REM IV

Remedial Planning Activities
at Selected Uncontrolled
Hazardous Waste Sites-Zone II

140644

C C 4 7

Environmental Protection Agency
Hazardous Site Control Division
Contract No. 68-01-7251

FINAL
REMEDIAL INVESTIGATION REPORT
VOLUME 2 OF 2
SUMMIT NATIONAL SITE
DEERFIELD, OHIO

EPA WA57-5L04
W64441

FEBRUARY 10, 1988

CH2M HILL

Black & Veatch
ICF
PRC
Ecology and Environment

FINAL
REMEDIAL INVESTIGATION REPORT
VOLUME 2 OF 2
SUMMIT NATIONAL SITE
DEERFIELD, OHIO

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Appendix A

APPENDIX A - RI DATA SUMMARY TABLES

Table No.	Description
1	Onsite Soils
2	Offsite Soils
3	Surface Water
4	Sediment
5	Groundwater
6	Residential Wells
7	Drum/Tank Samples

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SL001001	SL002001	SL003001	SL004001	SL005001	SL006001	SL007001	SL008001	SL009001	SL010001	RS000001	SL011001	SL012001	SL013001	SL014001	SL015001	SL016001	SL017001	SL018001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/06/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84
BTR Number:	E9741	E9742	E9743	E9744	E9745	E9746	E9747	E9748	E9749	E9750	E9751	E9752	E9753	E9754	E9755	E9756	E9757	E9758	E9759
DTR Number:																			
ITG Number:	MEA249	MEA250	MEA251	MEA252	MEA253	MEA254	MEA255	MEA256	MEA257	MEA258	MEA259	MEA260	MEA261	MEA262	MEA263	MEA264	MEA265	MEA266	MEA267
ORGANIC COMPOUNDS (units-ug/kg)																			
VOLATILES																			
CHLOROMETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE	60 B	4 J,B	5 J,B	4 B,J	7 B	2 J,B	6 B,J	6 B	4 B,J	5 J,B	3 J,B	13 B	14 B	16 B	8 B	68 B	7 B	13 B	6 B
ACETONE	95	81	96	51	30	56		24		10 J,B			120				6 J	7 J	7 J
CARBON DISULFIDE																			
1,1-DICHLOROETHENE																			
1,1-DICHLOROETHANE	14																		
TRANS-1,2-DICHLOROETHENE						31													
CHLOROFORM	16				42	2 J													
1,2-DICHLOROETHANE	2100 J	44																	
2-BUTANONE	610 J		220	34	62						5	5 J	150		8 J			6 J	6 J
1,1,1-TRICHLOROETHANE	240 J	4 J			7		6						4 J	4 J				3 J	
1,1,2,2-TETRACHLOROETHANE																			
TRICHLOROETHENE	1700 J	32		50	2 J	17	10												
1,1,2-TRICHLOROETHANE	29																		
BENZENE					3 J	1 J													
2-HEXANONE	58					29													
4-METHYL-2-PENTANONE	78																		
TETRACHLOROETHENE	5 J	1 J		1 J	1 J	1 J		1 J		5 J									
TOLUENE	53	3 J								5 J		3 J		4 J		3 J		6	
CHLOROBENZENE										4 J					18				
ETHYLBENZENE						3 J,B													
STYRENE																			
TOTAL XYLENES						13 B													
TOTAL VOLATILES	5058	169	321	140	154	155	22	31	4	29	8	21	288	24	34	71	13	35	19
TOTAL TENTATIVELY IDENTIFIED VOLATILES	1500	0	0	0	0	0	52	0	0	89	0	72	49	11		9	0	6	0
BASE/NEUTRALS AND ACIDS																			
N NITROSODIMETHYLAMINE																			
PHENOL												24000 ss			290 J				
ANILINE																			
1,3-DICHLOROBENZENE																			
1,4 DICHLOROBENZENE																			
BENZYL ALCOHOL																			
1,2-DICHLOROBENZENE																			
2 METHYLPHENOL																			
BIS(2-CHLOROISOPROPYL)ETHER																			

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Sample Number:	SL001001	SL002001	SL003001	SL004001	SL005001	SL006001	SL007001	SL008001	SL009001	SL010001	RS000001	SL011001	SL012001	SL013001	SL014001	SL015001	SL016001	SL017001	SL018001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/06/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84
BTR Number:	E9741	E9742	E9743	E9744	E9745	E9746	E9747	E9748	E9749	E9750	E9751	E9752	E9753	E9754	E9755	E9756	E9757	E9758	E9759
BIR Number:																			
ITR Number:	MEA249	MEA250	MEA251	MEA252	MEA253	MEA254	MEA255	MEA256	MEA257	MEA258	MEA259	MEA260	MEA261	MEA262	MEA263	MEA264	MEA265	MEA266	MEA267
4-METHYLPHENOL																			
HEXACHLOROETHANE																			
ISOPHORONE																			
2-NITROPHENOL																			
2,4-DIMETHYLPHENOL																			
BENZOIC ACID																			
1,2,4-TRICHLOROBENZENE																			
NAPHTHALENE															290 J	1000	830	1100	
4-CHLORO-3-METHYLPHENOL																			
2-METHYLNAPHTHALENE														590 J		2100	1300	1800	
HEXACHLOROCYCLOPENTADIENE																			
DIMETHYL PHTHALATE																			
ACENAPHTHYLENE																			
ACENAPHTHENE																			
4-NITROPHENOL																			
DIBENZOFURAN																490 J	290 J	460	
DIETHYLPHTHALATE																			
FLUORENE																			
N-NITROSODIPHENYLAMINE (1)																			
HEXACHLOROBENZENE																	280 J		
PENTACHLOROPHENOL																			
PHENANTHRENE																1500	730	2340	
ANTHRACENE																			
DI-N-BUTYLPHTHALATE																			
FLUORANTHENE																280 J	230 J	340 J	
PYRENE																		280 J	
BUTYLBENZYLPHTHALATE																			
BENZO(A)ANTHRACENE																		190 J	
BIS(2-ETHYLHEXYL)PHTHALATE										5900		26000 **		2600	2900	1900	5700	9000	48000
CHRYSENE																	750 J	250 J	
DI-N-OCTYL PHTHALATE													83000 **				530	1100	11000 J
BENZO(B)FLUORANTHENE																			
BENZO(K)FLUORANTHENE																			
BENZO(A)PYRENE																			
INDENO(1,2,3-CD)PYRENE																			
DIBENZ(A,H)ANTHRACENE																			
BENZO(G,H,I)PERYLENE																			
TOTAL BASE/NEUTRALS AND ACIDS										5900		50000	83000	3190	3080	7270	10140	16860	59000
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	0	0	0	0	49200	0	30100	25800	7180	7990	0	0	399900			106230	95410		60000

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Sample Number:	SL001001	SL002001	SL003001	SL004001	SL005001	SL006001	SL007001	SL008001	SL009001	SL010001	RS000001	SL011001	SL012001	SL013001	SL014001	SL015001	SL016001	SL017001	SL018001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/06/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84
DIR Number:	E9741	E9742	E9743	E9744	E9745	E9746	E9747	E9748	E9749	E9750	E9751	E9752	E9753	E9754	E9755	E9756	E9757	E9758	E9759
DIR Number:																			
ITR Number:	MEA249	MEA250	MEA251	MEA252	MEA253	MEA254	MEA255	MEA256	MEA257	MEA258	MEA259	MEA260	MEA261	MEA262	MEA263	MEA264	MEA265	MEA266	MEA267
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																			
ALUMINUM	7783	7205	9822	8652	6380	7377	8636	14800	7028	13028	184	10859	6029	13064	11696	3029	9965	4941	8726
ANTIMONY																			
ARSENIC	20 B	12 B	11 B	9.8 B			16 B		28 B	26 B		23 B	19 B			10 B	(35) B		(30) B
BARIUM	(74) B	(54) B	(91) B	(81) B	(112)	(111) B	134 B	(103) B	(67) B	(112) B		(109) B	(91) B	(87) B	158 B	(51) B	120 B	153 B	(83) B
BERYLLIUM																			
CADMIUM					7.8 B	3.0 B			3.5 B	3.2 B		3.0 B	4.3 B						
CALCIUM	(25861)	(16573)	(8641)	(21341)	38029	5766	(26401)	(13871)	(20861)	4139	(492)	7910	7069	(26831)	10333	(28191)	15532	7845	25549
CHROMIUM	25 B	18 B	22 B	23 B	23 B	13 B	17 B	25 B	23 B	28 B	5.0 B	25 B	10 B	16 B	18 B	10 B	20 B	14 B	14 B
COBALT	(18) B		(15) B	(20) B	(15) B	(15) B	(20) B			(15) B		(15) B		(20) B	(15) B				
COPPER	34	31	18	14	26	25	31	24	22	28		23	19	(15)	29	(7)	18	(13)	(11)
IRON	43464	38752	29449	29251	39098	31072	26601	32586	37021	39557	122	38225	30058	28973	31560	11489	43649	38361	30178
LEAD	19 B	43 B	50 B	19 B	23 B	17 B	19 B	95 B	46 B	23 S+B		26 B	16 B	10 B	17 B	15 B	54 S+B	17 B	26 B
CYANIDE												.92	.78						
MAGNESIUM	(2869)	(1940)	(1897)	(2649)	(2892)	(2623)	(2406)	(2540)	(1889)	3887		4650	(2332)	4258	4471	(858)	(2665)	(1143)	(1208)
MANGANESE	247 B,E	155 B,E	612 B,E	483 B,E	683 B,E	386 B,E	217 B,E	194 B,E	207 B,E	543 B,E		553 B,E	193 B,E	847 B,E	435 B,E	68 B,E	263 B,E	88 B,E	116 B,E
MERCURY	.26	.47	.39	.17	.22	.33	0.5	.31	.19	.18		.17	.33	.16		.34	.27	.42	.34
NICKEL	27 B	(17) B	(17) B	(22) B	36 B	28 B	43 B	(22) B	(21) B	38 B		41 B	(21) B	42 B	40 B		24 B	(13) B	(12) B
POTASSIUM	(1539)	(1804)		(760)	(846)	(1007)	(970)	(1432)	(1874)	(2287)		(1664)	(1279)	(1133)	(1811)		(1260)	(1590)	(2140)
SELENIUM																	0.2 B	3.0 B	
SILVER																	5.8	(4.8)	
SODIUM											(1259)								
THALLIUM																			
TIN																			
VANADIUM	(31) B	(30) B	34 B	31 B	(25) B	(22) B	(28) B	38 B	(23) B	33 B	(14) B	30 B	(21) B	(25) B	(27) B	(16) B	30 B	(28) B	(24) B
ZINC	105 B	64 B	61 B	98 B	507 B	99 B	123 B	137 B	200 B	117 B	(5) B	152 B	127 B	67 B	145 B	32 B	107 B	50 B	52 B
PERCENT MOISTURE																			
PERCENT SOLIDS	77.8	80.5	81.6	86.8	83.7	83.5	78.1	75.4	79.4	84.7	99.6	87.3	86.5	80.3	84.0	84.3	85.5	83.3	84.0

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
*: Duplicate analysis is not within control limits.
**: Samples analyzed at medium concentrations.
(): Positive values less than the contract required detection limit.

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Sample Number:	SL001001	SL002001	SL003001	SL004001	SL005001	SL006001	SL007001	SL008001	SL009001	SL010001	RS006001	SL011001	SL012001	SL013001	SL014001	SL015001	SL016001	SL017001	SL018001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/06/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/07/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84	11/08/84
DTR Number:	E9741	E9742	E9743	E9744	E9745	E9746	E9747	E9748	E9749	E9750	E9751	E9752	E9753	E9754	E9755	E9756	E9757	E9758	E9759
DIR Number:																			
ITR Number:	MEA249	MEA250	MEA251	MEA252	MEA253	MEA254	MEA255	MEA256	MEA257	MEA258	MEA259	MEA260	MEA261	MEA262	MEA263	MEA264	MEA265	MEA266	MEA267
PESTICIDES and PCBs																			
ALPHA-BHC																			
BETA-BHC																			
DELTA-BHC																			
GAMMA-BHC (LINDANE)																			
HEPTACHLOR																			
ALDRIN																			
HEPTACHLOR EPOXIDE																			
ENDOSULFAN I																			
DIELDRIN																			
4,4-DDE																			
ENDRIN																			
4,4-DDT																			
TOXAPHENE																			
AROCHLOR-1232																			
AROCHLOR-1242																			
AROCHLOR-1248										7200 E		12300 E,**			2600	766	3200		
AROCHLOR-1254																			
NIKEI																			
TOTAL PESTICIDES and PCBs										7200		12300			2600	766	3200		
PERCENT MOISTURE (VOLATILES)	16	14	20	16	18	14	22	23	18	17	0	16	15	23	16	17	14	13	13

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SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SL018001d	SL019001	SL020001	SL021001	SL022001	SR050001	SS024001	SS025001	SS026001	SS026001d	SS028001	SS029001	SS030001	SS031001	SS032001	SS033001	SS034001	SS035001	SS036001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/08/84	11/09/84	11/09/84	11/09/84	11/09/84	11/15/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/14/84	11/15/84	11/15/84	11/14/84
DIR Number:	E9760	E9761	E9762	E9763	E9764	E9817	E9765	E9767	E9769	E9771	E9773	E9775	E9781	E9777	E9779	E9783	E9785	E9787	E9789
DIR Number:						E9818	E9766	E9768	E9770	E9772	E9774	E9776	E9782	E9778	E9780	E9784	E9786	E9788	E9790
ITR Number:	MEA268	MEA269	MEA270	MEA271	MEA272	MEA299	MEA273	MEA274	MEA275	MEA276	MEA277	MEA278	MEA281	MEA279	MEA280	MEA282	MEA283	MEA284	MEA285
ORGANIC COMPOUNDS (units-ug/kg)																			
VOLATILES																			
CHLOROMETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE	7 B			910 J,B,**									6.2			29	4.1	5.8	8.4
ACETONE	9 J	8200 **		4800 **														16	
CARBON DISULFIDE																			
1,1-DICHLOROETHENE																			
1,1-DICHLOROETHANE																			
TRANS-1,2-DICHLOROETHENE																			
CHLOROFORM																2.6			
1,2-DICHLOROETHANE		1300 J,**	23000 **	6900 **	4300 **														
2-BUTANONE		3500 J,**	19000 **	5900 **															
1,1,1-TRICHLOROETHANE		19000 **	7400 **	5600 **	2400 J,**										4.5	81		55	6.0
1,1,2,2-TETRACHLOROETHANE			4400 J,**																
TRICHLOROETHENE		76000 **	9800 **		86000 **								8.2	49	46	112	99	51	4.6
1,1,2-TRICHLOROETHANE											14								
BENZENE						12.8 J,B	6.6 B	21 B	3.1	2.2	2.4 J,B	3.1	4.3 J,B	1.9 J,B	2.3	4.4	4.1	6.0	4.8
2-HEXANONE			4400 **		4400 J,**														
4-METHYL-2-PENTANONE			45000 **																
TETRACHLOROETHENE		1300 J,**	4600 J **													5.5			
TOLUENE	4 J	26000 **	260000 **	28000 **	13000 **			34 B	6.0	2.2			46			224	14	53	4.0
CHLOROBENZENE				3600 **															
ETHYLBENZENE			36000 **	4700 **	1900 J,**		36	6.8								22			
STYRENE																			2.9
TOTAL XYLENES			210000 **	18000 **	6700 J,**			13					9.5			244		9.6	
TOTAL VOLATILES	20	135300	623600	78410	118700	12.8	42.6	74.8	9.1	4.4	16.4	3.1	74.2	50.9	52.8	724	121	196	30.7
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	0	44200	11600	0	200	228	603	200	200	200	200	200	200	200	444	200	200	204
BASE/NEUTRALS AND ACIDS																			
N-NITROSODIMETHYLAMINE																		8200 J,B	
PHENOL			44000 **	1900										960					
ANILINE																			
1,3-DICHLOROBENZENE									330 J	330 J									
1,4-DICHLOROBENZENE										330 J									
BENZYL ALCOHOL																			
1,2 DICHLOROBENZENE			13000 J,**	670					330 J										
2 METHYLPHENOL				310 J					330 J					4800		1600 J			
BIS(2 CHLOROISOPROPYL)ETHER																			800 J

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Sample Number:	SL018001d	SL019001	SL020001	SL021001	SL022001	SR050001	SS024001	SS025001	SS026001	SS026001d	SS028001	SS029001	SS030001	SS031001	SS032001	SS033001	SS034001	SS035001	SS036001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/08/84	11/09/84	11/09/84	11/09/84	11/09/84	11/15/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/14/84	11/15/84	11/15/84	11/14/84
DIR Number:	E9760	E9761	E9762	E9763	E9764	E9817	E9765	E9767	E9769	E9771	E9773	E9775	E9781	E9777	E9779	E9783	E9785	E9787	E9789
QIR Number:						E9818	E9766	E9768	E9770	E9772	E9774	E9776	E9782	E9778	E9780	E9784	E9786	E9788	E9790
ITR Number:	NEA268	NEA269	NEA270	NEA271	NEA272	NEA299	NEA273	NEA274	NEA275	NEA276	NEA277	NEA278	NEA281	NEA279	NEA280	NEA282	NEA283	NEA284	NEA285
4-METHYLPHENOL				830															
HEXACHLOROETHANE																			
ISOPHORONE				3000												2900			800 J
2-NITROPHENOL																			
2,4-DIMETHYLPHENOL													800 J	7000		1600 J			
BENZOIC ACID				2900 J						1600 J				2100	8000 J		4000 J		4000 J
1,2,4-TRICHLOROBENZENE									330 J	330 J						14000			800 J
NAPHTHALENE			43000 **	1900			5500	6600	3100	2500	1200	470	9300	2400	1900	7000	980		2600
4-CHLORO-3-METHYLPHENOL																1600 J			
2-METHYLNAPHTHALENE			110000 **	1400			6100	12000	5300	4400	1800	660	14000	4000	3100	10000	1800		6500
HEXACHLOROCYCLOPENTADIENE			53000 **																
DIMETHYL PHTHALATE				280 J															
ACENAPHTHYLENE																			
ACENAPHTHENE								330 J	330 J	330 J			800 J			1600 J			800 J
4-NITROPHENOL																			
DIBENZOFURAN							890	2500	1600	1100	382		2800						
DIETHYLPHTHALATE										330 J	330 J	330 J	800 J	800 J		1600 J	800 J		800 J
FLUORENE				210 J				330 J	470	330 J			800 J			1600 J			800 J
N-NITROSODIPHENYLAMINE(1)										330 J B			800 J	800 J		1600 J	800 J		800 J
HEXACHLOROBENZENE			32000 **	1400					610	1000		3300		800 J	20000	1600 J	930		800 J
PENTACHLOROPHENOL																			
PHENANTHRENE			13000 J,**	2100			1800	5200	3800	2700	1100	580	4800	1900	1900	4000	820		3800
ANTHRACENE			13000 J,**													1600 J			
DI-N-BUTYLPHTHALATE				360 J			4100	1700	2800	3200	6900 B	4900 B	3700 B	5400	11000	11000 B	8200	8200 J	7700 B
FLUORANTHENE				350 J			740	1600	1200	840			1200	800 J		1600 J	800 J		1000
PYRENE				330 J			400	590	510	350	330	330 J	900	800 J	1600 J	1600 J	800 J		800 J
BUTYLBENZYLPHTHALATE			12000 J,**	1700				330		440					1600 J	6400	800 J		800 J
BENZO(A)ANTHRACENE								330 J	520	380			800 J	800 J		1600 J	800 J		800 J
BIS(2-ETHYLHEXYL)PHTHALATE	1400000 **	700000 **			81000 **	161 J,**	2800 B	550 B	2500 B	2200 B	760	2700	4400	11000	36000	20000	7700	46000	15000
CHRYSENE				230 J			520	910	700	540			830	800 J		1600 J	800 J		800 J
DI-N-OCTYL PHTHALATE				3100			330 J	330 J	2500	1600		330 J	800 J	3900	3800	4300	1900	64000	800 J
BENZO(B)FLUORANTHENE							360	990					800 J	800 J			800 J		800 J
BENZO(K)FLUORANTHENE									370	340			800 J						
BENZO(A)PYRENE								330 J	340	420			800 J	800 J					800 J
INDENO(1,2,3-CD)PYRENE								330 J		330 J									
DIBENZ(A,H)ANTHRACENE																			
BENZO(G,H,I)PERYLENE								330 J	330 J	330 J			800 J	800 J		1600 J			800 J
TOTAL BASE/NEUTRALS AND ACIDS		1400000	533000	22970	81000	161	23540	35280	28300	26580	12802	13600	50730	51460	88900	102000	32730	126400	53400
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	78000	0		27140	656400	5864	2538368	1921727	783459	686081	615159	896880	1755482	588768	2760000	1879915	767169	14048517	455294

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SL018001d	SL019001	SL020001	SL021001	SL022001	SR050001	SS024001	SS025001	SS026001	SS026001d	SS028001	SS029001	SS030001	SS031001	SS032001	SS033001	SS034001	SS035001	SS036001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/08/84	11/09/84	11/09/84	11/09/84	11/09/84	11/15/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/14/84	11/15/84	11/15/84	11/14/84
DTR Number:	E9760	E9761	E9762	E9763	E9764	E9817	E9765	E9767	E9769	E9771	E9773	E9775	E9781	E9777	E9779	E9783	E9785	E9787	E9789
DTR Number:						E9818	E9766	E9768	E9770	E9772	E9774	E9776	E9782	E9778	E9780	E9784	E9786	E9788	E9790
ITR Number:	MEA268	MEA269	MEA270	MEA271	MEA272	MEA299	MEA273	MEA274	MEA275	MEA276	MEA277	MEA278	MEA281	MEA279	MEA280	MEA282	MEA283	MEA284	MEA285
PESTICIDES and PCBs																			
ALPHA-BHC																			
BETA-BHC																			
DELTA-BHC																			
GAMMA-BHC (LINDANE)																			
HEPTACHLOR																			
ALDRIN																			
HEPTACHLOR EPOXIDE							20 J												
ENDOSULFAN I																			
DIELDRIN																			
4,4-DDE																			
ENDRIN																			
4,4-DDT																			
TOXAPHENE																			
AROCHLOR-1232																			
AROCHLOR-1242																			
AROCHLOR-1248			21000 **	6900	590000 C,**				720	640				300	640	15000			680
AROCHLOR-1254											40 J								
NIREX																			
TOTAL PESTICIDES and PCBs			21000	6900	590000		20		720	640	40			300	640	15000			680
PERCENT MOISTURE (VOLATILES)	15	16	15	17	19	6	13	13	13	13	13	10	16	12	16	10	13	17	17

