	330	370 U	380 U	360 U	360 U
4-Methylphenol	330	370 U	380 U	360 U	360 U
Nitrobenzene	330	370 U	380 U	360 U	360 U
Isophorone	330	370 U	380 U	360 U	360 U
2-Nitrophenol	330	370 U	380 U	360 U	360 U
2,4-Dimethylphenol	330	370 U	380 U	360 U	360 U
bis(2-Chloroethoxy)methane	330	370 U	380 U	360 U	360 U
2,4-Dichlorophenol	330	280	380 U	360 U	360 U
1,2,4-Trichlorobenzene	330	370 U	380 U	360 U	360 U
Naphthalene	330	4300	45	360 U	360 U
4-Chloroaniiine	330	370 UJ4	380 UJ4	360 UJ4	360 UJ4
Hexachlorobutadiene	330	370 U	380 U	360 U	360 U
4-Chloro-3-Methylphenol	330	370 U	380 U	360 U	360 U
2-Methylnaphthalene	330	3800	39	360 U	360 U
Hexachlorocyclopentadiene	330	370 U	380 U	360 UJ4	360 UJ4
2,4,6-Trichlorophenol	330	370 U	380 U	360 U	360 U
2,4,5-Trichlorophenol	800	930 U	960 U	900 U	900 U
2-Chloronaphthalene	330	370 U	380 U	360 U	360 U
2-Nitroaniline	800	930 UJ4	960 UJ4	900 UJ4	900 UJ4
Acenaphthylene	330	370 U	380 U	360 U	360 U
Dimethylphthalate	330	370 U	380 U	360 U	360 U
2,6-Dinitrotoluene	330	370 U	380 U	360 U	360 U
Acenaphthene	330	370 U	380 U	360 U	360 U
3-Nitroaniline	800	930 R2	960 R2	900 UJ4	900 UJ4
2,4-Dinitrophenol	800	930 UJ4	960 UJ4	900 UJ4	900 UJ4

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
Dibenzofuran	330	370 U	380 U	360 U	360 U
2,4-Dinitrotoluene	330	370 U	380 U	360 U	360 U
4-Nitrophenol	800	930 U	960 U	900 R2	900 R2
Fluorene	330	370 U	380 U	360 U	360 U
4-Chlorophenyl-Phenylether	330	370 U	380 U	360 U	360 U
Diethylphthalate	330	370 U	380 U	360 U	360 U
4-Nitroaniline	800	930 U	960 U	900 U	900 U
4,6-Dinitro-2-Methylphenol	800	930 U	960 U	900 UJ4	900 UJ4
N-nitrosodiphenylamine(1)	330	370 U	380 U	360 U	360 U
4-Bromophenyl-Phenylether	330	370 U	380 U	360 U	360 U
Hexachlorobenzene	330	370 U	380 U	360 U	360 U
Pentachlorophenol	800	930 UJ4	960 UJ4	900 UJ4	900 UJ4
Phenanthrene	330	79	380 U	360 U	360 U
Anthracene	330	370 U	380 U	360 U	360 U
Carbazole	330	370 UJ4	380 UJ4	360 U	360 U
Di-n-butylphthalate	330	370 U5	380 U5	360 U5	360 U5
Fluoranthene	330	370 U	380 U	360 U	360 U
Pyrene	330	370 U	380 U	360 U	360 U
Butylbenzylphthalate	330	370 U	380 U	360 U	360 U
3,3'-Dichlorobenzidine	330	370 UJ4	380 UJ4	360 U	360 U
Benzo(a)anthracene	330	370 U	380 U	360 U	360 U
Chrysene	330	370 U	380 U	360 U	360 U
Bis(2-ethylhexyl)phthalate	330	370 U	51	72	360 U
Di-n-octylphthalate	330	370 UJ4	380 UJ4	360 U	360 U
Benzo(b)fluoranthene	330	370 U	380 U	360 U	360 U
Benzo(k)fluoranthene	330	370 U	380 U	360 U	360 U
Benzo(a)pyrene	330	370 U	380 U	360 U	360 U
Indeno(1,2,3-cd)pyrene	330	370 U	380 U	360 U	360 U
Dibenz(a,h)anthracene	330	370 U	380 U	360 U	360 U
Benzo(g,h,i)perylene	330	370 U	380 U	360 U	360 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
alpha-BHC	1.7	93 UJ20	1.9 UJ20	1.8 UJ20	1.8 UJ20
beta-BHC	1.7	93 UJ20	1.9 UJ20	1.8 UJ20	1.8 UJ20
delta-BHC	1.7	93 U	1.9 U	1.8 U	1.8 U
gamma-BHC(Lindane)	1.7	93 U	1.9 U	1.8 U	1.8 U
Heptachlor	1.7	93 U	1.9 U5	1.8 U5	1.8 U5
Aldrin	1.7	93 U	1.9 U	1.8 U	1.8 U
Heptachlor Epoxide	1.7	93 U	1.9 U	1.8 U	1.8 U
Endosulfan I	1.7	93 U	1.9 U	1.8 U	1.8 U
Dieldrin	3.3	190 U	3.8 U	3.6 U	3.6 U
4,4'-DDE	3.3	110 JN25	0.32 R25	0.74 R25	3.6 U
Endrin	3.3	190 UJ20	3.8 UJ20	3.6 UJ20	3.6 UJ20
Endosulfan II	3.3	190 U	3.8 U	3.6 U	3.6 U
4,4'-DDD	3.3	8900 JN25	24 JN25	21 JN25	4.1 U6
Endofulfan Sulfate	3.3	190 U	3.8 U	3.6 U	3.6 U
4,4'-DDT	3.3	9400 J20	40 J20	59 J20, 25	9.9 U6, UJ20
Methoxychlor	17	930 UJ20	19 UJ20	18 UJ20	18 UJ20
Endrin Ketone	3.3	190 U	3.8 U	3.6 U	3.6 U
Endrin Aldehyde	3.3	190 U	3.8 U	3.6 U	3.6 U
alpha-Chlordane	1.7	16 JN25	1.9 U	1.8 U	1.8 U
gamma-Chlordane	1.7	63	1.9 U	1.8 U	1.8 U
Toxaphene	170	9300 U	190 U	180 U	180 U
Aroclor-1016	33	1900 U	38 U	36 U	36 U
Aroclor-1221	67	3700 U	77 U	72 U	72 U
Aroclor-1232	33	1900 U	38 U	36 U	36 U
Aroclor-1242	33	1900 U	38 U	36 U	36 U
Aroclor-1248	33	1900 U	38 U	36 U	36 U
Aroclor-1254	33	1900 U	38 U	36 U	36 U
Aroclor-1260	33	1900 U	38 U	36 U	36 U
DILUTION FACTOR:		50	1	1	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154598-01	154598-02	154678-01	154678-02	
SAMPLE LOCATION:			MW0217	MW0231	MW0322	MW0332	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg					CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	7520	12500	7250	9380	40
Antimony	P	4.22	4.7 UJ2, 5	9.7 UJ2, 5	4.5 UJ5	5.0 J5	12
Arsenic	F	0.22	4	5.1	3.9	6.1	2
Barium	P	0.14	17.2	82.9	24.7	40.9	40
Beryllium	P	0.22	0.24 U	0.5 U	0.55	0.61	1
Cadmium	P	0.48	0.53 U	1.1 U	0.52 U	0.52 U	1
Calcium	P	2.06	23400	24300	21500	29900	1000
Chromium	P	1.86	11.6	20.7	10.4	12.2	2
Cobalt	P	1.28	7.5	11.9	7.3	8.6	10
Copper	P	0.48	18.2	28.4	16.9	18.5	5
Iron	P	1.04	16600	25900	16400	18600	20
Lead	F	0.1	7.7 J5	17.6 J5	10.1	9.8	0.6
Magnesium	P	2.8	5810	6930	4270	5460	1000
Manganese	P	0.18	466	667	377 J5	498 J5	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	15.8	23.9	15.7	17.2	8
Potassium	P	12.1	622	1210 J12	590	1020	1000
Selenium	F	0.28	0.31 U	0.32 U	0.3 UJ5	0.3 UJ5, 10	1
Silver	P	0.38	0.42 U	0.87 U	0.42	0.41 U	2
Sodium	P	4.56	40.6	49.8	14.5	30.4	1000
Thallium	F	0.22	0.24 UJ5, 10	0.25 UJ5, 10	0.53 J5, 10	0.26 J5, 10	2
Vanadium	P	0.62	8	13.7	9	11.5	10
Zinc	P	0.3	40.6 J12	79.2 J12	45.2	46.9	4
Cyanide	C	1.0	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC

TOC ANALYSIS

SAMPLE NUMBER:	154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:	MW0217	MW0231	MW0322	MW0332
TOC	0.65%	0.83%	0.67%	0.75%

SITE: STEWART ANG
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-01	159177-02	159177-03	159177-04	159177-05
SAMPLE LOCATION:		MW-01-0320	SW-02-0320	MW-130320	SW-12-0320	SW-03-0321
COMPOUND	CRQL					
Chloromethane	10	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	10 U	10 U	10 U	10 U	10 U
Acetone	10	5 J4	4 J4	10 UJ4	10 UJ4	10 UJ4
Carbon Disulfide	10	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	10 U	10 U	10 U	10 U	10 U
Chloroform	10	1	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	10 U	22	10 U	22	10 U
Styrene	10	10 U	10 U	10 U	10 U	10 U
m, p - Xylene	10	10 U	1	10 U	1	10 U
o - Xylene	10	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-06	159177-07	159177-08	159177-09	159177-10
SAMPLE LOCATION:		JMW-109-0321	MW-09-0321	MW-10-0321	JMW-108-0321	TB01
COMPOUND	CRQL					
Chloromethane	10	10 U	2	10 U	2	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	1	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	10 U	10 U	10 U	10 U	10 U
Acetone	10	10 UJ4	10 UJ4	10 UJ4	5 J4	10 UJ4
Carbon Disulfide	10	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	2	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	2	10 U	10 U	10 U	10 U
Chloroform	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	1	10 U
2-Hexanone	10	10 U	10 U	10 U	1	10 U
Tetrachloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U	10 U	10 U
m, p - Xylene	10	10 U	10 U	10 U	10 U	10 U
o - Xylene	10	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-01	159177-02	159177-03	159177-04	159177-05
SAMPLE LOCATION:		MW-01-0320	SW-02-0320	MW-130320	SW-12-0320	SW-03-0321
COMPOUND	CRQL					
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
2,2-Oxybis(1-chloropropane)	10	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	7	10 U	8	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	39	1	45	10 U
4-Chloroaniline	10	10 UJ4	10 UJ4	10 UJ4	10 UJ4	10 UJ4
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	2	10 U	2	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4
2,4-Dinitrophenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4

SITE: STEWART ANG
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-01	159177-02	159177-03	159177-04	159177-05
SAMPLE LOCATION:		MW-01-0320	SW-02-0320	MW-130320	SW-12-0320	SW-03-0321
COMPOUND	CRQL					
Dibenzofuran	10	10 U	1	10 U	1	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4
Fluorene	10	10 U	10 U	10 U	1	10 U
4-Chlorophenyl-Phenylether	10	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4
4,6-Dinitro-2-Methylphenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4
N-nitrosodiphenylamine(1)	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4	25 UJ4
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U
Carbazole	10	10 UJ4	10 UJ4	10 UJ4	10 UJ4	10 UJ4
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	14 U6	10 U5	10 U5	10 U5	10 U5
Di-n-octylphthalate	10	3	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-06	159177-07	159177-08	159177-09
SAMPLE LOCATION:		JMW-109-0321	MW-09-0321	MW-10-0321	JMW-108-0321
COMPOUND	CRQL				
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U
Phenol	10	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U
2,2-Oxybis(1-chloropropane)	10	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 UJ4	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 UJ4	10 UJ4	10 UJ4
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 UJ4	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U
2-Nitroaniline	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4
Acenaphthylene	10	10 U	10 U	10 U	10 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U
Acenaphthene	10	10 U	10 U	10 U	10 U
3-Nitroaniline	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4
2,4-Dinitrophenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4

SITE: STEWART ANG
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES, INC.

SEMIVOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-06	159177-07	159177-08	159177-09
SAMPLE LOCATION:		JMW-109-0321	MW-09-0321	MW-10-0321	JMW-108-0321
COMPOUND	CRQL				
Dibenzofuran	10	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U
4-Nitrophenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4
Fluorene	10	10 U	10 U	10 U	10 U
4-Chlorophenyl-Phenylether	10	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U
4-Nitroaniline	25	25 U	25 UJ4	25 UJ4	25 UJ4
4,6-Dinitro-2-Methylphenol	25	25 UJ4	25 UJ4	25 UJ4	25 UJ4
N-nitrosodiphenylamine(1)	10	10 U	10 U	10 U	10 U
4-Bromophenyl-Phenylether	10	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U
Pentachlorophenol	25	25 U	25 UJ4	25 UJ4	25 UJ4
Phenanthrene	10	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U
Carbazole	10	10 UJ4	10 UJ4	10 UJ4	10 UJ4
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10	10 U5	10 U5	10 U5	10 U5
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10	10 U	10 U	10 U	10 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-01	159177-02	159177-03	159177-04	159177-05
SAMPLE LOCATION:		MW-01-0320	SW-02-0320	MW-13-0320	SW-12-0320	SW-03-0321
COMPOUND	CRQL					
alpha-BHC	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
beta-BHC	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
delta-BHC	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
gamma-BHC(Lindane)	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
Heptachlor	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
Aldrin	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
Heptachlor Epoxide	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
Endosulfan I	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
Dieldrin	0.10	0.10 UJ8	0.10 UJ8	0.10 UJ8	0.10 U	0.10 U
4,4'-DDE	0.10	0.54 J8	0.26 J8	0.006 J8	0.44	0.006
Endrin	0.10	0.10 UJ8	0.10 UJ8	0.10 UJ8	0.10 U	0.10 U
Endosulfan II	0.10	0.10 UJ8	0.10 UJ8	0.10 UJ8	0.10 U	0.10 U
4,4'-DDD	0.10	4.4 J8	4.5 J8, JN25	0.13 J8	9.7 JN25	0.49 JN25
Endofulfan Sulfate	0.10	0.10 UJ8	0.10 UJ8	0.10 UJ8	0.10 U	0.10 U
4,4'-DDT	0.10	11 J8	1.7 J8	0.28 J8	4.1	0.28
Methoxychlor	0.50	0.50 UJ8	0.50 UJ8	0.50 UJ8	0.50 U	0.50 U
Endrin Ketone	0.10	0.10 UJ8	0.10 UJ8	0.10 UJ8	0.10 U	0.10 U
Endrin Aldehyde	0.10	0.10 UJ8	0.10 UJ8	0.10 UJ8	0.10 U	0.10 U
alpha-Chlordane	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
gamma-Chlordane	0.05	0.05 UJ8	0.05 UJ8	0.05 UJ8	0.05 U	0.05 U
Toxaphene	5.0	5.0 UJ8	5.0 UJ8	5.0 UJ8	5.0 U	5.0 U
Aroclor-1016	1.0	1.0 UJ8	1.0 UJ8	1.0 UJ8	1.0 U	1.0 U
Aroclor-1221	2.0	2.0 UJ8	2.0 UJ8	2.0 UJ8	2.0 U	2.0 U
Aroclor-1232	1.0	1.0 UJ8	1.0 UJ8	1.0 UJ8	1.0 U	1.0 U
Aroclor-1242	1.0	1.0 UJ8	1.0 UJ8	1.0 UJ8	1.0 U	1.0 U
Aroclor-1248	1.0	1.0 UJ8	1.0 UJ8	1.0 UJ8	1.0 U	1.0 U
Aroclor-1254	1.0	1.0 UJ8	1.0 UJ8	1.0 UJ8	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 UJ8	1.0 UJ8	1.0 UJ8	1.0 U	1.0 U
DILUTION FACTOR:		1	1	1	1	1

SITE: STEWART ANG BASE
SDG: AC177/159177
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		159177-06	159177-07	159177-08	159177-09
SAMPLE LOCATION:		JMW-109-0321	MW-09-0321	MW-10-0321	JMW-108-0321
COMPOUND	CRQL				
alpha-BHC	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
gamma-BHC(Lindane)	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
Heptachlor Epoxide	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
4,4'-DDD	0.10	0.017	0.038 J25	0.043 J8	0.009 JN25
Endofulfan Sulfate	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
4,4'-DDT	0.10	0.009 J25	0.12	0.21 J8	0.013 J25
Methoxychlor	0.50	0.50 U	0.50 U	0.50 UJ8	0.50 U
Endrin Ketone	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
Endrin Aldehyde	0.10	0.10 U	0.10 U	0.10 UJ8	0.10 U
alpha-Chlordane	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
gamma-Chlordane	0.05	0.05 U	0.05 U	0.05 UJ8	0.05 U
Toxaphene	5.0	5.0 U	5.0 U	5.0 UJ8	5.0 U
Aroclor-1016	1.0	1.0 U	1.0 U	1.0 UJ8	1.0 U
Aroclor-1221	2.0	2.0 U	2.0 U	2.0 UJ8	2.0 U
Aroclor-1232	1.0	1.0 U	1.0 U	1.0 UJ8	1.0 U
Aroclor-1242	1.0	1.0 U	1.0 U	1.0 UJ8	1.0 U
Aroclor-1248	1.0	1.0 U	1.0 U	1.0 UJ8	1.0 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 UJ8	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 UJ8	1.0 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: ANE177
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE LOCATION:			TMW-01-0320	TSW-02-0320	TMW-13-0320	TSW-12-0320	TSW-03-0321	
SAMPLE NUMBER:			159177-01	159177-02	159177-03	159177-04	159177-05	
EPA ID:			TMW010	TSW020	TMW130	TMW120	TSW030	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L						CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	20.8	3370	314	5700	449	524	200
Antimony	PM	25.3	28.1 U	28.1 U	28.1 U	28.1 U	28.1 U	60
Arsenic	FM	1.5	5	1.7 U	17.7	1.7 U	1.7 U	10
Barium	PM	2.3	41.9	18.8	216	20.6	11.8	200
Beryllium	PM	0.9	1 U	1 U	1 U	1 U	1 U	5
Cadmium	PM	3.0	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	5
Calcium	PM	19.3	48600	179000	209000	182000	171000	5000
Chromium	PM	9.1	10.1 UJ6	10.1 UJ6	10.1 UJ6	10.1 UJ6	10.1 UJ6	10
Cobalt	PM	6.5	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	50
Copper	PM	4.6	14.5	6.3	32.7	5.1 U	7 J17	25
Iron	PM	7.2	5200	915	20700	1060	918	1000
Lead	FM	1.0	2.6	1.1 UJ10	11	1.1	1.1 U	3
Magnesium	PM	21.0	7220	42400	35800	42800	34500	5000
Manganese	PM	0.8	173	3100	1310	3110	1220	15
Mercury	CV	0.2	0.2 UJ7	0.2 UJ7	0.2 UJ7	1 J7	0.2 UJ7	0.2
Nickel	PM	11.3	12.6 U	13.4	21.6	12.6 U	12.6 U	40
Potassium	PM	70.0	2230	1800	5240	1880	2280	5000
Selenium	FM	1.5	1.7 R5	1.7 R5	19.9 R5	1.7 R5	1.7 R5	5
Silver	PM	4.5	5 U	5 U	5 U	5 U	5 U	10
Sodium	PM	30.4	59700	17100	14800	17300	12700	5000
Thallium	FM	0.9	1 U	1 U	1 U	1 U	1 U	10
Vanadium	PM	5.8	16.3	6.4 U	19.2	6.4 U	6.4 U	50
Zinc	PM	1.4	91.9 J7	45.9 J7	59.9 J7	81.9 J7	149 J7, 17	20
Cyanide	C	10.0	10 U	10 U	10 U	10 U	10 U	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG BASE
SDG: ANE177
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE LOCATION:			TJMW-109-0321	TMW-09-0321	TMW-10-0321	TJMW-108-0321	DMW-01-0320	
SAMPLE NUMBER:			159177-06	159177-07	159177-08	159177-09	159177-11	
EPA ID:			TJM109	TMW090	TMW100	TJM110	DMW010	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L						CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	20.8	68.6	80.8	40400	943	38.3	200
Antimony	PM	25.3	28.1 U	28.1 U	28.1 U	28.1 U	28.1 U	60
Arsenic	FM	1.5	1.7 U	1.7 U	20.2	1.7 U	3.5 J10	10
Barium	PM	2.3	17.2	115	263	54.4	18.4	200
Beryllium	PM	0.9	1 U	1 U	1.4	1 U	1 U	5
Cadmium	PM	3.0	3.3 U	3.3 U	7.6	4.5	3.3 U	5
Calcium	PM	19.3	97400	182000	118000	158000	36900	5000
Chromium	PM	9.1	10.1 UJ6	10.1 UJ6	55.4 J6	10.1 UJ6	10.1 U	10
Cobalt	PM	6.5	7.2 U	7.2 U	36.1	7.2 U	7.2 U	50
Copper	PM	4.6	5.7	10.5	96.6	12.6	6.8	25
Iron	PM	7.2	302	309	80100	1810	33.9	1000
Lead	FM	1.0	1.1 U	1.1 U	35	1.1 U	1.1 U	3
Magnesium	PM	21.0	12000	24200	29000	18600	5500	5000
Manganese	PM	0.8	698	793	3250	71.7	35.8	15
Mercury	CV	0.2	0.2 UJ7	0.2 UJ7	0.2 UJ7	0.2 UJ7	0.2 U	0.2
Nickel	PM	11.3	12.6 U	19.4	78.1	16.7	12.6 U	40
Potassium	PM	70.0	1040	1700	5560	1790	1420	5000
Selenium	FM	1.5	1.7 R5	1.7 R5	1.7 R5	1.7 R5	2.4 J5, 10	5
Silver	PM	4.5	5 U	5 U	5 U	5 U	5 U	10
Sodium	PM	30.4	15400	107000	99400	51200	58200	5000
Thallium	FM	0.9	1 U	1 U	1 U	1 U	1 U	10
Vanadium	PM	5.8	6.4 U	6.4 U	99.8	6.4 U	7.2	50
Zinc	PM	1.4	19.5 J7, 17	56.8 R17	324 J7	49.9 J7	77.7 J12	20
Cyanide	C	10.0	10 U	10 U	10 U	10 U	NR	10