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SL018001d	SL019001	SL020001	SL021001	SL022001	SK050001	SS024001	SS025001	SS026001	SS026001d	SS028001	SS029001	SS030001	SS031001	SS032001	SS033001	SS034001	SS035001	SS036001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Blank	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/08/84	11/09/84	11/09/84	11/09/84	11/09/84	11/15/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/13/84	11/14/84	11/15/84	11/15/84	11/14/84
QTR Number:	E9760	E9761	E9762	E9763	E9764	E9817	E9765	E9767	E9769	E9771	E9773	E9775	E9781	E9777	E9779	E9783	E9785	E9787	E9789
QTR Number:						E9818	E9766	E9768	E9770	E9772	E9774	E9776	E9782	E9778	E9780	E9784	E9786	E9788	E9790
ITR Number:	MEA268	MEA269	MEA270	MEA271	MEA272	MEA299	MEA273	MEA274	MEA275	MEA276	MEA277	MEA278	MEA281	MEA279	MEA280	MEA282	MEA283	MEA284	MEA285
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																			
ALUMINUM	7452	5530	6140	5610	5550	307	13200	2630	6030	4460	8740	9780	7810	7840	8790	7850	7600	7090	8480
ANTIMONY																			
ARSENIC		18 R	22 R	31 R	16 R			11 R	15 R	17 R	22 S R	17 R	15 R	16 R	17 R	16 S,R,*	18 R	15 R	14 R
BARIUM	(89) R	122	(58)	(77)	(83)	(3.9)	(47)	(54)	(109)	(93)	(55)	(52)	(58)	(54)	(65)	(70)	(46)	343	(68)
BERYLLIUM			(0.64)					(.83)	(.97)	(1.1)	(1.1)	(1.1)	(0.87)	(.96)	(1.1)	(0.98)	(0.74)	(1.0)	(1.1)
CADMIUM																		(12)	
CALCIUM	21750	(1630)	5520	13600	14900	(962)	(3130)	4840	18600	34200	3180	4240	(2520)	2870	3130	(2430)	(2020)	(18300)	13600
CHROMIUM	16 R	67	18	22	27	(2.3)	18	11	22	102	17	19	18	44	24	25	15	21	24
COBALT			(9.6)	(6.1)	(4.6)		(11)		(9.1)	(7.4)	(14)	(19)	(8.5)	(12)	(20)	(12)	(8.1)	(8.0)	(14)
COPPER	(12)	67	33	34	52		17	(18)	25	29	27	43	26	43	41	28	29	57	44
IRON	30820	33900	33400	33100	30900	233	31600	20900	28800	33400	34900	54600	38300	34000	39400	43400	34100	32700	39200
LEAD	25 R	65 *	49 *	28 *	57 *		69 *	25 *	103 *	116 *	33 *	17 *	16.5 *	31 *	28 *	27 *	70 *	39 *	37 S,*
CYANIDE		10.6 R	43.6	2.4 R	10.9 R		.4 R	.36 R	1.2 R	1.9 R	.34 R	.95 R	.6 R	.86 R	11.3 R	.6 R	.83 R	12.7 R	8.4 R
MAGNESIUM	(13751)	(19401)	(25901)	(16601)	(16901)	(78)	3590	(9201)	(27501)	3400	3160	3750	(27201)		3160	(26701)	(27901)	(27501)	(28401)
MANGANESE	127 R,E	199	245	136	162	(2.6)	271	87	403	2620	527	477	236	365	642	292	268	281	300
MERCURY	.26			0.2	0.2			0.8								0.2			0.2
NICKEL	(14) R	(11)	28	(12)	(15)		(25)		29	(20)	29	28	(20)	26	33	24	24	(23)	24
POTASSIUM	(1021)	(1770)	(1530)	(1520)	(1130)		(862)	(969)	(1400)	(793)	(1890)	(1820)	(1030)	(1500)	(1660)	(1350)	(1520)	(1480)	(1560)
SELENIUM																			
SILVER																			
SODIUM		(166)	(247)	(178)	(157)	(2210)	(186)	(156)	(379)	(217)	(114)	(124)	(109)	(627)	(168)	(153)	(174)	(277)	(206)
THALLIUM																			
TIN				(18)						(15)						(15) R			
VANADIUM	(25) R	(15)	(20)	(23)	(22)	(25)	(25)	(14)	(20)	35	(22)	(29)	(25)	(25)	(26)	(27)	(19)	(20)	(24)
ZINC	110 R	67	105	192	120		65	40	485	803	100	113	85	89	130	112	89	347	194
PERCENT MOISTURE																			
PERCENT SOLIDS	86.8	84.4	81.1	88.2	80.5	78.1	79.7	79.7	82.5	86.2	83.7	82.9	82.3	88.4	82.0	85.2	85.2	81.9	84.8

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
*: Duplicate analysis is not within control limits.
**: Samples analyzed at medium concentrations.
(): Positive values less than the contract required detection limit.

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS037001	SS038001	SS039001	SS040001	SS041001	SS042001	SS043001	SS044001	SS045001	SS046001	SS047001	SS048001	SS049001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84
DTR Number:	E9791	E9793	E9795	E9797	E9799	E9801	E9803	E9805	E9807	E9809	E9811	E9813	E9815
QTR Number:	E9792	E9794	E9796	E9798	E9800	E9802	E9804	E9806	E9808	E9810	E9812	E9814	E9816
ITR Number:	MEA286	MEA287	MEA288	MEA289	MEA290	MEA291	MEA292	MEA293	MEA294	MEA295	MEA296	MEA297	MEA298
ORGANIC COMPOUNDS (units-ug/kg)													
VOLATILES													
CHLOROMETHANE													
VINYL CHLORIDE													
METHYLENE CHLORIDE	6.8	6.1	18	11	13	15	11	13	3.8	17	8.4	13	6.2
ACETONE			153	309	24		38	52			72		
CARBON DISULFIDE													
1,1-DICHLOROETHENE			3.2										
1,1-DICHLOROETHANE			15										
TRANS-1,2-DICHLOROETHENE			381	4.9			14	2.4					
CHLOROFORM	19			2.4									
1,2-DICHLOROETHANE													
2-BUTANONE													
1,1,1-TRICHLOROETHANE	171		822	46			30		37	38			
1,1,2,2-TETRACHLOROETHANE													
TRICHLOROETHENE	2.7	3.8	1100	189	22	12	85	24	8.9	15	11	2.6	
1,1,2-TRICHLOROETHANE													
BENZENE	4.6	4.7	5.0	4.9	4.9	3.7	3.6	3.7	5.1	4.9	3.6	3.9	3.7
2-HEXANONE			19										
4-METHYL-2-PENTANONE													
TETRACHLOROETHENE			7.5										
TOLUENE	440	14	202	41	6.1		88	15	7.7	217	14		
CHLOROBENZENE	12						20	4.9		8.5			
ETHYLBENZENE	7.2		52	4.9			16	3.7		16			
STYRENE													
TOTAL XYLENES	38		394	68	15	7.3	103	28	14	206	26		
TOTAL VOLATILES	700	28.6	3172	681	85	38	409	147	76.5	514	135	19.5	9.9
TOTAL TENTATIVELY IDENTIFIED VOLATILES	200	200	200	212	200	200	200	282	200	347	200	200	200
BASE/NEUTRALS AND ACIDS													
N-NITROSODIMETHYLAMINE													
PHENOL													
ANILINE													
1,3-DICHLOROBENZENE													
1,4-DICHLOROBENZENE													
BENZYL ALCOHOL													
1,2-DICHLOROBENZENE				11200 J									
[illegible]													
[illegible]													

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS037001	SS038001	SS039001	SS040001	SS041001	SS042001	SS043001	SS044001	SS045001	SS046001	SS047001	SS048001	SS049001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84
DIR Number:	E9791	E9793	E9795	E9797	E9799	E9801	E9803	E9805	E9807	E9809	E9811	E9813	E9815
DIR Number:	E9792	E9794	E9796	E9798	E9800	E9802	E9804	E9806	E9808	E9810	E9812	E9814	E9816
IIR Number:	NEA286	NEA287	NEA288	NEA289	NEA290	NEA291	NEA292	NEA293	NEA294	NEA295	NEA296	NEA297	NEA298
4-METHYLPHENOL													
HEXACHLOROETHANE													
ISOPHORONE													
2-NITROPHENOL													
2,4-DIMETHYLPHENOL													
BENZOIC ACID													
1,2,4-TRICHLOROBENZENE													
NAPHTHALENE	6630 J,**												592 **
4-CHLORO-3-METHYLPHENOL													
2-METHYLNAPHTHALENE				12820 J,**									955 **
HEXACHLOROCYCLOPENTADIENE													
DIMETHYL PHTHALATE													
ACENAPHTHYLENE													
ACENAPHTHENE													
4-NITROPHENOL													
DIBENZOFURAN													258 **
DIETHYLPHTHALATE													
FLUORENE													
N-NITROSODIPHENYLAMINE(1)													
HEXACHLOROBENZENE	4860 J,**												
PENTACHLOROPHENOL													
PHENANTHRENE													662 **
ANTHRACENE													
DI-N-BUTYLPHTHALATE													
FLUORANTHENE													150 J,**
PYRENE													170 J,**
BUTYLBENZYLPHTHALATE													
BENZO(A)ANTHRACENE													
BIS(2-ETHYLHEXYL)PHTHALATE	16600 **	5210 J,B,**	52900 B,**	28000 B,**	5710 J,**	4400 J,B,**	29000 B,**	22800 B,**	7140 B,J,**	22700 B,**		49900 B,**	
CHRYSENE													
DI-N-OCTYL PHTHALATE			3620 J,**				2330 J,**		2300 J,**				
BENZO(B)FLUORANTHENE													
BENZO(K)FLUORANTHENE													
BENZO(A)PYRENE													
INDENO(1,2,3-CD)PYRENE													
DIBENZ(A,H)ANTHRACENE													
BENZO(G,H,I)PERYLENE													
TOTAL BASE/NEUTRALS AND ACIDS	28090	5210	52900	45640	5710	4400	29000	25130	7140	25000		49900	2787
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	171920	0	130200	40400	0	0	0	86400	11000	16[illegible]00	142480	121000	17959

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS037001	SS038001	SS039001	SS040001	SS041001	SS042001	SS043001	SS044001	SS045001	SS046001	SS047001	SS048001	SS049001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84
DTR Number:	E9791	E9793	E9795	E9797	E9799	E9801	E9803	E9805	E9807	E9809	E9811	E9813	E9815
DTR Number:	E9792	E9794	E9796	E9798	E9800	E9802	E9804	E9806	E9808	E9810	E9812	E9814	E9816
ITR Number:	NEA286	NEA287	NEA288	NEA289	NEA290	NEA291	NEA292	NEA293	NEA294	NEA295	NEA296	NEA297	NEA298
PESTICIDES and PCBs													
ALPHA-BHC													
BETA-BHC													
DELTA-BHC													
GAMMA-BHC (LINDANE)								9.2 J					
HEPTACHLOR													
ALDRIN													
HEPTACHLOR EPOXIDE			19.8 J,**										
ENDOSULFAN I													
DIELDRIN		21.9 J,**											
4,4-DDE													
ENDRIN													
4,4-DDT													
TOXAPHENE													
AROCHLOR-1232													
AROCHLOR-1242		4809 **									50043		
AROCHLOR-1248	13700 **												
AROCHLOR-1254													
MIREX													
TOTAL PESTICIDES and PCBs	13700	4831	19.8					9.2			50043		
PERCENT MOISTURE (VOLATILES)	17	22	23	18	18	18	17	18	22	18	17	23	20

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS037001	SS038001	SS039001	SS040001	SS041001	SS042001	SS043001	SS044001	SS045001	SS046001	SS047001	SS048001	SS049001
Sample Type:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Date Sampled:	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/14/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84	11/15/84
QTR Number:	E9791	E9793	E9795	E9797	E9799	E9801	E9803	E9805	E9807	E9809	E9811	E9813	E9815
QTR Number:	E9792	E9794	E9796	E9798	E9800	E9802	E9804	E9806	E9808	E9810	E9812	E9814	E9816
ITR Number:	MEA286	MEA287	MEA288	MEA289	MEA290	MEA291	MEA292	MEA293	MEA294	MEA295	MEA296	MEA297	MEA298
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT													
ALUMINUM	7560	5600	5610	14600	15300	9900	18200	14900	18100	16600	14900	15900	14300
ANTIMONY				45 R	66 R	(16) R	46 R	46 R	67 R	76 R	545 R	57 R	42 R
ARSENIC	14 R	15 R	23 S,R	14 S	22	22 S	22 S	14	17	16	7.3 S	33	9.4
BARIUM	(83)	(50)	(108)	(123)	186	(92)	185	233	242	183	246	197	171
BERYLLIUM	(.65)	(0.74)	(1.1)		(1.6)		(1.5)	(1.5)	(1.6)	(0.97)	(1.9)	(1.6)	(1.2)
CADMIUM													
CALCIUM	12900	21400	4070	15200	11700	37000	10500	16200	30900	7420	19800	3570	(11400)
CHROMIUM	21	10	27	60	35	17	37	36	44	46	54	50	34
COBALT	(7.3)		(7.2)	(16)	(20)	(5.6)	(20)	(19)	(28)	(20)	(26)	(22)	(18)
COPPER	32	(12)	43	51	49	(12)	58	51	66	61	60	54	43
IRON	33500	12200	24300	72000	73300	33200	68500	77300	94500	80100	74300	95300	82900
LEAD	26 S,*	41 *	24 *	20	32	32	29 S	18 S	32	33	55	23 S	22 S
CYANIDE	0.6 R	1.2 R	3.7 R	.88 *	.57 *	1.7 *	3.0 *	.95 *	.63 *	2.7 *	2.4 *		.31 *
MAGNESIUM	(2700)	(3263)	(16501)	4460	3990	(1670)	5880	4710	6120	5030	5590	5100	4340
MANGANESE	227	29	209	356	333	124	462	381	461	316	718	543	451
MERCURY		.2	.2	.1	.1				.1		.1		
NICKEL	(19)		(21)	41	37	(12)	40	42	53	30	56	46	45
POTASSIUM	(1560)	(1120)	(1420)	3310	(2800)	(2510)	3390	3230	3720	4250	3210	(3040)	3260
SELENIUM													
SILVER													
SODIUM	(145)	(132)	(212)	(231)	(464)	(283)	(241)	(294)	(1200)	(271)	(269)	(222)	(202)
THALLIUM													
TIN							(13) R		(15) R		(15) R		
VANADIUM	(23)	(14)	(22)	41	50	(24)	50	48	62	59	51	60	59
ZINC	120	26	74	132	130	51	272	255	304	196	626	231	327
PERCENT MOISTURE													
PERCENT SOLIDS	84.2	78.0	79.8	81.1	81.3	80.8	81.9	83.6			81.8	78.8	80.0

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
*: Duplicate analysis is not within control limits.
**: Samples analyzed at medium concentrations.
( ): Positive values less than the contract required detection limit.

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-3001	SS1-3001	SS1-4001	SS1-6001	SS1-8001	SS2-1001	SS2-2001	SS2-2001	SS2-2001	SS2-2002	SS2-4001	SS2-5001	SS2-5001	SS2-7001	SS2-7001	SS2-8001	SS3-1001	SS3-2001	SS3-4001
Sample Type:	At 4 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 8 Ft.	At 2 Ft.	At 4 Ft.	At 4 Ft.	At 8 Ft.	At 4 Ft.	At 8 Ft.	At 6 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.
Date Sampled:	01/09/86	01/09/86	12/31/85	12/18/85	12/16/85	12/27/85	12/20/85	12/20/85	12/20/85	12/20/85	01/09/86	12/19/85	12/19/85	12/19/85	12/19/85	01/09/86	01/08/86	12/27/85	12/19/85
DTR Number:	E9875	E9876	E9877	E9878	E9879	E9880	E9881	E9883	E9884	E9882	E9885	E9886	E9887	E9888	E9889	E9890	E9891	E9892	E9893
DTR Number:																			
ITR Number:	ME4473	ME4474	ME4475	ME4476	ME4477	ME4478	ME4479	ME4481	ME4482	ME4480	ME4483	ME4484	ME4485	ME4486	ME4487	ME4488	ME4489	ME4490	ME4491
ORGANIC COMPOUNDS (units-ug/kg)																			
VOLATILES																			
CHLOROETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE	20 B	11 B	9 B	18 B	29 B	32 B	14 B	16 B	69 B	11 B	24 B	51 B	9 B	24 B	23 B	16 B	11 B	17 B	23 B
ACETONE	81 B	42 B	53 B	34 B	29 B	46 B	53 B	32 B	46 B	50 B	32 B	120 B	37 B	37 B	65 B	100 B	59 B	70 B	48 B
CARBON DISULFIDE	6		15			8						20					5	3 J	5
1,1-DICHLOROETHENE																			14
1,1-DICHLOROETHANE							7		3 J	10									42
TRANS-1,2-DICHLOROETHENE																			
CHLOROFORM																			
1,2-DICHLOROETHANE																			
2-BUTANONE	30 B	33 B	34 B	25 B	25 B	40 B	36 B	18 B	28 B	40 B	22 B	35 B	38 B	24 B	28 B	54 B	35 B	36 B	33 B
1,1,1-TRICHLOROETHANE				4 J	4 J	10	20	5		25		16		10					340
1,1,2,2-TETRACHLOROETHANE																			
TRICHLOROETHENE				75	4 J	5						5		5	4 J				4 J
1,1,2-TRICHLOROETHANE																			
BENZENE	29	11	30	12	38	110		4 J	4 J		12	110	5	23	28	29	10	39	29
2-HEXANONE																			
4-METHYL-2-PENTANONE	14	7 B														13	5 J	4 J	
TETRACHLOROETHENE				8										5					3 J
TOLUENE	290	82	120	70	100	270	5	36	17	4 J	17	410	18	61	100	140	54	130	110
CHLOROBENZENE			51	46				4 J				11		52	15				9
ETHYLBENZENE	14	4 J	27	15	16	31		7	3 J			52		7	14	7	8	18	17
STYRENE																			
TOTAL XYLENES	40	11	100	61	79	140		30	24		11	280	10	43	60	27	31	78	59
TOTAL VOLATILES	524	201	439	368	404	692	135	152	194	140	118	1110	117	291	337	386	218	395	736
TOTAL TENTATIVELY IDENTIFIED VOLATILES	365	29.3	378	70.3	126	318	0	117	16.3		321	726	0	107	41.9	69.2	165	190	214
BASE/NEUTRALS AND ACIDS																			
N-NITROSODIMETHYLAMINE																			
PHENOL	52 J																		
ANILINE																			
1,3-DICHLOROBENZENE																			
1,4-DICHLOROBENZENE							76 J			130 J				76 J					
BENZYL ALCOHOL																			
1,2-DICHLOROBENZENE							52 J			100 J									
2-METHYLPHENOL																			
BIS(2-CHLOROISOPROPYL)ETHER																			

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-3001	SS1-3001	SS1-4001	SS1-6001	SS1-8001	SS2-1001	SS2-2001	SS2-2001	SS2-2001	SS2-2002	SS2-4001	SS2-5001	SS2-5001	SS2-7001	SS2-7001	SS2-8001	SS3-1001	SS3-2001	SS3-4001
Sample Type:	At 4 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 8 Ft.	At 2 Ft.	At 4 Ft.	At 4 Ft.	At 8 Ft.	At 4 Ft.	At 8 Ft.	At 6 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.
Date Sampled:	01/09/86	01/09/86	12/31/85	12/18/85	12/16/85	12/27/85	12/20/85	12/20/85	12/20/85	12/20/85	01/09/86	12/19/85	12/19/85	12/19/85	12/19/85	01/09/86	01/08/86	12/27/85	12/19/85
QIR Number:	E9875	E9876	E9877	E9878	E9879	E9880	E9881	E9883	E9884	E9882	E9885	E9886	E9887	E9888	E9889	E9890	E9891	E9892	E9893
QIR Number:																			
ITR Number:	NE4473	NE4474	NE4475	NE4476	NE4477	NE4478	NE4479	NE4481	NE4482	NE4480	NE4483	NE4484	NE4485	NE4486	NE4487	NE4488	NE4489	NE4490	NE4491
4-METHYLPHENOL	68 J																		
HEXACHLOROETHANE							66 J												
ISOPHORONE																			
2-NITROPHENOL																			
2,4-DIMETHYLPHENOL	190 J																		
BENZOIC ACID																			
1,2,4-TRICHLOROBENZENE																			
NAPHTHALENE	2600		27000 **	79 J	810	2300	1000	460	660	1600	200 J	6400	5100 J,**	850	240 J		830	2700	3900 J,**
4-CHLORO-3-METHYLPHENOL																			
2-METHYLNAPHTHALENE	4300		44000 **	130 J	1300	3700	1000	340	620	1200	310 J	8300	6800 **	1100	230 J		820	2300	3500 J,**
HEXACHLOROCYCLOPENTADIENE																			
DIMETHYL PHTHALATE																			
ACENAPHTHYLENE																			
ACENAPHTHENE	110 J					110 J	48 J										38 J	100 J	
4-NITROPHENOL																			
DIBENZOFURAN	910		6300 J,**	37 J	210 J	700	300 J	130 J	170 J	460	120 J	3100		310 J	70 J		200 J	460	
DIETHYLPHTHALATE																			
FLUORENE	290 J		2800 J,**			340	130 J	69 J	110 J	200 J	70 J	1000 J		59 J			130 J	340	
N-NITROSODIPHENYLAMINE(1)																			
HEXACHLOROBENZENE							48 J			180 J									
PENTACHLOROPHENOL									110 J										
PHENANTHRENE	1700		16000 **	110 J	670	1600	810	330	360	1000	290 J	6100	4700 J,**	660	140 J		510	1800	2000 J,**
ANTHRACENE									41 J										
DI-N-BUTYLPHTHALATE	51 B,J			49 B,J	38 B,J	53 B,J	350 B	380 B	180 B,J	460 B	92 J,B	1800 B		150 J,B	160 J,B	56 J,B	60 J,B	67 J,B	2400 J,**
FLUORANTHENE	590		2200 J,**	39 J	120 J	230 J	93 J	58 J	98 J	160 J	59 J	1200 J		130 J			62 J	240 J	
PYRENE	490		3600 J,**	42 J	400	280 J	260 J	120 J	190 J	350	160 J	1600 J		170 J	49 J		150 J	390	
BUTYLBENZYLPHTHALATE								59 J											
BENZO(A)ANTHRACENE	460		3000 J,**		130 J	150 J		56 J	72 J	170 J		1100 J		78 J			88 J	190 J	
BIS(2-ETHYLHEXYL)PHTHALATE	58 J	47 J		860	71 J	680	10000	4500	630	12000	200 J	1800	12000 **	570	190 J	82 J	75 J	110 J	370000 **
CHRYSENE	330		2700 J,**		150 J	200 J	110 J	60 J	90 J	190 J	76 J	980 J		87 J			59 J	140 J	
DI-N-OCTYL PHTHALATE						63 J													
BENZO(B)FLUORANTHENE	410				180 J	210 J	140 J	71 J	140 J	540	120 J	1100 J		110 J			80 J	200 J	
BENZO(K)FLUORANTHENE	410				180 J	210 J	140 J	71 J	140 J	540	120 J	1100 J		110 J			80 J	200 J	
BENZO(A)PYRENE	230 J				73 J	100 J	80 J	49 J	81 J	260 J	56 J			60 J			50 J	110 J	
INDENO(1,2,3-CD)PYRENE	80 J						77 J		100 J	180 J	68 J							85 J	
DIBENZ(A,H)ANTHRACENE	43 J								66 J										
BENZO(G,H,I)PERYLENE	140 J					82 J	150 J	75 J	160 J	600	240 J			73 J			110 J	290 J	
TOTAL BASE/NEUTRALS AND ACIDS	13512	47	107600	1346	4132	11008	14930	6828	4018	20526	2181	55580	28600	4593	1149	138	3542	9722	381800
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	43029	5091	495023	5507		35297	14232	12946	9688				76140	21328	5598	4005	10352	12109	8667

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-3001	SS1-3001	SS1-4001	SS1-6001	SS1-8001	SS2-1001	SS2-2001	SS2-2001	SS2-2001	SS2-2002	SS2-4001	SS2-5001	SS2-5001	SS2-7001	SS2-7001	SS2-8001	SS3-1001	SS3-2001	SS3-4001
Sample Type:	At 4 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 8 Ft.	At 2 Ft.	At 4 Ft.	At 4 Ft.	At 8 Ft.	At 4 Ft.	At 8 Ft.	At 6 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.
Date Sampled:	01/09/86	01/09/86	12/31/85	12/18/85	12/16/85	12/27/85	12/20/85	12/20/85	12/20/85	12/20/85	01/09/86	12/19/85	12/19/85	12/19/85	12/19/85	01/09/86	01/08/86	12/27/85	12/19/85
BTR Number:	E9875	E9876	E9877	E9878	E9879	E9880	E9881	E9883	E9884	E9882	E9885	E9886	E9887	E9888	E9889	E9890	E9891	E9892	E9893
BTR Number:																			
ITR Number:	RE4473	RE4474	RE4475	RE4476	RE4477	RE4478	RE4479	RE4481	RE4482	RE4480	RE4483	RE4484	RE4485	RE4486	RE4487	RE4488	RE4489	RE4490	RE4491
PESTICIDES and PCBs																			
ALPHA-BHC																			
BETA-BHC																			
DELTA-BHC																			
GAMMA-BHC (LINDANE)																			
HEPTACHLOR																			
ALDRIN																			
HEPTACHLOR EPOXIDE																			
ENDOSULFAN I																			
DIELDRIN																			
4,4-DDE																			
ENDRIN																			
4,4-DDT																			
TOXAPHENE																			
AROCHLOR-1232																			
AROCHLOR-1242																			
AROCHLOR-1248													1000 J	6400 C					
AROCHLOR-1254																			
NIREX																			
TOTAL PESTICIDES and PCBs													1000	6400					
PERCENT MOISTURE (VOLATILES)	15	14	13	15	12	17	17	16	15	18	13	19	14	17	16	12	16	13	13

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-3001	SS1-3001	SS1-4001	SS1-6001	SS1-8001	SS2-1001	SS2-2001	SS2-2001	SS2-2001	SS2-2002	SS2 4001	SS2-5001	SS2-5001	SS2-7001	SS2-7001	SS2-8001	SS3 1001	SS3-2001	SS3-4001
Sample Type:	At 4 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 8 Ft.	At 2 Ft.	At 4 Ft.	At 4 Ft.	At 8 Ft.	At 4 Ft.	At 8 Ft.	At 6 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.
Date Sampled:	01/09/86	01/09/86	12/31/85	12/18/85	12/16/85	12/27/85	12/20/85	12/20/85	12/20/85	12/20/85	01/09/86	12/19/85	12/19/85	12/19/85	12/19/85	01/09/86	01/08/86	12/27/85	12/19/85
DIR Number:	E9875	E9876	E9877	E9878	E9879	E9880	E9881	E9883	E9884	E9882	E9885	E9886	E9887	E9888	E9889	E9890	E9891	E9892	E9893
DIR Number:																			
ITA Number:	ME4473	ME4474	ME4475	ME4476	ME4477	ME4478	ME4479	ME4481	ME4482	ME4480	ME4483	ME4484	ME4485	ME4486	ME4487	ME4488	ME4489	ME4490	ME4491
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																			
ALUMINUM	2740	10900	2810	8080	10900	5740	5990	6120	8050	6870	4060	1110	5990	6290	6340	7110	10500	2850	5020
ANTIMONY				(16) J,B				(16) J,B											(22) J,B
ARSENIC	17 J	19 J	61 J	17 J	18 J	18 J	15 J	17 J	14 J	21 J	16 J	27 J	13 J	20 J	15 J	15 J	12 J	9.3 J	14 J
BARIUM	(61)	(53)	(81)	172	253	(49)	(75)	(107)	(65)	(80)	118	(96)	(109)	(84)	(56)	(53)	183	124	(78)
BERYLLIUM	(0.93)	(1.13)	(0.91)	(0.79)	(1.8)	(1)	(0.65)	(0.92)	(0.63)	(1.4)	(0.91)	(0.8)	(0.64)	(0.81)	(0.65)	(0.51)	(1.2)	(0.9)	(0.61)
CADMIUM		(2.6)	(2.7)																
CALCIUM	5020	5230	5640	3210	(1020)	6540	11300	7800	5800	9940	3440	6900	5540	(1710)	(1210)	(360)	3210	(2280)	10300
CHROMIUM	9	19	9.6	17	20	13	15	14	18	16	9.3	10	29	17	13	16	18	8.8	17
COBALT	(5)	(21)	(12)	(16)	51	(15)	(11)	(10)	(16)	(15)	(9.4)	(6.7)	(13)	(11)	(9.7)	(6.7)	(23)	(7)	(14)
COPPER	22	31	37	28	30	25	30	43	27	29	33	32	35	43	26	29	29	23	31
IRON	22000	32200	36400	29200	34700	27700	26900	24700	33100	29000	16100	16900	27400	33900	21500	33800	27500	20800	43100
LEAD	34	18	42	19	15	14	20	45	17	31	14	27	22	36	19	12	16	15	33
CYANIDE																			
MAGNESIUM	(681)	6020	(1290)	3620	4340	3650	3450	(2510)	5140	4220	(2490)	(373)	(2620)	(2330)	(2370)	(2000)	4760	(1360)	2960
MANGANESE	118	331	98	648	558	261	267	182	369	380	250	54	460	300	234	120	282	132	451
MERCURY			.28					.19	.13	.14		.32	.14	(.074)				(0.07)	
NICKEL	(10)	40	(24)	32	47	28	29	26	36	32	24	(12)	32	25	(23)	(15)	39	(14)	26
POTASSIUM	(814)	(1730)	(975)	(1390)	3450	(1320)	(1330)	(1040)	(1350)	(1480)	(1490)	(625)	(1370)	(1540)	(1180)	(1180)	(1360)	(1710)	(1290)
SELENIUM												5.1 S							
SILVER	(2.7) J,B					(3.4) J,B								(2.5) J,B					(2.9) J,B
SODIUM																			
THALLIUM			(5.9)																
TIN																			
VANADIUM	(17)	(24)	(24)	(21)	(24)	(18)	(17)	(16)	(21)	(19)	(11)	(17)	(18)	(21)	(20)	(22)	(20)	(12)	(20)
ZINC	34	79	222	97	88	64	190	359	90	141	84	54	171	88	77	51	74	42	103
PERCENT MOISTURE																			
PERCENT SOLIDS	83	85	85	83	84	88	82	84	84	84	85	82	83	81	81	80	83	86	87

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
*: Duplicate analysis is not within control limits.
**: Samples analyzed at medium concentrations.
(): Positive values less than the contract required detection limit.

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS3-6001	SS3-8001	SS4-1001	SS4-4001	SS4-5001	SS4-6001	SS4-6001	SS4-8001	SS5-1001	SS5-2001	SS5-2001	SS5-3001	SS5-3001	SS5-4001	SS5-4001	SS5-4002	SS5-6001
Sample Type:	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.
Date Sampled:	12/30/85	12/31/85	12/28/85	01/08/86	01/07/86	01/07/86	01/07/86	01/07/86	01/08/86	12/28/85	12/28/85	12/30/85	12/30/85	12/30/85	12/30/85	12/30/85	01/07/86
DTR Number:	[illegible]	E9895	E9896	E9897	E9898	E9899	E9900	EA451	EA452	EA454	EA453	EB185	EB186	EB187	EB189	EB188	EB190
DTR Number:	[illegible]																
ITR Number:	[illegible]	ME4493	ME4494	ME4495	ME4496	ME4497	ME4498	ME4499	ME4500	ME8372	ME8371	ME8383	ME8384	ME8385	ME8387	ME8386	ME8388
ORGANIC COMPOUNDS (units-ug/kg)																	
VOLATILES																	
CHLOROMETHANE																	
VINYL CHLORIDE																	
METHYLENE CHLORIDE	190 J,**	68 B	23 B	350 J,**	1100 J,B**	290 B	4900 J,**	26 B	23 B	81 B	35 B		3300 J,**	10000 B,**	6000 B,J,**	5400 B,J,**	31 B
ACETONE	6000 B,**	62 B	87 B	3600 B,**	14000 B,**	100 B	35000 B,**	52 B	130 B	150 B	120 B	17000 B,**	17000 B,**	520000 B,**	42000 B,**	44000 B,**	290 B
CARBON DISULFIDE			6			10			4 J	8							10
1,1-DICHLOROETHENE			3 J			33									7600 J,**		3 J
1,1-DICHLOROETHANE	110 J,**			470 J,**		9	41000 **	16							13000 **		43
TRANS-1,2-DICHLOROETHENE												7700 **			5400 J,**		
CHLOROFORM						10				4 J				4300 J,**			
1,2-DICHLOROETHANE	11000 **	14		1000 **	8600 **	140		21					68000 **	76000 **	64000 **	80000 **	330
2-BUTANONE	9400 B,**	37 B	61 B	180 J,B,**	16000 B,**	130 B	33000 B,**	28 B	16 B	28 B	30 B	49000 B,**	25000 B,**	35000 B,**	40000 B,**	38000 B,**	66 B
1,1,1-TRICHLOROETHANE	710 **		12	7700 **	1600 J,**	1100	14000 **	34		19		43000 **	12000 **	47000 **	230000 **	51000 **	31
1,1,2,2-TETRACHLOROETHANE																	
TRICHLOROETHENE	400 J,**	10	9	880 **	1200 J,**	240	2500 J,**	19		220	4 J	140000 **	25000 **	150000 **	430000 **	160000 **	6
1,1,2-TRICHLOROETHANE						48											
BENZENE		27	30			14		39	42	24	31						10
2-HEXANONE																	
4-METHYL-2-PENTANONE	260 J,**							11	10			5600 J,**	2500 J,**		6400 J,**		6 J
TETRACHLOROETHENE				190 J,**	2300 J,**	12	2500 J,**					3800 J,**					
TOLUENE	5500 **	190	140	14000 **	40000 **	370	140000 **	130	110	66	91	9000 **	45000 **	62000 **	7100 J,**	36000 **	88 B
CHLOROBENZENE			5		5200 **	82											
ETHYLBENZENE	6800 **	10	21	20000 **	46000 **	18	76000 J,**	18	12	8	11	3400 J,**	58000 **	180000 **	45000 **	75000 **	11
STYRENE																	
TOTAL XYLENES	28000 **	44	200	70000 **	190000 **	700	270000 **	110	86	71	110	18000 **	210000 **	730000 **	260000 **	280000 **	32
TOTAL VOLATILES	68370	372	597	118170	326000	3306	618900	504	433	679	432	296500	465800	1822300	1156500	769400	957
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	37.7	70.8	18015.2	0	208	61872.9	29.7	152	56.4	56	0	0	101938.7	71648	36524.3	28.7
BASE/NEUTRALS AND ACIDS																	
N NITROSODIMETHYLAMINE																	
PHENOL					740	7800 **		87 J				3500					
ANILINE																	
1,3-DICHLOROBENZENE																	
1,4-DICHLOROBENZENE												1500 J		18000 J,**	2300 J,**		
BENZYL ALCOHOL																	
1,2-DICHLOROBENZENE					1200					100 J	54 J	8300		140000 **	17000 **	67000 **	
2-METHYLPHENOL																	
BIS(2-CHLOROISOPROPYL)ETHER																	

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS3-6001	SS3-8001	SS4 1001	SS4-4001	SS4 5001	SS4-6001	SS4-6001	SS4-8001	SS5-1001	SS5 2001	SS5 2001	SS5-3001	SS5 3001	SS5 4001	SS5 4001	SS5 4002	SS5 6001
Sample Type:	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.
Date Sampled:	12/30/85	12/31/85	12/28/85	01/08/86	01/07/86	01/07/86	01/07/86	01/07/86	01/06/86	12/28/85	12/28/85	12/30/85	12/30/85	12/30/85	12/30/85	12/30/85	01/07/86
BTR Number:	E9894	E9895	E9896	E9897	E9898	E9899	E9900	EA451	EA452	EA454	EA453	EB185	EB186	EB187	EB189	EB188	EB190
BTR Number:																	
IIR Number:	NE4492	NE4493	NE4494	NE4495	NE4496	NE4497	NE4498	NE4499	NE4500	NEB372	NEB371	NEB383	NEB384	NEB385	NEB387	NEB386	NEB388
4-METHYLPHENOL																	
HEXACHLOROETHANE																	
ISOPHORONE					720					63 J							44 J
2-NITROPHENOL																	
2,4-DIMETHYLPHENOL					480												
BENZOIC ACID												9300					
1,2,4-TRICHLOROBENZENE					210 J							4200					
NAPHTHALENE	4000 J,**	560	1600	960 J	2700	14000 **	7000 **	360	2100	1300	850	3900	7800 **				1100
4-CHLORO-3-METHYLPHENOL																	
2-METHYLNAPHTHALENE	2000 J,**	620	2200	620 J	1800	13000 **	13500 J,**	290 J	2200	1800	850	5000	4600 J,**				1600
HEXACHLOROCYCLOPENTADIENE														2800000 **	130000 **	2300000 **	
DIMETHYL PHTHALATE																	
ACENAPHTHYLENE																	
ACENAPHTHENE			120 J		290 J				77 J								
4-NITROPHENOL									150 J								
DIBENZOFURAN		200 J	730		400			120 J	520	660	300 J	1000					160 J
DIETHYLPHTHALATE																	
FLUORENE			330		380				220 J	65 J	57 J						94 J
N-NITROSODIPHENYLAMINE(1)									40 J								
HEXACHLOROBENZENE					960	59000 **	12600 J,**					5800		250000 **	34000 **	160000 **	
PENTACHLOROPHENOL		58 J															
PHENANTHRENE	2300 J,**	440	1300	460 J	1200	8700 **	3100 J,**	340	1400	1200	670	3300	4100 J,**				440
ANTHRACENE			130 J		290 J												
DI-N-BUTYLPHTHALATE	2000 J,**	100 J,B	440 B	680 J,B	640 B			380 B	70 J,B	350 B	700 B	1100 J		12000 J,**			110 J
FLUORANTHENE		85 J	350		280 J			55 J	420	340	120 J	1900					80 J
PYRENE		92 J	330		140 J			88 J	310 J	350	210 J	1200 J					110 J
BUTYLBENZYLPHTHALATE	3400 J,**			450 J	1200	9000 **	4900 J,**					2200					
BENZO(A)ANTHRACENE		70 J	310 J					48 J	250 J	240 J	110 J		2500 J,**				38 J
BIS(2-ETHYLHEXYL)PHTHALATE	70000 **	220 J,B	130 J,B	12000 B	15000 B	330000 **	65000 **	600 B	100 J,B	3100 B	3600 B	130000	20000 **	3300000 **	160000 **	450000 **	67 J,B
CHRYSENE		60 J	170 J					48 J	150 J	220 J	130 J		2600 J,**				69 J
DI-N-OCTYL PHTHALATE	3100 J,**			920 J	990	8000 **	4300 J,**	200 J		1700	1300	13000	2200 J,**	170000 **	22000 **	110000 **	
BENZO(B)FLUORANTHENE		79 J	300 J	630 J				66 J	230 J	320 J	130 J		5500 J,**				70 J
BENZO(K)FLUORANTHENE		79 J	300 J	630 J				66 J	230 J	320 J	130 J		5500 J,**				70 J
BENZO(A)PYRENE			120 J	420 J					170 J	200 J	45 J		3000 J,**				
INDENO(1,2,3-CD)PYRENE				350 J						56 J		1400 J	2900 J,**				
DIBENZ(A,H)ANTHRACENE				410 J									2700 J,**				
BENZO(G,H,I)PERYLENE		53 J	200 J	400 J	210 J			82 J		130 J	84 J	1200 J	4500 J,**				110 J
TOTAL BASE/NEUTRALS AND ACIDS	86800	2716	9060	18930	29830	449500	90400	2830	8637	12514	9340	197600	67900	6690000	365300	3087000	4182
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	479274	13358	998	69723	234520	744623		10195	31829	27290	15058	322409	678260	3379542	481124	7598208	10686

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS3-6001	SS3-8001	SS4-1001	SS4-4001	SS4-5001	SS4-6001	SS4-6001	SS4-8001	SS5-1001	SS5-2001	SS5-2001	SS5 3001	SS5-3001	SS5 4001	SS5 4001	SS5-4002	SS5-6001
Sample Type:	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.
Date Sampled:	12/30/85	12/31/85	12/28/85	01/08/86	01/07/86	01/07/86	01/07/86	01/07/86	01/08/86	12/28/85	12/28/85	12/30/85	12/30/85	12/30/85	12/30/85	12/30/85	01/07/86
DIR Number:	E9894	E9895	E9896	E9897	E9898	E9899	E9900	EA451	EA452	EA454	EA453	EB185	EB186	EB187	EB189	EB188	EB190
DIR Number:																	
ITR Number:	ME4492	ME4493	ME4494	ME4495	ME4496	ME4497	ME4498	ME4499	ME4500	ME8372	ME8371	ME8383	ME8384	ME8385	ME8387	ME8386	ME8388
PESTICIDES and PCBs																	
ALPHA-BHC																	
BETA-BHC																	
DELTA-BHC																	
GAMMA-BHC (LINDANE)																	
HEPTACHLOR																	
ALDRIN																	
HEPTACHLOR EPOXIDE																	
ENDOSULFAN I																	
DIELDRIN																	
4,4-DDE																	
ENDRIN																	
4,4-DDT																	27
TOXAPHENE																	
AROCHLOR-1232													6800 **				
AROCHLOR-1242																	
AROCHLOR-1248	8300 **			1600	2300 C	310000 C,**	37000 **										
AROCHLOR-1254																	
AROCHLOR-1260																	
TOTAL PESTICIDES and PCBs	8300			1600	2300	310000	37000						6800				27
PERCENT MOISTURE (VOLATILES)	16	20	13	14	9	20	14	15	11	17	17	23	16	22	17	20	12

TABLE 3
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS3-6001	SS3-8001	SS4-1001	SS4-4001	SS4-5001	SS4-6001	SS4-6001	SS4-8001	SS5-1001	SS5-2001	SS5-2001	SS5-3001	SS5-3001	SS5-4001	SS5-4001	SS5-4002	SS5-6001
Sample Type:	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 6 Ft.	At 4 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.
Date Sampled:	12/19/85	12/31/85	12/20/85	01/08/86	01/07/86	01/07/86	01/07/86	01/07/86	01/08/86	12/20/85	12/20/85	12/30/85	12/30/85	12/30/85	12/30/85	12/30/85	01/07/86
OIR Number:	E9894	E9895	E9896	E9897	E9898	E9899	E9900	EA451	EA452	EA454	EA453	ED185	ED186	ED187	ED189	ED188	ED190
OIR Number:																	
IIR Number:	NE4492	NE4493	NE4494	NE4495	NE4496	NE4497	NE4498	NE4499	NE4500	NEB372	NEB371	NEB383	NEB384	NEB385	NEB387	NEB386	NEB388
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																	
ALUMINUM	7120	5090	3940	6280	6870	4780	6800	9110	3800	1790	3920	1440	7270	4680	4510	3410	6140
ANTIMONY																(18) J,B	
ARSENIC	19 J	22 J	14 J	13 J	22 J	26 J	22 J	27 J	21 J	28 J	14 J	17 J	29 J	25 J	28 J	23 J	24 J
BARIUM	(78)	(46)	(36)	(93)	(100)	(84)	(57)	(53)	(76)	(70)	(64)	215	(86)	(110)	(55)	(119)	(35)
BERYLLIUM	(0.64)	(0.45)	(0.56)	(0.7)	(1.1)	(1.1)	(0.7)	(0.86)	(0.71)	(0.32)	(0.32)	(0.49)	(0.86)	(0.61)	(0.57)	(0.46)	(0.81)
CADMIUM			2.9			4.7					(2.9)	12	3.1	3.2	5	4.3	(2.7)
CALCIUM	3270	3420	4900	(1040)	3490	17600	3950	5480	3370	(2020)	(2070)	(980)	(1850)	(2920)	(1210)	(1160)	5640
CHROMIUM	19	12	15	13	16	36	16	19	15	8.7	11	13	20	24	21	89	17
COBALT	(14)	(9)	(11)	(9.1)	(17)	(8.8)	(13)	(16)	(9.6)		(8.5)	(4.7)	(13)	(9.4)	(13)	(6.3)	(18)
COPPER	29	19	23	22	31	51	25	28	22	22	29	31	39	148	66	175	39
IRON	24600	27600	30700	24800	31300	32300	23700	30900	39500	27800	28800	17000	34600	28800	39400	30400	48900
LEAD	35	17 R	17	13	21 R	48	19 R	24 R	35	19 R	22 R	35	17 R	64	42	147	32
CYANIDE						1.5						1.2	.81	22	9.4	67	
MAGNESIUM	3640	(1750)	(1340)	(1890)	4410	(1930)	3260	4410	(1730)	(407)	(1260)		3200	(1740)	(2260)	(1380)	4300
MANGANESE	456	142	73	244	495	131	347	521	150	33	105	23	293	153	324	115	458
MERCURY		(0.084)				0.65			.21	.52	0.25	0.29		0.15	(0.11)	0.15	(0.1)
NICKEL	29	(13)	(19)	(17)	37	(18)	30	35	(20)	(5.3)	(16)	(8.6)	29	(20)	25	(23)	37
POTASSIUM	(1220)	(2030)	(1300)	(1610)	(2460)	(1680)	(1540)	(2330)	(1790)	(1640)	(1790)	(1470)	(1600)	(1740)	(1640)	(1320)	(1680)
SELENIUM																	
SILVER		(2.6) J,R						(2.8) J,R	(3.3) J,R	(3.1) J,R		(2.8) J,R	(2.9) J,R		(4.1) J,R	(3) J	(4.2) J,R
SODIUM																	
THALLIUM																	
TIN												(15)				106	
VANADIUM	(18)	(20)	(18)	(18)	(22)	(18)	(18)	(23)	(22)	(16)	(16)	(15)	(24)	(18)	(19)	(18)	(23)
ZINC	90	62	41	71	111	448	95	85	49	24	59	28	93	104	112	421	103
PERCENT MOISTURE																	
PERCENT SOLIDS	83	83	87	85	86	84	86	83	84	83	83	76	83	79	85	82	89

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
*: Duplicate analysis is not within control limits.
**: Samples analyzed at medium concentrations.
( ): Positive values less than the contract required detection limit.