ANALYICAL METHOD
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SITE: STEWART ANG BASE
SDG: ANE177
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE LOCATION:		DSW-02-0320	DMW-13-0320	DSW-12-0320	DSW-03-0321	DJMW-109-0321	
SAMPLE NUMBER:		159177-12	159177-13	159177-14	159177-15	159177-16	
EPA ID:		DSW020	DMW130	DSW120	DSM030	DMW109	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L					CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	20.8	23.1 U	23.1 U	29.6	92.2	23.1 U	200
Antimony	PM	25.3	28.1 U	28.1 U	28.1 U	28.1 U	28.1 U	60
Arsenic	FM	1.5	1.7 U	7.8	1.7 U	1.7 U	1.7 U	10
Barium	PM	2.3	14.4	185	15.3	12	16.7	200
Beryllium	PM	0.9	1 U	1 U	1 U	1 U	1 U	5
Cadmium	PM	3.0	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	5
Calcium	PM	19.3	178000	176000	184000	173000	95400	5000
Chromium	PM	9.1	10.1 U	10.1 U	10.1 U	10.1 U	10.1 U	10
Cobalt	PM	6.5	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	50
Copper	PM	4.6	5.4	7.8	5.1 U	9.3 J17	5.4	25
Iron	PM	7.2	261	8470	205	99	32.6	1000
Lead	FM	1.0	1.1 U	1.1 U	1.1 UJ10	1.1 UJ10	1.1 U	3
Magnesium	PM	21.0	41900	33700	42700	35300	11400	5000
Manganese	PM	0.8	3080	635	3140	1210	482	15
Mercury	CV	0.2	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2
Nickel	PM	11.3	12.6 U	12.6 U	12.6 U	12.6 U	12.6 U	40
Potassium	PM	70.0	1620	4670	1670	2390	982	5000
Selenium	FM	1.5	8.3 UJ5, 10	1.7 UJ5, 10	8.3 UJ5, 10	1.7 UJ5, 10	1.7 UJ5, 10	5
Silver	PM	4.5	5 U	5 U	5 U	5 U	5 U	10
Sodium	PM	30.4	17000	9180	16800	13700	13700	5000
Thallium	FM	0.9	1 U	1 U	1 U	1 U	1 U	10
Vanadium	PM	5.8	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	50
Zinc	PM	1.4	13.4 J12	25.6 J12	25.9 J12	169 J12, 17	25.1 J12, 17	20
Cyanide	C	10.0	NR	NR	NR	NR	NR	10

ANALYICAL METHOD
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SITE: STEWART ANG BASE
SDG: ANE177
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC AQUEOUS ANALYSIS
(UG/L)

SAMPLE LOCATION:			DMW-09-0321	DMW-10-0321	DJM-108-0321	
SAMPLE NUMBER:			159177-17	159177-18	159177-19	
EPA ID:			DMW090	DMW100	DJM110	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS UG/L				CONTRACT DETECTION LIMITS (ug/L)
Aluminum	PM	20.8	31.5	46.7	23.1 U	200
Antimony	PM	25.3	28.1 U	28.1 U	28.1 U	60
Arsenic	FM	1.5	1.7 U	1.7 U	1.7 U	10
Barium	PM	2.3	115	29.6	47.3	200
Beryllium	PM	0.9	1 U	1 U	1 U	5
Cadmium	PM	3.0	3.3 U	3.3 U	3.3 U	5
Calcium	PM	19.3	175000	99000	144000	5000
Chromium	PM	9.1	10.1 U	10.1 U	10.1 U	10
Cobalt	PM	6.5	7.2 U	7.2 U	7.2 U	50
Copper	PM	4.6	5.8	8.4	5.1	25
Iron	PM	7.2	37.5	32.3	41.8	1000
Lead	FM	1.0	1.1 U	1.1 U	1.1 U	3
Magnesium	PM	21.0	24600	14800	18400	5000
Manganese	PM	0.8	738	32.7	31.2	15
Mercury	CV	0.2	0.2 U	0.2 U	0.2 U	0.2
Nickel	PM	11.3	17.5	12.6 U	12.6 U	40
Potassium	PM	70.0	1760	705	1620	5000
Selenium	FM	1.5	1.7 UJ5, 10	1.7 UJ5, 10	1.7 UJ5, 10	5
Silver	PM	4.5	5 U	5 U	5 U	10
Sodium	PM	30.4	113000	97900	55800	5000
Thallium	FM	0.9	1 U	1 U	1 U	10
Vanadium	PM	5.8	6.4 U	6.4 U	6.4 U	50
Zinc	PM	1.4	107 R17	163 J12	38.5 J12	20
Cyanide	C	10.0	NR	NR	NR	10

ANALYICAL METHOD
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APPENDIX L

DATA VALIDATION REPORTS

DATA VALIDATION REPORT

SDG No.: AC139/154139

Site : Stewart ANG, Newburgh NY

DATE: January 29, 1996

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Prepared by:

GC/MS Section prepared by:

I am for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie A. MacKinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 154139 SDG No. AC139 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG AC139/154139 contains the following samples for analysis:

Volatiles:	10 soil/ SB-02-02, SB-02-06, SB-02-10.2, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22, SB-03-1.3 2/aqueous/RB-SB-100595, TB-03
Semi-volatiles:	10 soil/ SB-02-02, SB-02-06, SB-02-10.2, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22, SB-03-1.3 1/aqueous/RB-SB-100595
Pesticides/PCBs:	10 soil/ SB-02-02, SB-02-06, SB-02-10.2, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22, SB-03-1.3 1/aqueous/RB-SB-100595
Associated QC:	SB-03-06, SB-03-56/Field duplicates

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's signature: GC/MS by [signature] for Elissa McDonagh Date: 01/29/96

Reviewer's signature: Pest/PCB by Lorie A. MacKinnon Date: 01/29/96

Verified By: Lorie MacKinnon Date: 01/29/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: **All samples were extracted and analyzed within the required holding times.**

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

Compound	Maximum	Action Level
Methylene Chloride	2 ug/kg	20 ug/kg
Acetone	15 ug/kg	150 ug/kg
di-n-butyl phthalate	130 ug/kg	1300 ug/kg
Heptachlor	0.22 ug/kg	1.1 ug/kg

The action level values were compared to the sample values and the following recommendations are recommended: Methylene chloride in samples SB-04-06, SB-03-06, SB-03-56, SB-03-22, SB-03-22RE, SB-03-1.3, SB-02-10.2, SB-02-10.2RE, SB-04-02, SB-04-21 and SB-04-21RE, Acetone in samples SB-04-06, SB-03-56, SB-02-02, SB-02-06 and SB-04-02, di-n-butyl phthalate in samples SB-04-21, SB-03-22 and SB-03-1.3 and Heptachlor in samples SB-02-10.2, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22 and SB-03-1.3 are reported as the CRQL followed by a "U5". Acetone in samples SB-03-06, SB-03-22, SB-03-22RE, SB-03-1.3, SB-02-10.2, SB-02-10.2RE, SB-04-21 and SB-04-21RE should be reported as the value followed by "U6", (i.e., the CRQL has been raised and the value is considered to be non-detect).

It should be noted that Pesticide/PCB fraction method blank PBLK03, associated with all SDG aqueous samples, had a positive result for Heptachlor (0.006 ug/L). Qualification was not required as the aqueous samples were field rinse blanks and are not blank qualified.

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample):

Rinse blank RB-SB-100595 Associated samples: All soil samples in SDG

Compound	Maximum	Action Level
Methylene Chloride	1 ug/L	10 ug/L
Acetone	5 ug/L	50 ug/L
bis(2-ethylhexyl)-phthalate	3 ug/L	30 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: Bis(2-ethylhexyl)phthalate in samples SB-02-02, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56 and SB-03-1.3 should be reported as the CRQL followed by a "U5".

C. Trip blank contamination:

Trip Blank TB-03
Associated samples: All soils in the SDG

Compound	Maximum	Action Level
Methylene Chloride	1 ug/L	10 ug/L
Acetone	3 ug/L	30 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: All compound results were previously blank qualified due to laboratory or field blanks.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor:

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (10/18/95)
4-Nitrophenol		+
Associated samples:	All listed	RBSB100595 SB-03-1.3

+ - RF <0.05; Estimate positive results (J2) and reject non-detects (R2) in the associated samples.

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

VOA instrument "MSD", initial calibration 09/18/95:

COMPOUND	IC (9/18/95)	CC (10/11/95)	CC (10/12/95)	CC (10/13/95)
Vinyl Chloride		X		
Chloroethane		X		
Acetone				X
Carbon disulfide		X	X	X
Associated samples:	All listed	SB-02-02 SB-02-06 SB-02-10.2	SB-04-02 SB-04-21 SB-04-06 SB-03-06 SB-03-56 SB-03-22 TB-03, SB-03-1.3 RBSB100595 SB-02-10.2RE	SB-04-21RE SB-03-22RE

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (10/18/95)	CC (10/19/95
Hexachlorocyclopentadiene			X
3-Nitroaniline	X		X
2,4-Dinitrophenol	X	X	
4-Nitrophenol			X
Pentachlorophenol	X		X
Associated samples:	All listed	RBSB100595 SB-03-1.3	SB-02-02, SB-02-06 SB-02-10.2, SB-04-02 SB-04-21, SB-04-06 SB-03-06, SB-03-56 SB-03-22

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery: **All surrogate recoveries were within validation guidelines.**

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

The VOA internal standard 1,4-Difluorobenzene was under-recovered in the soil sample SB-03-22RE. The VOA internal standard Chlorobenzene-d5 was under-recovered in the soil samples SB-02-10.2, SB-04-21, SB-03-22, SB-02-10.2RE, SB-04-21RE and SB-03-22RE. It is recommended to estimate the positive results (J15) and non-detects (UJ15) for all compounds quantitated from the internal standards in the associated samples.

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

It should be noted that Heptachlor had a %D >25% in most samples. However, as the compound was blank qualified "U" in all samples, there is no estimation.

SB-02-02 - 4,4'-DDD (40.0%, J25)

SB-02-06 - 4,4'-DDE (82.6%, JN25), 4,4'-DDD (118.2%, R25) and 4,4'-DDT (41.7%, J25)

SB-02-10.2- 4,4'-DDD (133.3%, R25)

SB-04-02 - 4,4'-DDD (62.3%, JN25) and Dieldrin (42.2%, J25). The higher results for 4,4'-DDE (5.1 ug/kg) and Dieldrin (9.1 ug/kg) quantitated from column DB-17 were more acceptable as the two compounds were resolved on the second column and integration performed for the DB-5 column was poorly done. The compounds were not fully resolved and a perpendicular should have been dropped to the baseline. The results were substituted by the validator.

SB-03-56- 4,4'-DDE (78.0%, JN25)

SB-03-1.3- 4,4'-DDD (120.0%, R25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

It should be noted that the ABN fraction aqueous matrix spike blank compounds 4-Nitrophenol and Pentachlorophenol were slightly over-recovered. The ABN fraction soil matrix spike blank compound Pentachlorophenol was slightly over-recovered. No action is recommended.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation). The m/z ion 91 was used to quantitate xylenes (the SOP requests the 106 ion to be used for quantitation).

The Tentatively Identified Compound forms (1B) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

Volatiles:

SB-02-10.2, SB-01-10.2RE

Use the non-detected results for Vinyl chloride and Chloroethane from the re-analysis.

Use all other positive and non-detected results from the original analysis.

SB-04-21, SB-04-21RE

Use positive and non-detected results from the original analysis.

SB-03-22, SB-03-22

Use positive and non-detected results from the original analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	RBSB100595 ug/L	SB-02-02 ug/kg	SB-02-06 ug/kg	SB-03-22 ug/kg
VOA Unknown				
ABN Unknown			XX(162)	X(96)
unknown amide	X(7)			
unknown hydrocarbon			X(78)	
unknown C15H26O isomer		X(86)	X(94)	
unknown phthalate			X(82)	

Compound	SB-03-22RE ug/kg	SB-04-06 ug/kg	SB-04-21 ug/kg	TB-03 ug/kg
VOA Unknown	X(58)			XX(14)
ABN Unknown		X(320)	XX(156)	
unknown amide				
unknown hydrocarbon				
unknown C15H26O isomer				
unknown phthalate				

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 154139 SDG No. ANE139 Laboratory Envirotest Lab. Site Stewart ANG

Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 10 Soil/1 aq field QC

Data Assessment:

The SDG ANE139/154139 contains the following samples for analysis:

Metals/CN: 10 soil/ SB-02-02, SB-02-06, SB-02-10.2, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22, SB-03-1.3 (SB0213*) 1/aqueous/RB-SB-100595

* Validator changed laboratory ID SB0213 to SB0313 in order to correctly reflect sampling ID.

TOC: 10 soil/ SB-02-02, SB-02-06, SB-02-10.2, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22, SB-03-1.3

Associated QC: SB-03-06, SB-03-56/Field duplicates

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

* . Data Completeness
* . Holding times
. Calibration verification results

.	Blank analysis
* .	Interference check standard results
.	Matrix spike results
.	Duplicate analysis results
* .	Field duplicate analysis
* .	Laboratory control sample results
.	Furnace AA results
.	ICP serial dilution results
.	Detection limit results
* .	Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Calibration Verification

The 2xCRDL standard for Chromium was under-recovered at 64.6%. Results near the CRDL may be biased low. Estimate positive and non-detected (J2, UJ2) Chromium results which are less than 4xCRDL of 8 mg/kg or 40 ug/L. Based on this action level, Chromium results for samples RB-SB-100595 and SB0406 are estimated.

The CRA standard for Lead was over-recovered at 122%. Results near the CRDL may be biased high. Estimate (J2) positive Lead results which are less than 2xCRDL of 1.2 mg/kg or 6 ug/L. Based on this action level, the Lead result for SB0210 would be estimated. However, as the sample lead result was rejected due to matrix spike recovery, there is no action.

It should be noted that the low standard of 5 ug/L was used for the Lead analysis, instead of the CRDL of 3 ug/L. As all lead results were rejected due to matrix spike recovery, there is no action.

Matrix Spike Recoveries

Antimony (47.5%), Lead (324.9%) and Thallium (72.4%) were recovered outside of the control limits in the matrix spike performed on sample SB-04-06. Due to a possible low bias, all Antimony and Thallium results are estimated (J5, UJ5). As the Lead recovery was greater than 200%, all detected Lead results are rejected (R5).

It should be noted that the validator did not apply the matrix spike actions to the aqueous sample.

Laboratory Duplicates

The Lead duplicate precision (147%) was not within control limits for the laboratory duplicate performed on sample SB-04-06. All Lead results would be estimated (J6), however, as they were previously rejected due to matrix spike recovery, there is no action taken.

Blanks

Lead was detected in the laboratory calibration blank CCB4 at the negative CRDL. Therefore, results less than 10XCRDL are rejected (R3). The five samples on either side of CCB4 were reviewed and the following actions are taken: Lead is rejected for sample RB-SB-100595.

The field blank contained levels of several metals above the CRDL. The following table lists the maximum concentration of each metal found in the blanks along with the resultant action level.

Field Blank RB-SB-100595 associated with all SDG samples

Element	Maximum Conc./Units	Action Level
Calcium	30500 ug/L, 6100 mg/kg	30500 mg/kg
Iron	279 ug/L, 55.8 mg/kg	279 mg/kg
Sodium	30100 ug/L, 6020 mg/kg	30100 mg/kg
Zinc	36.3 ug/L, 7.26 mg/kg	36.3 mg/kg

Value < Action Level; the value is rejected R3.
Value > IDL and > Action Level; the value is reported unqualified.

The action level values were compared to the sample value before application of sample dilution factors. Based on the action levels found, the following actions are taken: Calcium results for samples SB-02-02, SB-02-06, SB-0210, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56 and SB-03-1.3 (SB0213) are rejected (R3). Sodium results for samples SB-02-02, SB-02-06, SB-0210, SB-04-02, SB-04-21, SB-04-06, SB-03-06, SB-03-56, SB-03-22 and SB-03-1.3 (SB0213) are rejected (R3).

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exception:

Analyte	Sample ID	Recovery	Action
Lead	RBSB100595	115.9%	No action, result U
Arsenic	SB0406	116.0%	No action, result U
Thallium	SB0206	83.7%	J10, UJ10
Thallium	SB0210	122.0%	No action, result U

ICP Serial Dilution

A serial dilution was performed on sample SB-04-06. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Barium (11.7%), Copper (11.5%) and Vanadium (23.6%). As 10XIDL was less than the CRDL in all cases, all Barium, Copper and Vanadium results greater than the CRDL are estimated (J12).

It should be noted that the validator did not apply the matrix spike actions to the aqueous sample.

Detection Limit Results

It should be noted that ICP sample SB-04-21 was diluted 2X as Iron exceeded the calibration range. The diluted results for all analytes were reported, thus elevating the instrument detection limit (IDL) for all ICP analytes for sample SB-04-21.

It should be noted that the soil Cyanide IDL of 1.0 mg/kg is greater than the contract required detection limit of 0.50 mg/kg. No action is recommended.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE139/154139 Date: 01/23/96 Laboratory Envirotest Lab.

Reviewer's Initials: LAM Number of samples 10 soil/1 aq

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	19	0	0	0
Furnace	0	0	0	0	0	10	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	0	0	0	198	19
Furnace	0	0	0	0	0	44	10
Mercury	0	0	0	0	0	11	0
Cyanide	0	0	0	0	0	11	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	2	0	0	0	10	0
Furnace	0	0	0	0	0	11	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Estimation
ICP	0	0	0	16	0	198	28
Furnace	0	0	0	0	0	44	11
Mercury	0	0	0	0	0	11	0
Cyanide	0	0	0	0	0	11	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE139 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 10 SOIL/ 1 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	2	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	2	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas were not within the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual

column analysis %D is between 50 - 90%; compound result is qualified as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated

or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14, UJ14 Matrix spike not performed for analysis. Estimate results (J14, UJ14) based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis. Estimate positive results (J18) greater than the CRDL based on lack of precision data.

DATA VALIDATION REPORT

SDG No.: AC009/154009

Site : Stewart ANG, Newburgh NY

DATE: January 29, 1996

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GC/MS Section prepared by:

Ann for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie Mackinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 154009 SDG No. AC009 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG AC009/154009 contains the following samples for analysis:

Volatiles:	11 soil/ SB-01-02, SB-01-18.5, SB-01-32.5, SS-01, SS-15, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07 4/aqueous/RW-SS-100395, FB-TW-100395, TRIP BLK01, TB-02
Semi-volatiles:	11 soil/ SB-01-02, SB-01-18.5, SB-01-32.5, SS-01, SS-15, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07 2/aqueous/RW-SS-100395, FB-TW-100395
Pesticides/PCBs:	11 soil/ SB-01-02, SB-01-18.5, SB-01-32.5, SS-01, SS-15, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07 2/aqueous/RW-SS-100395, FB-TW-100395
Associated QC:	SS-1, SS-15 Field Duplicates

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's signature: GC/MS by Lisa McDonagh Date: 01/29/96

Reviewer's signature: Pest/PCB by Lorie MacKinnon Date: 01/29/96

Verified By: Lorie MacKinnon Date: 01/29/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: **All samples were extracted and analyzed within the required holding times.**

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

Compound	Maximum	Action Level
Acetone	12 ug/kg	120 ug/kg
Heptachlor	0.26 ug/kg	1.3 ug/kg

The action level values were compared to the sample values and the following recommendations are recommended: Acetone in samples SB-01-02, SB-01-32.5, SS-01, SS-03, SS-05, SS-06 and SS-15 and Heptachlor in samples SS-15, SB-01-18.5, SB-01-32.5, SS-01, SS-02, SS-03, SS-04, SS-06 and SS-07 should be reported as the CRQL followed by a "U5". Acetone in samples SB-01-18.5, SS-02, SS-04 and SS-07 should be reported as the value followed by "U6", (i.e., the CRQL has been raised and the value is considered to be non-detect).

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample):

It should be noted that Field Blank FB-TW-100395 which is a field blank of source water used for drilling, is not used to qualify the samples based on region II validation protocol.

Rinse blank RW-SS-100395
Associated samples: SS-01, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07, SS-15

Compound	Maximum	Action Level
Acetone	5 ug/L	50 ug/L
bis(2-ethylhexyl)-phthalate	1 ug/L	10 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: Bis(2-ethylhexyl)phthalate in samples SS-01, SS-02, SS-04 and SS-06 should be reported as the CRQL followed by a "U5".

Rinse blank RB-SB-100595
Associated samples: SB-01-02, SB-01-18.5, SB-01-32.5

Compound	Maximum	Action Level
Methylene Chloride	1 ug/L	10 ug/L
Acetone	5 ug/L	50 ug/L
bis(2-ethylhexyl)-phthalate	3 ug/L	30 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: Methylene chloride in sample SB-01-18.5 and Bis(2-ethylhexyl)phthalate in sample SB-01-32.5 should be reported as the CRQL followed by a "U5".