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS5-7001	SS5-7001	SS5-7002	SS5-8001	RS000005	SS6-2001	SS6-3001	SS6-5001	SS6-5001	SS6-5002	SS6-7001	SS6-7001	SS6-7002	RS000003	RS000004	SS081001	RS006001	SS082001	SS084001
Sample Type:	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	Blank	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	Blank	Blank	At 4 Ft.	Blank	At 6 Ft.	At 4 Ft.
Date Sampled:	01/06/86	01/06/86	01/06/86	01/07/86	01/09/86	01/08/86	12/30/85	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/09/86	01/09/86	07/03/86	09/12/86	07/03/86	07/03/86
DTR Number:	EB191	EB193	EB192	EB194	EB195	EA455	EA456	EA457	EA459	EA458	EA460	EB182	EB181	EB183	EB184	EC383	EC384	EC385	EC388
DTR Number:																EB532	EB538	EB533	EB536
ITR Number:	NEB389	NEB391	NEB390	NEB392	NEB394	NEB373	NEB374	NEB375	NEB377	NEB376	NEB378	NEB380	NEB379	NEB381	NEB382	NEG832	NEG833	NEG834	NEG837
ORGANIC COMPOUNDS (units-ug/kg)																			
VOLATILES																			
CHLOROETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE	81 B	70 B	53 B	13 B	8 B	16 B	38 B	16 B	5100	47 B	35 B	220 B	91 B	11 B	5 B	5 B	37 B	1700 J,B	470 J,B
ACETONE	74 B	260 B		37 B	63 B	35 B	37 B	28 B	19000 B	30 B	42 B	47 B	52 B	120 B	71 B	26 B	28 B	48000 B,J	980 J,B
CARBON DISULFIDE		3 J	5				4 J					5				3 J			
1,1-DICHLOROETHENE							5												430 J
1,1-DICHLOROETHANE				5			17									14			430 J
TRANS-1,2-DICHLOROETHENE		3 J					9	70	7100	51		30							1400 J
CHLOROFORM								6											
1,2-DICHLOROETHANE							100									81		8900 J	3200 J
2-BUTANONE	31 B	36 B		36 B	43 B	22 B	27 B		16000 B	25 B	34 B	39 B	30 B	28 B	52 B	21 B	4 J,B	190000 B,J	45000 B,J
1,1,1-TRICHLOROETHANE			3 J	9			100	19		6	12					100		2800 J	24000 J
1,1,2,2-TETRACHLOROETHANE																			
TRICHLOROETHENE	5	11	9	5			380	1600	99000	1400	59	130	18			6		1100 J	32000 J
1,1,2-TRICHLOROETHANE																			510 J
BENZENE	8	7		29		12	23	13		11	11	8	14			1 J			
2-HEXANONE																			
4-METHYL-2-PENTANONE					96									110	110				15000 J
TETRACHLOROETHENE							9									3 J			
TOLUENE	34 B	31 B	20 B	61	3 J	44	81	47	1900 J	34	72	24	72	5	3 J	22	1 J	26000 J	46000 J
CHLOROBENZENE										3 J									670 J
ETHYLBENZENE		4 J		6		5	10		2500 J	4 J			10			27		41000 J	3800 J
STYRENE																			
TOTAL XYLENES	12	11	9	24	5	33	72	11	9000	14	35	9	120	6	5	190		240000 J	30000 J
TOTAL VOLATILES	245	436	99	225	210	167	912	1810	159600	1625	300	512	407	280	246	499	70	559500	203890
TOTAL TENTATIVELY IDENTIFIED VOLATILES	42	39.5	59.7	0	255	18.5	47.5	27.6		0	133	13.2		239	457	337	0	0	3966
BASE/NEUTRALS AND ACIDS																			
N NITROSODIMETHYLAMINE																			
PHENOL											530		290 J						
ANILINE																			
1,3-DICHLOROBENZENE																			
1,4-DICHLOROBENZENE							240 J												
BENZYL ALCOHOL															240 J				
1,2-DICHLOROBENZENE							1200		49 J										
2-METHYLPHENOL											1100		1900						
BIS(2-CHLOROISOPROPYL)ETHER																			

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS5-7001	SS5-7001	SS5-7002	SS5-8001	A5000005	SS6-2001	SS6-3001	SS6-5001	SS6-5001	SS6-5002	SS6-7001	SS6-7001	SS6-7002	A5000003	A5000004	SS081001	A5006001	SS082001	SS084001
Sample Type:	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	Blank	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	Blank	Blank	At 4 Ft.	Blank	At 6 Ft.	At 4 Ft.
Date Sampled:	01/06/86	01/06/86	01/06/86	01/07/86	01/09/86	01/08/86	12/30/85	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/09/86	03/09/86	07/03/86	09/12/86	07/03/86	07/03/86
DTR Number:	EB191	EB193	EB192	EB194	EB195	EA455	EA456	EA457	EA459	EA458	EA460	EB182	EB181	EB183	EB184	EC383	EC384	EC385	EC388
DTR Number:																EB532	EB538	EB533	EB536
ITR Number:	MEB389	MEB391	MEB390	MEB392	MEB394	MEB373	MEB374	MEB375	MEB377	MEB376	MEB378	MEB380	MEB379	MEB381	MEB382	MEG832	MEG833	MEG834	MEG837
4-METHYLPHENOL			45 J	110 J							270 J		640						
HEXACHLOROETHANE																			
ISOPHORONE																			
2-NITROPHENOL																			
2,4-DIMETHYLPHENOL											1100		2500						
BENZOIC ACID															190 J				
1,2,4-TRICHLOROBENZENE								1400	100 J	1000									
NAPHTHALENE	630	340	260 J	350		550	550	630		720	530	260 J	490						624
4-CHLORO-3-METHYLPHENOL									140 J										
2-METHYLNAPHTHALENE	540	400	370	410		500	800	1000	1100	1200	770	420	740						1226
HEXACHLOROCYCLOPENTADIENE																			
DIMETHYL PHTHALATE																			
ACENAPHTHYLENE																			
ACENAPHTHENE																			
4-NITROPHENOL																			
DIBENZOFURAN	120 J	110 J	85 J	110 J		100 J	100 J	190 J	150 J	220 J	93 J	110 J							
DIETHYLPHTHALATE																			
FLUORENE		67 J					74 J		63 J										
N-NITROSODIPHENYLAMINE(1)																			
HEXACHLOROBENZENE	180 J		96 J					220 J		140 J									
PENTACHLOROPHENOL																			
PHENANTHRENE	380	530	270 J	370		390	430	500	400	590	270 J	270 J	350						
ANTHRACENE																			
DI-N-BUTYLPHTHALATE	250 J	410	290 J	190 J	100 J	370 B	890 B	630 J,B	130 J,B	140 J,B	170 J,B	180 J		240 J	120 J	1124 B	3102 B	1095 B	1226 B
FLUORANTHENE	81 J	130 J	54 J	74 J		62 J	87 J	150 J	86 J	150 J		50 J							
PYRENE	110 J	200 J	82 J	120 J		170 J	240 J	120 J	150 J	170 J	200 J	140 J	220 J						
BUTYLBENZYLPHTHALATE											930		2100						
BENZO(A)ANTHRACENE	49 J		41 J				60 J	120 J	78 J	130 J									
BIS(2-ETHYLHEXYL)PHTHALATE	1000 B	310 J,B	630	130 J,B	54 J,B	430 B	690 B	16000 B	800 B	5200 B	3100 B	120 J,B	4200 B	44 J,B	82 J			707 B	346 J,B
CHRYSENE	68 J	95 J	53 J	87 J		86 J	93 J		76 J	140 J		83 J							
DI-N-OCTYL PHTHALATE	54 J	66 J	48 J			48 J	47 J	490	44 J	220 J	770		600						
BENZO(B)FLUORANTHENE	90 J	120 J		78 J		100 J	130 J	160 J	120 J	210 J									
BENZO(K)FLUORANTHENE	90 J	120 J				100 J	130 J		120 J	210 J									
BENZO(A)PYRENE						50 J	130 J		50 J	160 J									
INDENO(1,2,3-CD)PYRENE							56 J												
DIBENZ(A,H)ANTHRACENE																			
BENZO(G,H,I)PERYLENE	120 J		110 J			120 J	220 J	120 J	100 J	220 J									
TOTAL BASE/NEUTRALS AND ACIDS	3562	2978	2434	2029	234	3236	6245	21730	3824	10820	9633	1641	14030	284	632	1124	3102	1802	3422
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	24990	13892	21737	13858	7357	7195	14089	30289		16620	20294	9951	29973	2633	2638	1790	800	3960	9500

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS5-7001	SS5-7001	SS5-7002	SS5-8001	RS000005	SS6-2001	SS6-3001	SS6-5001	SS6-5001	SS6-5002	SS6-7001	SS6-7001	SS5-7002	RS000003	RS000004	SS081001	RS006001	SS082001	SS084001
Sample Type:	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	Blank	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	Blank	Blank	At 4 Ft.	Blank	At 6 Ft.	At 4 Ft.
Date Sampled:	01/06/86	01/06/86	01/06/86	01/07/86	01/09/86	01/08/86	12/30/85	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/09/86	01/09/86	07/03/86	09/12/86	07/03/86	07/03/86
DTR Number:	EB191	EB193	EB192	EB194	EB195	EA455	EA456	EA457	EA459	EA458	EA460	EB182	EB181	EB183	EB184	EC383	EC384	EC385	EC388
DTR Number:																EB532	EB538	EB535	EB536
ITR Number:	MEB389	MEB391	MEB390	MEB392	MEB394	MEB373	MEB374	MEB375	MEB377	MEB376	MEB378	MEB380	MEB379	MEB381	MEB382	MEG832	MEG833	MEG834	MEG837
PESTICIDES and PCBs																			
ALPHA-BHC																			
BETA-BHC																			
DELTA-BHC																			
GAMMA-BHC (LINDANE)																			
HEPTACHLOR																			
ALDRIN																			
HEPTACHLOR EPOXIDE																550 **		680 **	
ENDOSULFAN I																			
DIELDRIN																			
4,4-DDE																			
ENDRIN																			
4,4-DDT				36															
TOXAPHENE																			
AROCHLOR-1232																			
AROCHLOR-1242																			
AROCHLOR-1248		990																	
AROCHLOR-1254																			
MIREX																9000 **		12000 **	
TOTAL PESTICIDES and PCBs		990		36												9550		12680	
PERCENT MOISTURE (VOLATILES)	20	13	19	17	0	13	14	19	16	16	16	17	15	0	0	19	0	12	13

TABLE 1
SUMMIT NATIONAL SITE
ONSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS5-7001	SS5-7001	SS5-7002	SS5-8001	RS000005	SS6-2001	SS6-3001	SS6-5001	SS6-5001	SS6-5002	SS6-7001	SS6-7001	SS6-7002	RS000003	RS00004	SS081001	RS006001	SS082001	SS084001
Sample Type:	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	Blank	At 8 Ft.	At 8 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	At 2 Ft.	At 8 Ft.	At 2 Ft.	Blank	Blank		Blank		
Date Sampled:	01/06/86	01/06/86	01/06/86	01/07/86	01/09/86	01/08/86	12/30/85	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/06/86	01/09/86	01/09/86	07/03/86	09/12/86	07/03/86	07/03/86
OTR Number:	EB191	EB193	EB192	EB194	EB195	EA455	EA456	EA457	EA459	EA458	EA460	EB182	EB181	EB183	EB184	EC383	EC384	EC385	EC388
QTR Number:																EB532	EB538	EB533	EB536
ITR Number:	MEB389	MEB391	MEB390	MEB392	MEB394	MEB373	MEB374	MEB375	MEB377	MEB376	MEB378	MEB380	MEB379	MEB381	MEB382	MEG832	MEG833	MEG834	MEG837
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																			
ALUMINUM	6560	7080	6270	6720	138	8010	7550	6580	6660	6010	7030	8190	6440	139	139	3850	187	8070	6820
ANTIMONY		[17] J,B																	
ARSENIC	22 J	21 J	22 J	27 J		19 J	23 J	20 J	19 J	23 J	21 J	22 J	21 J			14		19	16
BARIUM	[57]	[46]	[39]	[50]		[48]	[65]	[45]	[50]	[52]	[51]	[51]	[69]			245	[3.6]	[60]	141
BERYLLIUM	[0.72]	[0.98]	[0.73]	[0.59]		[1.6]	[0.87]	[0.75]	[0.49]	[0.64]	[0.75]	[0.77]	[0.88]						
CADMIUM	3.7	[2.9]		[2.7]			[2.7]	[2.4]			3.4								13
CALCIUM	3470	[2550]	[9800]	[2250]	[1870]	5600	5250	[2540]	[2530]	[1990]	4210	6670	3460	[1790]	[1900]	[2140] E	[2040] E	[1890] E	[1090] E
CHROMIUM	23	20	20	17	9.1	18	19	18	19	17	36	16	20	7.6	9.2	732	8.1	115	15
COBALT	[14]	[18]	[12]	[11]		[23]	[17]	[13]	[11]	[12]	[15]	[13]	[20]			[10]		[10]	[11]
COPPER	39	36	20	20	[3.2]	31	36	36	34	33	36	25	33	[4]	[5.1]	34	[4.9]	36	36
IRON	31600	47000	29700	33900	134	37700	41800	28100	31600	30300	33100	31000	35200	137	134	26100	164	50800	32800
LEAD	34	36	32	18 R		14	21	26	20	36	22	19	34			17		24	84
CYANIDE	1.1							8.8	3.9	1.4									
MAGNESIUM	[2650]	3400	[2540]	3050	[286]	4500	3890	3070	3190	[2750]	3190	3010	[2450]	[293]	[300]	[791]	[314]	[2980]	2500
MANGANESE	334	680	224	324	[2.6]	515	443	407	270	326	457	208	683	[2.1]	[2.9]	57		186	311
MERCURY	[.084]			[.096]				.81											
NICKEL	28	34	[21]	[23]		42	35	25	26	[24]	36	28	38			27	[3.8]	27	27
POTASSIUM	[1630]	[1770]	[1950]	[2320]		[1920]	[1760]	[1530]	[2170]	[1840]	[1610]	[1410]	[1880]			[1050]		[1720]	[1800]
SELENIUM																			
SILVER		[3.4] J,B	[2.6] J,B	[2.6] J,B															
SODIUM					[929]	[591]	[634]	[528]	[797]	[572]	[670]	[759]	[652]	[759]	[872]		[547]	[600]	
THALLIUM																			
TIN					[9.6]														[20]
VANADIUM	[20]	[26]	[21]	[22]	[16]	[24]	[22]	[18]	[19]	[19]	[19]	[19]	[20]	[15]	[15]	[14]	[15]	[16]	[14]
ZINC	162	100	85	58	[3.2]	195	120	109	91	88	117	69	115	[3.5]	21	126	[5.1]	97	110
PERCENT MOISTURE																			
PERCENT SOLIDS	83	84	82	83	100	83	87	86	84	83	86	83	86	100	100	81	100	84	89

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
*: Duplicate analysis is not within control limits.
**: Samples analyzed at medium concentrations.
[]: Positive values less than the contract required detection limit.

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-9001	SS1-9002	SS2-9001	SS3-9001	SS4-9001	SS5-9001	SS5-9002	BS000002	SS051001	SS052001	SS053001	SS054001	SS055001	SS055002	SS056001	SS057001	SS058001	SS059001	SS060001
Sample Type:	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Blank	Resident	Resident	Resident	Resident	Resident	Resident	Farm	Farm	Farm	Farm	Farm
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	12/12/85	12/11/85	12/11/85	12/13/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85
DTR Number:	E9722	E9723	E9724	E9725	E9869	E9870	E9871	E9872	E8994	E8995	E8996	E8997	E8998	E9873	E9706	E9707	E9708	E9709	E9710
DTR Number:																			
ITR Number:	ME4463	ME4464	ME4465	ME4466	ME4467	ME4468	ME4469	ME4470	ME4441	ME4442	ME4443	ME4444	ME4445	ME4471	ME4447	ME4448	ME4449	ME4450	ME4451
ORGANIC COMPOUNDS (units-ug/kg)																			
VOLATILES																			
CHLOROMETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE	15 B	27 B	19 B	19 B	9 B	47 B	26 B	13 B	40 B	45 B	99 B	11 B	17 B	26 B	8 B	97 B	46 B	54 B	40 B
ACETONE	25 B	27 B	34 B	41 B	25 B	110 B	81 B	70 B	30 B	19 B	110 B	32 B	24 B	110 B	18 B	25 B	24 B	30 B	19 B
CARBON DISULFIDE																			
1,1-DICHLOROETHENE																			
1,1-DICHLOROETHANE																			
TRANS-1,2-DICHLOROETHENE																			
CHLOROFORM																			
1,2-DICHLOROETHANE																			
2-BUTANONE	26 B	27 B	25 B	32 B	25 B	29 B	24 B	13 B	36 B	32 B	42 B	37 B	35 B	33 B	26 B	30 B	28 B	28 B	22 B
1,1,1-TRICHLOROETHANE																			
1,1,2,2-TETRACHLOROETHANE																			
TRICHLOROETHENE																			
1,1,2-TRICHLOROETHANE																			
BENZENE																			
2-HEXANONE																			
4-METHYL-2-PENTANONE								4 J											
TETRACHLOROETHENE																			
TOLUENE	20	16	16	5	4 J	28	14			6	12		10	7		11	11	4 J	9
CHLOROBENZENE																			
ETHYLBENZENE																			
STYRENE																			
TOTAL XYLENES																			
TOTAL VOLATILES	86	97	94	97	63	214	145	100	106	102	263	80	86	176	52	163	109	116	90
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	0	0	0	0	53.4	0	63.3	0	29.5	61.5	0	430	408	0	47.8	0	29.2	0
BASE/NEUTRALS AND ACIDS																			
N-NITROSODIMETHYLAMINE																			
PHENOL																			
ANILINE																			
1,3-DICHLOROBENZENE																			
1,4-DICHLOROBENZENE																			
BENZYL ALCOHOL								69 J											
1,2-DICHLOROBENZENE																			
2-METHYLPHENOL																			
BIS(2-CHLOROISOPROPYL)ETHER																			

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-9001	SS1-9002	SS2-9001	SS3-9001	SS4-9001	SS5-9001	SS5-9002	RS000002	SS051001	SS052001	SS053001	SS054001	SS055001	SS055002	SS056001	SS057001	SS058001	SS059001	SS060001
Sample Type:	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Blank	Resident	Resident	Resident	Resident	Resident	Resident	Farm	Farm	Farm	Farm	Farm
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	12/12/85	12/11/85	12/11/85	12/13/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85
DTR Number:	E9722	E9723	E9724	E9725	E9869	E9870	E9871	E9872	E8994	E8995	E8996	E8997	E8998	E9873	E9706	E9707	E9708	E9709	E9710
DTR Number:																			
ITR Number:	NE4463	NE4464	NE4465	NE4466	NE4467	NE4468	NE4469	NE4470	NE4441	NE4442	NE4443	NE4444	NE4445	NE4471	NE4447	NE4448	NE4449	NE4450	NE4451
4-METHYLPHENOL																			
HEXACHLOROETHANE																			
ISOPHORONE																			
2-NITROPHENOL																			
2,4-DIMETHYLPHENOL																			
BENZOIC ACID						500 J			160 J	890 J			1100 J						
1,2,4-TRICHLOROBENZENE																			
NAPHTHALENE	2900	2000	1400 J,**	1200		750	370			1900		500	110 J	110 J					
4-CHLORO-3-METHYLPHENOL																			
2-METHYLNAPHTHALENE	2900	3200	2300 J,**	1700		1200	540		55 J	2600		990	150 J	130 J					
HEXACHLOROCYCLOPENTADIENE																			
DIMETHYL PHTHALATE																			
ACENAPHTHYLENE									83 J			150 J							
ACENAPHTHENE		240 J																	
4-NITROPHENOL																			
DIBENZOFURAN	700	870		340 J		310 J	120 J			500		230 J							
DIETHYLPHTHALATE																			
FLUORENE		400								94 J		65 J							
N-NITROSODIPHENYLAMINE(1)																			
HEXACHLOROBENZENE									330 J										
PENTACHLOROPHENOL									87 J										
PHENANTHRENE	1700	6500	1700 J,**	810		650	440		120 J	1300		1200	260 J	240 J	120 J	42 J	68 J	380	
ANTHRACENE		910							200 J			160 J						67 J	
DI-N-BUTYLPHTHALATE	110 J	130 J		320 J	45 J		60 J	45 J	84 B,J	160 B,J	510 B	270 J	190 J	88 J	91 B,J	76 B,J	110 B,J	180 B,J	150 B,J
FLUORANTHENE	890	7100				120 J	86 J		230 J	350		2100	300 J	300 J	220 J	70 J	140 J	570	69 J
PYRENE	690	4700		210 J		160 J	130 J		400	720		1500	230 J	190 J	120 J	54 J	87 J	540	73 J
BUTYLBENZYLPHTHALATE	67 J																		
BENZO(A)ANTHRACENE	660	3000				110 J	88 J		500	360		1000	200 J	140 J	97 J		59 J	300 J	
BIS(2-ETHYLHEXYL)PHTHALATE	97 J	140 J				45 J			91 J		51 J	120 J		73 J	49 J	40 J			
CHRYSENE	240 J	2400				110 J	83 J		940	340		1100	150 J	150 J	110 J	47 J	62 J	270 J	
DI-N-OCTYL PHTHALATE																			
BENZO(B)FLUORANTHENE	720	3200				120 J	120 J		1100	530		1900		250 J	190 J		49 J	490	66 J
BENZO(K)FLUORANTHENE	720	3200				120 J	120 J		1100	530		1900		250 J	190 J		49 J	490	66 J
BENZO(A)PYRENE	400	1700					61 J		430	280		1100		150 J	110 J		67 J	280 J	
INDENO(1,2,3-CD)PYRENE	320 J	1200							390			550		82 J				140 J	
DIBENZ(A,H)ANTHRACENE	89 J	410							97 J			120 J							
BENZO(G,H,I)PERYLENE	290 J	1200				140 J	120 J		310 J			470						150 J	
TOTAL BASE/NEUTRALS AND ACIDS	12593	42580	5400	4580	45	4335	2318	114	6787	10554	561	15425	2690	2153	1297	329	691	3857	424
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	34865	30523	20428	20479	4382	35993	8030	2995	5100	23441	9434	10673	19170	19390	7526	8631	2028	2892	1246

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-9001	SS1-9002	SS2-9001	SS3-9001	SS4-9001	SS5-9001	SS5-9002	BS000002	SS051001	SS052001	SS053001	SS054001	SS055001	SS055002	SS056001	SS057001	SS058001	SS059001	SS060001
Sample Type:	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Blank	Resident	Resident	Resident	Resident	Resident	Resident	Farm	Farm	Farm	Farm	Farm
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	12/12/85	12/11/85	12/11/85	12/13/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85
DIR Number:	E9722	E9723	E9724	E9725	E9869	E9870	E9871	E9872	E8994	E8995	E8996	E8997	E8998	E9873	E9706	E9707	E9708	E9709	E9710
OIR Number:																			
ITR Number:	ME4463	ME4464	ME4465	ME4466	ME4467	ME4468	ME4469	ME4470	ME4441	ME4442	ME4443	ME4444	ME4445	ME4471	ME4447	ME4448	ME4449	ME4450	ME4451
PESTICIDES and PCBs																			
ALPHA-BHC																			
BETA-BHC																			
DELTA-BHC																			
GAMMA-BHC (LINDANE)																			
HEPTACHLOR																			
ALDRIN																			
HEPTACHLOR EPOXIDE																			
ENDOSULFAN I																			
DIELDRIN																			
4,4-DDE																			
ENDRIN																			
4,4-DDT																			
TOXAPHENE																			
AROCHLOR-1232																			
AROCHLOR-1242																			
AROCHLOR-1248																			
AROCHLOR-1254																			
NIKEI																			
TOTAL PESTICIDES and PCBs																			
PERCENT MOISTURE (VOLATILES)	26	27	25	27	16	21	24	0.97	36	30	27	41	39	38	21	25	26	22	20

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS1-9001	SS1-9002	SS2-9001	SS3-9001	SS4-9001	SS5-9001	SS5-9002	RS000002	SS051001	SS052001	SS053001	SS054001	SS055001	SS055002	SS056001	SS057001	SS058001	SS059001	SS060001
Sample Type:	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Blank	Resident	Resident	Resident	Resident	Resident	Resident	Farm	Farm	Farm	Farm	Farm
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/00/86	12/12/85	12/11/85	12/11/85	12/13/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85
DIR Number:	E9722	E9723	E9724	E9725	E9869	E9870	E9871	E9872	E8994	E8995	E8996	E8997	E8998	E9873	E9706	E9707	E9708	E9709	E9710
DIR Number:																			
IID Number:	ME4463	ME4464	ME4465	ME4466	ME4467	ME4468	ME4469	ME4470	ME4441	ME4442	ME4443	ME4444	ME4445	ME4471	ME4447	ME4448	ME4449	ME4450	ME4451
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																			
ALUMINUM	7710	9650	2300	8290	12700	7190	9960	175	11800	8890	14500	18100	11800	9530	10400	13100	12200	11700	10900
ANTIMONY															(20) R				
ARSENIC	12	11	20	14	14	12	9.9		16	26	23	19	20	17	15	16	15	18	18
BARIUM	218	295	(53)	(66)	(71)	135	(130)		(109)	(123)	(90)	(145)	(74)	(60)	(104)	(83)	(80)	(78)	(56)
BERYLLIUM	(0.62)	(0.73)	(0.56)	(0.52)	(0.55)		(0.48)		(0.87)	(0.4)	(0.77)	(1.3)	(0.5)	(0.42)	(0.7)	(0.61)	(1.2)	(0.71)	(0.34)
CADMIUM	(2.8)	(2.9)		4			4.2			(3.3)		(3.8)			(2.8)	(3)	4.1	4	3.8
CALCIUM	7250	19700	(540)	(921)	(1670)	(392)	(402)	(1960)	(2430)	(2450)	(2930)	5510	(1350)	(978)	3340	(825)	(1340)	(1840)	(1330)
CHROMIUM	15	17	22	17	19	16	22	9	19	16	24	23	16	14	15	18	17	19	14
COBALT	(11)	(13)	(5)	(8.6)	(15)	(10)	(13)		(14)	(8.8)	(21)	(13)	(11)	(9.1)	(13)	(13)	(15)	(19)	(8.5)
COPPER	35	34	56	33	31	29	37	(0.9)	51	29	25	37	(20)	(18)	20	(16)	18	21	17
IRON	27800	25900	34300	30700	26100	30900	40600	164	22600	30300	31300	25700	19300	16600	18500	17900	21000	26900	17800
LEAD	164	175	50	20	17	22	21		123	391	31	215	52	50	26	24	26	62	19
CYANIDE									.83	.76	1.3	4.2	1.1			.69	1.2	.95	
MAGNESIUM	(1690)	(2300)	(515)	(2380)	3180	3200	4700	(332)	2360	(1790)	5340	(2960)	(2080)	(1720)	(2470)	(2000)	(2110)	(2050)	(2150)
MANGANESE	879 J	1350 J	54 J	145 J	455 J	170 J	239 J	(2) J	1550 J,R	472 J,R	1050 J,R	1160 J,R	865 J,R	693 J,R	1470 J,R	1120 J,R	916 J	1580 J,R	565 J,R
MERCURY	.55	.4	1.1						(.095)	.38		.25							
NICKEL	(19)	(21)	(18)	(22)	30	(19)	(25)	(5.2)	(15)	(13)	38	(23)	(13)	(13)	(15)	(16)	(14)	(16)	(12)
POTASSIUM	(1910)	(1810)	(2110)	(1740)	(1800)	(2190)	(2230)		(1860)	(1860)	(3100)	(2830)	(1390)	(905)	(1290)	(2040)	(1380)	(1400)	(1420)
SELENIUM			3.3																
SILVER	(3.5) J,R		(4.2) J,R			(2.7) J,R	(4.5) J,R		16 J,R	(3.4) J,R	(4.1) J,R					(2.8) J,R	(3.5) J,R	(2.8) J,R	
SODIUM	(674)	(850)	(759)	(1150)	(1090)	(707)		(1070)							(779)				
THALLIUM																			
TIN																			
VANADIUM	(21)	(25)	(20)	(20)	(25)	(16)	(22)	(16)	(27)	(21)	(27)	(36)	(25)	(20)	(23)	(20)	(30)	(29)	(22)
ZINC	124	139	36	75	100	89	109	25	187	127	91	227	87	70	61	69	75	64	60
PERCENT MOISTURE																			
PERCENT SOLIDS	74	75	82	71	84	77	76	100	63	68	71	57	55	66	78	75	74	77	80

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
**: Samples analyzed at medium concentrations.
(): Positive values less than the contract required detection limit.

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS061001	SS062001	SS063001	SS064001	SS065001	SS065002	SS066001	SS067001	SS068001	SS069001	SS070001	SS071001	SS072001	SS073001	SS073002	SS074001	SS075001	SS076001
Sample Type:	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	Industry	Industry	Industry	Industry	Industry	Per-4 Ft.	Per-6 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-6 Ft.	Per-2 Ft.
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	01/08/86	01/08/86	01/08/86	01/08/86	07/01/86	07/01/86	09/12/86	09/12/86	07/02/86	07/02/86	07/02/86
DTR Number:	E9711	E9712	E9713	E9714	E9715	E9874	E9717	E9718	E9719	E9720	E9721	EC371	EC372	EC373	EC374	EC375	EC376	EC377
DTR Number:												ED520	ED521	ED522	ED523	ED524	ED525	ED526
ITR Number:	ME4452	ME4453	ME4454	ME4455	ME4456	ME4472	ME4458	ME4459	ME4460	ME4461	ME4462	ME6820	ME6821	ME6822	ME6823	ME6824	ME6825	ME6826
ORGANIC COMPOUNDS (units-ug/kg)																		
VOLATILES																		
CHLOROMETHANE																		
VINYL CHLORIDE																		
METHYLENE CHLORIDE	52 B	64 B	59 B	52 B	36 B	10 B	21 B	45 B	20 B	25 B	10 B	15 B	97	18	5	6	2 J	2 J
ACETONE	140 B	84 B	32 B	81 B	27 B	58 B	58 B	60 B	26 B	23 B	30 B	8 J,B	25 B	16 B	17 B	22 B	12 B	13 B
CARBON DISULFIDE																		
1,1-DICHLOROETHENE																		
1,1-DICHLOROETHANE																		
TRANS-1,2-DICHLOROETHENE																		
CHLOROFORM																		
1,2-DICHLOROETHANE																		
2-BUTANONE	21 B	29 B	30 B	26 B	26 B	23 B	29 B	49 B	24 B	20 B	25 B	11 B	14 B	13 B	17 B	27 B	10 B	10 B
1,1,1-TRICHLOROETHANE																		
1,1,2,2-TETRACHLOROETHANE																		
TRICHLOROETHENE																		
1,1,2-TRICHLOROETHANE																		
BENZENE																		
2-HEXANONE																		
4-METHYL-2-PENTANONE																		
TETRACHLOROETHENE																		
TOLUENE	23	31	7	11	6	6	4 J		4 J				3 J					
CHLOROBENZENE																		
ETHYLBENZENE																		
STYRENE																		
TOTAL XYLENES	6	7																
TOTAL VOLATILES	242	215	128	170	95	97	112	154	74	68	65	34	139	47	39	55	24	25
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASE/NEUTRALS AND ACIDS																		
N-NITROSODIMETHYLAMINE																		
PHENOL																		
ANILINE																		
1,3-DICHLOROBENZENE																		
1,4-DICHLOROBENZENE																		
BENZYL ALCOHOL																		
1,2-DICHLOROBENZENE																		
2-METHYLPHENOL																		
BIS(2-CHLOROISOPROPYL)ETHER																		

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS061001	SS062001	SS063001	SS064001	SS065001	SS065002	SS066001	SS067001	SS068001	SS069001	SS070001	SS071001	SS072001	SS073001	SS073002	SS074001	SS075001	SS076001
Sample Type:	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	Industry	Industry	Industry	Industry	Industry	Per-4 Ft.	Per-6 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-6 Ft.	Per-2 Ft.
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	01/08/86	01/08/86	01/08/86	01/08/86	07/01/86	07/01/86	09/12/86	09/12/86	07/02/86	07/02/86	07/02/86
DTR Number:	E9711	E9712	E9713	E9714	E9715	E9874	E9717	E9718	E9719	E9720	E9721	EC371	EC372	EC373	EC374	EC375	EC376	EC377
DTR Number:												ED520	ED521	ED522	ED523	ED524	ED525	ED526
ITR Number:	NE4452	NE4453	NE4454	NE4455	NE4456	NE4472	NE4458	NE4459	NE4460	NE4461	NE4462	NE6820	NE6821	NE6822	NE6823	NE6824	NE6825	NE6826
4-METHYLPHENOL																		
HEXACHLOROETHANE																		
ISOPHORONE																	440	
2-NITROPHENOL																		
2,4-DIMETHYLPHENOL																		
BENZOIC ACID																		
1,2,4-TRICHLOROBENZENE																		
NAPHTHALENE	1900	1300	2900	3500	1400	990	36000 **		5500	2600	2300 J,**					249 J		
4-CHLORO-3-METHYLPHENOL																		
2-METHYLNAPHTHALENE	2200	1400	2700	3700	1300	1300	55000 **		6900	3700	2900 J,**			93 J	95 J	212 J	30 J	150 J
HEXACHLOROCYCLOPENTADIENE																		
DIMETHYL PHTHALATE																		
ACENAPHTHYLENE																		
ACENAPHTHENE																		
4-NITROPHENOL																		
DIBENZOFURAN	530	310 J	590 J	810	350	290 J	12000 **		1200	640								
DIETHYLPHTHALATE																		
FLUORENE										100 J								
N-NITROSODIPHENYLAMINE(1)																		
HEXACHLOROBENZENE																		
PENTACHLOROPHENOL																		
PHENANTHRENE	1400	1000	2400	1500	1200	1100	30000 **		2500	1600	8600 **			136 J		324 J		
ANTHRACENE							5500 J,**				2500 J,**							
DI-N-BUTYLPHTHALATE	62 B,J	100 B,J		88 J	82 J	49 J		410 J	220 J	82 J		806 B	831 B	294 J,B		286 J,B	460 B	313 J,B
FLUORANTHENE	240 J	200 J	400 J	270 J	200 J	260 J	20000 **		500 J	250 J	14000 **							
PYRENE	290 J	250 J	390 J	190 J	200 J	310 J	20000 **		460 J	330	11000 **				76 J			
BUTYLBENZYLPHTHALATE																	68 J	
BENZO(A)ANTHRACENE	140 J	150 J	300 J	200 J	160 J	160 J	16000 **		340 J	190 J	6700 **							
BIS(2-ETHYLHEXYL)PHTHALATE		70 J				52 J		330 J									59 J	
CHRYSENE	220 J	190 J	330 J	220 J	200 J	220 J	16000 **		470 J	250 J	9200 **					72 J		
DI-N-OCTYL PHTHALATE																		
BENZO(B)FLUORANTHENE	240 J	220 J	320 J	170 J	220 J	220 J	21000 **		390 J	250 J	11000 **							
BENZO(K)FLUORANTHENE	240 J	220 J	320 J	170 J	220 J	220 J	21000 **		390 J	250 J	11000 **							
BENZO(A)PYRENE	74 J	77 J		110 J		65 J	10000 **		200 J	150 J	6000 J,**							
INDENO(1,2,3-CD)PYRENE							5200 J,**											
DIBENZ(A,H)ANTHRACENE																		
BENZO(G,H,I)PERYLENE						170 J	3900 J,**											
TOTAL BASE/NEUTRALS AND ACIDS	7536	5487	10650	10928	5692	5406	271600	740	19150	10392	85200	806	831	523	171	1143	1065	463
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	21051	19132	38319	32914	19340	12260	418	19516	61804	29780	8805	7200	4400	3000	1600	5100	900	9500

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS061001	SS062001	SS063001	SS064001	SS065001	SS065002	SS066001	SS067001	SS068001	SS069001	SS070001	SS071001	SS072001	SS073001	SS073002	SS074001	SS075001	SS076001
Sample Type:	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	Industry	Industry	Industry	Industry	Industry	Per 4 Ft.	Per-6 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-6 Ft.	Per-2 Ft.
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	01/08/86	01/08/86	01/08/86	01/08/86	07/01/86	07/01/86	09/12/86	09/12/86	07/02/86	07/02/86	07/02/86
OTR Number:	E9711	E9712	E9713	E9714	E9715	E9874	E9717	E9718	E9719	E9720	E9721	EC371	EC372	EC373	EC374	EC375	EC376	EC377
OTK Number:												EB520	EB521	EB522	EB523	EB524	EB525	EB526
ITR Number:	ME4452	ME4453	ME4454	ME4455	ME4456	ME4472	ME4458	ME4459	ME4460	ME4461	ME4462	ME6820	ME6821	ME6822	ME6823	ME6824	ME6825	ME6826
PESTICIDES and PCBs																		
ALPHA-BHC																		
BETA-BHC																		
DELTA-BHC																		
GAMMA-BHC (LINDANE)																		
HEPTACHLOR																		
ALDRIN																		
HEPTACHLOR EPOXIDE																		
ENDOSULFAN I																		
DIELDRIN																		
4,4-DDE																		
ENDRIN																		
4,4-DDT																		
TOXAPHENE																		
AROCHLOR-1232																		
AROCHLOR-1242																		
AROCHLOR-1248												1240	1190			1270	200	750
AROCHLOR-1254																		
AIRE1																		
TOTAL PESTICIDES and PCBs												1240	1190			1270	200	750
PERCENT MOISTURE (VOLATILES)	15	15	17	15	15	15	36	74	19	16	22	18	13	10	12	19	17	12

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS061001	SS062001	SS063001	SS064001	SS065001	SS065002	SS066001	SS067001	SS068001	SS069001	SS070001	SS071001	SS072001	SS073001	SS073002	SS074001	SS075001	SS076001
Sample Type:	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	MineSoil	Industry	Industry	Industry	Industry	Industry	Per 4 Ft.	Per 6 Ft.	Perimeter	Perimeter	Per 2 Ft.	Per 6 Ft.	Per 2 Ft.
Date Sampled:	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	12/12/85	01/08/86	01/08/86	01/08/86	01/08/86	01/08/86	07/01/86	07/01/86	09/12/86	09/12/86	07/02/86	07/02/86	07/02/86
DIR Number:	E9711	E9712	E9713	E9714	E9715	E9874	E9717	E9718	E9719	E9720	E9721	EC371	EC372	EC373	EC374	EC375	EC376	EC377
DIR Number:												E0520	E0521	E0522	E0523	E0524	E0525	E0526
ITR Number:	NE4452	NE4453	NE4454	NE4455	NE4456	NE4472	NE4458	NE4459	NE4460	NE4461	NE4462	NE6820	NE6821	NE6822	NE6823	NE6824	NE6825	NE6826
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																		
ALUMINUM	5100	4070	5180	4470	6100	6390	1450	7200	6140	8350	4310	8930	8180	9900	10300	9790	10800	7610
ANTIMONY																		
ARSENIC	13	(5.8)	19		15	14	8.7		19	8.9	78	14	14	17	18	12	15	9.2
BARIUM	(58)	(48)	(106)	(20)	(96)	(105)	299	578	(51)	(101)	384	(52)	(58)	(61)	(62)	(74)	(58)	(66)
BERYLLIUM	(0.33)	(0.52)		(0.43)		(0.32)	(.44)		(0.34)	(0.98)	(1.1)							
CADMIUM	3.6	(2.3)			(2.6)	(2.8)												
CALCIUM	(278)	(201)		(404)			(2620)	114000	(982)	3000	10500	(1000) E	(1200) E	6850 E	6560 E	20500 E	7120 E	(2050) E
CHROMIUM	15	12	16	12	18	17	9.7	(19)	16	19	14	15	12	15	15	14	14	12
COBALT	(6.6)	(5.9)	(7.1)	(6)	(8)	(8.7)			(7.8)	(19)	(13)	(14)	(14)	(13)	(15)	(7.3)	(23)	(13)
COPPER	23	23	26	17	28	30	(17)	(35)	26	31	24	28	27	28	28	30	30	28
IRON	31800	21300	36900	21900	37600	39400	15300	6620	35400	41100	47800	36600	24900	27500	30700	26300	26600	24400
LEAD	17	22	20	10	19	21	16	329	28	20	29	19	16	17	18	40	13	15
CYANIDE																		
MAGNESIUM	(2120)	(1820)	(2110)	(1990)	(2470)	(2520)		(1610)	(1740)	4700	(906)	3200	(2520)	4420	4760	(2540)	4890	(2690)
MANGANESE	118 J,B	105 J,B	124 J,B	120 J,B	171 J	322 J	19 J	202 J	109 J	924 J	406 J	532	338	457	496	174	315	376
MERCURY							0.52	(.32)	0.2		(0.1)			0.2	0.3			
NICKEL	(14)	(12)	(11)	(13)	(13)	(16)		(14)	(15)	32	(22)	33	(22)	32	36	(19)	33	32
POTASSIUM	(2130)	(1330)	(2670)	(1110)	(1970)	(2460)	(1190)	(2170)	(2100)	(1740)	(1240)	(1850)	(1760)	(1570)	(1670)	(1760)	(1850)	(1620)
SELENIUM																		
SILVER	(3.3) J,B			(3) J,B	(3) J,B	(2.5) J,B			(3.1) J,B	(2.9) J,B								
SODIUM							(847)	(5090)	(1120)	(971)	(766)						(723)	
THALLIUM																		
TIN																		
VANADIUM	(20)	(14)	(22)	(14)	(21)	(22)	(18)	(12)	(23)	(21)	35	(17)	(13)	(17)	(16)	(16)	(15)	(13)
ZINC	65	69	50	57	57	70	20	88	57	96	97	102	77	103	103	83	80	95
PERCENT MOISTURE																		
PERCENT SOLIDS	84	86	84	86	85	85	63	25	80	84	77	85	85	89	89	81	84	87

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
**: Samples analyzed at medium concentrations.
(): Positive values less than the contract required detection limit.

TABLE 7
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS077001	SS078001	SS078002	SS079001	SS080001	SS083001	SS083002	SS085001	RS007001
Sample Type:	Per-4 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-4 Ft.	Resident	Resident	Perimeter	Blank
Date Sampled:	07/02/86	09/12/86	09/12/86	07/03/86	07/03/86	09/12/86	09/12/86	09/12/86	09/12/86
OTR Number:	EC378	EC379	EC380	EC381	EC382	EC386	EC387	EC389	EC390
OTR Number:	EB527	EB528	EB529	EB530	EB531	EB534	EB535	EB537	EB539
ITR Number:	ME6027	ME6028	ME6029	ME6030	ME6031	ME6035	ME6036	ME6038	ME6039
ORGANIC COMPOUNDS (units ug/kg)									
VOLATILES									
CHLOROMETHANE									
VINYL CHLORIDE									
METHYLENE CHLORIDE	2 J	2 J	2 J	4 J,B	64 B	6 B	41 B	27 B	4 J
ACETONE	8 J,B	16 B	35 B	27 B,J	29 B,J	26 B,J	27 B,J	13 B	10 B,J
CARBON DISULFIDE									
1,1-DICHLOROETHENE									
1,1-DICHLOROETHANE									
TRANS-1,2-DICHLOROETHENE									
CHLOROFORM									
1,2-DICHLOROETHANE		16	4 J						
2-BUTANONE	6 J,B	12 B	26 B	22 B	17 B	15 B	18 B	14 B	4 J,B
1,1,1-TRICHLOROETHANE									
1,1,2,2-TETRACHLOROETHANE									
TRICHLOROETHENE									
1,1,2-TRICHLOROETHANE									
BENZENE									
2-HEXANONE									
4-METHYL-2-PENTANONE									
TETRACHLOROETHENE									
TOLUENE									
CHLOROBENZENE									
ETHYLBENZENE									
STYRENE									
TOTAL XYLENES									
TOTAL VOLATILES	16	46	67	53	110	47	86	54	18
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	0	0	0	0	0	0	0	0
BASE/NEUTRALS AND ACIDS									
N-NITROSODIMETHYLAMINE									
PHENOL									
ANILINE									
1,3-DICHLOROBENZENE									
1,4-DICHLOROBENZENE									
BENZYL ALCOHOL									
1,2-DICHLOROBENZENE									
2-METHYLPHENOL									
BIS(2-CHLOROISOPROPYL)ETHER									

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS077001	SS078001	SS078002	SS079001	SS080001	SS083001	SS083002	SS085001	RS007001
Sample Type:	Per-4 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-4 Ft.	Resident	Resident	Perimeter	Blank
Date Sampled:	07/02/86	09/12/86	09/12/86	07/03/86	07/03/86	09/12/86	09/12/86	09/12/86	09/12/86
DTR Number:	EC378	EC379	EC380	EC381	EC382	EC386	EC387	EC389	EC390
DTR Number:	ED527	ED528	ED529	ED530	ED531	ED534	ED535	ED537	ED539
ITR Number:	ME6027	ME6028	ME6029	ME6030	ME6031	ME6035	ME6036	ME6038	ME6039
4-METHYLPHENOL									
HEXACHLOROETHANE									
ISOPHORONE									
2-NITROPHENOL									
2,4-DIMETHYLPHENOL									
BENZOIC ACID									
1,2,4-TRICHLOROBENZENE									
NAPHTHALENE	59 J	285 J	229 J			125 J			
4-CHLORO-3-METHYLPHENOL									
2-METHYLNAPHTHALENE	76 J	251 J	196 J	90 J		125 J			
HEXACHLOROCYCLOPENTADIENE									
DIMETHYL PHTHALATE									
ACENAPHTHYLENE									
ACENAPHTHENE									
4-NITROPHENOL									
DIBENZOFURAN		57 J							
DIETHYLPHTHALATE									
FLUORENE									
N-NITROSODIPHENYLAMINE(1)									
HEXACHLOROBENZENE									
PENTACHLOROPHENOL									
PHENANTHRENE		235 J				204 J			
ANTHRACENE									
DI-N-BUTYLPHTHALATE	303 J,B	1122 B	458 J,B	660 B	1313 B	759 B	1086 B	1677 B	3034 B
FLUORANTHENE				130 J		320 J			
PYRENE						272 J			
BUTYLBENZYLPHTHALATE									
BENZO(A)ANTHRACENE									
BIS(2-ETHYLHEXYL)PHTHALATE		469 J					206 J		
CHRYSENE									
DI-N-OCTYL PHTHALATE									
BENZO(B)FLUORANTHENE									
BENZO(K)FLUORANTHENE									
BENZO(A)PYRENE									
INDENO(1,2,3-CD)PYRENE									
DIBENZ(A,H)ANTHRACENE									
BENZO(G,H,I)PERYLENE									
TOTAL BASE/NEUTRALS AND ACIDS	438	2419	883	880	1313	1813	1292	1677	3034
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	7800	71600	1700	1700	4400	1500	2700	3500	1970