C. Trip blank contamination:

Trip Blank Trip blk01
Associated samples: SB-01-02, SB-01-18.5, SB-01-32.5

Compound	Maximum	Action Level
Methylene Chloride	1 ug/L	10 ug/L
Acetone	7 ug/L	70 ug/L

Trip Blank TB-02
Associated samples: SS-01, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07, SS-15

Compound	Maximum	Action Level
Acetone	1 ug/L	10 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: All compound results were previously blank qualified due to laboratory or field blanks.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor: **All response factors were greater than or equal to 0.05 units.**

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D and %RPD:

VOA instrument "MSD", initial calibration 09/18/95:

COMPOUND	IC(9/18/95)	CC(10/5/95)	CC(10/6/95)	CC(10/10/95)
Carbon disulfide		X	X	X
Associated samples:	All listed	FBTW100395	SS-02	SB-01-18.5
		SB-01-02	SS-03	SB-01-32.5
		TRIP BLK01	SS-04	SS-01
		RWSS100395	SS-05	
		TB-02	SS-06	
			SS-07	
			SS-15	

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC(10/4/95)	CC(10/12/95)
Hexachlorocyclopentadiene		X
3-Nitroaniline	X	X
2,4-Dinitrophenol	X	
4-Nitrophenol		X
4-Nitroaniline		X
Pentachlorophenol	X	
Benzo(g,h,i)perylene		X

COMPOUND	IC(10/4/95)	CC(10/12/95)
Associated samples:	All listed	FBTW100395, SB-01-02, SB-01-18.5, SB-01-32.5, RWSS100395, SS-01, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07, SS-15

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

It should be noted that Pesticide/PCB initial and continuing standard forms 6 and 7 were not submitted in the data package. The laboratory was notified on 1/22/96. The forms were received by the validator on 01/25/96.

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery:

Pesticide/PCB surrogates TCX and DCB were under-recovered on both columns for sample SS-15 (TCX 29% and 48%, DCB 59% and 58%). Therefore, all results are estimated (J8, UJ8).

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance: **All internal standard criteria were met.**

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

It should be noted that Heptachlor had a %D >25% in all cases. However, the compound was previously blank qualified out in all samples.

SB-01-02 - The higher result for 4,4'-DDT (2.3 ug/kg) quantitated from column DB-17 was more acceptable as the manual integration performed for the result from column DB-5 was poorly done. A perpendicular should have been dropped to the baseline and was not. The result was substituted by the validator and estimated (J25)as the %D on the two columns was 27.8%.

SS-01 - The higher result for Dieldrin (0.49 ug/kg) quantitated from column DB-17 was more acceptable as the integration performed for the result from column DB-5 was poorly done. A perpendicular should have been dropped to the baseline and was not. The result was substituted by the validator and estimated (J25) as the %D on the two columns was 48.5%.
4,4'-DDE (55.2%, JN25) and 4,4'-DDT (26.0%, J25)

SS-15 - 4,4'-DDE (47.4%, J25) and 4,4'-DDT (96.9%, R25)

SS-02 - Dieldrin (56.0%, JN25) and 4,4'-DDT (28.6%, J25)

SS-03 - Dieldrin (185.0%, R25) and 4,4'-DDD (64.3%, JN25)

SS-04 - 4,4'-DDD (29.0%, J25) The Dieldrin result is not estimated (%D 26.6%) as the diluted result SS-04DL, which had a %D <25% was used.

SS-05 - 4,4'-DDT (205.1%, R25)

SS-06 - Dieldrin (29.8%, J25)

SS-07 - Dieldrin (92.3%, R25), 4,4'-DDE (31.8%, J25) and 4,4'-DDT (42.9%, J25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

The % RPD for pesticide/PCB fraction compound Heptachlor was 38% in the MS/MSD performed on sample SS-07. Due to blank contamination action, Heptachlor was considered non-detected in sample SS-07. Therefore, qualification is not necessary.

It should be noted that the ABN fraction aqueous matrix spike blank compounds 4-Nitrophenol and Pentachlorophenol were slightly over-recovered. No action is recommended.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation). The m/z ion 91 was used to quantitate xylenes (the SOP requests the 106 ion to be used for quantitation).

The Tentatively Identified Compound forms (1B) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

It should be noted that transcription errors were found in the pesticide/PCB package: Upon review of raw data for sample SB-06-26.5, the validator found that the results listed for 4,4'-DDD and 4,4'-DDT from the DB-17 column were incorrect. The validator edited both the Form I and Form 10.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

Pesticides:

SB-06-26.5, SB-06-26.5DL

Use 4,4'-DDD and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SB-07-02, SB-07-02DL

Use 4,4'-DDE and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SB-17-33, SB-17-33DL

Use 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	TB-04 ug/L	RBSB1012 ug/kg	TB-05 ug/L	SB-06-02 ug/kg
VOA Unknown	XX(62)	XX(28)	XX(14)	
ABN Unknown		X(5)		XX(296)
unknown alkane				XX(330)
unk. diethyl benzene				
unk. methyl benzene				
Tetramethylbenzene isomer				
ethyldimethylbenzene isomer				
VOA C10H12 isomer				
ABN C10H12 isomer				
unk. C10H14				
VOA C11H16 isomer				
ABN C11H16 isomer				
C10H8 isomer		X(7)		
unk. C14H10CL4				
unk. decanoic acid				
VOA Methylnaphthalene isomer		XX(39)		
ABN Methylnaphthalene isomer				
VOA Dimethylnaphthalene isomer		XX(23)		
ABN Dimethylnaphthalene isomer				
Trimethylnaphthalene isomer				
Ethylnaphthalene isomer				
Dimethyl butanol isomer				
DDE isomer				
DDT isomer				
2-fluoro-1-propene	X(5)			
diethylmethyl benzene				
biphenyl				

Compound	SB-17-33 ug/kg	SB-07-02 ug/kg	SB-07-16 ug/kg	SB-06-26.5 ug/kg
VOA Unknown	X(170)		X(21)	XX(2620)
ABN Unknown		XX(338)	XX(300)	XX(640)
unknown alkane		XX(210)		XX(276)
unk. diethyl benzene				X(118)
unk. methyl benzene				X(240)
Tetramethylbenzene isomer				X(370)
ethyldimethylbenzene isomer				X(220)
VOA C10H12 isomer			X(7)	X(500)
ABN C10H12 isomer				X(240)
unk. C10H14				XX(860)
VOA C11H16 isomer				X(220)

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 154009 SDG No. ANE009 Laboratory Envirotest Lab. Site Stewart ANG

Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 11 Soil/2 aq field QC

Data Assessment:

The SDG ANE009/154009 contains the following samples for analysis:

Metals/CN: 11 soil/ SB-01-02, SB-01-18.5, SB-01-32.5, SS-01, SS-15, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07
2/aqueous/RW-SS-100395, FB-TW-100395

TOC: 11 soil/ SB-01-02, SB-01-18.5, SB-01-32.5, SS-01, SS-15, SS-02, SS-03, SS-04, SS-05, SS-06, SS-07

Associated QC: SS-1, SS-15 Field Duplicates

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable - Data The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

* • Data Completeness
* • Holding times
• Calibration verification results
• Laboratory blanks

*	•	Interference check standard results
	•	Matrix spike results
*	•	Duplicate analysis results
*	•	Field duplicate analysis
*	•	Laboratory control sample results
	•	Furnace AA results
*	•	ICP serial dilution results
	•	Detection limit results
*	•	Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Calibration Verification

The 2xCRDL standard for Antimony was under-recovered at 78.5%. Results near the CRDL may be biased low. Estimate positive and non-detected (J2, UJ2) Antimony results which are less than 4xCRDL of 48 mg/kg. Based on this action level, all soil and aqueous Antimony results in the data group are estimated.

The 2xCRDL standard for Chromium was under-recovered at 74.8%. Results near the CRDL may be biased low. Estimate positive and non-detected (J2, UJ2) Chromium results which are less than 4xCRDL of 8 mg/kg. Based on this action level, all aqueous Chromium results in the data group are estimated.

The CRA standard for Selenium over-recovered at 127.2%. Results near the CRDL may be biased high. Estimate (J2) positive Selenium results which are less than 2xCRDL of 2 mg/kg. As all Selenium results are non-detected, there is no action.

It should be noted that the low standard of 5 ug/L was used for the Lead calibration, instead of the CRDL level of 3 ug/L. As the Lead CRA analysis standard was within control limits no action is taken.

Matrix Spike Recoveries

Antimony (39.4%), Selenium (64.0%) and Thallium (61.9%) were under-recovered in the matrix spike performed on sample SS-07. Due to a possible low bias, all Antimony, Selenium and Thallium results are estimated (J5, UJ5).

It should be noted that soil matrix spike recoveries weren't used to qualify the aqueous field QC results.

Blanks

The field blanks contained levels of several metals above the CRDL. The following table lists the maximum concentration of each metal found in the blanks

along with the resultant action level. The following field blanks were associated with the samples:

Field Blank RB-SB-100595 associated with all SB samples

Element	Maximum Conc./Units	Action Level
Calcium	30500 ug/L, 6100 mg/kg	30500 mg/kg
Iron	279 ug/L, 55.8 mg/kg	279 mg/kg
Manganese	16.7 ug/L, 3.3 mg/kg	16.7 mg/kg
Sodium	30100 ug/L, 6020 mg/kg	30100 mg/kg
Zinc	36.3 ug/L, 7.3 mg/kg	36.3 mg/kg

Field Blank RW-SS-100395 associated with all SS samples

Element	Maximum Conc./Units	Action Level
Calcium	32700 ug/L, 6540 mg/kg	32700 mg/kg
Sodium	31000 ug/L, 6200 mg/kg	31000 mg/kg

Value < Action Level; the value is rejected R3.
Value > IDL and > Action Level; the value is reported unqualified.

The action level values were compared to the sample value before application of sample dilution factors. Based on the action levels found, the following actions are taken: Calcium and Sodium results for samples SS-01, SS-15, SS-02, SS-03, SS-04, SS-05, SS-06 and SS-07 are rejected (R3). Calcium and Sodium results for samples SB0102, SB1185 and SB13253 are rejected (R3).

It should be noted that Field Blank FB-TW-100395 which is a field blank of source water used for drilling, is not used to qualify the samples based on region II validation protocol.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exception:

Analyte	Sample ID	Recovery	Action
Lead	FBTW10	121.0%	No action, result U
Lead	RWSS10	115.6%	J10
Selenium	SB0102	79.5%	J10, UJ10

Analyte	Sample ID	Recovery	Action
Selenium	SB1185	76.2%	J10, UJ10
Selenium	SB1325	77.6%	J10, UJ10
Selenium	RWSS10	83.2%	J10, UJ10
Selenium	SS-02	77.5%	J10, UJ10
Selenium	SS-03	79.6%	J10, UJ10
Selenium	SS-05	82.0%	J10, UJ10
Selenium	SS-06	78.4%	J10, UJ10
Selenium	SS-15	80.2%	J10, UJ10
Thallium	SB0102	84.4%	J10, UJ10
Thallium	SB1185	42.6%	J10, UJ10
Thallium	SB1325	59.8%	J10, UJ10
Thallium	SS-02	80.6%	J10, UJ10
Thallium	SS-05	71.2%	J10, UJ10
Thallium	SS-07	60.9%	J10, UJ10
Thallium	SS-15	63.9%	J10, UJ10

Detection Limit Results

It should be noted that the Cyanide instrument detection limit (IDL) of 1.0 mg/kg is greater than the contract required detection limit of 0.5 mg/kg. No action is recommended.

It should be noted that several ICP fraction samples were diluted at 2x as Iron (an interferent) was high. The diluted results were reported for all analytes, elevating the ICP detection limits.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE009/154009 Date: 01/22/96 Laboratory Envirotest Lab.

Reviewer's Initials: JM Number of samples 11 soil/2 aq

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	22	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	0	0	0	234	22
Furnace	0	0	0	0	0	52	0
Mercury	0	0	0	0	0	13	0
Cyanide	0	0	0	0	0	13	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	15	0	0	0	11	0
Furnace	0	0	0	0	0	38	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Estimation
ICP	0	0	0	0	0	234	26
Furnace	0	0	0	0	0	52	38
Mercury	0	0	0	0	0	13	0
Cyanide	0	0	0	0	0	13	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE009 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 11 SOIL/ 2 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	2	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas were not within the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual

column analysis %D is between 50 - 90%; compound result is qualified as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated

or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14, UJ14 Matrix spike not performed for analysis. Estimate results (J14, UJ14) based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis. Estimate positive results (J18) greater than the CRDL based on lack of precision data.

DATA VALIDATION REPORT

SDG No.: AC204/154204

Site : Stewart ANG, Newburgh NY

DATE: February 3, 1996

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Prepared by:

GC/MS Section prepared by:

Lm for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie Mackinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 154204 SDG No. AC204 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG AC204/154204 contains the following samples for analysis:

Volatiles: 1/aqueous/RB-SB-101095

Semi-volatiles: 1/aqueous/RB-SB-101095

Pesticides/PCBs: 1/aqueous/RB-SB-101095

Associated QC: None

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data Reviewer: GC/MS by Elissa McDonagh Date: 02/04/96

Data Reviewer: Pest/PCB by Lorie MacKinnon Date: 02/04/96

Verified By: Lorie MacKinnon Date: 02/04/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: **All samples were extracted and analyzed within the required holding times.**

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

Compound	Maximum	Action Level
Heptachlor	0.006 ug/L	0.03 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: No actions are made as the associated sample RB-SB-101095 is a field rinseate sample and is therefore not blank qualified.

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample):

Not applicable as the only sample in the data package is a field rinseate sample.

C. Trip blank contamination:

Not applicable as the only sample in the data package is a field rinsate sample.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor:

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (10/18/95)
4-Nitrophenol		+
Associated samples:	All listed	RBSB101095

+ - RF <0.05; Estimate positive results (J2) and reject non-detects (R2) in the associated samples.

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

VOA instrument "MSD", initial calibration 09/18/95:

COMPOUND	IC (9/18/95)	CC (10/16/95)
Carbon disulfide		X
Associated samples:	All listed	RBSB101095

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (10/18/95)
3-Nitroaniline	X	
2,4-Dinitrophenol	X	X
Pentachlorophenol	X	
Associated samples:	All listed	RBSB101095

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery: **All surrogate recoveries were within validation guidelines.**

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance: **All internal standard areas were within control limits.**

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification: **There were no qualifications based on compound identification.**

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

RB-SB-101095 - Heptachlor (94%). Based on validation limits, in cases where the %D's are greater than 90%, the compound results is rejected. However, upon review of the chromatogram, it appeared that the manual integration performed on the DB-5 analysis was poorly done. A perpendicular should have been dropped to the baseline. The DB-5 result was therefore low. The validator estimated (JN25) the result due to dual column %D.

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

It should be noted that the ABN fraction aqueous matrix spike blank compounds 4-Nitrophenol and Pentachlorophenol were slightly over-recovered. No action is recommended.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation).

The Tentatively Identified Compound forms (1B) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

Tentatively Identified Compounds

Compound	RBSB101095 ug/L
VOA Unknown	X(8)
ABN Unknown	XX(8)

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 154204 SDG No. ANE204 Laboratory Envirotest Lab. Site Stewart ANG

Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 1 aq field QC

Data Assessment:

The SDG ANE204/154204 contains the following samples for analysis:

Metals/CN: 1/aqueous/FB-SB-101095

Associated QC: None

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

* . Data Completeness
* . Holding times
. Calibration verification results
* . Blank analysis
* . Interference check standard results
* . Matrix spike results
* . Duplicate analysis results
* . Field duplicate analysis
* . Laboratory control sample results
* . Furnace AA results
. ICP serial dilution results

* . Detection limit results
* . Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Calibration Verification

The 2xCRDL standard for Chromium was over-recovered at 124.2% and 141.2%. Results near the CRDL may be biased high. Estimate positive (J2) Chromium results which are less than 4xCRDL of 40 ug/L. As the sample result is undetected, there is no action.

The CRA standard for Lead was over-recovered at 122%. Results near the CRDL may be biased high. Estimate (J2) positive Lead results which are less than 2xCRDL of 6 ug/L. As the sample result is undetected, there is no action.

It should be noted that the low standard of 5 ug/L was used for the Lead analysis, instead of the CRDL of 3 ug/L. As the lead result is undetected and the CRA standard was over-recovered, there is no action.

ICP Serial Dilution

A serial dilution was performed on sample RBSB101095. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Barium (24.1%). As 10XIDL was less than the CRDL, all Barium results greater than the CRDL are estimated (J12). Based on this action level, there are no qualifications.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE204/154204 Date: 01/30/96 Laboratory Envirotest Lab.

Reviewer's Initials: LAM Number of samples 1 aqueous

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	0	0	0	18	0
Furnace	0	0	0	0	0	4	0
Mercury	0	0	0	0	0	1	0
Cyanide	0	0	0	0	0	1	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Estimation
ICP	0	0	0	0	0	18	0
Furnace	0	0	0	0	0	4	0
Mercury	0	0	0	0	0	1	0
Cyanide	0	0	0	0	0	1	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE204 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 1 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	1	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas were below the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual column analysis %D is between 50 - 90%; compound result is qualified

as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14, UJ14 Matrix spike not performed for analysis. Estimate results (J14, UJ14) based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis. Estimate positive results (J18) greater than the CRDL based on lack of precision data.

DATA VALIDATION REPORT

SDG No.: AC290/154290/154372

Site : Stewart ANG, Newburgh NY

DATE: February 5, 1996

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Prepared by:

GC/MS Section prepared by:

LM for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie MacKinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 154290/372 SDG No. AC290 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG AC290/154290/372 contains the following samples for analysis:

Volatiles:	10 soil/SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16, SB-17-33 3/aqueous/RB-SB-101295, TB-04, TB-05
Semi-volatiles:	10 soil/SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16, SB-17-33 1/aqueous/RB-SB-101295
Pesticides/PCBs:	10 soil/SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16, SB-17-33 1/aqueous/RB-SB-101295
Associated QC:	SB-07-33, SB-17-33/Field duplicates

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data reviewer: GC/MS by Elissa McDonagh Date: 02/05/96

Data reviewer: Pest/PCB by Lorie MacKinnon Date: 02/05/96

Verified By: Lorie MacKinnon Date: 02/05/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: **All samples were extracted and analyzed within the required holding times.**

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

The VOA, ABN and PEST laboratory method blanks and instrument blanks contained the following maximum quantities of contaminants:

Associated samples: All soil samples in SDG

Compound	Maximum	Action Level
Acetone	9 ug/kg	90 ug/kg
bis(2-ethylhexyl)phthalate	0.9 ug/L	9 ug/L
Heptachlor	0.098 ug/kg	0.49 ug/kg
4,4'-DDT	1.3 ug/kg	6.5 ug/kg

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended: Acetone in samples SB-05-02, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33 and SB-17-33 and 4,4'-DDT in sample SB-06-02 should be reported as the CRQL followed by a "U5". Heptachlor in samples SB-05-02, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16 and SB-17-33 should be reported as the CRQL followed by a "U5". Acetone in samples SB-05-06, SB-05-22 and SB-07-16 and 4,4'-DDT in sample SB-05-02 should be reported as the CRQL followed by a "U6"(i.e., the CRQL has been raised and the value is considered to be non-detected).

Pesticide/PCB fraction method blank PBLK02, associated with all SDG aqueous samples, had positive results for delta-BHC, Heptachlor, 4,4'-DDE and 4,4'-DDT. No qualification was required as all aqueous samples were field/rinse blanks and are not blank qualified.

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample)

The VOA, ABN and PEST rinse blanks contained the following maximum quantities of contaminants:

RB-SB-101095 Associated samples: All SB05 and SB06 samples in SDG

Compound	Maximum	Action Level
Acetone	2 ug/L	20 ug/L
bis(2-ethylhexyl)phthalate	9 ug/L	90 ug/L
Heptachlor	0.005 ug/L or 0.167 ug/kg	0.83 ug/kg

RB-SB-101295 Associated samples: All SB07 samples in SDG.

Compound	Maximum	Action Level
Acetone	2 ug/L	20 ug/L
bis(2-ethylhexyl)phthalate	3 ug/L	30 ug/L
Heptachlor	0.003 ug/L or 0.099 ug/kg	0.50 ug/kg
4,4'-DDD	0.02 ug/L or 0.66 ug/kg	3.3 ug/kg
4,4'-DDT	0.025 ug/L or 0.83 ug/kg	4.4 ug/kg

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended: Bis(2-ethylhexyl)phthalate in samples SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5 and SB-07-16 should be reported as the CRQL followed by a "U5".

C. Trip blank contamination:

Trip Blank TB-04

Associated samples: Associated samples: All SB05 and SB06 samples in SDG

Compound	Maximum	Action Level
Acetone	4 ug/L	40 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: All compound results were previously blank qualified due to laboratory or field blanks.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor: **Response factors greater than or equal to 0.05 units.**

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

VOA instrument "MSD", initial calibration 09/18/95:

COMPOUND	IC (9/18/95)	CC (10/16/95)
Carbon disulfide		X
Associated samples:	All listed	SB-05-02

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (10/19/95)	CC (10/20/95)	CC (10/21/95)
Hexachlorocyclopentadiene		X	X	
3-Nitroaniline	X	X	X	
2,4-Dinitrophenol	X			
4-Nitrophenol		X	X	X
Carbazole				X
Pentachlorophenol	X	X		
Associated samples:	All listed	SB-06-02 SB-06-26.5 SB-06-34.5 SB-05-02 SB-05-06 SB-05-22	SB-07-02 SB-07-33 SB-07-16 SB-17-33 RBSB101295	SPBK30, SBSPK30

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

Compound	Standard	%RPD	Column	Associated Samples
4,4'-DDT	INDAM02	27.0	DB-5	All samples

Therefore, all non-detected 4,4'-DDT results and detected results (quantitated off the DB-5 column) are estimated (J20, UJ20): SB-06-02 and RB-SB-101295.

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery: **All surrogate recoveries were within validation guidelines.**

It should be noted that the incorrect percent recovery information appears on the raw data for the pesticide soil fractions. Recoveries were double those listed on the Form II's. No action is taken.

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance: All internal standard criteria were met.

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification: **No compounds were qualified due to compound identification.**

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

It should be noted that Heptachlor had a %D >25% in most samples. However, as the compound was blank qualified "U" in all samples, there is no qualification.

SB-05-02 - Dieldrin (100 %D) would be rejected. However, upon review of raw data, the manual integration was poorly performed on the DB-5 analysis. A perpendicular should have been dropped for the separation between Dieldrin and 4,4'-DDE. The higher results from the DB-17 column, which were fully resolved, were reported by the validator and estimated (JN25) due to %D.

SB-05-06 - 4,4'-DDE (31.4%, J25)

SB-05-22 - Dieldrin (66.7%) The manual integration performed for Dieldrin (4.2 mg/kg) on the DB-5 column was poorly done. The higher Dieldrin result (7.0 mg/kg) from the DB-17 column is resolved from 4,4'-DDE and appears to have no positive interferences. The validator reported the DB-17 result of 7.0 mg/kg estimated (J25).
4,4'-DDE (25.7%, J25)

SB-06-02 - 4,4'-DDE (80%, JN25), 4,4'-DDD (192.7%, R25) and 4,4'-DDT (44.4%, No action as result was blank qualified)

SB-06-26.5 Dieldrin (2816.7%, R25), 4,4'-DDE (34.9%, J25), alpha-chlordane (54.5%, JN25), gamma-chlordane (162.1%, R25), 4,4'-DDD (over-calibrated, R25) and 4,4'-DDT (over-calibrated, R25). Upon review

of raw data, the validator found that the results listed for 4,4'-DDD and 4,4'-DDT from the DB-17 column were incorrect. The validator edited both the Form I and Form 10.

SB0626.5DL 4,4'-DDD (259.6%, R25), DB-5 column result 890 (separated) DB-17 column result 3200 peaks not resolved. As the validator felt that 4,4'-DDD was present, the DB-5 result was reported estimated (JN25).

SB-06-34.5 4,4'-DDE (150%) The manual integration performed for 4,4'-DDE on the DB-5 column was poorly done. A perpendicular should have been dropped to the baseline giving a higher result. As the validator felt that 4,4'-DDE was present in the sample the value is estimated (JN25) instead of rejected. 4,4'-DDD (112.1%, R25) Co-elution on the DB-17 column is suspected.
It should be noted that the Form I result for 4,4'-DDT has a "P" qualifier indicating a dual column %D > 25%. However, the %D reported on the Form 10 was 5.3%. The validator removed the "P" qualifier.

RBSB101295 4,4'-DDT (56%, JN25) and Heptachlor (146.7%, JN25) The Heptachlor result was not rejected as the manual integration performed was poorly done. A perpendicular should have been dropped to the baseline giving a higher result on the DB-5 column.

SB-07-02 - Dieldrin (83.3%, JN25), 4,4'-DDE (71.4%, Over-calibrated), alpha-chlordane (218.2%, R25), 4,4'-DDD (over-calibrated, however, there is peak separation, JN25) and 4,4'-DDT (over-calibrated).

SB-07-02DL 4,4'-DDE (36.8%, J25) 4,4'-DDD result %D is less than 25%. However, the validator highly suspects co-elution on both columns as the peak shape is extremely broad on the DB-5 column and the dilution does not agree with original analysis, in which two peaks were present in the area. The 4,4'-DDD diluted result is not used.

SB-07-33- 4,4'-DDE (80%, JN25) and 4,4'-DDD (75.4%, JN25)

SB-07-16- 4,4'-DDD (45.5%, J25)

SB-17-33- 4,4'-DDD (73.9%, JN25) Result on DB-17 column is over-calibrated. Not over-calibrated on quantitated DB-5 column.

SB-17-33DL 4,4'-DDD (200%, R25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

It should be noted that the ABN fraction aqueous matrix spike blank compounds 4-Nitrophenol and Pentachlorophenol were slightly over-recovered. The ABN fraction soil matrix spike blank compound Pentachlorophenol was slightly over-recovered. No action is recommended.

It should be noted that insufficient sample was received to prepare an actual ABN sample matrix spike/matrix spike duplicate. Laboratory reagent was used to prepare the MS/MSD.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation). The m/z ion 91 was used to quantitate xylenes (the SOP requests the 106 ion to be used for quantitation).

The Tentatively Identified Compound forms (1B) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

It should be noted that transcription errors were found in the pesticide/PCB package: Upon review of raw data for sample SB-06-26.5, the validator found that the results listed for 4,4'-DDD and 4,4'-DDT from the DB-17 column were incorrect. The validator edited both the Form I and Form 10.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

Pesticides:

SB-06-26.5, SB-06-26.5DL

Use 4,4'-DDD and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SB-07-02, SB-07-02DL

Use 4,4'-DDE and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SB-17-33, SB-17-33DL

Use 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	TB-04 ug/L	RBSB1012 ug/kg	TB-05 ug/L	SB-06-02 ug/kg
VOA Unknown	XX(62)	XX(28)	XX(14)	
ABN Unknown		X(5)		XX(296)
unknown alkane				XX(330)
unk. diethyl benzene				
unk. methyl benzene				
Tetramethylbenzene isomer				
ethyldimethylbenzene isomer				
VOA C10H12 isomer				
ABN C10H12 isomer				
unk. C10H14				
VOA C11H16 isomer				
ABN C11H16 isomer				
C10H8 isomer		X(7)		
unk. C14H10CL4				
unk. decanoic acid				
VOA Methylnaphthalene isomer		XX(39)		
ABN Methylnaphthalene isomer				
VOA Dimethylnaphthalene isomer		XX(23)		
ABN Dimethylnaphthalene isomer				
Trimethylnaphthalene isomer				
Ethylnaphthalene isomer				
Dimethyl butanol isomer				
DDE isomer				
DDT isomer				
2-fluoro-1-propene	X(5)			
diethylmethyl benzene				
biphenyl				

Compound	SB-17-33 ug/kg	SB-07-02 ug/kg	SB-07-16 ug/kg	SB-06-26.5 ug/kg
VOA Unknown	X(170)		X(21)	XX(2620)
ABN Unknown		XX(338)	XX(300)	XX(640)
unknown alkane		XX(210)		XX(276)
unk. diethyl benzene				X(118)
unk. methyl benzene				X(240)
Tetramethylbenzene isomer				X(370)
ethyldimethylbenzene isomer				X(220)
VOA C10H12 isomer			X(7)	X(500)
ABN C10H12 isomer				X(240)
unk. C10H14				XX(860)
VOA C11H16 isomer				X(220)

Compound	SB-17-33 ug/kg	SB-07-02 ug/kg	SB-07-16 ug/kg	SB-06-26.5 ug/kg
ABN C11H16 isomer				X(122)
C10H8 isomer				X(810)
unk. C14H10CL4		XX(344)		XX(4600)
unk. decanoic acid		X(84)		
VOA Methylnaphthalene isomer				
ABN Methylnaphthalene isomer			X(90)	X(700)
VOA Dimethylnaphthalene isomer				
ABN Dimethylnaphthalene isomer				XX(1530)
Trimethylnaphthalene isomer				X(130)
Ethylnaphthalene isomer				X(172)
Dimethyl butanol isomer			X(7)	
DDE isomer		X(280)		
DDT isomer		X(640)		
2-fluoro-1-propene				
diethylmethyl benzene				X(740)
biphenyl				X(114)

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 154290/372 SDG No. ANE290 Laboratory Envirotest Lab. Site Stewart ANG

Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 10 Soil/1 aq field QC

Data Assessment:

The SDG ANE290/154290/154372 contains the following samples for analysis:

Metals/CN:	10 soil/SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16, SB-17-33 1/aqueous/RB-SB-101295
TOC:	10 soil/SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16, SB-17-33
Associated QC:	SB-07-33, SB-17-33/Field duplicates

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

* • Data Completeness
* • Holding times
• Calibration verification results
• Blank analysis
* • Interference check standard results
• Matrix spike results

*	.	Duplicate analysis results
*	.	Field duplicate analysis
*	.	Laboratory control sample results
	.	Furnace AA results
	.	ICP serial dilution results
*	.	Detection limit results
*	.	Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Calibration Verification

The 2xCRDL standard for Antimony was under-recovered at 77.3%. Results near the CRDL may be biased low. Estimate positive and non-detected (J2, UJ2) Chromium results which are less than 4xCRDL of 48 mg/kg or 240 ug/L. Based on this action level, Antimony results for samples SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5, SB-06-34.5, SB-07-02, SB-07-33, SB-07-16, SB-17-33 and RB-SB-101295 are estimated.

The CRA standard for Lead was over-recovered at 123.7%. Results near the CRDL may be biased high. Estimate (J2) positive Lead results which are less than 2xCRDL of 1.2 mg/kg or 6 ug/L. However, as the sample lead results are greater than this level, there is no action.

It should be noted that the low standard of 5 ug/L was used for the Lead analysis, instead of the CRDL of 3 ug/L. As all lead results are greater than 5X the CRDL, there is no action.

Matrix Spike Recoveries

Antimony (50.2%), Lead (133.9%) and Thallium (52.3%) were recovered outside of the control limits in the matrix spike performed on sample SB-05-02. Due to a possible low bias, all Antimony and Thallium results are estimated (J5, UJ5). Due to a possible high bias, all positive Lead results are estimated (J5).

It should be noted that the Cyanide result for sample SB-05-22 was flagged with an "N" qualifier (matrix recovery out of control limits) and shouldn't have been. The validator edited the Form I.

It should be noted that the validator did not apply the matrix spike actions to the aqueous field QC sample.

Blanks

The field blanks contained levels of several metals above the CRDL. The following table lists the maximum concentration of each metal found in the blanks along with the resultant action level. It should be noted that Field rinseate

sample RB-SB-101295 was submitted in data package SDG 154204.

Field Blank RB-SB-101095 associated with all SB-05 and SB-06 SDG samples

Element	Maximum Conc./Units	Action Level
Calcium	32500 ug/L, 6500 mg/kg	32500 mg/kg
Iron	129 ug/L, 25.8 mg/kg	129 mg/kg
Sodium	30900 ug/L, 6180 mg/kg	30900 mg/kg
Manganese	17.6 ug/L, 3.52 mg/kg	17.6 mg/kg

Value < Action Level; the value is rejected R3.
Value > IDL and > Action Level; the value is reported unqualified.

The action level values were compared to the sample value before application of sample dilution factors. Based on the action levels found, the following actions are taken: Calcium and Sodium results for samples SB-05-02, SB-05-06, SB-05-22, SB-06-02, SB-06-26.5 and SB-06-34.5 are rejected (R3).

Field Blank RB-SB-101295 associated with all SB-07 SDG samples

Element	Maximum Conc./Units	Action Level
Aluminum	317 ug/L, 63.4 mg/kg	317 mg/kg
Iron	409 ug/L, 81.8 mg/kg	409 mg/kg
Zinc	31.4 ug/L, 6.28 mg/kg	31.4 mg/kg

Value < Action Level; the value is rejected R3.
Value > IDL and > Action Level; the value is reported unqualified.

The action level values were compared to the sample value before application of sample dilution factors. All sample levels were greater than the action levels. No qualifications are necessary.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exception:

Analyte	Sample ID	Recovery	Action
Selenium	SB0716	82%	J10, UJ10
Thallium	SB0502	62.8%	J10, UJ10
Thallium	SB0506	64.4%	J10, UJ10
Thallium	SB0522	68.0%	J10, UJ10
Thallium	SB0602	56.9%	J10, UJ10

Analyte	Sample ID	Recovery	Action
Thallium	SB06-26.5	75.8%	J10, UJ10
Thallium	SB06-34.5	82.4%	J10, UJ10
Thallium	SB0702	68.4%	J10, UJ10
Thallium	SB0716	79.1%	J10, UJ10

ICP Serial Dilution

A serial dilution was performed on sample SB-05-02. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Potassium (24.5%) and Zinc (19.6%). As 10XIDL was less than the CRDL in all cases, all Potassium and Zinc results greater than the CRDL are estimated (J12).

It should be noted that the validator did not apply the serial dilution actions to the aqueous sample.

Detection Limit Results

It should be noted that ICP samples SB-06-34.5, SB-06-02 and SB-05-06 were diluted as Iron levels were close to or exceeded the calibration range. The diluted results for all analytes were reported, thus elevating the instrument detection limits (IDL) for all ICP analytes for the samples. A prescan was performed with the samples undiluted, however the laboratory did not submit it in the data package according to the SOW. No action is taken, as the non-detected results were less than the CRDL in all cases.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE290/154290/372 Date: 02/05/96 Laboratory Envirotest Lab.
Reviewer's Initials: LAM Number of samples 10 soil/1 aq

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibr ation	Prep blank	Field blank	Inter-ference	Spike Rec.	LCS
ICP	0	0	0	17	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	0	0	0	198	17
Furnace	0	0	0	0	0	44	0
Mercury	0	0	0	0	0	11	0
Cyanide	0	0	0	0	0	11	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	11	0	0	0	10	0
Furnace	0	0	0	0	0	29	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Estimation
ICP	0	0	0	11	0	198	28
Furnace	0	0	0	0	0	44	11
Mercury	0	0	0	0	0	11	0
Cyanide	0	0	0	0	0	11	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE290/154290/372 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 10 SOIL/ 1 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	2	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas was less than the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual column analysis %D is between 50 - 90%; compound result is qualified

as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14, UJ14 Matrix spike not performed for analysis. Estimate results (J14, UJ14) based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis. Estimate positive results (J18) greater than the CRDL based on lack of precision data.

DATA VALIDATION REPORT

SDG No.: AC477/154477/154478

Site : Stewart ANG, Newburgh NY

DATE: February 5, 1996

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Prepared by:

GC/MS Section prepared by:

Lm for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie MacKinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 154477/478 SDG No. AC477 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG AC477/154477/478 contains the following samples for analysis:

Volatiles:	3 soil/MW-01-04, MW-01-18, MW-01-31.6 3/aqueous/TB-3, DW-01-101795, TB-DW-01
Semi-volatiles:	3 soil/MW-01-04, MW-01-18, MW-01-31.6 1/aqueous/DW-01-101795
Pesticides/PCBs:	3 soil/MW-01-04, MW-01-18, MW-01-31.6 1/aqueous/DW-01-101795
Associated QC:	None

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data reviewer: GC/MS by Elissa McDonagh Date: 02/05/96

Data reviewer: Pest/PCB by Lorie MacKinnon Date: 02/05/96

Verified By: Lorie MacKinnon Date: 02/05/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: **All samples were extracted and analyzed within the required holding times.**

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

The VOA, ABN and PEST laboratory method blank contained the following maximum quantities of contaminants:

Aqueous method blank: Associated sample DW-01-101795

Compound	Maximum	Action Level
bis(2-ethylhexyl)phthalate	5 ug/L	50 ug/L
Heptachlor	0.004 ug/L	0.020 ug/L
4,4'-DDT	0.021 ug/L	0.105 ug/L

Soil method blank: Associated samples: All soil SDG samples

Compound	Maximum	Action Level
Acetone	33 ug/kg	330 ug/kg
Di-n-butyl phthalate	230 ug/kg	2300 ug/kg
Heptachlor	0.22 ug/Kg	1.1 ug/Kg
4,4'-DDT	0.25 ug/Kg	1.25 ug/Kg

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended. Acetone in samples MW-01-04, MW-01-18RE, MW-01-31.6 and MW-01-31.6RE, di-n-butyl phthalate in samples MW-01-04, MW-01-18 and MW-01-31.6 and Heptachlor in samples DW-01-101795, MW-01-31.6, MW-01-04 and MW-01-18 are reported as the CRQL followed by a "U5". Acetone in sample MW-01-18 should be reported as the value followed by "U6" (i.e., the CRQL has been raised and the value is considered to be non-detected.

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample)

Rinse blank RB-SB-101295 (included in SDG 154290) is associated with the SDG soil samples. Field sample DW-01-101795 is a field water sample from tub and is qualified as any other water sample.

The VOA, ABN and PEST rinse blanks contained the following maximum quantities of contaminants:

RB-SB-101295 Associated samples: All soil samples in SDG

Compound	Maximum	Action Level
Acetone	2 ug/L	20 ug/L
bis(2-ethylhexyl)phthalate	3 ug/L	30 ug/L
Heptachlor	0.003 ug/L or 0.10 ug/kg	0.50 ug/kg
4,4'- DDD	0.02 ug/L or 0.67 ug/kg	3.33 ug/kg
4,4 - DDT	0.025 ug/L or 0.83 ug/kg	4.16 ug/kg

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended: bis(2-ethylhexyl)phthalate in sample MW-01-18 should be reported as the CRQL followed by "U5".

C. Trip blank contamination:

Trip Blank TB-DW-01
Associated samples: DW01101795

Compound	Maximum	Action Level
Methylene Chloride	2 ug/L	20 ug/L
Acetone	9 ug/L	90 ug/L

The action level values were compared to the sample values and the following recommendations are recommended: Acetone in sample DW011017 should be reported as the CRQL followed by "U5".

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor:

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (11/02/95)
3-Nitroaniline		+
Associated samples:	All listed	MW-01-04, MW-01-18 MW-01-31.6

VOA instrument "MSD", initial calibration 10/17/95:

COMPOUND	IC (10/17/95)	CC (10/24/95)
Acetone	+	+
2-Butanone	+	+
Associated samples:	All aqueous listed	DW-011017 TB-DW-01

+ - RF <0.05; Estimate positive results (J2) and reject non-detects (R2) in the associated samples.

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/4/95)	CC (10/24/95)	CC (11/02/95)
4-Chloroaniline			X
2-Nitroaniline			X
3-Nitroaniline	X		X
2,4-Dinitrophenol	X		
4-Nitrophenol		X	
Carbazole			X
Pentachlorophenol	X	X	
3,3'-Dichlorobenzidine			X
Di-n-octylphthalate			X
Dibenz(a,h)anthracene		X	
Associated samples:	All listed	DW01101795	MW-01-04, MW-01-18 MW-01-31.6

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

Pesticides:

Compound	Standard	Time	%RPD	Column	Associated Samples
Alpha-BHC	PEM01	11/15 11:32	30.0	DB-5	All samples
Beta-BHC	PEM01	11/15 11:32	40.0	DB-5	All samples
Endrin	PEM01	11/15 11:32	34.0	DB-5	All samples
4,4'- DDT	PEM01	11/15 11:32	41.0	DB-5	All samples
Methoxychlor	PEM01	11/15 11:32	44.0	DB-5	All samples
Alpha-BHC	PEM01	11/15 11:32	30.0	DB-17	All samples
Endrin	PEM01	11/15 11:32	32.0	DB-17	All samples
4,4'- DDT	PEM01	11/15 11:32	39.0	DB-17	All samples
Methoxychlor	PEM01	11/15 11:32	44.0	DB-17	All samples
Beta-BHC	PEM02	11/15 20:11	30.0	DB-5	All samples

Therefore, all affected results are estimated (J20, UJ20).

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery:

The VOA surrogate Bromofluorobenzene was under-recovered in the soil samples MW-01-18 and MW-01-31.6. It is recommended to estimate the positive results and non-detects (J8, UJ8) for all compounds associated with this surrogate.

The ABN surrogate Phenol-d5 was recovered at less than 10% in the MS/MSD set prepared using laboratory tap water. No action is recommended.

It should be noted that ABN surrogates 2-Fluorobiphenyl and 2-Chlorophenol-d4 were under-recovered in the aqueous sample DW01101795. No action is recommended.

Pesticide surrogates TCX (11%, 31%) and DCB (20%, 22%) were under-recovered on both columns in the sample DW-01-101795. It is recommended to estimate all positive and non-detected (J8, UJ8) results for the sample.

It should be noted that the incorrect percent recovery information appears on the raw data for the pesticide soil fractions. Recoveries were double those listed on the Form II's. No action is taken.

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

The VOA internal standard Chlorobenzene-d5 was under-recovered in the soil samples MW-01-18, MW-01-31.6, MW-01-18RE and MW-01-31.6RE. It is recommended to estimate the positive results (J15) and non-detects (UJ15) for all compounds quantitated from the internal standard in the associated samples.

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification: **There were no qualifications based on compound identification.**

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

It should be noted that Heptachlor had a %D >25% in most samples. However, as the compound was blank qualified "U" in all samples, there is no qualification.

DW-01-1017- Alpha-chlordane (185.7%, R25), gamma-chlordane (370.0%, R25), 4,4'-DDD (84.1%, JN25 over-calibrated) and 4,4'-DDT (42.2%, J25 over-calibrated).

DW011017DL- 4,4'-DDD (63.6%, JN25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

It should be noted that the ABN aqueous and soil MS/MSD sets were performed on laboratory tap water due to insufficient sample volume. Recoveries and percent RPDs were outside of control limits. However, as qualifications are done on the native sample only, there is no action on the SDG samples.

The ABN matrix spike compounds Phenol, 4-Chloro-3-methylphenol, Acenaphthene and Pyrene were recovered outside of the QC recovery limits in the aqueous matrix spike. The ABN matrix spike compounds Phenol, 1,4-Dichlorobenzene, 4-Chloro-3-methylphenol, Acenaphthene and Pyrene were recovered outside of the QC recovery limits in the aqueous matrix spike duplicate. The %RPDs were high for the matrix spike compounds Phenol, 1,4-Dichlorobenzene and 4-Chloro-3-methylphenol. No action is recommended.

The ABN matrix spike compound Pentachlorophenol was recovered outside of the QC recovery limits in the soil matrix spike duplicate. No action is recommended.

It should be noted that the PEST aqueous and soil MS/MSD sets were performed as batch QC. Recoveries and percent RPDs were outside of control limits. However, as qualifications are done on the native sample only, there is no action on the SDG samples. All pesticide matrix spike blank recoveries were found to be within control limits.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation).