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS077001	SS078001	SS078002	SS079001	SS080001	SS083001	SS083002	SS085001	RS007001
Sample Type:	Per-4 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-4 Ft.	Resident	Resident	Perimeter	Blank
Date Sampled:	07/02/86	09/12/86	09/12/86	07/03/86	07/03/86	09/12/86	09/12/86	09/12/86	09/12/86
DTR Number:	EC378	EC379	EC380	EC381	EC382	EC386	EC387	EC389	EC390
DTK Number:	ED527	ED528	ED529	ED530	ED531	ED534	ED535	ED537	ED539
ITR Number:	ME6827	ME6828	ME6829	ME6830	ME6831	ME6835	ME6836	ME6838	ME6839
PESTICIDES and PCBs									
ALPHA-BHC									
BETA-BHC									
DELTA-BHC									
GAMMA-BHC (LINDANE)									
HEPTACHLOR									
ALDRIN									
HEPTACHLOR EPOXIDE									
ENDOSULFAN I									
DIELDRIN									
4,4-DDE									
ENDRIN									
4,4-DDT									
TOXAPHENE									
AROCHLOR-1232									
AROCHLOR-1242									
AROCHLOR-1248	340	3050	3100	390	170	450	540	2960	
AROCHLOR-1254									
AIREI									
TOTAL PESTICIDES and PCBs	340	3050	3100	390	170	450	540	2960	
PERCENT MOISTURE (VOLATILES)	15	37	38	21	17	11	12	17	1

TABLE 2
SUMMIT NATIONAL SITE
OFFSITE SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Number:	SS077001	SS078001	SS078002	SS079001	SS080001	SS083001	SS083002	SS085001	BS007001
Sample Type:	Per-4 Ft.	Perimeter	Perimeter	Per-2 Ft.	Per-4 Ft.	Resident	Resident	Perimeter	Blank
Date Sampled:	07/02/86	09/12/86	09/12/86	07/03/86	07/03/86	09/12/86	09/12/86	09/12/86	09/12/86
DIR Number:	EC378	EC379	EC380	EC381	EC382	EC386	EC387	EC389	EC390
DTR Number:	EB527	EB528	EB529	EB530	EB531	EB534	EB535	EB537	EB539
ITR Number:	NE6827	NE6828	NE6829	NE6830	NE6831	NE6835	NE6836	NE6838	NE6839
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT									
ALUMINUM	9878	10600	11400	8220	9190	10000	8920	7440	175
ANTIMONY									
ARSENIC	14	18	18	40	9.5	14	13	21	
BARIUM	[73]	[151]	171	[55]	[63]	119	119	[100]	[4.1]
BERYLLIUM						[1.3]			
CADMIUM									
CALCIUM	7260 E	32900 E	39800 E	4530 E	3860 E	5900 E	5500 E	5180 E	[2070] E
CHROMIUM	15	18	20	13	12	15	15	23	0.7
COBALT	[17]	[13]	[12]	[14]	[18]	[14]	[13]	[11]	
COPPER	28	38	44	26	26	35	37	119	[7]
IRON	27100	46200	51700	24700	24800	28000	27600	40700	169
LEAD	14	45	42	21	11	241	184	50	
CYANIDE									
MAGNESIUM	4270	[2910]	[3140]	3190	3160	3470	3240	[2330]	[327]
MANGANESE	645	580	513	388	493	595	518	280	[4.1]
MERCURY						0.2	0.2		
NICKEL	40	34	[31]	28	30	30	28	29	
POTASSIUM	[1470]	[1220]	[1670]	[1470]	[1630]	[1450]	[1190]	[1530]	
SELENIUM									
SILVER									
SODIUM									[795]
THALLIUM									
TIN						[22]	[16]		
VANADIUM	[15]	[18]	[20]	[14]	[15]	[18]	[17]	[17]	[15]
ZINC	97	135	135	104	75	341	380	114	[4.9]
PERCENT MOISTURE									
PERCENT SOLIDS	85	62	60	85	84	87	87	84	100

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
**: Samples analyzed at medium concentrations.
[]: Positive values less than the contract required detection limit.

TABLE 3
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	E.Pond	E.Pond		West	South	S.East	East	East	1st Impd	2nd Impd		West	West	2nd Impd	E.Pond	E.Pond	S.East
Sample Number:	SW001001	SW002001	SW003001	SW097001	SW005001	SW006001	SW007001	SW008001	SW009001	SW010001	SW011001	SW096001	SW012001	SW013001	SW014001	SW015001	SW015002	SW016001
Sample Type:	Onsite	Onsite	Onsite	Blank	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Upstream	Upstream	Downstream	Onsite	Onsite	Downstream
Date Sampled:	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/29/84	11/29/84	11/29/84	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86
OTR Number:	E9835	E9836	E9837	E9838	E9839	E9840	E9841	E9842	E9843	E9844	E9845	E9846	EC343	EC344	EC345	EC346	EC347	EC348
ITR Number:	ME4408	ME4409	ME4410	ME4411	ME4412	ME4413	ME4414	ME4415	ME4416	ME4417	ME4418	ME4419	ME6785	ME6786	ME6787	ME6788	ME6789	ME6790
ORGANIC COMPOUNDS (units-ppb)																		
VOLATILES																		
CHLOROMETHANE																		
VINYL CHLORIDE																		
METHYLENE CHLORIDE			51	5.6					15				1 J,B	1 J,B	2 J,B	2 J,B	3 J,B	2 J,B
ACETONE	45	4000	3900	23			3100	12	13		5.1	14	12 B	17 B	18 B	30 B,J	32 B,J	18 B,J
CARBON DISULFIDE																		
1,1-DICHLOROETHENE																		
1,1-DICHLOROETHANE																3 J	3 J	
TRANS-1,2-DICHLOROETHENE																		5
CHLOROFORM				13								13						
1,2-DICHLOROETHANE		860	830				500			16	11					38	41	44
2-BUTANONE				12									15 B	19 B	18 B	16 B	16 B	15 B
1,1,1-TRICHLOROETHANE			66													5	5	
1,1,2,2-TETRACHLOROETHANE																		
TRICHLOROETHENE																		
1,1,2-TRICHLOROETHANE																		
BENZENE																		
2-HEXANONE																		
4-METHYL-2-PENTANONE			78				58											
TETRACHLOROETHENE																		
TOLUENE			120												1 J	2 J	1 J	
CHLOROBENZENE																		
ETHYLBENZENE																		
STYRENE																		
TOTAL XYLENES			100													1 J	1 J	
TOTAL VOLATILES	45	4860	5145	53.6			3658	12	28	16	16.1	27	28	37	39	97	102	84
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30.5	33.9	46.9
BASE/NEUTRALS AND ACIDS																		
N-NITROSODIMETHYLAMINE																		
PHENOL		8 J	12			107	7 J											
ANILINE		227	231				285											
1,3-DICHLOROBENZENE																		
1,4-DICHLOROBENZENE																		
BENZYL ALCOHOL																		
1,2-DICHLOROBENZENE																		

TABLE 3
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	E.Pond	E.Pond		West	South	S.East	East	East	1st Impd	2nd Impd		West	West	2nd Impd	E.Pond	E.Pond	S.East
Sample Number:	SW001001	SW002001	SW003001	SW097001	SW005001	SW006001	SW007001	SW008001	SW009001	SW010001	SW011001	SW096001	SW012001	SW013001	SW014001	SW015001	SW015002	SW016001
Sample Type:	Onsite	Onsite	Onsite	Blank	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Upstream	Upstream	Downstream	Onsite	Onsite	Downstream
Date Sampled:	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/29/84	11/29/84	11/29/84	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86
DTR Number:	E9835	E9836	E9837	E9838	E9839	E9840	E9841	E9842	E9843	E9844	E9845	E9846	EC343	EC344	EC345	EC346	EC347	EC348
ITR Number:	ME4408	ME4409	ME4410	ME4411	ME4412	ME4413	ME4414	ME4415	ME4416	ME4417	ME4418	ME4419	ME6785	ME6786	ME6787	ME6788	ME6789	ME6790
2-METHYLPHENOL																		
BIS(2-CHLORDISOPROPYL)ETHER																		
4-METHYLPHENOL																		
HEXACHLORDETHANE																		
ISOPHORONE		12	13				14											4 J
2-NITROPHENOL																		
2,4-DIMETHYLPHENOL																		
BENZOIC ACID		47 J					31 J											
1,2,4-TRICHLORDBENZENE																		
NAPHTHALENE																		
4-CHLORO-3-METHYLPHENOL																		
2-METHYLNAPHTHALENE																		
HEXACHLOROCYCLOPENTADIENE																		
DIMETHYL PHTHALATE																		
ACENAPHTHYLENE																		
ACENAPHTHENE																		
4-NITROPHENOL																		
DIBENZOFURAN																		
DIETHYLPHTHALATE																		
FLUORENE																		
N-NITROSODIPHENYLAMINE(1)																		
HEXACHLOROBENZENE																		
PENTACHLOROPHENOL																		
PHENANTHRENE																		
ANTHRACENE																		
DI-N-BUTYLPHTHALATE																		
FLUORANTHENE																		
PYRENE																		
BUTYLBENZYLPHTHALATE																		
BENZO(A)ANTHRACENE																		
BIS(2-ETHYLHEXYL)PHTHALATE	106	25 B	20 B			5 J,B	10 B	6 J,B	25 B	13 B	10 B		6 J,B	6 J,B	4 J,B	7 J,B	10 B,J	14 B,J
CHRYSENE																		
DI-N-OCTYL PHTHALATE																		
BENZO(B)FLUORANTHENE																3 J		
BENZO(K)FLUORANTHENE																3 J		
BENZO(A)PYRENE																4 J		
INDENO(1,2,3-CD)PYRENE																3 J		
DIBENZ(A,H)ANTHRACENE																3 J		
BENZO(G,H,I)PERYLENE																3 J		
TOTAL BASE/NEUTRALS AND ACIDS	10	319	276			112	345	6	25	13	10		6	6	4	26	10	18
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	270	521	205	200	250	190	267	225	197	451	272	200	45.7	24.4	0	36	30.2	45.1

TABLE 3
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	E.Pond	E.Pond		West	South	S.East	East	East	1st Impd	2nd Impd		West	West	2nd Impd	E.Pond	E.Pond	S.East
Sample Number:	SW001001	SW002001	SW003001	SW097001	SW005001	SW006001	SW007001	SW008001	SW009001	SW010001	SW011001	SW096001	SW012001	SW013001	SW014001	SW015001	SW015002	SW016001
Sample Type:	Onsite	Onsite	Onsite	Blank	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Upstream	Upstream	Downstream	Onsite	Onsite	Downstream
Date Sampled:	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/29/84	11/29/84	11/29/84	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86
OTK Number:	E9835	E9836	E9837	E9838	E9839	E9840	E9841	E9842	E9843	E9844	E9845	E9846	EC343	EC344	EC345	EC346	EC347	EC348
ITR Number:	ME4408	ME4409	ME4410	ME4411	ME4412	ME4413	ME4414	ME4415	ME4416	ME4417	ME4418	ME4419	ME6785	ME6786	ME6787	ME6788	ME6789	ME6790
PESTICIDES and PCBs																		
ALPHA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
BETA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DELTA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
GAMMA-BHC (LINDANE)	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HEPTACHLOR	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ALDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HEPTACHLOR EPOXIDE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ENDOSULFAN I	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DIELDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4,4-DDE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ENDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4,4-DDT	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
TOXAPHENE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1232	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1242	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1248	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1254	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
TOTAL PESTICIDES and PCBs																		

TABLE 1
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	E.Pond	E.Pond		West	South	S.East	East	East	1st Impd	2nd Impd		West	West	2nd Impd	E.Pond	E.Pond	S.East
Sample Number:	SW001001	SW002001	SW003001	SW097001	SW005001	SW006001	SW007001	SW008001	SW009001	SW010001	SW011001	SW096001	SW012001	SW013001	SW014001	SW015001	SW015002	SW016001
Sample Type:	Onsite	Onsite	Onsite	Blank	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Upstream	Upstream	Downstream	Onsite	Onsite	Downstream
Date Sampled:	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/28/84	11/29/84	11/29/84	11/29/84	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86
QTR Number:	E9835	E9836	E9837	E9838	E9839	E9840	E9841	E9842	E9843	E9844	E9845	E9846	EC343	EC344	EC345	EC346	EC347	EC348
ITR Number:	NE4408	NE4409	NE4410	NE4411	NE4412	NE4413	NE4414	NE4415	NE4416	NE4417	NE4418	NE4419	NE6785	NE6786	NE6787	NE6788	NE6789	NE6790
INORGANIC COMPOUNDS (units - ppb, except where noted otherwise)																		
ALUMINUM	17620		200			570	220	20150	18800				3430	218	243	1000	972	10400
ANTIMONY	121	62					94	139	178		87							143
ARSENIC			25 *,S				38 *,S											
BARIUM							220						(76)	(36)	(12)	(24)	(25)	(34)
BERYLLIUM	5																	
CADMIUM	35	9					9	6			5							
CALCIUM	139000	232600	171100		122900	107000	217000	206600	172400	105700	237300		361000 E	386000 E	171000 E	297000 E	296000 E	364000 E
CHROMIUM	28												11				14.21	22
COBALT	70							173	170				(8.7)			(15)	(13)	(15)
COPPER	102			148				70	60	100		143	(16)	(14)	(9.4)	(13)	(11)	28
IRON	5300	68500	51260		3200	4120	74600	13000	17560	1500	21100		17200	1410	657	3160	3030	131000
LEAD																		
CYANIDE																		
MAGNESIUM	32500	85500	63300		49650	36290	86400	67700	59550	32510	68010		106000	112000	45900	120000	120000	130000
MANGANESE	3740	8100	6000		370	427	8000	19000	1700	900	4700		5170	4080	212	7800	7880	5590
MERCURY																		
NICKEL	210	54	45				46	172	150				(9.9)			(20)	(20)	(30)
POTASSIUM	3670	8450	5730		3570	4510	9060	4510	3670	4040	9060		20400	13600	18900	12400	12400	11700
SELENIUM																		
SILVER																		
SODIUM	14700	55000	40500		15900	28500	59600	37300	31200	34000	64200		124000	130000	38600	71500	72100	317000
THALLIUM																		
TIN																		
VANADIUM													15.6J					(8.3)
ZINC	1600	490	340	38	155		320	930	820	104	75	31	58	(20)	(15)	204	202	292
Total Alkalinity as CaCO3 (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	287	244	48			343
Ammonia, as N (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3	2.1	0.9	4.6	4.5	13
Nitrate/Nitrite, as N (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Chloride (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	293	213	79	123	85	242
Suspended Solids (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	486	35	21	7	7	456
Dissolved Solids (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2340	2410	1060	2210	2090	2900
Sulfate (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1050	1270	536	1300	1330	1490
Acidity (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	43	45	NR
FIELD PARAMETERS																		
pH (standard units)	3.4	6.2	6.5	8.0	6.2	6.8	6.0	3.0	3.0	5.6	5.8	6.6	6.0	7.0	5.5	4.0	4.0	6.9
SPECIFIC CONDUCTANCE (umhos/cm)	1160	1050	1130	0	620	800	1240	1640	1550	940	1430	0	2400	2400	1210	2000	2000	3000
TEMPERATURE (degrees F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
E: Value is estimated due to presence of interferenace.
J: An estimated value
S: Value is determined by standard addition.
*: Correlation coefficient for method of standard addition is less than *.995.

(): Positive values less than the contract required detection limit.
NA: Not Analyzed

TABLE 3
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	South	Berlin Res.	
Sample Number:	SW017001	SW018001	SW019001	SW098001
Sample Type:	Onsite	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/16/86
OTR Number:	EC349	EC350	EC351	EC353
ITR Number:	ME6791	ME6792	ME6801	ME6803

ORGANIC COMPOUNDS (units-ppb)

VOLATILES				
CHLOROETHANE				
VINYL CHLORIDE		7 J		
METHYLENE CHLORIDE	2 J,B	2 J,B		2 J,B
ACETONE	47 B,J	15 B,J	7 J,B	12 B
CARBON DISULFIDE				
1,1-DICHLOROETHENE				
1,1-DICHLOROETHANE		34		
TRANS-1,2-DICHLOROETHENE		78		
CHLOROFORM				
1,2-DICHLOROETHANE		78		
2-BUTANONE	11 B	13 B	15 B	16 B
1,1,1-TRICHLOROETHANE		29		
1,1,2,2-TETRACHLOROETHANE				
TRICHLOROETHENE		6		
1,1,2-TRICHLOROETHANE				
BENZENE				
2-HEXANONE				
4-METHYL-2-PENTANONE				
TETRACHLOROETHENE	24			
TOLUENE				
CHLOROBENZENE	59	2 J		
ETHYLBENZENE				
STYRENE				
TOTAL XYLENES				
TOTAL VOLATILES	143	264	22	30
TOTAL TENTATIVELY IDENTIFIED VOLATILES	29.6	0	0	0

BASE/NEUTRALS AND ACIDS				
N-NITROSODIMETHYLAMINE				
PHENOL				
ANILINE				
1,3-DICHLOROBENZENE				
1,4-DICHLOROBENZENE	49 J			
BENZYL ALCOHOL				
1,2-DICHLOROBENZENE	24 J			

TABLE 3
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	South	Berlin Res.	
Sample Number:	SW017001	SW018001	SW019001	SW098001
Sample Type:	Onsite	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/16/86
DTR Number:	EC349	EC350	EC351	EC353
ITR Number:	NE6791	NE6792	NE6801	NE6803
2-METHYLPHENOL				
BIS(2-CHLOROISOPROPYL)ETHER				
4-METHYLPHENOL				
HEXACHLOROETHANE	14 J			
ISOPHORONE				
2-NITROPHENOL				
2,4-DIMETHYLPHENOL				
BENZOIC ACID				
1,2,4-TRICHLOROBENZENE				
NAPHTHALENE				
4-CHLORO-3-METHYLPHENOL				
2-METHYLNAPHTHALENE				
HEXACHLOROCYCLOPENTADIENE				
DIMETHYL PHTHALATE				
ACENAPHTHYLENE				
ACENAPHTHENE				
4-NITROPHENOL				
DIBENZOFURAN				
DIETHYLPHTHALATE				
FLUORENE				
N-NITROSODIPHENYLAMINE (1)				
HEXACHLOROBENZENE				
PENTACHLOROPHENOL				
PHENANTHRENE				
ANTHRACENE				
DI-N-BUTYLPHTHALATE				
FLUORANTHENE				
PYRENE				
BUTYLBENZYLPHTHALATE				
BENZO(A)ANTHRACENE				
BIS(2-ETHYLHEXYL)PHTHALATE	9 J,B	12 B,J		7 J,B
CHRYSENE				
DI-N-OCTYL PHTHALATE				
BENZO(B)FLUORANTHENE				
BENZO(K)FLUORANTHENE				
BENZO(A)PYRENE				
INDENO(1,2,3-CD)PYRENE				
DIBENZ(A,H)ANTHRACENE				
BENZO(G,H,I)PERYLENE				
TOTAL BASE/NEUTRALS AND ACIDS	96	12		7
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	55.2	27.9	23.2	0

TABLE 5
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	South	Berlin Res.	
Sample Number:	SW017001	SW018001	SW019001	SW098001
Sample Type:	Onsite	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/16/86
OTR Number:	EC349	EC350	EC351	EC353
ITR Number:	ME6791	ME6792	ME6801	ME6803
PESTICIDES and PCBs				
ALPHA-BHC				
BETA-BHC				
DELTA-BHC				
GAMMA-BHC (LINDANE)				
HEPTACHLOR				
ALDRIN				
HEPTACHLOR EPOXIDE				
ENDOSULFAN I				
DIELDRIN				
4,4-DDE				
ENDRIN				
4,4-DDT				
TOXAPHENE				
AROCHLOR-1232				
AROCHLOR-1242				
AROCHLOR-1248				
AROCHLOR-1254				
TOTAL PESTICIDES and PCBs				

TABLE 1
SUMMIT NATIONAL SITE
SURFACE WATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Fond	South	Berlin Res.	
Sample Number:	SW017W01	SW018W01	SW019W01	SW09BW01
Sample Type:	Onsite	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/16/86
DTR Number:	EC349	EC350	EC351	EC353
ITR Number:	NE6791	NE6792	NE6801	NE6803
INORGANIC COMPOUNDS (units - ppb, except where noted otherwise)				
ALUMINUM	39800	(154)	843	(41)
ANTIMONY				
ARSENIC	27 S			
BARIUM	(9.9)		(46)	(5.1)
BERYLLIUM	(7.9)			
CADMIUM	23			
CALCIUM	162000 E	383000 E	94400 E	(526) E
CHROMIUM	21			
COBALT	173	(23)		
COPPER	122	(10)	(8.9)	(10)
IRON	8740	8520	1370	(18)
LEAD				
CYANIDE				
MAGNESIUM	44500	92900	30700	
MANGANESE	4760	3670	944	
MERCURY				
NICKEL	322	62	(9.9)	
POTASSIUM	6280	9700	6450	
SELENIUM	16 S			
SILVER				
SODIUM	15200	142000	30200	
THALLIUM				
TIN				
VANADIUM				
ZINC	1660	40	(14)	(7.1)
Total Alkalinity as CaCo3 (mg/l)		195	104	
Ammonia, as N (mg/l)		2.6		
Nitrate/Nitrite, as N (mg/l)				
Chloride (mg/l)	47	144	57	
Suspended Solids (mg/l)	41	33	24	
Dissolved Solids (mg/l)	1320	2320	591	
Sulfate (mg/l)	850	1200	295	
Acidity (mg/l)	320	NA	NA	4.2
FIELD PARAMETERS				
pH (standard units)	4.0	6.5	12.0	NA
SPECIFIC CONDUCTANCE (umhos/cm)	1440	1335	850	NA
TEMPERATURE (degrees F)	NA	NA	72	NA

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.

E: Value is estimated due to presence of interference.

J: An estimated value

S: Value is determined by standard addition.

*: Correlation coefficient for method of standard addition is less than .995.

(): Positive values less than the contract required detection limit.