The Tentatively Identified Compound forms (1B) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

Volatiles:

MW-01-18, MW-01-18RE

Use the positive and non-detected results from the re-analysis.

MW-01-31.6, MW-01-31.6RE

Use the positive and non-detected results from the re-analysis.

Pesticides:

DW-01-1017, DW-01-1017DL

Use 4,4'- DDD and 4,4'-DDT result from diluted analysis.

Use all other results from undiluted analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	MW-01-18 ug/kg	MW-01-31.6 ug/kg	MW0131.6RE ug/kg	DW01101795 ug/kg
ABN Unknown	X(76)	X(86)		XX(159)
unknown alkane				XX(764)
unk. C17H14 isomer				X(27)
unk. hydrocarbon				X(70)
Tetradecane			X(8)	

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 154477/478 SDG No. ANE478 Laboratory Envirotest Lab. Site Stewart ANG

Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 3 Soil/1 Aqueous

Data Assessment:

The SDG ANE477/154477/154478 contains the following samples for analysis:

Metals/CN:	3 soil/MW-01-04, MW-01-18, MW-01-31.6 1/aqueous/DW-01-101795
TOC:	3 soil/MW-01-04, MW-01-18, MW-01-31.6
Associated QC:	None

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 **The Data Assessment**

The inorganic data were evaluated based on the following parameters:

* . Data Completeness
* . Holding times
. Calibration verification results
* . Blank analysis
* . Interference check standard results
. Matrix spike results
. Duplicate analysis results
* . Field duplicate analysis

* . Laboratory control sample results
. Furnace AA results
. ICP serial dilution results
* . Detection limit results
* . Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Calibration Verification

Aqueous analysis only

The CRA standard for Lead was over-recovered at 122.0%. Results near the CRDL may be biased high. Estimate (J2) positive Lead results which are less than 2xCRDL of 6 ug/L. However, as the sample lead results are greater than this level, there is no action.

The CRDL standard for Chromium was over-recovered at 124.2% and 141.2%. Results near the CRDL may be biased high. Estimate (J2) positive Chromium results which are less than 4xCRDL of 40 ug/L. However, as the sample Chromium results are greater than this level, there is no action.

Soil analysis only

The CRA standard for Selenium was over-recovered at 143.4%. Results near the CRDL may be biased high. Estimate (J2) positive Selenium results which are less than 2xCRDL of 2 mg/kg. The 2xCRDL standard for Cadmium was over-recovered at 121.8%. Results near the CRDL may be biased high. Estimate (J2) positive Cadmium results which are less than 4xCRDL of 4 mg/kg. The CRDL standard for Chromium was over-recovered at 126.4% and 122.7%. Results near the CRDL may be biased high. Estimate (J2) positive Chromium results which are less than 4xCRDL of 8 mg/kg. The 2xCRDL standard for Silver was over-recovered at 122.4%. Results near the CRDL may be biased high. Estimate (J2) positive Silver results which are less than 4xCRDL of 8 mg/kg. Based on these levels, the following actions were taken Chromium and Silver in sample MW-01-04 are estimated (J2), Chromium in sample MW-01-18 is estimated (J2) and Silver in sample MW-01-31.6 is estimated (J2).

It should be noted that the low standard of 5 ug/L was used for the Lead analysis, instead of the CRDL of 3 ug/L. As all lead results are greater than 5X the CRDL, there is no action.

Matrix Spike Recoveries

Antimony (28.8%), Lead (153.8%) and Thallium (46.9%) were recovered outside of the control limits in the matrix spike performed on soil sample MW-01-04. Due to a possible low bias, all Antimony and Thallium results are estimated (J5, UJ5). Due to a possible high bias, all positive Lead results are estimated (J5).

It should be noted that the validator did not apply the matrix spike actions to the aqueous QC sample.

In the aqueous analysis batch, a matrix spike was performed on a field rinsate blank sample (except for the cyanide analysis). The affected sample DW-01-101795 was a field sample. However, as it contained high analyte levels, it is qualified based on the lack of pertinent matrix spike data. Therefore, all positive analyte levels less than four times the matrix spike level are estimated (J14).

Blanks

The field blanks contained levels of several metals above the CRDL. The following table lists the maximum concentration of each metal found in the blanks along with the resultant action level. It should be noted that Field rinseate sample RB-SB-101295 was submitted in data package SDG 154204.

Field Blank RB-SB-101295 associated with all soil SDG samples

Element	Maximum Conc./Units	Action Level
Aluminum	317 ug/L, 63.4 mg/kg	317 mg/kg
Iron	409 ug/L, 81.8 mg/kg	409 mg/kg
Zinc	31.4 ug/L, 6.28 mg/kg	31.4 mg/kg

Value < Action Level; the value is rejected R3.
Value > IDL and > Action Level; the value is reported unqualified.

The action level values were compared to the sample value before application of sample dilution factors. Based on the action levels found, there are no qualifications.

It should be noted that in Lead analysis dated 10/30/95, CCB4 was detected at the negative CRDL. No samples in the SDG were affected.

Laboratory Duplicate

In the aqueous analysis batch, a laboratory duplicate was performed on a field rinsate blank sample (except for the cyanide analysis). The affected sample DW-01-101795 was a field sample. However, as it contained high analyte levels, it is qualified based on the lack of pertinent duplicate precision data. Therefore, all results greater than the CRDL are estimated (J15).

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate

injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exception:

Analyte	Sample ID	Recovery	Action
Selenium	DW0110	34.2%	J10, UJ10
Thallium	MW0104	45.6%	J10, UJ10
Thallium	MW0118	50.2%	J10, UJ10
Thallium	MW1316	52.2%	J10, UJ10

ICP Serial Dilution

A serial dilution was performed on soil sample MW-01-04. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Copper (12.8%). As 10XIDL is less than the CRDL, all Copper results greater than the CRDL are estimated (J12).

In the aqueous analysis batch, an ICP serial dilution was performed on a field rinsate blank sample. The affected sample DW-01-101795 was a field sample. However, as it contained high analyte levels, it is qualified based on the lack of pertinent matrix effect data. Therefore, all results greater than the CRDL are estimated (J16).

Detection Limit Results

It should be noted that ICP samples DW-01-101795, MW-01-04, MW-01-18 and MW-01-31.6 were diluted as Iron levels were close to or exceeded the calibration range. The diluted results for all analytes were reported, thus elevating the instrument detection limit (IDL) for all ICP analytes for the samples. A prescan was performed with the samples undiluted. As all undetected levels were below the CRDL for samples MW-01-04, MW-01-18 and MW-01-31.6, no action is taken. Sample DW-01-101795 was analyzed straight, 5x and 10x for ICP and the 10x dilution was reported for all ICP analytes. Antimony, Cadmium and Silver were undetected at 10X, therefore the reported non-detected results were greater than the CRDL. The validator reviewed the interference check sample data (ICSA) and found interference for those elements which would warrant the diluted analysis. No qualification is made.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE478/154477/478 Date: 02/05/96 Laboratory Envirotest Lab.
Reviewer's Initials: LAM Number of samples 3 soil/ 1 aq

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	0	0	0	72	0
Furnace	0	0	0	0	0	16	0
Mercury	0	0	0	0	0	4	0
Cyanide	0	0	0	0	0	4	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	4	0	0	0	9	0
Furnace	0	0	0	0	0	12	0
Mercury	0	0	0	0	0	1	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Estimation
ICP	0	11	0	18	0	72	42
Furnace	0	2	0	0	0	16	14
Mercury	0	1	0	0	0	4	2
Cyanide	0	0	0	0	0	4	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE478/154477/478 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 3 SOIL/ 1 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	1	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas was less than the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual column analysis %D is between 50 - 90%; compound result is qualified

as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14 Matrix spike not performed for analysis or performed on field blank. Estimate positive results less than four times the spike level added based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis or was performed on a field blank. Estimate positive results greater than the CRDL based on lack of precision data.

J16 ICP serial dilution was not performed or was performed on field blank. Estimate results greater than 10XIDL or greater than the CRDL for which an ISD was not performed.

DATA VALIDATION REPORT

SDG No.: AC787/154787/154816

Site : Stewart ANG, Newburgh NY

DATE: February 13, 1996

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Prepared by:

GC/MS Section prepared by:

LM for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie MacKinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 155787/816 SDG No. AC787 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG AC787/155787/816 contains the following samples for analysis:

Volatiles:	12 aqueous/MW-09-1127, MW-01-1128, MW-10-1128, MW-109-1128, MW-108-1128, SW-02-1128, SW-03-1128, MW-13-1128, SW-12-1128, TB-1129, TB-1127, TB-1128
Semi-volatiles:	9 aqueous/MW-09-1127, MW-01-1128, MW-10-1128, MW-109-1128, MW-108-1128, SW-02-1128, SW-03-1128, MW-13-1128, SW-12-1128
Pesticides/PCBs:	9 aqueous/MW-09-1127, MW-01-1128, MW-10-1128, MW-109-1128, MW-108-1128, SW-02-1128, SW-03-1128, MW-13-1128, SW-12-1128
Associated QC:	SW-02-1128, SW-12-1128/Field duplicates

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data reviewer: GC/MS by Elissa McDonagh Date: 02/13/96

Data reviewer: Pest/PCB by Lorie MacKinnon Date: 02/13/96

Verified By: Lorie MacKinnon Date: 02/13/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: The VOA aqueous samples SW031128, MW131128 and TB-1129RE were analyzed one day outside of the required holding time. The VOA aqueous samples SW121128 and SW021128 were analyzed two days outside of the required holding time. It is recommended to estimate the detected and non-detected results (J1, UJ1).

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

The VOA, ABN and PEST laboratory method blanks and instrument blanks contained the following maximum quantities of contaminants:

Associated samples: All aqueous in SDG

Compound	Maximum	Action Level
Naphthalene	2 ug/L	10 ug/L
bis(2-ethylhexyl)phthalate	2 ug/L	20 ug/L
4,4'-DDT	0.011 ug/L	0.055 ug/L

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended: Naphthalene in samples MW1081128, MW091127, MW011128, MW101128 and MW1091128 and bis(2-ethylhexyl)phthalate in samples MW101128, MW1091128, MW131128, SW031128, SW021128 and SW121128 should be reported as the CRQL followed by a "U5". Bis(2-ethylhexyl)phthalate in samples MW1081128 and MW091127 should be reported as the CRQL followed by a "U6"(i.e., the CRQL has been raised and the value is considered to be non-detected).

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample)

It should be noted that there were no field blanks associated with the aqueous samples.

C. Trip blank contamination:

It should be noted that sample TB1129RE appears to have carryover from the

standard analyzed in the cell prior to the sample. Both initial and re-analysis are included in the package. The compounds detected in the re-analysis were not used to qualify the data.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor:

VOA instrument "MSD2", initial calibration 12/01/95:

COMPOUND	IC (12/1/95)	CC (12/4/95)
Acetone		+
Associated samples:	All listed	MW091127, TB-1127 TB-1128

VOA instrument "MSD2", initial calibration 12/05/95:

COMPOUND	IC (12/5/95)	CC (12/05/95)	CC (12/06/95)	CC (12/07/95)
Acetone	+	+	+	+
4-Methyl-2-Pentanone	+	+	+	+
2-Hexanone	+	+	+	+
Associated samples:	All listed	MW1081128 MW011128 MW101128 MW1091128	SW031128 MW131128 SW121128 TB-1129	SW021128 TB-1129RE

+ - RF < 0.05; Estimate positive results (J2) and reject non-detects (R2) in the associated samples.

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD of the initial calibration exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

VOA instrument "MSD2", initial calibration 12/01/95:

COMPOUND	IC (12/1/95)	CC (12/4/95)
Bromomethane	X	X
Chloromethane	X	
Acetone		X
4-methyl-2-pentanone		X
2-Hexanone		X
Associated samples:	All listed	MW091127, TB-1127 TB-1128

VOA instrument "MSD2", initial calibration 12/05/95:

COMPOUND	IC (12/5/95)	CC (12/05/95)	CC (12/06/95)	CC (12/07/95)
Bromomethane				X
Vinyl Chloride				X
m,p-xylene			X	X
Associated samples:	All listed	MW1081128 MW011128 MW101128	SW031128 MW131128 SW121128	SW021128 TB-1129RE

MW1091128 TB-1129

ABN instrument "5972-2", initial calibration 11/29/95:

COMPOUND	IC (11/29/95)	CC (12/07/95)
3-Nitroaniline		X
Associated samples:	All listed	SW031128, MW131128, SW021128, SW121128

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

Pesticide Initial Calibration

Compound	Date	%RPD	Column	Associated Samples
beta-BHC	12/14/95	20.4%	DB-5	All samples

It is recommended to estimate all non-detected and detected (quantitated on the DB-5 column) results (UJ19, J19) for all SDG samples.

Analysis of the PEST Resolution Check Mixture yielded a 54% resolution between 4,4'-DDE and Dieldrin on the DB-05 column. It is recommended to estimate (J29) positive 4,4'-DDE and Dieldrin results quantitated off the DB-05 column. It is also recommended to estimate the non-detected Dieldrin results (UJ29) in the samples where 4,4'-DDE is detected. It should be noted that the data package narrative incorrectly reported the resolution problem with the compounds gamma-chlordane and 4,4'-DDE.

Pesticide Continuing Calibration

Compound	Standard/Time	%RPD	Column	Associated Samples
beta-BHC	PEM01 12/14 17:31	30.0%	DB-5	All samples
beta-BHC	PEM02 12/15 02:12	40.0%	DB-5	All samples
Endrin	PEM02 12/15 02:12	26.0%	DB-5	All samples
4,4'-DDT	PEM02 12/15 02:12	27.0%	DB-5	All samples

Therefore, all non-detected and detected compound results (quantitated off the DB-5 column) are estimated (J20, UJ20).

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery:

The VOA surrogate Toluene-d8 was over-recovered in the aqueous sample TB-1129. The sample was re-analyzed as is required. No action is recommended.

The ABN surrogate Terphenyl-d14 was under-recovered in the aqueous samples MW011128, MW091127 and MW101128. The ABN surrogates 2-Fluorobiphenyl and 2-Chlorophenol-d4 were under-recovered in the aqueous sample SW031128. No action is required.

The PEST surrogates TCX and DCB were under-recovered (TCX, 36% and 55%, DCB 55%) in sample SW-03-1128. It is recommended to estimate positive and non-detected results (J8, UJ8) for that sample.

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance: **All internal standard criteria were met.**

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification: **No compounds were qualified due to compound identification.**

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

It should be noted that 4, 4'-DDD had a %D >90% in most samples and was rejected. Upon review of the sample chromatograms, it appears that there is a interferant peak present which is slightly resolved on the DB-05 column. The laboratory is able to integrate and report the peaks separately, although due to the compression of the chromatogram, the validator was not able to check the accuracy of the integration. On the DB-17 column, however, it appears that the 4,4'-DDD and interferant peak co-elute and the two compounds are reported as 4,4'-DDD. Due to the discrepancy, the %D is high. The results with high %D are rejected as the validator is unable to confirm which of the two peaks (in the DB-5 chromatograms) is 4,4'-DDD.

MW108-1128 4,4'-DDD (214.8%, R25)

MW09-1127 4,4'-DDD (138.1%, R25)

MW01-1128 4,4'-DDD (141.2%, R25)
4,4'-DDT (41.9%, J25)

MW01-1128DL 4,4'-DDE (66.7%, JN25)
4,4'-DDD (230.8%, R25)

MW10-1128 4,4'-DDD (147.2%, R25)

MW109-1128 4,4'-DDD (376.9%, R25)

SW03-1128	4,4'-DDD (225.0%, R25)
	4,4'-DDT (52.5%, JN25)
SW03-1128DL	4,4'-DDE (120.3%, R25)
	4,4'-DDD (300.0%, R25)
MW13-1128	4,4'-DDD (71.0%, JN25)
SW02-1128	4,4'-DDD (833.3%, R25)
	4,4'-DDT (42.9%, J25)
	alpha-chlordane (205.9%, R25)
SW02-1128DL	4,4'-DDD (226.1%, R25)
	4,4'-DDE (35.1%, J25)
SW12-1128	4,4'-DDD (1366.7%, R25)
	4,4'-DDT (30.0%, J25)
	Endrin (990.9%, R25)
SW12-1128DL	4,4'-DDD (167.6%, R25)
	4,4'-DDE (33.8%, J25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

4,4'-DDT (36%) was recovered outside of the QC limits in the matrix spike duplicate performed on PEST fraction sample MW-09-1127. It is recommended to estimate (J10) the 4,4'-DDT result in the sample. The %RPD for Dieldrin was high (21%) in the PEST MS/MSD pair. As Dieldrin was not detected in the native sample, there in no action.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. It should be noted that the laboratory reference spectra for 2-Butanone was of poor quality.The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation).

The Tentatively Identified Compound forms (1E and 1F) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

The spectra for the detected Phenol in samples MW1091128, SW021128 and SW121128 should have been cleaned before reported.

The spectra for the detected 2-Butanone in sample MW091127 should have been cleaned before reported.

It should be noted that the %RPD for ABN compounds Naphthalene and 2-Methylnaphthalene was greater than 30% in the field duplicate pair SW-02-1128 and SW-12-1128. It is recommended to estimate (J13) the detected results for those compounds in the sample and field duplicate.

It should be noted that the %RPD for 4,4'-DDT was high (58.5%) in the field duplicate pair SW-02-1128 and SW-12-1128. It is recommended to estimate (J13) 4,4'-DDT in the sample and duplicate.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

Volatiles:

TB-1129, TB-1129RE

Use the positive and non-detected results from the original analysis

Pesticides:

MW-01-1128, MW-01-1128DL

Use 4,4'-DDD (rejected) and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SW-03-1128, SW-03-1128DL

Use 4,4'-DDD (rejected) and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SW-02-1128, SW-02-1128DL

Use 4,4'-DDD (rejected) and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SW-12-1128, SW-12-1128DL

Use 4,4'-DDD (rejected) and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	MW1081128 ug/L	MW091127 ug/L	MW011128 ug/L	MW101128 ug/L	MW091128 ug/L
VOA Unknown			X(6)		
ABN Unknown	X(3)	X(2)	XX(8)	XX(7)	X(4)
unk. decanoic acid		XX(10)			
C14H10CL4 isomer			X(5)		
unk. phthalate			XX(7)		
1,1-Dichloro-2,2-bis(p-chlor)			X(3)		

Compound	SW031128 ug/L	MW131128 ug/L	SW021128 ug/L	SW121128 ug/L
VOA Unknown			XX(48)	
ABN Unknown		XX(50)	X(8)	
C14H10CL4 isomer	X(4)		X(21)	X(24)
unk. alkane		XX(45)	XX(44)	
unk. cyclohexane		X(10)		
Decane-trimethyl-isomer		X(8)		
C13H28 isomer		X(7)		
VOA Benzene-ethyldimethyl isomer			X(30)	XX(218)
ABN Benzene-ethyldimethyl isomer			X(11)	XX(25)
Benzene-trimethyl isomer			XX(28)	XX(31)
Benzene-tetramethyl isomer				X(45)
C10H8 isomer				X(100)
C10H12 isomer			X(140)	
VOA C10H14 isomer			XX(79)	XX(150)
ABNC10H14 isomer			XX(44)	X(15)
Benzene isomer			X(8)	
VOA C11H16 isomer	X(6)		XX(74)	XX(106)
ABN C11H16 isomer			X(8)	
Naphthalene-methyl isomer			X(18)	X(12)
Naphthalene-dimethyl isomer			XX(104)	XX(104)
Benzene-methyl-propyl isomer				X(7)
Benzene-methyl-methylethyl isomer				X(10)
Chlorophenothane	X(7)			
Undecyclohexane		X(8)		
Naphthalene,1,2,3,4-tetrahydro			X(22)	X(28)

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 155787/816 SDG No. ANE787/ANE816 Laboratory Envirotest Lab.

Site Stewart ANG Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 18 aqueous

Data Assessment:

The SDG ANE787/ANE816 contains the following samples for analysis:

Metals/CN: **ANE787** 10 aqueous/TMW-09-1127, TMW-01-1128, TMW-10-1128, TMW-109-1128, TMW-108-1128, DMW-09-1127, DMW-01-1128, DMW-10-1128, DMW-109-1128, DMW-108-1128

ANE816 8 aqueous/TSW-02-1128, TSW-03-1128, TMW-13-1128, TSW-12-1128, DSW-02-1128, DSW-03-1128, DMW-13-1128, DSW-12-1128

Associated QC: TSW-02-1128, TSW-12-1128, DSW-02-1128, DSW-12-1128/Field duplicates

It should be noted that the validator assigned the samples for Total metals analysis the "T" prefix and the samples for dissolved metals analysis the "D" prefix.

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

*	Data Completeness
*	Holding times
	Calibration verification results
*	Blank analysis
*	Interference check standard results
	Matrix spike results
	Duplicate analysis results
	Field duplicate analysis
*	Laboratory control sample results
	Furnace AA results
	ICP serial dilution results
*	Detection limit results
	Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Calibration Verification

ANE 787

The CRDL standard for Silver was over-recovered at 123.7%. Results near the CRDL may be biased high. Estimate (J2) positive Silver results which are less than 4xCRDL of 40 ug/L. Based on this action level, the Silver result for sample TMW09-1127 is estimated.

ANE 816

The CRDL standard for Silver was over-recovered at 121.4%. Results near the CRDL may be biased high. Estimate (J2) positive Silver results which are less than 4xCRDL of 40 ug/L. Based on this action level, the detected Silver results for all samples in ANE816 are estimated.

The 2xCRDL standard for Chromium was under-recovered at 75.5%. Results near the CRDL may be biased low. Estimate positive and non-detected (J2, UJ2) Chromium results which are less than 4xCRDL of 40 ug/L. Based on this action level, the Chromium results for all samples in ANE816 are estimated.

It should be noted that the low standard of 5 ug/L was used for the Lead analysis, instead of the CRDL of 3 ug/L. As the lead CRA standard recovery was within control limits, there is no action.

Blanks

It should be noted that in the ANE787 data report, the vanadium blanks were incorrectly reported on the Form 3s. The validator edited the forms. In the ANE 816 data report, the Form 3 lists the continuing blank CCB6 for Lead at 6.2 ug/L. The validator reviewed the raw data and found that the blank in question was detected below the CRDL at 0.3 ug/L. The validator edited the Form 3.

Matrix Spike Recoveries

ANE 787

Selenium (71.4%) and Zinc (54.2%) were recovered outside of the control limits in the matrix spike performed on total metals sample TMW-09-1127. Due to a possible low bias, all Selenium and Zinc results are estimated (J5, UJ5) for total metals samples in the SDG. Zinc (53.7%) was recovered outside of the control limits in the matrix spike performed on dissolved metals sample DMW-09-1127. Due to a possible low bias, all Zinc results are estimated (J5, UJ5) for dissolved metals samples in the SDG.

ANE 816

Selenium (50.8%), Thallium (58.0%) and Zinc (53.0%) were recovered outside of the control limits in the matrix spike performed on total metals sample TSW-03-1128. Due to a possible low bias, all Selenium, Thallium and Zinc results are estimated (J5, UJ5) for all metals samples in the SDG.

Laboratory Duplicate Analysis

ANE787

Laboratory duplicates were performed for both total and dissolved samples. The %RPD for Zinc (78.7%) in the laboratory duplicate analysis performed on DMW-09-1127 was outside of control limits. It is recommended to estimate (J6) zinc results for the dissolved metals samples.

It should be noted that the vanadium laboratory duplicates were incorrectly reported on the Form 6. The duplicate values were within the CRDL, therefore not requiring the "*" qualifier. The validator removed the "*" qualifier from the Form I's of the associated samples.

ANE816

A laboratory duplicate was performed on sample TSW031128 to be associated with all SDG ANE816 samples. The %RPD for Zinc (72.1%) in the laboratory duplicate analysis performed on TSW-03-1128 was outside of control limits. It is recommended to estimate (J6) zinc results for all SDG samples.

Field Duplicates

The %RPD for Zinc (66.9%) in the field duplicate pair of TSW-02-1128 and TSW-12-1128 was outside of control limits. It is recommended to estimate (J7) all Zinc results for the total metals analysis samples. The %RPD for Zinc (119.1%) in the field duplicate pair of DSW-02-1128 and DSW-12-1128 was outside of control limits. It is recommended to estimate (J7) all Zinc results for the dissolved metals analysis samples.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exceptions:

ANE787

Analyte	Sample ID	Recovery	Action
Selenium	TMW-01-1128	83.3%	J10, UJ10
Thallium	TMW-01-1128	130.5%	U, No Action
Thallium	TMW-10-1128	117.5%	U, No Action
Thallium	TMW-109-1128	125.1%	U, No Action
Thallium	DMW-108-1128	124.9%	U, No Action

ANE816

Analyte	Sample ID	Recovery	Action
Arsenic	DSW-02-1128	119.1%	U, No Action
Selenium	TSW-03-1128	52.2%	J10, UJ10
Selenium	TMW-13-1128	81.4%	J10, UJ10
Selenium	TSW-02-1128	69.1%	J10, UJ10
Selenium	TSW-12-1128	67.5%	J10, UJ10
Selenium	DSW-03-1128	68.6%	J10, UJ10
Selenium	DSW-12-1128	59.1%	J10, UJ10
Selenium	DSW-02-1128	63.0%	J10, UJ10
Thallium	TMW-13-1128	128.4%	U, No Action
Thallium	DMW-13-1128	144.7%	U, No Action

It should be noted that the "W" qualifier was not present for Selenium on the Form I for sample DSW-02-1128. The validator edited the Form I. It should be noted that in the Form 14 for the Lead analysis dated 12/14/95, an analytical spike was not listed in the run for sample TSW-03-1128. The validator reviewed the raw data and found the analytical spike to be present and within control limits. The Form 14 was edited.

ICP Serial Dilution

ANE787

A serial dilution was performed on sample TMW-09-1127. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Potassium (10.3%). As 10XIDL was less than the CRDL, all Potassium results in SDG 787, greater than the CRDL, are estimated (J12).

ANE816

A serial dilution was performed on sample TSW-03-1128. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Barium (37.6%), Copper (72.4%), Potassium (21.9%) and Vanadium (15.3%). As 10XIDL was less than the CRDL in all cases, all Barium, Copper, Potassium and Vanadium results in SDG 816, greater than the CRDL are estimated (J12).

Total and Dissolved Metals comparison

A comparison of the total and dissolved metals results was performed. If the concentration of any dissolved analyte was greater than its total concentration by more than 10%, both were estimated (J17). If the concentration of any dissolved analyte was greater than its total concentration by more than 50%, both were rejected (R17). The following table lists the analytes out of control limits in the sample pairs.

Sample Pair	Analyte	%Greater	Action
TMW108-1128/DMW108-1128	Zinc	43.5%	J17
TMW-01-1128/DMW-01-1128	Zinc	29.8%	J17
TMW-09-1127/DMW-09-1127	Zinc	11.7%	J17
TMW109-1128/DMW109-1128	Manganese	22.8%	J17
	Sodium	10.2%	J17
TSW-12-1128/DSW-12-1128	Zinc	53.0%	R17

Calculation and Transcription Check

A transcription error was found in the Lead results for samples TMW109-1129 and DMW108-1128. Both are undetected, but are reported down to the wrong instrument detection limit. The Form I's were edited. A transcription error was found in the Mercury result for sample TMW-09-1127. The reported result was undetected 0.20 U. However, upon review of the raw data, the validator found that the sample result was detected at 0.23 ug/L. The Form I was edited.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE787/ANE816 Date: 02/13/96 Laboratory Envirotest Lab.
Reviewer's Initials: LAM Number of samples 18 aqueous

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Diss/ Total	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	2	0	0	324	2
Furnace	0	0	0	0	0	72	0
Mercury	0	0	0	0	0	18	0
Cyanide	0	0	0	0	0	18	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	17	0	0	0	16	0
Furnace	0	0	0	0	0	29	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Diss/ total	Serial Dil.	MSA	Total Analytes	Estimation
ICP	16	11	10	7	0	324	77
Furnace	0	0	0	0	0	72	29
Mercury	0	0	0	0	0	18	0
Cyanide	0	0	0	0	0	18	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE787/ANE816 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 18 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	1	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas was less than the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual column analysis %D is between 50 - 90%; compound result is qualified

as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14 Matrix spike not performed for analysis or performed on a field blank. Estimate positive results less than four times the spike level added based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis or was performed on field blank. Estimate positive results greater than the CRDL based on lack of precision data.

J16 ICP serial dilution was not performed or was performed on field blank. Estimate results greater than 10XIDL or greater than the CRDL for which an ISD was not performed.

J17, R17 A comparison of the total and dissolved analytes was performed. If the concentration of any dissolved analyte was greater than its total concentration by more than 10% both were estimated. If the concentration of any dissolved analyte was greater than its total concentration by more than 50% both were rejected.

DATA VALIDATION REPORT

SDG No.: 154598/154678

Site : Stewart ANG, Newburgh NY

DATE: March 5, 1996

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Prepared by:

GC/MS Section prepared by:

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 154598/678 SDG No. 598/678 Laboratory Envirotest Lab. Site Stewart ANG

Data Assessment:

The SDG 154598/678 contains the following samples for analysis:

Volatiles: 4 soil/MW-02-17, MW-02-31, MW-03-22, MW-03-32
2/aqueous/TRIP BLK01, TRIP BLK02

Semi-volatiles: 4 soil/MW-02-17, MW-02-31, MW-03-22, MW-03-32

Pesticides/PCBs: 4 soil/MW-02-17, MW-02-31, MW-03-22, MW-03-32

The current Functional Guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data reviewer: GC/MS by Elissa McDonagh Date: 03/05/96

Data reviewer: Pest/PCB by Lorie MacKinnon Date: 03/05/96

Verified By: Lorie MacKinnon Date: 03/05/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

The following analytes in the samples shown were qualified because of holding time: **All samples were extracted and analyzed within the required holding times.**

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

The VOA, ABN and PEST laboratory method blanks and instrument blanks contained the following maximum quantities of contaminants:

PEST BLK03 - Associated samples: MW-02-17 and MW-02-31

Compound	Maximum	Action Level
Heptachlor	0.30 ug/kg	1.5 ug/kg

PEST BLK04 - Associated samples: MW-03-22 and MW-03-32

Compound	Maximum	Action Level
Heptachlor	0.37 ug/kg	1.85 ug/kg
4,4'-DDD	1.2 ug/kg	6.0 ug/kg
4,4'-DDT	2.0 ug/kg	10 ug/kg

Associated samples: All SEMI and VOA samples in SDG

Compound	Maximum	Action Level
Methylene Chloride	2 ug/kg	20 ug/kg
Acetone	17 ug/kg	170 ug/kg
Xylenes	1 ug/kg	5 ug/kg
di-n-butyl phthalate	44 ug/kg	440 ug/kg

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended: Methylene Chloride in samples MW-02-17 and MW-03-22, Acetone in samples MW-03-22

and MW-03-32, Xylenes in samples MW-02-17, MW-02-31 and MW-03-32, di-n-butyl phthalate in samples MW-02-17, MW-02-31, MW-03-22 and MW-03-32 and Heptachlor in samples MW-03-22, MW-03-32 and MW-02-31 should be reported as the CRQL followed by a "U5". Acetone in samples MW-02-17 and MW-02-31 and 4,4'-DDD and 4,4'-DDT in sample MW-03-32 should be reported as the CRQL followed by a "U6"(i.e., the CRQL has been raised and the value is considered to be non-detected).

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample)

It should be noted that there are no field or rinse blanks associated with the samples in the SDG.

C. Trip blank contamination:

No compounds were detected.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor:

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/04/95)	CC (11/02/95)	CC (11/08/95)
3-Nitroaniline		+	
4-Nitrophenol			+
Associated samples:	All listed	MW-02-17 MW-02-31	MW-02-17DL MW-03-22 MW-03-32

+ - RF < 0.05; Estimate positive results (J2) and reject non-detects (R2) in the associated samples.

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

ABN instrument "5972-1", initial calibration 10/04/95:

COMPOUND	IC (10/04/95)	CC (11/02/95)	CC (11/08/95)
2,2'-oxybis-(1-chloropropane)			X
4-Cloroaniline		X	X
Hexachlorocyclopentadiene			X
2-Nitroaniline		X	X
3-Nitroaniline	X	X	
2,4-Dinitrophenol	X		X
4,6-Dinitro-2-methylphenol			X
Carbazole		X	
Pentachlorophenol	X		
3,3'-Dichlorobenzidine		X	
Di-n-octylphthalate		X	
Associated samples:	All listed	MW-02-17 MW-02-31	MW-02-17DL MW-03-22 MW-03-32

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

Compound	Standard/Time	%RPD	Column	Associated Samples
alpha-BHC	PEM01 11/15 11:32	30.0	DB-5	All samples
beta-BHC	PEM01 11/15 11:32	40.0	DB-5	All samples
Endrin	PEM01 11/15 11:32	34.0	DB-5	All samples
4,4'-DDT	PEM01 11/15 11:32	41.0	DB-5	All samples
Methoxychlor	PEM01 11/15 11:32	44.0	DB-5	All samples
beta-BHC	PEM02 11/15 20:11	30.0	DB-5	All samples
alpha-BHC	PEM01 11/15 11:32	30.0	DB-17	All samples
Endrin	PEM01 11/15 11:32	32.0	DB-17	All samples
4,4'-DDT	PEM01 11/15 11:32	39.0	DB-17	All samples
Methoxychlor	PEM01 11/15 11:32	44.0	DB-17	All samples

Therefore, all non-detected and positive alpha-BHC, beta-BHC, Endrin, 4,4'-DDT and Methoxychlor results are estimated (J20, UJ20).

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery: **All surrogate recoveries were within validation guidelines.**

It should be noted that the incorrect percent recovery information appears on the raw data for the pesticide soil fractions. Recoveries were double those listed on the Form II's. No action is taken.

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance: **All internal standard criteria were met.**

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification: **No compounds were qualified due to compound identification.**

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

MW-02-17 - 4,4'-DDE (63.6%, JN25), 4,4'-DDD (87.5%, JN25 Over-calibrated), 4,4'-DDT (42.9%, J25 over-calibrated), alpha-chlordane (68.8%, JN25).

MW-02-17DL 4,4'-DDD (57.3%, JN25)

MW-02-31 - 4,4'-DDE (212.5%, R25), 4,4'-DDD (58.3%, JN25)

MW-03-22 - 4,4'-DDE (237.8%, R25), 4,4'-DDD (100.0%, R25), 4,4'-DDT (28.8%, J25)

MW-03-32 - 4,4'-DDD (48.8%, J25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD:

There was insufficient sample to prepare an ABN matrix spike/matrix spike duplicate. Therefore, the MS/MSD was prepared using laboratory reagent. The %RPD for ABN matrix spike compound 1.2.4-Trichlorobenzene was greater than the CRR. No action is recommended.

It should be noted that the PEST MS/MSD was performed as batch QC. Gamma-BHC (42%) was outside of recovery limits in the MS and the %RPDs for gamma-BHC (72%), Heptachlor ((70%), Aldrin ((70%), Dieldrin (75%), Endrin (69%) and 4,4'-DDT (76%) were outside of control limits. There is no action taken as validation actions affect the native sample only.

It should be noted that the PEST samples were extracted on 10/23 and 10/26 without an associated blank spike. The blank spike submitted in the package was extracted on 10/20. No action is recommended.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality. The m/z ion 58 was used to quantitate acetone (the SOP requests the 43 ion to be used for quantitation).

The Tentatively Identified Compound forms (1E and 1F) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

It should be noted that in the PEST analytical sequence, there are 13 hours between the analysis of the instrument blanks and standards. No action is recommended.

It should be noted that the unknown for TRIP BLK02 is not present and should not be reported.

It should be noted that there were no field duplicates associated with this SDG.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

ABN:

MW-02-17, MW-02-17DL

Use the positive results for the compounds Naphthalene and 2-Methylnaphthalene from the diluted analysis.

Use all other positive and non-detected results from the original analysis.

Pesticides:

MW-02-17, MW-02-17DL

Use 4,4'-DDD and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	MW-02-17 ug/kg	MW-02-31 ug/kg
VOA Unknown	XX(1050)	XX(19)
ABN Unknown	XX(7520)	
unknown alkane	X(820)	
Benzene,-trimethyl isomer	XX(1880)	
ethyldimethyl benzene isomer	X(440)	
Tetramethyl benzene isomer	XX(640)	
VOA C10H12 isomer	XX(1640)	X(6)
ABN C10H12 isomer	X(1580)	
VOA C11H14 isomer	X(210)	
ABN C11H14 isomer	X(700)	
C11H10 isomer	X(300)	
VOA C11H16 isomer	XX(720)	
ABN C11H16 isomer	X(780)	
unknown hydrocarbon	X(480)	
VOA Naphthalene,-methyl isomer		XX(16)
ABN Naphthalene,-methyl isomer	X(1420)	
Naphthalene,-dimethyl isomer	XX(1040)	
DDT isomer	X(6000)	
Tetradecane	X(540)	
1,1-Dichloro-2,2-bis(p-chlor)	X(9200)	

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 154598/678 SDG No. ANE290/678 Laboratory Envirotest Lab. Site Stewart ANG

Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 4 Soil

Data Assessment:

The SDG 154598/154678 contains the following samples for analysis:

Metals/CN: 4 soil/SDG ANE290 MW-02-17, MW-02-31, SDG NYG678 MW-03-22, MW-03-32

TOC: 4 soil/MW-02-17, MW-02-31, MW-03-22, MW-03-32

It should be noted that there are no field duplicates or field blanks associated with the samples in this SDG.

The current Functional Guidelines for evaluating inorganic data have been applied.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

* • Data Completeness
* • Holding times
• Calibration verification results
* • Blank analysis
* • Interference check standard results
• Matrix spike results
* • Duplicate analysis results

NA	•	Field duplicate analysis
*	•	Laboratory control sample results
	•	Furnace AA results
	•	ICP serial dilution results
	•	Detection limit results
*	•	Calculation and transcription checks

* - all criteria were met for this parameter.

NA - Not applicable.

Validation actions were taken based on the following information:

Calibration Verification

ANE 290

The 2xCRDL standard for Antimony was under-recovered at 77.3%. Results near the CRDL may be biased low. Estimate positive and non-detected (J2, UJ2) Antimony results which are less than 4xCRDL of 48 mg/kg or 240 ug/L. Based on this action level, Antimony results for samples MW-02-17 and MW-02-31 are estimated.

The CRA standard for Lead was over-recovered at 123.7%. Results near the CRDL may be biased high. Estimate (J2) positive Lead results which are less than 2xCRDL of 1.2 mg/kg or 6 ug/L. However, as the sample lead results are greater than this level, there is no action.

NYG678

The 2xCRDL standard for Chromium was over-recovered at 136.2%. Results near the CRDL may be biased high. Estimate positive (J2) Chromium results which are less than 4xCRDL of 8 mg/kg. Based on this action level, no actions are taken.

The CRA standard for Selenium was over-recovered at 143.4%. Results near the CRDL may be biased high. Estimate (J2) positive Selenium results which are less than 2xCRDL of 2.0 mg/kg. However, as the sample Selenium results were undetected, there is no action.

It should be noted that the low standard of 5 ug/L was used for the Lead calibration, instead of the CRDL of 3 ug/L. As all lead results are greater than 5X the CRDL, there is no action.

Matrix Spike Recoveries

ANE290

Antimony (50.2%), Lead (133.9%) and Thallium (52.3%) were recovered outside of the control limits in the matrix spike performed on sample SB-05-02. Due to

a possible low bias, all Antimony and Thallium results are estimated (J5, UJ5). Due to a possible high bias, all positive Lead results are estimated (J5).

NYG678

Antimony (50.5%), Selenium (64.5%), Manganese (169.8%) and Thallium (66.3%) were recovered outside of the control limits in the matrix spike performed on sample MW-03-22. Due to a possible low bias, all Antimony, Selenium and Thallium results are estimated (J5, UJ5). Due to a possible high bias, all positive Manganese results are estimated (J5).

Laboratory Duplicate Analysis

It should be noted that the Lead results for SDG NYG678 were found with the "*" qualifier, indicating poor duplicate precision. The %RPD was found to be below 20%. The validator therefore removed the "*" qualifiers from the Lead results.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exception:

Analyte	Sample ID	Recovery	Action
Selenium	MW0332	80.8%	J10, UJ10
Thallium	MW0217	81.6%	J10, UJ10
Thallium	MW0231	77.7%	J10, UJ10
Thallium	MW0322	80.3%	J10, UJ10
Thallium	MW0332	73.9%	J10, UJ10

ICP Serial Dilution

ANE290

A serial dilution was performed on sample SB-05-02. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Potassium (24.5%) and Zinc (19.6%). As 10XIDL was less than the CRDL in all cases, all Potassium and Zinc results greater than the CRDL are estimated (J12). Based on the sample levels, the Zinc results for the SDG samples and the Potassium result for sample MW-02-31 are estimated.

NYG678

A serial dilution was performed on sample MW-03-22. For initial

concentrations greater than 10XIDL, the following %Ds were greater than 10% : Potassium (25.5%). As 10XIDL was less than the CRDL, all Potassium results greater than the CRDL are estimated (J12). Based on the sample levels, there are no actions.

Detection Limit Results

It should be noted that ICP sample MW-02-31 was diluted (2X) as the Iron level exceeded the calibration range. The diluted results for all ICP analytes were reported, thus elevating the instrument detection limits (IDL) for all ICP analytes for the samples. A prescan was performed with the samples undiluted, however the laboratory did not submit it in the data package according to the SOW. No action is taken, as the non-detected results were less than the CRDL in all cases.

It should be noted that the Selenium and Thallium results for samples MW-02-17 and MW-02-31 were reported down to the wrong instrument detection limits. The raw data and Form 10s were reviewed the Form I results were edited.

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: 154598/678 Date: 03/05/96 Laboratory Envirotest Lab.
Reviewer's Initials: LAM Number of samples 4 soil

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	0	0	0	72	0
Furnace	0	0	0	0	0	16	0
Mercury	0	0	0	0	0	4	0
Cyanide	0	0	0	0	0	4	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibr ation	Prep blank	Field blank	Inter- ference	Spike Rec.	LCS
ICP	0	2	0	0	0	6	0
Furnace	0	0	0	0	0	13	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Det. Limit	Serial Dil.	MSA	Total Analytes	Estimation
ICP	0	0	0	3	0	72	11
Furnace	0	0	0	0	0	16	13
Mercury	0	0	0	0	0	4	0
Cyanide	0	0	0	0	0	4	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. 154678/154678 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 4 SOIL

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	1	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas was less than the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual column analysis %D is between 50 - 90%; compound result is qualified

as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14, UJ14 Matrix spike not performed for analysis. Estimate results (J14, UJ14) based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis. Estimate positive results (J18) greater than the CRDL based on lack of precision data.