NA: Not Analyzed

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	E. Pond	E.Pond	E.Pond	E.Pond	N.Pond	N.Pond	N.Pond	N.Pond	N.Pond	West	West	West	South	South	South	East	East	East
Sample Number:	SB001001	SB002001	SB003001	SB004001	SB006001	SB007001	SB008001	SB009001	SB010001	SB011001	SB012001	SB013001	SB014001	SB015001	SB016001	SB017001	SB018001	SB019001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Upstream	Upstream	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream
Date Sampled:	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84
OTR Number:	E9726	E9727	E9728	E9729	E9731	E9732	E9733	E9734	E9735	E9736	E9737	E9738	E9739	E9740	E9819	E9820	E9821	E9822
ITK Number:	NEA234	NEA235	NEA236	NEA237	NEA239	NEA240	NEA241	NEA242	NEA243	NEA244	NEA245	NEA246	NEA247	NEA248	NEA300	NEA301	NEA302	NEA303
ORGANIC COMPOUNDS (units-ug/kg)																		
VOLATILES																		
CHLOROETHANE																		
VINYL CHLORIDE																		
METHYLENE CHLORIDE	89.9	361	32 A	192	41000 **	2200 **	8300 A,**	4600 **	220	230	135	340	380	210	400	400	670	590
ACETONE	85	510 A		424		2600 **			300 A									
CARBON DISULFIDE																		
1,1-DICHLOROETHENE																		
1,1-DICHLOROETHANE									86									
TRANS-1,2-DICHLOROETHENE									9 A				290					
CHLOROFORM																		
1,2-DICHLOROETHANE						4800 **	8900 **	7400 **	690									
2-BUTANONE				156		12000 **	18000 **	15000 **										
1,1,1-TRICHLOROETHANE	30.5 A						2500 A,**	1200 A,**	50 A									
1,1,2,2-TETRACHLOROETHANE																		
TRICHLOROETHENE	15 A	18		23 A		500 **			12 A				110 A	66	15 A			
DIBROMOCHLOROMETHANE																		
1,1,2-TRICHLOROETHANE																		
BENZENE														33 A				
2-HEXANONE																		
4-METHYL-2-PENTANONE																		
TETRACHLOROETHENE																		
TOLUENE					174000 **		21000 **	15000 **	12 A									
CHLOROBENZENE	20 A			130		1000 **		610 A,**										
ETHYLBENZENE		24 A		146	16000 A,**	4300 **	28000 **	24000 **	16 A									
STYRENE																		
TOTAL XYLENES					78000 **	8200 **	92000 **	83000 **										
TOTAL VOLATILES	240	913	32	1071	309000	35600	178700	150810	1395	230	135	340	780	309	415	400	670	590
TOTAL TENTATIVELY IDENTIFIED VOLATILES	153	270	0	0	0	1800	0	2000	20	0	0	0	0	0	0	0	0	0
BASE/NEUTRALS AND ACIDS																		
N-NITROSODIMETHYLAMINE																		
PHENOL																		
ANILINE																		
1,3-DICHLOROBENZENE																		
1,4-DICHLOROBENZENE																		
BENZYL ALCOHOL																		
1,2-DICHLOROBENZENE													680 A					
2-METHYLPHENOL																		
BIS(2-CHLOROISOPROPYL)ETHER																		

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	E. Pond	E.Pond	E.Pond	E.Pond	W.Pond	W.Pond	W.Pond	W.Pond	W.Pond	West	West	West	South	South	South	East	East	East
Sample Number:	SD001001	SD002001	SD003001	SD004001	SD006001	SD007001	SD008001	SD009001	SD010001	SD011001	SD012001	SD013001	SD014001	SD015001	SD016001	SD017001	SD018001	SD019001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Upstream	Upstream	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream
Date Sampled:	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84
DIR Number:	E9726	E9727	E9728	E9729	E9731	E9732	E9733	E9734	E9735	E9736	E9737	E9738	E9739	E9740	E9819	E9820	E9821	E9822
ITR Number:	NEA234	NEA235	NEA236	NEA237	NEA239	NEA240	NEA241	NEA242	NEA243	NEA244	NEA245	NEA246	NEA247	NEA248	NEA300	NEA301	NEA302	NEA303
4-METHYLPHENOL																		
HEXACHLOROETHANE																		
ISOPHORONE																		
2-NITROPHENOL																		
2,4-DIMETHYLPHENOL																		
BENZOIC ACID																		
1,2,4-TRICHLOROBENZENE																		
NAPHTHALENE	750 A					390 A	830 A		1100 A			1600	800 A					
4-CHLORO-3-METHYLPHENOL																		
2-METHYLNAPHTHALENE	1100 A								1200 A			630 A	1200 A	400 A	300			
HEXACHLOROCYCLOPENTADIENE																		
DIMETHYL PHTHALATE																		
ACENAPHTHYLENE												1100 A						
ACENAPHTHENE												1300 A						
4-NITROPHENOL																		
DIBENZOFURAN												2100 A						
DIETHYLPHTHALATE																		
FLUORENE												3100						
N-NITROSODIPHENYLAMINE(1)																		
HEXACHLOROBENZENE	1000 A						2700 A	2400										
PENTACHLOROPHENOL																		
PHENANTHRENE	490 A						1500	1000 A	620 A			6400	710 A					
ANTHRACENE												5500						
DI-N-BUTYLPHTHALATE																		
FLUORANTHENE												24000						670
PYRENE												16000						640 A
BUTYLBENZYLPHTHALATE																		
BENZO(A)ANTHRACENE												9000						
BIS(2-ETHYLHEXYL)PHTHALATE	52000	15000	18000	96000	71000	31000	87000	54000	24000				11000	15000	980			
CHRYSENE												16000	590 A					
DI-N-OCTYL PHTHALATE	5200	2500		14000		2300	9400	5700 A										
BENZO(B)FLUORANTHENE												13000						640 A
BENZO(K)FLUORANTHENE																		
BENZO(A)PYRENE												7300						
INDENO(1,2,3-CD)PYRENE												5200						
DIBENZ(A,H)ANTHRACENE												5400						
BENZO(G,H,I)PERYLENE												6900						
TOTAL BASE/NEUTRALS AND ACIDS	60620	17500	18000	110000	71000	33690	101430	63100	26920			124530	14980	15400	1280			1950
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	2000	7000	3000	49000	52600	23100	351300	229800	15800	0	0	13500	10800	28200	4700	0	213000	17000

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	E. Pond	E.Pond	E.Pond	E.Pond	W.Pond	W.Pond	W.Pond	W.Pond	W.Pond	West	West	West	South	South	South	East	East	East
Sample Number:	SD001001	SD002001	SD003001	SD004001	SD006001	SD007001	SD008001	SD009001	SD010001	SD011001	SD012001	SD013001	SD014001	SD015001	SD016001	SD017001	SD018001	SD019001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Upstream	Upstream	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream
Date Sampled:	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84
DIK Number:	E9726	E9727	E9728	E9729	E9731	E9732	E9733	E9734	E9735	E9736	E9737	E9738	E9739	E9740	E9819	E9820	E9821	E9822
ITR Number:	MEA234	MEA235	MEA236	MEA237	MEA239	MEA240	MEA241	MEA242	MEA243	MEA244	MEA245	MEA246	MEA247	MEA248	MEA300	MEA301	MEA302	MEA303
PESTICIDES and PCBs																		
ALPHA-BHC																		
BETA-BHC																		
DELTA-BHC																		
GAMMA-BHC (LINDANE)																		
HEPTACHLOR																		
ALDRIN																		
HEPTACHLOR EPOXIDE																		
ENDOSULFAN I																		
DIELDRIN																		
4,4-DDE																		
ENDRIN																		
4,4-DDT																		
TOXAPHENE																		
AROCHLOR-1232																		
AROCHLOR-1242							6900 A	6100 A										
AROCHLOR-1248					35000 C	5100 A			1100 A				4200 A	290 A				
AROCHLOR-1254																		
TOTAL PESTICIDES and PCBs					35000	5100	6900	6100	1100				4200	290				
PERCENT MOISTURE (VOLATILES)																		
PERCENT MOISTURE (BNA)																		

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	E. Pond	E.Pond	E.Pond	E.Pond	W.Pond	W.Pond	W.Pond	W.Pond	W.Pond	West	West	West	South	South	South	East	East	East
Sample Number:	SD001001	SD002001	SD003001	SD004001	SD006001	SD007001	SD008001	SD009001	SD010001	SD011001	SD012001	SD013001	SD014001	SD015001	SD016001	SD017001	SD018001	SD019001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Upstream	Upstream	Upstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream
Date Sampled:	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/26/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84
OTR Number:	E9726	E9727	E9728	E9729	E9731	E9732	E9733	E9734	E9735	E9736	E9737	E9738	E9739	E9740	E9819	E9820	E9821	E9822
ITR Number:	MEA234	MEA235	MEA236	MEA237	MEA239	MEA240	MEA241	MEA242	MEA243	MEA244	MEA245	MEA246	MEA247	MEA248	MEA300	MEA301	MEA302	MEA303
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																		
ALUMINUM	7328	7527	7529	6453	7239	7454	4860	4947	5220	6803	5262	8925	8994	14905	13102	7109	3682	9689
ANTIMONY					148 R													
ARSENIC																		
BARIUM	(89) R	(87) R	(101) R	(82) R	(95) R	(80) R	(72) R	(66) R	(56) R	(59) R	(73) R	(87) R	(119) R	(135) R	(117) R	(65) R		(111) R
BERYLLIUM							4.3											
CADMIUM												4.6 R	11 R	11 R	14 R	11 R	16 R	18 R
CALCIUM	(812)	(940)	(868)	(11241)	6445	(2367)	(10441)	(9161)	(6921)	(20555)	(13731)	8112	17236	15026	5393	(9751)	(11760)	(16831)
CHROMIUM	35 R	12 R	55 R	46 R	55 R	48 R	24 R	15 R	20 R		20 R		41 R	23 R	29 R	12 R		14 R
COBALT										(18) R	(15) R	(17) R		(21) R	(22) R			
COPPER	41 R	45 R	49 R	44 R	42 R	44 R	23 R	24 R	18 R	(17) R	(18) R	(14) R	38 R	79 R	89 R	28 R	57 R	66 R
IRON	38514	30720	36676	30921	60265	72667	47407	44309	34354	25682	26873	28380	49120	49132	61188	60960	92512	98360
LEAD		48	16	.47	62	43	33	23	24	20	23	40	47	64	41	68	69	134
CYANIDE																		
MAGNESIUM	(1878)	(1952)	(2153)	(1024)	(2447)	(2363)	(1691)	(1870)	(1886)	3247	(1798)	(2507)	(2941)	(4017)	(3847)	(1240)	(1015)	(1781)
MANGANESE	104 R	102 R	103 R	92 R	206 R	320 R	124 R	90 R	113 R	447 R	216 R	547 R	377 R	701 R	892 R	112 R	244 R	248 R
MERCURY	.26	.17	.29	.19	.3	.18	.16		.21						.15			
NICKEL		(24) R	(21) R	(21) R	(27) R	37 R	(23) R	(18) R	(19) R	30 R	29 R		(36) R	(34) R	46 R			(22) R
POTASSIUM	(767)			(1226)	(1301)	(1033)	(808)	(1006)	(780)					(1656)	(1330)		(1574)	
SELENIUM																		
SILVER																		
SODIUM																		
THALLIUM																		
TIN																		
VANADIUM	(26) R	(22) R	(23) R	(24) R	(34) R	(35) R	(27) R	(27) R	(27) R	(24) R	(20) R	(22) R	(25) R	(36) R	(33) R	(26) R		(30) R
ZINC	100 R,E	200 R,E	195 R,E	195 R,E	477 R,E	915 R,E	254 R,E	71 R,E	134 R,E	85 R,E	78 R,E	72 R,E	121 R,E	165 R,E	204 R,E	44 R,E	89 R,E	125 R,E
PERCENT MOISTURE																		
PERCENT SOLIDS	68.3	58.4	51.6	57.1	66.1	54.8	64.2	70.2	71.9	78.5	75.8	67.0	48.3	57.6	64.8	51.6	40.4	50.1

FOOTNOTES:

A: Detected below quantitation limit (Quantitation limit is 10 X DL)
B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
**: Samples analyzed at medium concentrations.
[]: Positive values less than the contract required detection limit.

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	East	S.East	S.East	S.East	1st Impd	1st Impd	1st Impd	1st Impd	2nd Impd	2nd Impd	2nd Impd			2nd Impd	West	E.Pond	W.Pond
Sample Number:	SD020001	SD021001	SD022001	SD023001	SD024001	SD025001	SD026001	SD027001	SD028001	SD029001	SD030001	SD098001	SD099001	SD031001	SD032001	SD033001	SD034001
Sample Type:	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Blank	Downstream	Upstream	Onsite	Onsite
Date Sampled:	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/26/84	09/15/86	09/16/86	09/16/86	09/17/86
OIK Number:	E9823	E9824	E9825	E9826	E9827	E9828	E9829	E9830	E9831	E9832	E9833	E9834	E9730	EC354	EC355	EC356	EC357
ITK Number:	ME4304	ME4305	ME4306	ME4307	ME4308	ME4401	ME4402	ME4403	ME4404	ME4405	ME4406	ME4407	ME4238	ME6804	ME6805	ME6806	ME6807
ORGANIC COMPOUNDS (units ug/kg)																	
VOLATILES																	
CHLOROMETHANE																	
VINYL CHLORIDE																	
METHYLENE CHLORIDE	300	30 A	51 A	83	160 A	86 A	200	72	100 A	120	160	26 A	17 A	10 J	6 J,B	8 J,B	50
ACETONE					660 A	410	1400							15 J			
CARBON DISULFIDE																	
1,1-DICHLOROETHENE																13	14
1,1-DICHLOROETHANE																69	
TRANS-1,2-DICHLOROETHENE																	
CHLOROFORM																	
1,2-DICHLOROETHANE		220		240													14
2-BUTANONE																	
1,1,1-TRICHLOROETHANE														421	508 J	105	495
1,1,2,2-TETRACHLOROETHANE																	
TRICHLOROETHENE																10	
DIBROMOCHLOROMETHANE																	
1,1,2-TRICHLOROETHANE																	
BENZENE																	
2-HEXANONE																	
4 METHYL-2-PENTANONE																	
TETRACHLOROETHENE																	
TOLUENE																	
CHLOROBENZENE																	8 J
ETHYLBENZENE																	
STYRENE																	
TOTAL XYLENES																	
TOTAL VOLATILES	300	250	51	323	820	496	1600	72	100	120	160	26	17	448	514	205	581
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64
BASE/NEUTRALS AND ACIDS																	
N NITROSODIMETHYLAMINE																	
PHENOL																	
ANILINE																	
1,3 DICHLOROBENZENE																	
1,4-DICHLOROBENZENE																	
BENZYL ALCOHOL																	
1,2-DICHLOROBENZENE																	
2 METHYLPHENOL																	
BIS(2 CHLOROISOPROPYL)ETHER																	

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	East	S.East	S.East	S.East	1st Impd	1st Impd	1st Impd	1st Impd	2nd Impd	2nd Impd	2nd Impd			2nd Impd	West	E.Pond	W.Pond
Sample Number:	SB020001	SB021001	SB022001	SB023001	SB024001	SB025001	SB026001	SB027001	SB028001	SB029001	SB030001	SB098001	SB099001	SB031001	SB032001	SB033001	SB034001
Sample Type:	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Blank	Downstream	Upstream	Onsite	Onsite
Date Sampled:	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/26/84	09/15/86	09/16/86	09/16/86	09/17/86
DFR Number:	E9823	E9824	E9825	E9826	E9827	E9828	E9829	E9830	E9831	E9832	E9833	E9834	E9730	EC354	EC355	EC356	EC357
ITR Number:	NEA304	NEA305	NEA306	NEA307	NEA308	NE4401	NE4402	NE4403	NE4404	NE4405	NE4406	NE4407	NEA238	NE6804	NE6805	NE6806	NE6807
4-METHYLPHENOL																	
HEXACHLOROETHANE																	
ISOPHORONE																	
2-NITROPHENOL																	
2,4-DIMETHYLPHENOL																	
BENZOIC ACID																	
1,2,4-TRICHLOROBENZENE																	
NAPHTHALENE								2100		470 A						210 J	
4-CHLORO-3-METHYLPHENOL																	
2-METHYLNAPHTHALENE	430 A							2400 A		580 A						102 J	
HEXACHLOROCYCLOPENTADIENE																	
DIMETHYL PHTHALATE																	
ACENAPHTHYLENE																	
ACENAPHTHENE																	
4-NITROPHENOL																	
DIBENZOFURAN								370 A									
DIETHYLPHTHALATE																	
FLUORENE																	
N-NITROSODIPHENYLAMINE (1)														809 J	409 J	490 J	
HEXACHLOROBENZENE											2800					518 J	
PENTACHLOROPHENOL																	
PHENANTHRENE								1700 A		470 A						168 J	
ANTHRACENE																	
DI-N-BUTYLPHTHALATE														4313 B	2398 B	2521 B	
FLUORANTHENE	630 A																
PYRENE	610 A																
BUTYLBENZYLPHTHALATE														296 J,B	124 J		
BENZO(A)ANTHRACENE																	
BIS(2-ETHYLHEXYL)PHTHALATE		780 A	26000	5700	950 A					1000 A	24000			997 J,B	197 J	9244	29703 J
CHRYSENE																	
DI-N-OCTYL PHTHALATE																	
BENZO(B)FLUORANTHENE	450 A																
BENZO(K)FLUORANTHENE																	
BENZO(A)PYRENE																	
INDENO(1,2,3-CD)PYRENE																	
DIBENZ(A,H)ANTHRACENE																	
BENZO(G,H,I)PERYLENE																	
TOTAL BASE/NEUTRALS AND ACIDS	2120	780	26000	5700	950			6570		2520	26800			6415	3128	13335	29703
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	3000	0	2000	0	4100	0	12900	21900	15000	29900	119000	0	0	4900	8200	20800	0

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	East	S.East	S.East	S.East	1st Impd	1st Impd	1st Impd	1st Impd	2nd Impd	2nd Impd	2nd Impd			2nd Impd	West	E.Pond	W.Pond
Sample Number:	SD020001	SD021001	SD022001	SD023001	SD024001	SD025001	SD026001	SD027001	SD028001	SD029001	SD030001	SD098001	SD099001	SD031001	SD032001	SD033001	SD034001
Sample Type:	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Blank	Downstream	Upstream	Onsite	Onsite
Date Sampled:	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/26/84	09/15/86	09/16/86	09/16/86	09/17/86
DIA Number:	E9823	E9824	E9825	E9826	E9827	E9828	E9829	E9830	E9831	E9832	E9833	E9834	E9730	EC354	EC355	EC356	EC357
ITR Number:	ME4304	ME4305	ME4306	ME4307	ME4308	ME4401	ME4402	ME4403	ME4404	ME4405	ME4406	ME4407	ME4238	ME6804	ME6805	ME6806	ME6807
PESTICIDES and PCBs																	
ALPHA-BHC																	
BETA-BHC																	
DELTA BHC																	
GAMMA-BHC (LINDANE)																	
HEPTACHLOR																	
ALDRIN																	
HEPTACHLOR EPOXIDE																	
ENDOSULFAN I																	
DIELDRIN																	
4,4-DDE																	
ENDRIN																	
4,4-DDT																	
TOXAPHENE																	
AROCHLOR-1232																	
AROCHLOR-1242																	
AROCHLOR-1248																8171	
AROCHLOR-1254																	
TOTAL PESTICIDES and PCBs																8171	
PERCENT MOISTURE (VOLATILES)														59.8	29.1	28.6	49.5
PERCENT MOISTURE (BNA)														62.9	29.1	28.6	49.5

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	East	S.East	S.East	S.East	1st Impd	1st Impd	1st Impd	1st Impd	2nd Impd	2nd Impd	2nd Impd			2nd Impd	West	E.Pond	N.Pond
Sample Number:	SB020001	SB021001	SB022001	SB023001	SB024001	SB025001	SB026001	SB027001	SB028001	SB029001	SB030001	SB098001	SB099001	SB031001	SB032001	SB033001	SB034001
Sample Type:	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream	Blank	Blank	Downstream	Upstream	Onsite	Onsite
Date Sampled:	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/27/84	11/26/84	09/15/86	09/16/86	09/16/86	09/17/86
DTR Number:	E9823	E9824	E9825	E9826	E9827	E9828	E9829	E9830	E9831	E9832	E9833	E9834	E9730	EC354	EC355	EC356	EC357
ITR Number:	NEA304	NEA305	NEA306	NEA307	NEA308	NE4401	NE4402	NE4403	NE4404	NE4405	NE4406	NE4407	NEA238	NE6804	NE6805	NE6806	NE6807
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																	
ALUMINUM	10556	8337	7512	12899	12058	15431	10928	7286	20747	6675	15821	187	161	22300	9560	7310	8540
ANTIMONY																68	
ARSENIC														27		14	26
BARIUM	(118) A	(74)	(53)	(81)		(127)	(96)	(130)	(82)	(82)				(98)	(128)	(98)	(120)
BERYLLIUM																	
CADMIUM	14 A	19	11	12	8.1	7.0	6.4	5.9	9.9	7.3	17						
CALCIUM	(1569)	(1852)	(2055)	(3208)	79795	50010	39060	9365	(4176)	(1562)	(2803)	(602)	(304)	(5420)	(2840)	10500	(1240)
CHROMIUM	26 A	18 A	21 A	25 A	15 A	34 A	23 A	23 A	36 A	18 A	28 A			29	10	37	36
COBALT														(25)	(7)	(13)	(10)
COPPER	54 A	42	33	42	(31)	42	38	32	30	22	33			(35)	(17)	62	50
IRON	83716	92589	57588	67537	29295	39240	31042	40380	62602	50885	113877	166	170	76300	12400	31000	45300
LEAD	96	25	35	32	23	38	42	28	49	14				28	18	92	48
CYANIDE																	5.2 A
MAGNESIUM	(1943)	(1605)	(17671)	(30333)	18097	8039	7417	4326	6260	(2446)	(4546)			(8240)	(1790)	(2510)	(2410)
MANGANESE	215 A	183	192	369	1178	1708	1350	2014	342	107	463			542	109	390	141
MERCURY									.24	.23	.24						
NICKEL	(19) A	48	(26)	(36)		(37)	(26)	28	(39)		(31)			(65)	(16)	32	(23)
POTASSIUM	(1506)	(907)		(1314)	(6410)	(1076)	(1400)	(1555)	(3173)	(976)	(2047)			(3180)	(863)	(1310)	(2110)
SELENIUM																	
SILVER																	
SODIUM												(1562)	(747)	(1830)			(1310)
THALLIUM																	
TIN																	
VANADIUM	(34) A	(28)	(25)	(26)	(33)	(37)	(29)	(28)	(41)	(27)	(34)	(12)		(31)	(21)	(14)	(18)
ZINC	100 A,E	1254	452	566	81	172	134	279	117	60	124			200	52	413	167
PERCENT MOISTURE																	
PERCENT SOLIDS	52.2	56.0	53.7	53.8	38.9	48.7	45.6	72.4	41.5	64.4	41.4	99.9	99.9	30	72	71	50

FOOTNOTES:

A: Detected below quantitation limit (Quantitation limit is 10 X DL)
B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
**: Samples analyzed at medium concentrations.
[]: Positive values less than the contract required detection limit.