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
Chloromethane	10	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U	11 U
Methylene Chloride	10	11 U5	25	11 U	11 U5
Acetone	10	13 U6	17 U6	11 U5	11 U5
Carbon Disulfide	10	1	11 U	11 U	1
1,1-Dichloroethene	10	11 U	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	11 U	11 U	11 U
Chloroform	10	11 U	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	11 U	11 U	11 U
2-Butanone	10	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	11 U	11 U	11 U
Bromodichloromethane	10	11 U	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U
Trichloroethene	10	11 U	11 U	11 U	11 U
Dibromochloromethane	10	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	11 U	11 U	11 U
Benzene	10	11 U	11 U	11 U	1
trans-1,3-Dichloropropene	10	11 U	11 U	11 U	11 U
Bromoform	10	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	11 U	11 U	11 U
Tetrachloroethene	10	11 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	11 U	11 U	11 U	11 U
Toluene	10	11 U	11 U	11 U	1
Chlorobenzene	10	3	11 U	11 U	11 U
Ethylbenzene	10	4	11 U	11 U	11 U
Styrene	10	11 U	11 U	11 U	11 U
Total Xylenes	10	11 U5	11 U5	11 U	11 U5
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC.

VOLATILE AQUEOUS ANALYSIS
(UG/L)

SAMPLE NUMBER:		154598-01	154678-03
SAMPLE LOCATION:		TRIP BLK01	TRIP BLK02
COMPOUND	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	10 U	10 U
Acetone	10	10 U	10 U
Carbon Disulfide	10	10 U	10 U
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	10 U
Carbon Tetrachloride	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	10 U	10 U
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	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
bis(2-Chloroethyl)ether	330	370 U	380 U	360 U	360 U
Phenol	330	370 U	380 U	360 U	360 U
2-Chlorophenol	330	370 U	380 U	360 U	360 U
1,3-Dichlorobenzene	330	370 U	380 U	360 U	360 U
1,4-Dichlorobenzene	330	370 U	380 U	360 U	360 U
1,2-Dichlorobenzene	330	370 U	380 U	360 U	360 U
2,2-Oxybis(1-chloropropane)	330	370 U	380 U	360 UJ4	360 UJ4
2-Methylphenol	330	370 U	380 U	360 U	360 U
Hexachloroethane	330	370 U	380 U	360 U	360 U
N-Nitroso-di-n-propylamine	330	370 U	380 U	360 U	360 U
4-Methylphenol	330	370 U	380 U	360 U	360 U
Nitrobenzene	330	370 U	380 U	360 U	360 U
Isophorone	330	370 U	380 U	360 U	360 U
2-Nitrophenol	330	370 U	380 U	360 U	360 U
2,4-Dimethylphenol	330	370 U	380 U	360 U	360 U
bis(2-Chloroethoxy)methane	330	370 U	380 U	360 U	360 U
2,4-Dichlorophenol	330	280	380 U	360 U	360 U
1,2,4-Trichlorobenzene	330	370 U	380 U	360 U	360 U
Naphthalene	330	4300	45	360 U	360 U
4-Chloroaniline	330	370 UJ4	380 UJ4	360 UJ4	360 UJ4
Hexachlorobutadiene	330	370 U	380 U	360 U	360 U
4-Chloro-3-Methylphenol	330	370 U	380 U	360 U	360 U
2-Methylnaphthalene	330	3800	39	360 U	360 U
Hexachlorocyclopentadiene	330	370 U	380 U	360 UJ4	360 UJ4
2,4,6-Trichlorophenol	330	370 U	380 U	360 U	360 U
2,4,5-Trichlorophenol	800	930 U	960 U	900 U	900 U
2-Chloronaphthalene	330	370 U	380 U	360 U	360 U
2-Nitroaniline	800	930 UJ4	960 UJ4	900 UJ4	900 UJ4
Acenaphthylene	330	370 U	380 U	360 U	360 U
Dimethylphthalate	330	370 U	380 U	360 U	360 U
2,6-Dinitrotoluene	330	370 U	380 U	360 U	360 U
Acenaphthene	330	370 U	380 U	360 U	360 U
3-Nitroaniline	800	930 R2	960 R2	900 UJ4	900 UJ4
2,4-Dinitrophenol	800	930 UJ4	960 UJ4	900 UJ4	900 UJ4

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC

SEMIVOLATILE SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
Dibenzofuran	330	370 U	380 U	360 U	360 U
2,4-Dinitrotoluene	330	370 U	380 U	360 U	360 U
4-Nitrophenol	800	930 U	960 U	900 R2	900 R2
Fluorene	330	370 U	380 U	360 U	360 U
4-Chlorophenyl-Phenylether	330	370 U	380 U	360 U	360 U
Diethylphthalate	330	370 U	380 U	360 U	360 U
4-Nitroaniline	800	930 U	960 U	900 U	900 U
4,6-Dinitro-2-Methylphenol	800	930 U	960 U	900 UJ4	900 UJ4
N-nitrosodiphenylamine(1)	330	370 U	380 U	360 U	360 U
4-Bromophenyl-Phenylether	330	370 U	380 U	360 U	360 U
Hexachlorobenzene	330	370 U	380 U	360 U	360 U
Pentachlorophenol	800	930 UJ4	960 UJ4	900 UJ4	900 UJ4
Phenanthrene	330	79	380 U	360 U	360 U
Anthracene	330	370 U	380 U	360 U	360 U
Carbazole	330	370 UJ4	380 UJ4	360 U	360 U
Di-n-butylphthalate	330	370 U5	380 U5	360 U5	360 U5
Fluoranthene	330	370 U	380 U	360 U	360 U
Pyrene	330	370 U	380 U	360 U	360 U
Butylbenzylphthalate	330	370 U	380 U	360 U	360 U
3,3'-Dichlorobenzidine	330	370 UJ4	380 UJ4	360 U	360 U
Benzo(a)anthracene	330	370 U	380 U	360 U	360 U
Chrysene	330	370 U	380 U	360 U	360 U
Bis(2-ethylhexyl)phthalate	330	370 U	51	72	360 U
Di-n-octylphthalate	330	370 UJ4	380 UJ4	360 U	360 U
Benzo(b)fluoranthene	330	370 U	380 U	360 U	360 U
Benzo(k)fluoranthene	330	370 U	380 U	360 U	360 U
Benzo(a)pyrene	330	370 U	380 U	360 U	360 U
Indeno(1,2,3-cd)pyrene	330	370 U	380 U	360 U	360 U
Dibenz(a,h)anthracene	330	370 U	380 U	360 U	360 U
Benzo(g,h,i)perylene	330	370 U	380 U	360 U	360 U
DILUTION FACTOR:		1	1	1	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES INC.

PESTICIDE/PCB SOIL ANALYSIS
(ug/kg)

SAMPLE NUMBER:		154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:		MW-02-17	MW-02-31	MW-03-22	MW-03-32
COMPOUND	CRQL				
alpha-BHC	1.7	93 UJ20	1.9 UJ20	1.8 UJ20	1.8 UJ20
beta-BHC	1.7	93 UJ20	1.9 UJ20	1.8 UJ20	1.8 UJ20
delta-BHC	1.7	93 U	1.9 U	1.8 U	1.8 U
gamma-BHC(Lindane)	1.7	93 U	1.9 U	1.8 U	1.8 U
Heptachlor	1.7	93 U	1.9 U5	1.8 U5	1.8 U5
Aldrin	1.7	93 U	1.9 U	1.8 U	1.8 U
Heptachlor Epoxide	1.7	93 U	1.9 U	1.8 U	1.8 U
Endosulfan I	1.7	93 U	1.9 U	1.8 U	1.8 U
Dieldrin	3.3	190 U	3.8 U	3.6 U	3.6 U
4,4'-DDE	3.3	110 JN25	0.32 R25	0.74 R25	3.6 U
Endrin	3.3	190 UJ20	3.8 UJ20	3.6 UJ20	3.6 UJ20
Endosulfan II	3.3	190 U	3.8 U	3.6 U	3.6 U
4,4'-DDD	3.3	8900 JN25	24 JN25	21 R25	4.1 U6
Endofulfan Sulfate	3.3	190 U	3.8 U	3.6 U	3.6 U
4,4'-DDT	3.3	9400 J20	40 J20	59 J20, 25	9.9 U6, UJ20
Methoxychlor	17	930 UJ20	19 UJ20	18 UJ20	18 UJ20
Endrin Ketone	3.3	190 U	3.8 U	3.6 U	3.6 U
Endrin Aldehyde	3.3	190 U	3.8 U	3.6 U	3.6 U
alpha-Chlordane	1.7	16 JN25	1.9 U	1.8 U	1.8 U
gamma-Chlordane	1.7	63	1.9 U	1.8 U	1.8 U
Toxaphene	170	9300 U	190 U	180 U	180 U
Aroclor-1016	33	1900 U	38 U	36 U	36 U
Aroclor-1221	67	3700 U	77 U	72 U	72 U
Aroclor-1232	33	1900 U	38 U	36 U	36 U
Aroclor-1242	33	1900 U	38 U	36 U	36 U
Aroclor-1248	33	1900 U	38 U	36 U	36 U
Aroclor-1254	33	1900 U	38 U	36 U	36 U
Aroclor-1260	33	1900 U	38 U	36 U	36 U
DILUTION FACTOR:		50	1	1	1

SITE: STEWART ANG BASE
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC.

INORGANIC SOIL ANALYSIS
(mg/kg)

SAMPLE NUMBER:			154598-01	154598-02	154678-01	154678-02	
SAMPLE LOCATION:			MW0217	MW0231	MW0322	MW0332	
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS mg/kg					CONTRACT DETECTION LIMITS (mg/kg)
Aluminum	P	3.48	7520	12500	7250	9380	40
Antimony	P	4.22	4.7 UJ2, 5	9.7 UJ2, 5	4.5 UJ5	5.0 J5	12
Arsenic	F	0.22	4	5.1	3.9	6.1	2
Barium	P	0.14	17.2	82.9	24.7	40.9	40
Beryllium	P	0.22	0.24 U	0.5 U	0.55	0.61	1
Cadmium	P	0.48	0.53 U	1.1 U	0.52 U	0.52 U	1
Calcium	P	2.06	23400	24300	21500	29900	1000
Chromium	P	1.86	11.6	20.7	10.4	12.2	2
Cobalt	P	1.28	7.5	11.9	7.3	8.6	10
Copper	P	0.48	18.2	28.4	16.9	18.5	5
Iron	P	1.04	16600	25900	16400	18600	20
Lead	F	0.1	7.7 J5	17.6 J5	10.1	9.8	0.6
Magnesium	P	2.8	5810	6930	4270	5460	1000
Manganese	P	0.18	466	667	377 J5	498 J5	3
Mercury	CV	0.04	0.04 U	0.04 U	0.04 U	0.04 U	0.1
Nickel	P	2.54	15.8	23.9	15.7	17.2	8
Potassium	P	12.1	622	1210 J12	590	1020	1000
Selenium	F	0.28	0.31 U	0.32 U	0.3 UJ5	0.3 UJ5, 10	1
Silver	P	0.38	0.42 U	0.87 U	0.42	0.41 U	2
Sodium	P	4.56	40.6	49.8	14.5	30.4	1000
Thallium	F	0.22	0.24 UJ5, 10	0.25 UJ5, 10	0.53 J5, 10	0.26 J5, 10	2
Vanadium	P	0.62	8	13.7	9	11.5	10
Zinc	P	0.3	40.6 J12	79.2 J12	45.2	46.9	4
Cyanide	C	1.0	1.1 U	1.1 U	1.1 U	1.1 U	0.5

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
M - MICROWAVE DIGESTION
AV - AUTOMATED COLD VAPOR AA

J, UJ - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
U - VALUE IS NON-DETECTED AT INSTRUMENT DETECTION LIMIT

SITE: STEWART ANG
SDG: 154598/154678
LABORATORY: ENVIROTEST LABORATORIES, INC

TOC ANALYSIS

SAMPLE NUMBER:	154598-01	154598-02	154678-01	154678-02
SAMPLE LOCATION:	MW0217	MW0231	MW0322	MW0332
TOC	0.65%	0.83%	0.67%	0.75%

DATA VALIDATION REPORT

SDG No.: AC177/159177

Site : Stewart ANG, Newburgh NY

DATE: May 7, 1996

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Prepared by:

GC/MS Section prepared by:

HM for Elissa McDonagh

Elissa McDonagh

Inorganic and Pesticide/PCB Section prepared by:

Lori MacKinnon

Lorie MacKinnon

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No.159177 SDG No. AC177 Laboratory Envirotest Lab. Site Stewart ANG
Data Assessment:

The SDG AC177/159177 contains the following samples for analysis:

Volatiles:	10 aqueous/MW-01-0320, SW-02-0320, MW-13-0320, SW-12-0320, SW-03-0321, JMW-109-0321, MW-09-0321, MW-10-0321, JMW-108-0321, TB-01
Semi-volatiles:	9 aqueous/MW-01-0320, SW-02-0320, MW-13-0320, SW-12-0320, SW-03-0321, JMW-109-0321, MW-09-0321, MW-10-0321, JMW-108-0321
Pesticides/PCBs:	9 aqueous/MW-01-0320, SW-02-0320, MW-13-0320, SW-12-0320, SW-03-0321, JMW-109-0321, MW-09-0321, MW-10-0321, JMW-108-0321
Associated QC:	SW-02-0320, SW-12-0320/Field duplicates MW-13-0320 MS/MSD

The validation was performed according to the CLP Organics Data Review and Preliminary Review, Standard Operating Procedure Number HW-5, Revision 8, dated January 1992.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action detailed on the attached sheets. Spreadsheets containing the validated sample results are found at the end of the report.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present of not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data reviewer: GC/MS by Elissa McDonagh Date: 05/07/96

Data reviewer: Pest/PCB by Lorie MacKinnon Date: 05/07/96

Verified By: Lorie MacKinnon Date: 05/07/96

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or "R", if the holding times are grossly exceeded.

All holding times were met.

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during the sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than five times the blank contaminant level (ten times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

Blank Actions

- Value < CRQL; report CRQL followed by "U" (U5).
- Value > CRQL and < action level; report value followed by "U" (U6).
- Value > CRQL and > action level; report value unqualified.

A. Method blank contamination:

The VOA, ABN and PEST laboratory method blanks and instrument blanks contained the following maximum quantities of contaminants:

Associated samples: All aqueous in SDG

Compound	Maximum	Action Level
bis(2-ethylhexyl)phthalate	19 ug/L	190 ug/L

The action level value was compared to the sample values after application of the sample dilution factors and the following actions are recommended: Bis(2-ethylhexyl)phthalate in samples SW-02-0320, MW-130320, SW-12-0320, SW-03-0321, JMW-109-0321, MW-09-0321, MW-10-0321 and JMW-108-0321 should be reported as the CRQL followed by a "U5". Bis(2-ethylhexyl)phthalate in sample MW-01-0320 should be reported as the CRQL followed by a "U6"(i.e., the CRQL has been raised and the value is considered to be non-detected).

In addition to the TCL compounds, TIC compounds were noted in the ABN laboratory method blanks. The RT of the blank TICs were compared to the RTs of the TICs found in the associated samples, and where similarities were found, the sample TIC result was flagged with a J30 in the TIC table if the concentration of the compound was greater than 5 times the amount of the concentration in the blank and rejected (R30) on the form 1F if the concentration of the compound was less than 5 times the amount of the concentration in the blank.

B. Field or rinse blank contamination ("water blanks" or "distilled water blanks " are validated like any other sample)

It should be noted that there were no field/rinse/equipment blanks

associated with the aqueous samples.

C. Trip blank contamination:

The trip blank sample was non-detected for all compounds.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning: **All tuning criteria were met.**

DATA ASSESSMENT

4. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A. RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/ABN Target Compound List (TCL) must be >/- 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All nondetects for those compounds will be rejected, "R". The following analytes in the samples shown were qualified because of response factor: **None were qualified due to response factor.**

DATA ASSESSMENT

5. CALIBRATION

A. PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and the %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J"; and non-detects are flagged "UJ". If the %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD of the initial calibration exceeds 20% for all analytes except to the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If the %RPD of the continuing calibration check is greater than 25%, positive and non-detected results are estimated "J, UJ".

The following analytes in the samples shown were qualified for %RSD, %D or %RPD:

VOA instrument "MSD", initial calibration 2/29/96:

COMPOUND	IC (2/29/96)	CC (03/26/96)
Acetone		X
Associated samples:	All listed	MW-01-0320, SW-02-0320, MW-130320, SW-12-0320, SW-03-0321, JMW-109-0321, MW-09-0321, MW-110-0321, JMW-108-0321, TB01

ABN instrument "5972-1", initial calibration 02/23/96:

COMPOUND	IC (02/23/96)	CC (03/27/96)	CC 03/29/96
4-Methylphenol			X
4-Chloroaniline		X	
4-Chloro-3-methylphenol			X
2-Nitroaniline		X	X
3-Nitroaniline	X	X	X
2.4-Dinitrophenol		X	X
4-Nitrophenol		X	X
4-Nitroaniline		X	

ABN instrument "5972-1", initial calibration 02/23/96:

COMPOUND	IC (02/23/96)	CC (03/27/96)	CC 03/29/96
4,6-Dinitro-2-methylphenol		X	X
Pentachlorophenol		X	
Carbazole		X	X
Associated samples:	All listed	MW-01-0320, SW-02-0320, JMW-109-0321 MW-130320, SW-12-0320, SW-03-0321, MW-09-0321, MW-10-0321, JMW-108-0321,	

X - %RSD > 30% or %D > 25%; Estimate (J4) positive and non-detected (UJ4) results in the associated samples.

DATA ASSESSMENT

6. SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery:

The VOA surrogates Toluene-d8, Bromofluorobenzene and 1,2-Dichloroethane were over-recovered in sample MW-130320MS. The VOA surrogate Toluene-d8 was over-recovered in sample MW-130320MSD. Matrix interference is suspected. No action is required.

The PEST surrogates TCX and DCB were recovered outside of the control limits of 60 - 150% in the following samples:

Sample	TCX(DB-5)	TCX(DB-17)	DCB(DB-5)	DCB(DB-17)
MW-01-0320	42%	41%	50%	50%
MW-10-0321	42%	41%	50%	43%
MW130320	46%	49%	50%	47%
SW-02-0320	28%	25%	(60%)	55%

It is recommended to estimate positive and non-detected results (J8, UJ8) for those samples.

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of two (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects as "UJ" only id IS area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of the associated area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance: **All internal standard criteria were met.**

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A. VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within +/- 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification: **No compounds were qualified due to compound identification.**

B. PESTICIDE FRACTIONS

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be </= 25%. The following analytes in the samples shown were qualified because of compound identification:

It should be noted that 4, 4'-DDD had a %D >90% in some samples. Based on validation protocol, a compound with a dual column %D greater than 90% should be rejected. However, upon review of the sample chromatograms, it appears that there is a interferant peak present which is slightly resolved on the DB-05 column. The laboratory is able to integrate and report the peaks separately, although due to the compression of the chromatogram, the validator was not able to check the accuracy of the integration. On the DB-17 column, however, it appears that the 4,4'-DDD and interferant peak co-elute and the two compounds are reported as 4,4'-DDD. Due to the discrepancy, the %D is high. The results with high %D are estimated as presumptively present at an approximated quantity (JN25) as the percent difference is due to the interferant area included in the DB-17 result.

It should be noted that both the 4,4'-DDD peak and interferant peak are within the DDD retention time window. At the request of the client, the laboratory performed an extra matrix spike consisting of 4,4'-DDD to confirm which peak was 4,4'-DDD.

MW-01-0320DL	4,4'-DDE (36.4%, J25)
SW-02-0320DL	4,4'-DDD (144.4%, JN25) There is peak co-elution on DB-17 column.
SW-12-0320DL	4,4'-DDD (85.6%, JN25)

SW-03-0321	4,4'-DDD (71.4%, JN25)
JMW-109-0321	4,4'-DDT (36.4%, J25)
MW-09-0321	4,4'-DDD (36.8%, J25)
JMW-108-0321	4,4'-DDT (38.5%, J25) 4,4'-DDD (166.7, JN25)

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. The following analytes, for the samples shown, were qualified because of the MS/MSD: **All recoveries were found to be within control limits.**

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

VOLATILES: It should be noted that the laboratory reference spectra for Acetone was of poor quality.

The Tentatively Identified Compound forms (1E and 1F) did not include the "JN" qualifier.

The response factors are not shown on the quantitation reports.

The spectra for the detected Chloromethane in sample MW-09-0321 should have been cleaned before reported.

The validator changed one of the VOA tentatively identified compounds (form 1E) reported for sample SW-02-0320 and SW-12-0320.

The validator changed some of the ABN tentatively identified compounds (form 1F) reported for samples MW-01-0320, MW130320, SW-02-0320 and SW-12-0320.

The ABN sample prep and analysis summary form incorrectly listed the date of analysis for sample JMW-109-0321 as 03/27/96. The correct analysis date is 03/29/96.

It should be noted that the %RPDs for 4,4'-DDE (51.4%), 4,4'-DDD (73.2%) and 4,4'-DDT (82.8%) were high (58.5%) in the field duplicate pair SW-02-0320 and SW-12-0320. It is recommended to estimate (J13) 4,4'-DDT, 4,4'-DDE and 4,4'-DDD in the sample and duplicate.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT: Overall system performance was good.

12. CONTRACTUAL NON-COMPLIANCE: None

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QC results, the following form I(s) and/or compounds are identified to be used:

Pesticides:

MW-01-0320, MW-01-0320DL

Use 4,4'-DDD and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SW-02-0320, SW-02-0320DL

Use 4,4'-DDD and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

SW-12-0320, SW-12-0320DL

Use 4,4'-DDD and 4,4'-DDT result from diluted analysis.
Use all other detected and non-detected results from the original analysis.

DATA ASSESSMENT

Tentatively Identified Compounds

Compound	MW01320 ug/L	SW02-0320 ug/L	MW-130320 ug/L	SW12-0320 ug/L	JMW109 ug/L
VOA Unknown		X(330)		X(61)	
ABN Unknown		XX(30)	X(2)	XX(36)	
unknown amide	X(5)				X(3)
unknown phthalate	X(3)				
unknown hydrocarbon			X(2)		
unknown alkane			XX(7)		
VOA C10H14 isomer		XX(183)		XX(477)	
ABN C10H14 isomer		XX(86)		XX(89)	
VOA C11H16 isomer		XX(199)		XX(144)	
ABN C11H16 isomer		X(16)		XX(29)	
VOA C10H12 isomer		X(68)			
ABN C10H12 isomer		X(10)		X(14)	
VOA C10H8 isomer		X(86)		X(81)	
VOA C11H14 isomer		X(44)		X(38)	
VOA C11H10 isomer		X(84)		X(95)	
C12H12 isomer		X(68)		X(86)	
C14H10CL4 isomer	XX(11)	X(17)		X(16)	
C9H12 isomer		X(23)			
methylnaphthalene isomer		X(41)		X(50)	
Naphthalene,1-ethyl-		X(8)			
Benzene(1,1-dimethylpropyl		X(86)		X(75)	

Compound	MW09-0321 ug/L	MW10-0321 ug/L	JMW-108-0321 ug/L
ABN Unknown	X(3)		X(3)
unknown amide		X(3)	

X - Tentatively Identified Compound (TIC) of this description was found in the sample.

XX - Multiple TICs of this description were found in this sample.

Rejected Tentatively Identified Compounds are not included in this table.

CLP DATA ASSESSMENT

Appendix A.2: Data Assessment Narrative

Case No. 159177 SDG No. ANE177 Laboratory Envirotest Lab.

Site Stewart ANG Contractor Aneptek Reviewer Lorie MacKinnon

Matrix: 18 aqueous

Data Assessment:

The SDG ANE177 contains the following samples for analysis:

Metals/CN:	18 aqueous/TMW-01-0320, TSW-02-0320, TMW-13-0320, TSW-12-0320, TSW-03-0321, TJMW-109-0321, TMW-09-0321, TMW-10-0321, TJMW-108-0321, DMW-01-0320, DSW-02-0320, DMW-13-0320, DSW-12-0320, DSW-03-0321, DJMW-109-0321, DMW-09-0321, DMW-10-0321, DJMW-108-0321 (Cyanide analysis on total "T" samples only)
Associated QC:	TSW-02-0321/TSW-12-0321, DSW-02-0321/DSW-12-0321 Field duplicates TMW-13-0320 and DMW-13-0320 MS/DUP

It should be noted that the laboratory assigned samples TJMW-108-0321 and DMW-108-0321 the shortened Form 1 IDs TJM110 and DJM110.

The validation was performed according to the Evaluation of Metals Data for the Contract Laboratory Program, Standard Operating Procedure Number HW-2, Revision 11, dated January 1992.

2.1 Validation Flags

The following flags have been applied in red by the data validator and must be considered by the data user.

J, UJ - This flag indicates the result qualified as estimated.

R - This flag indicates an unusable value. The rejected data are known to contain significant errors based on documented information and must not be used by the data user.

Usable Data - The results that do not carry "J" or "R" are fully usable.

2.2 The Data Assessment

The inorganic data were evaluated based on the following parameters:

* • Data Completeness
* • Holding times
  • Calibration verification results
* • Blank analysis
* • Interference check standard results
  • Matrix spike results
  • Duplicate analysis results
  • Field duplicate analysis
* • Laboratory control sample results
  • Furnace AA results
  • ICP serial dilution results
* • Detection limit results
* • Calculation and transcription checks

* - all criteria were met for this parameter.

Validation actions were taken based on the following information:

Data Completeness

It should be noted that the Cyanide distillation logbook does not contain a section for the Ph of samples before distillation. No action was taken, as the chain of custody lists the proper preservative.

Calibration Verification

03/27/96 Total analysis

The CRDL standard for Chromium was over-recovered at 121.4%. Results near the CRDL may be biased high. Estimate (J2) positive Chromium results which are less than 4xCRDL of 40 ug/L. As chromium was non-detected, there are no actions.

The CRDL standard for Silver was over-recovered at 132.4% and 147.2%. Results near the CRDL may be biased high. Estimate (J2) positive Silver results which are less than 4xCRDL of 40 ug/L. As silver was non-detected, there are no actions.

03/27/96 Dissolved analysis

The CRDL standard for Silver was over-recovered at 128.6% and 127.6%. Results near the CRDL may be biased high. Estimate (J2) positive Silver results which are less than 4xCRDL of 40 ug/L. As silver was non-detected, there are no actions.

Matrix Spike Recoveries

Selenium (-134.9%) was recovered outside of the control limits in the matrix spike performed on total metals sample TMW-13-0320. Due to a possible low bias, all Selenium results are rejected (R5) for total metals samples in the SDG.

Selenium (56.7%) was recovered outside of the control limits in the matrix spike performed on dissolved metals sample DMW-13-0320. Due to a possible low bias, all Selenium results are estimated (J5, UJ5) for dissolved metals samples in the SDG.

Laboratory Duplicate Analysis

Laboratory duplicates were performed for both total and dissolved samples. The sample and duplicate levels were below five times the CRDL for total Chromium and the difference between the sample and duplicate was greater than the CRDL. Therefore, the total chromium results are estimated (J6, UJ6). The sample and duplicate levels were below five times the CRDL for total Selenium and the difference between the sample and duplicate was greater than the CRDL. The total Selenium results would be estimated (J6, UJ6). However, as the total Selenium results were previously rejected due to matrix spike recoveries, the action is noted only.

Field Duplicates

The %RPDs for Mercury (200%) and Zinc (56.3%) in the field duplicate pair of TSW-02-0321 and TSW-12-0321 was outside of the control limits. It is recommended to estimate (J7, UJ7) all Mercury and Zinc results for the total metals analysis samples.

ICP Serial Dilution

A serial dilution was performed on sample DMW-13-0320. For initial concentrations greater than 10XIDL, the following %Ds were greater than 10% : Zinc (11.4%). As 10XIDL was less than the CRDL, all dissolved Zinc results, greater than the CRDL, are estimated (J12).

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within +/- 20%. Spike recoveries met the 85 - 115% recovery criteria for all samples with the following exceptions:

Analyte	Sample ID	Recovery	Action
Arsenic	DMW-01-0320	84.8%	J10
Arsenic	DSW-03-0321	117.5%	U, No Action
Lead	TSW-02-0320	82.3%	UJ10
Lead	DSW-12-0320	77.6%	UJ10
Lead	DSW-03-0321	81.3%	UJ10
Selenium	TMW-13-0320	81.2%	(J10) Previously rejected
Selenium	TMW-01-0320	72.1%	(UJ10) Previously rejected
Selenium	TSW-02-0320	55.5%	(UJ10) Previously rejected
Selenium	TSW-12-0320	60.9%	(UJ10) Previously rejected
Selenium	TSW-03-0321	57.4%	(UJ10) Previously rejected
Selenium	TJMW-109-0321	80.3%	(UJ10) Previously rejected
Selenium	TMW-09-0321	75.5%	(UJ10) Previously rejected
Selenium	TMW-10-0321	52.2%	(UJ10) Previously rejected
Selenium	DMW-01-0320	77.3%	J10
Selenium	DSW-02-0320	82.7%	UJ10
Selenium	DMW-13-0320	59.9%	UJ10
Selenium	DSW-12-0320	84.2%	UJ10
Selenium	DSW-03-0321	47.4%	UJ10
Selenium	DJMW-109-0321	72.6%	UJ10
Selenium	DMW-09-0321	78.2%	UJ10
Selenium	DMW-10-0321	82.1%	UJ10
Selenium	DJM-108-0321	65.9%	UJ10
Thallium	DMW-13-0320	124.5%	U, No Action
Thallium	DJMW-109-0321	120.9%	U, No Action
Thallium	DJM-108-0321	118.1%	U, No Action
Thallium	TMW-13-0320	116.5%	U, No Action

Total and Dissolved Metals comparison

A comparison of the total and dissolved metals results was performed. If the concentration of any dissolved analyte was greater than its total concentration by more than 10%, both were estimated (J17). If the concentration of any dissolved analyte was greater than its total concentration by more than 50%, both were rejected (R17). The following table lists the analytes out of control limits in the sample pairs.

Sample Pair	Analyte	%Greater	Action
TSW-03-0321/DSW-03-0321	Zinc	13.4%	J17
	Copper	32.9%	J17
TJMW-109-0321/DJMW-109-0321	Zinc	28.7%	J17
TMW-09-0321/DMW-09-0321	Zinc	113.1%	R17

CLP DATA ASSESSMENT

Appendix A.4: CLP Data Assessment Result Forms:

Spreadsheets containing the validated sample results are found at the end of the report.

Appendix A.5:

CLP Data Assessment Summary Forms (Inorganics)

SDG No: ANE177 Date: 05/06/96 Laboratory Envirotest Lab.
Reviewer's Initials: LAM Number of samples 18 aqueous

Analytes Rejected Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	9	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Diss/ Total	Serial Dil.	MSA	Total Analytes	Rejection
ICP	0	0	2	0	0	324	2
Furnace	0	0	0	0	0	72	9
Mercury	0	0	0	0	0	18	0
Cyanide	0	0	0	0	0	9	0

Analytes Flagged as estimated (J, UJ) Due to Exceeding Review Criteria

	Holding times	Calibration	Prep blank	Field blank	Interference	Spike Rec.	LCS
ICP	0	0	0	0	0	0	0
Furnace	0	0	0	0	0	22	0
Mercury	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0

	Field Dup	Lab Dup	Diss/ total	Serial Dil.	MSA	Total Analytes	Estimation
ICP	8	9	6	8	0	324	62
Furnace	0	0	0	0	0	72	29
Mercury	9	0	0	0	0	18	0
Cyanide	0	0	0	0	0	9	0

CLP DATA ASSESSMENT

Appendix A.6: CLP Data Assessment Checklist:

INORGANIC REGIONAL DATA ASSESSMENT REGION 2

SDG NO. ANE177 SITE STEWART ANG

LABORATORY ENVIROTEST LABORATORIES, INC

NO. OF SAMPLES/MATRIX 18 AQUEOUS

REVIEWER'S NAME LORIE A. MACKINNON

DATA ASSESSMENT SUMMARY

	ICP	AA	HG	CN
HOLDING TIMES	1	1	1	1
CALIBRATIONS	1	1	1	1
BLANKS	1	1	1	1
INTERFERENCE	1			
DUPLICATE ANALYSIS	1	1	1	1
MATRIX SPIKE	1	1	1	1
MSA, ANALYTICAL SPIKE ANALYSIS		1		
SERIAL DILUTION	1			
SAMPLE VERIFICATION	1	1	1	1
OTHER QC	1	1	1	1
OVERALL ASSESSMENT	1	1	1	1

1 - Data has no problems/or qualified due to minor problems.
2 - Data qualified due to major problems.
3 - Data unacceptable.
4 - Problems, but do not affect data.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

J1, UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and non-detects (UJ1). Holding times have been grossly exceeded: reject all non-detects (R1).

J2, R2 The initial or continuing calibration RF was low: estimate positive results (J2) and reject non-detects (R2).

J4, UJ4 The initial calibration %RSD was greater than 30% or the continuing calibration %D was greater than 25%: estimate positive results (J4) and non-detects (UJ4).

U5 Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U5).

U6 Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U6). (i.e., the limit of detection has been raised for that compound, and the result is considered to be non-detect.

J7 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was greater than the Contract Required Recovery Range (CRR): estimate positive results within that area of the chromatogram (J7).

J8, UJ8 One or more of the surrogate standard % recoveries (in the case of pesticides, both DCB and TCX) was less than the CRR: estimate positive results (J8) and non-detects (UJ8) within that area of the chromatogram.

J9, R9 One of more of the surrogate standard % recoveries was less than 10%: estimate positive results (J9) and reject non-detects (R9) within that area of the chromatogram.

J10 The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the CRR for this compound: estimate positive results in the unspiked sample (J10).

J11, R11 The MS and/or MSD % recoveries were less than 10% for this compound: estimate positive results in the unspiked sample (J11) and reject non-detects (R11).

J12 The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J12).

J13 Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J13).

J14 One or more of the Internal Standard (IS) areas were detected above the CRR; estimate the positive results for all compounds quantitated from that IS.

J15, UJ15 One or more of the Internal standard (IS) areas was less than the CRR: estimate positive results (J15) and non-detects (UJ15) for all compounds quantitated from that IS.

J16, R16 One or more IS areas were grossly low: estimate (J16) positive results and reject (R16) non-detects for all compounds quantitated from that IS.

J/NJ17, R17 % Breakdown for DDT exceeded 20%: estimate positive results for DDT (J17), DDD, and DDE (NJ17) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R6) for DDT. Qualify positive results for DDD and/or DDE as presumptively present at an estimated quantity (NJ17).

J/NJ18, R18 % Breakdown for endrin exceeded 20%: estimate positive results for endrin (J18). If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R7) for endrin. Qualify positive results for endrin aldehyde and endrin ketone (NJ18) as presumptively present at an estimated quantity.

J/UJ19, R19 Initial calibration %RSD for this compound exceeded 20%: estimate positive and non-detected results (J19, UJ19) for this compound in associated samples. If %RSD exceeded 90%, flag all non-detected results as unusable (R8).

J/UJ20, R20 Continuing calibration %RPD for this compound exceeded 25% (quantitation or confirmation column): estimate positive and non-detected results (J20, UJ20) for this compound in associated samples. If %RPD exceeded 90%, flag all non-detected results as non-usable (R9).

J21 Compound reported above calibration range, estimate result (J21).

J22 The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J22) positive results for all compounds associated with the out of control surrogate in the affected samples.

J23 Surrogate %D >25% or %RSD > 30%, estimate positive results for compounds associated with the out of control surrogate.

R24 The initial calibration %RSD or continuing calibration %D > 90%. Reject non-detects.

J/NJ25, R25 Pesticide compound which has concentration values differing from 25 - 50% in its two analyses. Compound result is estimated. Dual

column analysis %D is between 50 - 90%; compound result is qualified as presumptively present at an approximated quantity (NJ25). Dual column %D is greater than 90%; the compound result is rejected (R10).

R26 Reject non-detected result. Compound detected above the calibration range and could not be quantitated to be reported.

R27 Isomer identified at the incorrect retention time in samples and/or standards. Reject positive and non-detected results.

R28 Quality of Spectra submitted poor for compound in question: reject compound result.

J29 The resolution between two adjacent compound peaks in the resolution check mixture was less than 60%. Estimate the positive results for compounds not adequately resolved.

J30, R30 The TIC compound was detected in the blank. In the sample, the concentration of the TIC is greater than five times the concentration in the most contaminated associated blank. The sample TIC result is flagged J30, as the result may be biased high due to contamination. If the sample TIC concentration is less than five times the concentration found in the blank, the sample TIC result is rejected.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

J/UJ1, R1 Holding times have been exceeded: estimate positive results (J1) and reject non-detects (R1). Samples were improperly preserved prior to analysis; estimate positive results (J1) non-detects (UJ1).

J/UJ2, R2 Linearity was poor near the CRDL (Low levels). Estimate or reject the results within an affected area based on the recovery of the CRDL standard.

R3 The analyte was present in the associated blank above the CRDL. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. The associated blank had a value below the negative CRDL. Results less than ten times the CRDL are rejected.

J/UJ4, R4 The ICS recovery of an element is outside of criteria. The reported results or detection limits are estimated or rejected based on the recovery of the interference check sample.

J/UJ5, R5 The recovery of an element is outside of control limits in the matrix spike. The reported results or detection limits are estimated or rejected based on the recovery.

J/UJ6 The RPD for laboratory duplicate sample analysis results exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ7 The RPD for the field duplicate analysis exceeded 50% (100% for soils) for this analyte. The reported results are estimated.

J/UJ8, R8 The LCS recovery for an element is outside of criteria. The reported results are estimated or rejected based on the laboratory control sample analyte recovery.

J9 The %RSD of duplicate injections for GFAA analysis do not agree within +/- 20%, or the laboratory performed a single burn analysis. The sample results are estimated.

J10, UJ10 The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated.

J11 The sample required an MSA which was not performed, was performed incorrectly, or the correlation was < 0.995. The positive results are estimated.

J12, R12 The results of the ICP Serial Dilution analysis were outside of control limits for initial concentrations equal to or greater than 10XIDL. Analyte results greater than 10XIDL or CRDL are estimated

or rejected based on %D.

J13 The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.

J14 Matrix spike not performed for analysis or performed on a field blank. Estimate positive results less than four times the spike level added based on lack of accuracy data.

J15 Laboratory duplicate not performed for analysis or was performed on field blank. Estimate positive results greater than the CRDL based on lack of precision data.

J16 ICP serial dilution was not performed or was performed on field blank. Estimate results greater than 10XIDL or greater than the CRDL for which an ISD was not performed.

J17, R17 A comparison of the total and dissolved analytes was performed. If the concentration of any dissolved analyte was greater than its total concentration by more than 10% both were estimated. If the concentration of any dissolved analyte was greater than its total concentration by more than 50% both were rejected.

APPENDIX M

RESULTS OF EPA'S BIOKINETIC UPTAKE MODEL FOR LEAD

RESULTS OF BIOKINETIC UPTAKE MODEL FOR LEAD

National Default Values

ABSORPTION METHODOLOGY: Linear Absorption

AIR CONCENTRATION: 0.100 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

DIET: DEFAULT

DRINKING WATER Conc: 4.00 ug Pb/L DEFAULT
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: constant conc.

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	200.0	200.0
1-2	200.0	200.0
2-3	200.0	200.0
3-4	200.0	200.0
4-5	200.0	200.0
5-6	200.0	200.0
6-7	200.0	200.0

Additional Dust Sources: None DEFAULT

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 2.50 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	3.70	7.36	4.53
1-2:	4.07	10.51	7.08
2-3:	3.87	11.06	7.19
3-4:	3.65	11.15	7.31
4-5:	3.17	9.47	5.58
5-6:	2.77	9.25	5.08
6-7:	2.51	9.34	4.82

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.45	0.36	0.00	0.02
1-2:	2.52	0.87	0.00	0.03
2-3:	2.88	0.92	0.00	0.06
3-4:	2.82	0.96	0.00	0.07
4-5:	2.80	1.02	0.00	0.07
5-6:	2.98	1.09	0.00	0.09
6-7:	3.31	1.12	0.00	0.09

Site-Specific Values

ABSORPTION METHODOLOGY: Linear Absorption

AIR CONCENTRATION: 0.100 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

DIET: DEFAULT

DRINKING WATER Conc: 35.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: constant conc.

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	16.8	4.7
1-2	16.8	4.7
2-3	16.8	4.7
3-4	16.8	4.7
4-5	16.8	4.7
5-6	16.8	4.7
6-7	16.8	4.7

Additional Dust Sources: None DEFAULT

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 2.50 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	3.10	6.10	0.24
1-2:	4.05	10.95	0.37
2-3:	4.07	11.73	0.38
3-4:	3.88	11.92	0.38
4-5:	3.71	12.16	0.28
5-6:	3.58	12.86	0.26
6-7:	3.44	13.36	0.24

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.58	3.26	0.00	0.02
1-2:	2.62	7.93	0.00	0.03
2-3:	2.97	8.32	0.00	0.06
3-4:	2.89	8.58	0.00	0.07
4-5:	2.81	9.00	0.00	0.07
5-6:	2.98	9.53	0.00	0.09
6-7:	3.30	9.72	0.00	0.09

APPENDIX N

LETTERS FROM NYSDEC REGARDING SENSITIVE HABITATS AND WATER BODIES

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, NY 12110-2400

(518) 783-3932

August 23, 1995

Jeff Donovan
Aneptek Corporation
209 West Central Street
Natick, MA 01760

Dear Mr. Donovan:

We have reviewed the New York Natural Heritage Program files with respect to your recent request for biological information concerning the EPA Hazardous Waste Investigation at the Stewart Air National Guard Base, site as indicated on your enclosed map, located in the Town of New Windsor, Orange County, New York State.

We did not identify any potential impacts on endangered, threatened, or special concern wildlife species, rare plant, animal or natural community occurrences, or other significant habitats.

The absence of data does not necessarily mean that rare or endangered elements, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files currently do not contain any information which indicates the presence of these. Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of species, habitats or communities. This information should not be sutstituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. You should contact our regional office, Division of Regulatory Affairs, at the address on the enclosed list for information regarding any regulated areas or permits that may be required (e.g., regulated wetlands) under state law.

If this proposed project is still active one year from now we recommend that you contact us again so that we can update this response.

Sincerely,

Beth O'Neill

Beth O'Neill
Information Services
NY Natural Heritage Program

Enc.
cc: Reg. 3, Wildlife Mgr.

New York State Department of Environmental Conservation
21 South Putt Corners Road, New Paltz, NY 12561-1696
(914) 256-3000 - Division of Regulatory Services
FAX (914) 255-3042

Michael Zagata
Commissioner

August 17, 1995

JEFF DONOVAN
ANEPTEK CORPORATION
209 W CENTRAL ST
NATICK MA 01760

RE: **Hazardous Waste Remediation Investigation Site**
Town of Newburgh, Orange County

Dear Mr. Donovan:

In response to your August 4, 1995 letter be advised that there are no designated Wild, Scenic and Recreational rivers within a two mile radius of the identified location, at the Stewart National Guard Base. Also, streams and lakes in New York are classified (see enclosed guide) and listed in the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR Part 800). In addition, all water bodies are protected from pollution by our Water Quality Regulations and some waterbodies, Class C(t) and higher, are also protected from physical disturbance.

Please feel free to make an appointment to come to our office and use our maps and regulatory books if you require more detailed information. You can contact me at (914) 256-3058.

Sincerely,

Wendy DuBois
Regulatory Services
Region 3

WD/btdonovan.ltr(1)
Enclosure