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	N.Pond	N.Pond	N.Pond	E.Pond	E.Pond	1st Impd	West	West	S.East	South	East	
Sample Number:	SB035001	SB035002	SB036001	SB037001	SB038001	SB039001	SB040001	SB040002	SB041001	SB042001	SB043001	SB097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Downstream	Upstream	Upstream	Downstream	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86
DTR Number:	EC358	EC359	EC360	EC361	EC362	EC363	EC364	EC365	EC366	EC367	EC368	EC369
ITR Number:	MEG808	MEG809	MEG810	MEG811	MEG812	MEG813	MEG814	MEG815	MEG816	MEG817	MEG818	MEG819
ORGANIC COMPOUNDS (units-ug/kg)												
VOLATILES												
CHLOROMETHANE												
VINYL CHLORIDE				102								
METHYLENE CHLORIDE	46 B	59 B	215 B	656 B	870 B	159 B	40	155 B	278 B	40 B	205 B	61 B
ACETONE	8 B	15 B	63 B	46 B	240 B	86	229				64 B	
CARBON DISULFIDE												
1,1-DICHLOROETHENE	16	13										
1,1-DICHLOROETHANE				1410	2261							
TRANS-1,2-DICHLOROETHENE												
CHLOROFORM												
1,2-DICHLOROETHANE	5 J	3 J	18	13115	16600				97			
2-BUTANONE												
1,1,1-TRICHLOROETHANE	738 J	633 J	411 J	787	777	27	863 J					
1,1,2,2-TETRACHLOROETHANE												
TRICHLOROETHENE			10	20								
DIBROMOCHLOROMETHANE												
1,1,2-TRICHLOROETHANE												
BENZENE				10 J	25							
2-HEXANONE					2792							
4-METHYL-2-PENTANONE												
TETRACHLOROETHENE												
TOLUENE				20	32		97	80				
CHLOROBENZENE			25	104	329							
ETHYLBENZENE			20		74							
STYRENE												
TOTAL XYLENES			4 J	43	67							
TOTAL VOLATILES	813	723	760	16393	24075	272	1229	235	375	40	269	61
TOTAL TENTATIVELY IDENTIFIED VOLATILES	20	0	84	2468	2600	9	0	220	36	0	0	0
BASE/NEUTRALS AND ACIDS												
N-NITROSODIMETHYLAMINE												
PHENOL								550 J				
ANILINE												
1,3-DICHLOROBENZENE												
1,4-DICHLOROBENZENE												
BENZYL ALCOHOL												
1,2-DICHLOROBENZENE												
2-METHYLPHENOL												
BIS(2-CHLOROISOPROPYL)ETHER												

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	W.Pond	W.Pond	E.Pond	E.Pond	1st Impd	West	West	S.East	South	East	
Sample Number:	SD035001	SD035002	SD036001	SD037001	SD038001	SD039001	SD040001	SD040002	SD041001	SD042001	SD043001	SD097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Downstream	Upstream	Upstream	Downstream	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86
DTR Number:	EC358	EC359	EC360	EC361	EC362	EC363	EC364	EC365	EC366	EC367	EC368	EC369
ITR Number:	NE6808	NE6809	NE6810	NE6811	NE6812	NE6813	NE6814	NE6815	NE6816	NE6817	NE6818	NE6819
4-METHYLPHENOL							997 J	583 J				
HEXACHLOROETHANE												
ISOPHORONE												
2-NITROPHENOL												
2,4-DIMETHYLPHENOL												
BENZOIC ACID												
1,2,4-TRICHLOROBENZENE												
NAPHTHALENE						395 J				715 J		
4-CHLORO-3-METHYLPHENOL												
2-METHYLNAPHTHALENE						455 J		107 J		666 J	137 J	
HEXACHLOROCYCLOPENTADIENE												
DIMETHYL PHTHALATE												
ACENAPHTHYLENE												
ACENAPHTHENE												
4-NITROPHENOL												
DIBENZOFURAN										183 J		
DIETHYLPHTHALATE												
FLUORENE												
N-NITROSODIPHENYLAMINE(1)	8262 J	11546 J	122951 J	1095 J	1727 J	809 J						
HEXACHLOROBENZENE												
PENTACHLOROPHENOL												
PHENANTHRENE					682 J	377 J	267 J					
ANTHRACENE												
DI-N-BUTYLPHTHALATE				6710 B	8636 B	5121 J	4612	7336 B			2203 B	331 J,B
FLUORANTHENE					309 J	539 J	583 J					
PYRENE					359 J	485 J	510 J					
BUTYLBENZYLPHTHALATE												
BENZO(A)ANTHRACENE						270 J	243 J					
BIS(2-ETHYLHEXYL)PHTHALATE	16398 J	5178 J	112133 J	291800	8481	5909 J	701 J	704 J	1197 J	4825		
CHRYSENE								267 J				
DI-N-OCTYL PHTHALATE			55738 J	339 J	2045 J							
BENZO(B)FLUORANTHENE							243 J					
BENZO(K)FLUORANTHENE								413 J				
BENZO(A)PYRENE							197 J					
INDENO(1,2,3-CD)PYRENE												
DIBENZ(A,H)ANTHRACENE												
BENZO(G,H,I)PERYLENE												
TOTAL BASE/NEUTRALS AND ACIDS	16398	13390	23679	370497	16629	20517	9739	8047	8533	6389	2340	331
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	0	7000	0	25000	8400	9900	10600	2700	2900	6000	5400	2000

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	W.Pond	W.Pond	W.Pond	E.Pond	E.Pond	1st Impd	West	West	S.East	South	East	
Sample Number:	SD035001	SD035002	SD036001	SD037001	SD038001	SD039001	SD040001	SD040002	SD041001	SD042001	SD043001	SD097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Downstream	Upstream	Upstream	Downstream	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86
DTM Number:	EC358	EC359	EC360	EC361	EC362	EC363	EC364	EC365	EC366	EC367	EC368	EC369
ITR Number:	NE6808	NE6809	NE6810	NE6811	NE6812	NE6813	NE6814	NE6815	NE6816	NE6817	NE6818	NE6819
PESTICIDES and PCBs												
ALPHA-BHC												
BETA-BHC												
DELTA-BHC												
GAMMA-BHC (LINDANE)												
HEPTACHLOR												
ALDRIN												
HEPTACHLOR EPOXIDE						8.1						
ENDOSULFAN I												
DIELDRIN												
4,4-DDE												
ENDRIN												
4,4-DDT												
TOXAPHENE												
AROCHLOR-1232												
AROCHLOR-1242												
AROCHLOR-1248				21000	4063							
AROCHLOR-1254												
TOTAL PESTICIDES and PCBs				21000	40631	8.1						
PERCENT MOISTURE (VOLATILES)	26.8	28.9	48.9	69.5	71.7	78	62.9	58.8	74.1	39.9	54.6	0.2
PERCENT MOISTURE (BNA)	26.8	28.9	48.9	69.5	71.7	78	62.9	58.8	74.1	39.9	54.6	0.2

TABLE 4
SUMMIT NATIONAL SITE
SEDIMENT SOIL SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	N.Pond	N.Pond	N.Pond	E.Pond	E.Pond	1st Impd	West	West	S.East	South	East	
Sample Number:	SD035001	SD035002	SD036001	SD037001	SD038001	SD039001	SD040001	SD040002	SD041001	SD042001	SD043001	SD097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Onsite	Downstream	Upstream	Upstream	Downstream	Downstream	Downstream	Blank
Date Sampled:	09/16/86	09/16/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86	09/17/86
QTR Number:	EC358	EC359	EC360	EC361	EC362	EC363	EC364	EC365	EC366	EC367	EC368	EC369
ITR Number:	NE6808	NE6809	NE6810	NE6811	NE6812	NE6813	NE6814	NE6815	NE6816	NE6817	NE6818	NE6819
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT												
ALUMINUM	5490	7690	10900	11900	12000	13400	13800	13200	16700	17600	5930	209
ANTIMONY				[85] B					[143]		[52]	
ARSENIC	27	25	26		23		19	17	38	29	15	
BARIUM	[80]	[96]	[132]	[136]	[151]	[170]	[141]	[145]	[31]	[165]	[70]	[3.9]
BERYLLIUM												
CADMIUM												
CALCIUM	[690]	[865]	[1400]	[4170]	[4910]	84400	11200	11800	[10500]	14600	[2020]	[1970]
CHROMIUM	19	26	46	73	51	20	24	23	55	27	[10]	7.1
COBALT	[6.7]	[7.5]	[11]	[17]	[14]	[14]	[20]	[21]	[20]	[32]	[8.8]	
COPPER	34	43	57	65	56	[29]	46	48	74	42	32	[2.2]
IRON	36800	41100	47900	110000	118000	41600	49000	48100	48200	112000	166000	167
LEAD	36 S	55 S	56	59	85	23	121 S	131 S	29	71	29	
CYANIDE	2.1 R	25 R	7 R	74 R	3 R					2.4 R		
MAGNESIUM	[1590]	[2080]	[2940]	[3270]	[2820]	10500	[3900]	[3860]	[2490]	[5000]	[1590]	[301]
MANGANESE	112	132	166	621	590	1090	855	834	1500	2010	102	
MERCURY												
NICKEL	[15]	[19]	[26]	[38]	[29]	[40]	[29]	[36]	[49]	51	[15]	[4.5]
POTASSIUM	[1540]	[1910]	[2330]	[1680]	[1540]	[1630]	[1790]	[1950]	[2090]	[2450]	[1040]	[114]
SELENIUM												
SILVER												
SODIUM	[793]	[991]	[1240]	[1870]	[1960]	[3260]			[6720]	[1780]	[1520]	[935]
THALLIUM												
TIN												
VANADIUM	[14]	[17]	[21]	[18]	[17]	[19]	[24]	[23]		[22]	[13]	[16]
ZINC	82	102	162	1570	545	170	232	235	1070	355	134	[5.8]
PERCENT MOISTURE												
PERCENT SOLIDS	75	71	50	27	33	28	34	36	21	49	41	100

FOOTNOTES:

A: Detected below quantitation limit (Quantitation limit is 10 X DL)
B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
**: Samples analyzed at medium concentrations.
[ ]: Positive values less than the contract required detection limit.

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-2	MW 3	MW-4	MW 5	MW-6	MW-7	MW-8	MW-9	MW-10	MW 11	MW 12	MW 13	MW-13	MW 14	MW 15	MW 15
Sample Number:	GW002001	GW003001	GW004001	GW005001	GW006001	GW007001	GW008001	GW009001	GW010001	GW011001	GW012001	GW013001	GW013002	GW014001	GW015001	GW015002
Sample Type:	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite
Date Sampled:	12/07/84	12/06/84	12/05/84	12/05/84	12/06/84	12/06/84	12/06/84	12/05/84	12/05/84	12/05/84	12/05/84	12/07/84	12/07/84	12/06/84	12/05/84	12/05/84
OIR Number:	E9855	E9860	E9861	E9862	E9863	E9864	E9865	E9854	E9853	E9852	E9851	E9849	E9867	E9859	E9848	E9850
IIR Number:	ME4420	ME4433	ME4434	ME4435	ME4436	ME4437	ME4438	ME4427	ME4426	ME4425	ME4424	ME4422	ME4440	ME4432	ME4421	ME4423
ORGANIC COMPOUNDS (units-ppb)																
VOLATILES																
CHLOROMETHANE																
VINYL CHLORIDE																
METHYLENE CHLORIDE			1672	957				13160	5300							
ACETONE					9			109800	11700					638		
CARBON DISULFIDE																
1,1-DICHLOROETHENE																
1,1-DICHLOROETHANE		17								194						
TRANS-1,2-DICHLOROETHENE		25								51		46	35			
CHLOROFORM																
1,2-DICHLOROETHANE								31616	14800							
2-BUTANONE					30			152540						206		
1,1,1-TRICHLOROETHANE		22						3400	900	354						
1,1,2,2-TETRACHLOROETHANE																
TRICHLOROETHENE		2 J						2600		33		15	12			
1,1,2-TRICHLOROETHANE																
BENZENE	5 J,B	8 B	3 J,B	4 J,B	40 B	8 B	8 B	340 B	760 B	3 J,B	2 J,B	4 J,B	4 J,B	3 J,B	2 J,B	2 J,B
2-HEXANONE									3840							
4-METHYL-2-PENTANONE								8320								
TETRACHLOROETHENE								22320								
TOLUENE								1120								
CHLOROBENZENE																
ETHYLBENZENE																
STYRENE																
TOTAL XYLENES								196								
TOTAL VOLATILES	5	74	1675	961	79	8	8	345412	37300	635	2	65	51	847	2	2
TOTAL TENTATIVELY IDENTIFIED VOLATILES	200	200	200	200	265	206	200	45897	471130	220	202	200	200	230	230	225
BASE/NEUTRALS AND ACIDS																
N NITROSODIMETHYLAMINE																
PHENOL									535							
ANILINE																
1,3-DICHLOROBENZENE																
1,4-DICHLOROBENZENE																
BENZYL ALCOHOL																
1,2-DICHLOROBENZENE																
2-METHYLPHENOL																
BIS(2-CHLOROISOPROPYL)ETHER																

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-13	MW-14	MW-15	MW-15
Sample Number:	GW007001	GW003001	GW004001	GW005001	GW006001	GW007001	GW008001	GW009001	GW010001	GW011001	GW012001	GW013001	GW013002	GW014001	GW015001	GW015002
Sample Type:	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite
Date Sampled:	12/07/84	12/06/84	12/05/84	12/05/84	12/06/84	12/06/84	12/06/84	12/05/84	12/05/84	12/05/84	12/05/84	12/07/84	12/07/84	12/06/84	12/05/84	12/05/84
DFR Number:	E9855	E9860	E9861	E9862	E9863	E9864	E9865	E9854	E9853	E9852	E9851	E9849	E9867	E9859	E9848	E9850
ITR Number:	NE4428	NE4433	NE4434	NE4435	NE4436	NE4437	NE4438	NE4427	NE4426	NE4425	NE4424	NE4422	NE4440	NE4432	NE4421	NE4423
4-METHYLPHENOL																
HEXACHLOROETHANE																
ISOPHORONE		17						366	900	50		13	8 J			
2-NITROPHENOL																
2,4-DIMETHYLPHENOL																
BENZOIC ACID									1425							
1,2,4-TRICHLOROBENZENE																
NAPHTHALENE					6 J											
4-CHLORO-3-METHYLPHENOL																
2-METHYLNAPHTHALENE					14											
HEXACHLOROCYCLOPENTADIENE																
DIMETHYL PHTHALATE																
ACENAPHTHYLENE																
ACENAPHTHENE																
4-NITROPHENOL																
DIBENZOFURAN																
DIETHYLPHTHALATE																
FLUORENE																
N-NITROSODIPHENYLAMINE(1)																
HEXACHLOROBENZENE																
PENTACHLOROPHENOL																
PHENANTHRENE																
ANTHRACENE																
DI-N-BUTYLPHTHALATE																
FLUORANTHENE																
PYRENE																
BUTYLBENZYLPHTHALATE																
BENZO(A)ANTHRACENE																
BIS(2-ETHYLHEXYL)PHTHALATE										13						
CHRYSENE																
DI-N-OCTYL PHTHALATE																
BENZO(B)FLUORANTHENE																
BENZO(K)FLUORANTHENE																
BENZO(A)PYRENE																
INDENO(1,2,3-CD)PYRENE																
DIBENZ(A,H)ANTHRACENE																
BENZO(G,H,I)PERYLENE																
TOTAL BASE/NEUTRALS AND ACIDS		17			20			366	2860	63		13	8			
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	0	0	0	0	10	0	0	38854	4405	0	4	29	20	0	7.5	6

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-13	MW-14	MW-15	MW-15
Sample Number:	GW002001	GW003001	GW004001	GW005001	GW006001	GW007001	GW008001	GW009001	GW010001	GW011001	GW012001	GW013001	GW013002	GW014001	GW015001	GW015002
Sample Type:	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite
Date Sampled:	12/07/84	12/06/84	12/05/84	12/05/84	12/06/84	12/06/84	12/06/84	12/05/84	12/05/84	12/05/84	12/05/84	12/07/84	12/07/84	12/06/84	12/05/84	12/05/84
OTR Number:	E9855	E9860	E9861	E9862	E9863	E9864	E9865	E9854	E9853	E9852	E9851	E9849	E9867	E9859	E9848	E9850
ITR Number:	ME4428	ME4433	ME4434	ME4435	ME4436	ME4437	ME4438	ME4427	ME4426	ME4425	ME4424	ME4422	ME4440	ME4432	ME4421	ME4423
PESTICIDES and PCBs																
ALPHA-BHC									0.10	1.00			0.07			
BETA-BHC										0.30						
DELTA-BHC								17.4	2.10							
GAMMA-BHC (LINDANE)								2.2		0.20						0.25
HEPTACHLOR								6.50	0.60	0.40						
ALDRIN		0.05								0.60						
HEPTACHLOR EPOXIDE																
ENDOSULFAN I																
DIELDRIN																
4,4-DDE																
ENDRIN								0.20								
4,4-DDT					0.11							0.20	0.16	0.14		
TOXAPHENE							13.40									
AROCHLOR-1232																
AROCHLOR-1242																
AROCHLOR-1248																
AROCHLOR-1254																
TOTAL PESTICIDES and PCBs		0.05			0.11		13.4	26.3	2.8	2.5		0.2	0.23	0.14		0.25

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW 10	MW-11	MW-12	MW-13	MW 13	MW-14	MW-15	MW 15
Sample Number:	GW002001	GW003001	GW004001	GW005001	GW006001	GW007001	GW008001	GW009001	GW010001	GW011001	GW012001	GW013001	GW013002	GW014001	GW015001	GW015002
Sample Type:	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite
Date Sampled:	12/07/84	12/06/84	12/05/84	12/05/84	12/06/84	12/06/84	12/06/84	12/05/84	12/05/84	12/05/84	12/05/84	12/07/84	12/07/84	12/06/84	12/05/84	12/05/84
OTR Number:	E9855	E9860	E9861	E9862	E9863	E9864	E9865	E9854	E9853	E9852	E9851	E9849	E9847	E9859	E9848	E9850
ITR Number:	ME4428	ME4433	ME4434	ME4435	ME4436	ME4437	ME4438	ME4427	ME4426	ME4425	ME4424	ME4422	ME4440	ME4432	ME4421	ME4423
INORGANIC COMPOUNDS (units - ppb)																
ALUMINUM	[82]	[156]		572	1310	[129]	302	746			[153]	[51]	[76]	[161]	[103]	[58]
ANTIMONY																
ARSENIC					15		[6]	12	[9]		[5]		[8]	[9]	[5]	[6]
BARIUM				[52] R	[52] R		[56] R	[77] R								
BERYLLIUM																
CADMIUM	12	20						19	18							
CALCIUM	376300 R	673100 R	358100 R	[2180] R	[3604] R	393200 R	34000 R	858600 R	918000 R	469000 R	51590 R	111200 R	117100 R	5829 R	394900 R	357200 R
CHROMIUM		1079 E			33 E	10590 E		709 E	170 E			487 E			16 E	42 E
COBALT	[23] R					114 R		56 R	[38] R							
COPPER		28			[12]	162		27	[18]		[15]				[12]	
IRON	189100 R,E	244100 R,E	8731 R,E	454 R,E	1168 R,E	99410 R,E	2889 R,E	128800 R,E	197696 R,E	17300 R,E	[58] R,E	1746 R,E	176 R,E	198 R,E	14000 R,E	13480 R,E
LEAD		5 R							19 R							
CYANIDE						390		274	80	68			109		92	116
MAGNESIUM	168200 R,E	158900 R,E	197600 R,E	[6353] R,E	[12279] R,E	122000 R,E	[4874] R,E	259300 R,E	245900 R,E	144200 R,E	20190 R,E	37450 R,E	40490 R,E	[44771] R,E	166600 R,E	151000 R,E
MANGANESE	8920	9635	734	16	35	6785	145	25540	20090	3581	293	898	878	[11]	9551	8489
MERCURY																
NICKEL	54 R	570 R			[22] R	5610 R		497 R	162 R	[213] R		254 R			46 R	133 R
POTASSIUM	8737	14686	15535	5720	5027	[2146]	15197	23350	38210	11421	19381	13504	14125	45580	12985	12165
SELENIUM					6											
SILVER											12 R					
SODIUM	37300 E	184700 E	45110 E	256400 E	284800 E	24480 E	341900 E	785500 E	715600 E	172300 E	460500 E	429700E	425600 E	415100 E	373100 E	341700 E
THALLIUM																
TIN																
VANADIUM	[41]	54				60		95	65	[26]	[26]	[23]	[20]		[37]	[33]
ZINC	118	45				130		50	74	32	[15]				24	
FIELD PARAMETERS																
pH (standard units)	6.6	6.2	8.5	8.1	10.4	6.4	9.3	5.5	6.3	6.5	8.9	8.2	8.1	9.4	6.5	6.4
SPECIFIC CONDUCTANCE (umhos/cm)	2700	3500	3000	1950	2500	2700	3000	7500	4000	1950	4250	4000	4200	2500	4500	4600
TEMPERATURE (degrees F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
[]: Positive values less than the contract required detection limit.
Note: All concentrations for metals are dissolved metals.
NA: Not Analyzed

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-17	MW-17			MW-7	MW-4	MW-5	MW-5	MW-17	MW-8	MW-20	MW 18	MW 19	MW 2	2886	2887	2888	2885	2885
Sample Number:	GW017001	GW017002	GW098001	GW099001	GW018001	GW019001	GW020001	GW020002	GW021001	GW022001	GW023001	GW024001	GW025001	GW026001	GW027001	GW028001	GW029001	GW030001	GW030002
Sample Type:	Offsite	Offsite	Blank	Blank	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
Date Sampled:	12/06/84	12/06/84	12/07/84	12/06/84	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/10/86	09/10/86	09/10/86	09/10/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86
DTR Number:	E9857	E9858	E9866	E9856	ED196	ED197	ED198	ED199	ED200	EC301	EC302	EC303	EC304	EC305	EC306	EC307	EC308	EC309	EC310
ITR Number:	ME4430	ME4431	ME4439	ME4429	MEB396	MEB397	MEB398	MEB399	MEB400	ME6743	ME6744	ME6745	ME6746	ME6747	ME6748	ME6749	ME6750	ME6751	ME6752
ORGANIC COMPOUNDS (units-ppb)																			
VOLATILES																			
CHLOROMETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE					2 J	5	3 J	3 J	1 J	1 J	4 J	1 J	2 J	1 J	8100 J	6 J,B	2 J,B	5300 B	4900 J,B
ACETONE	245	150		2072	4 J,B	3 J,B	3 J,B	4 J,B	6 J,B	13 B,J	8 J,B	5 J,B	2 J,B	8 J,B	59000 B,J	79 B	17 B	85000 B	76000 B
CARBON DISULFIDE																			
1,1-DICHLOROETHENE															2600 J				
1,1-DICHLOROETHANE															12000 J	40	5	2400 J	2100 J
TRANS-1,2-DICHLOROETHENE															4600 J				
CHLOROFORM																			
1,2-DICHLOROETHANE	8											2 J				630	170	130000	100000
2-BUTANONE	124	72		711	14 B	16 B	15 B	16 B	15 B	13 B	21 B	14 B	14 B	20 B	290000 B,J	74 B	15 B	67000	56000 B
1,1,1-TRICHLOROETHANE															53000 J			9000	7100
1,1,2,2-TETRACHLOROETHANE																			
TRICHLOROETHENE															27000 J			1000 J	
1,1,2-TRICHLOROETHANE																			
BENZENE	2 J,B	2 J,B	4 J,B	2 J,B												38			
2-HEXANONE																			
4-METHYL-2-PENTANONE															62000 J			5300 J	4500 J
TETRACHLOROETHENE																			
TOLUENE					16		4 J	3 J		1 J	2 J		12	2 J	7100 J	10 J	3 J	20000	16000
CHLOROBENZENE																			
ETHYLBENZENE																36	1 J	11000	6100
STYRENE																			
TOTAL XYLENES																		52000	76000
TOTAL VOLATILES	379	224	4	2785	36	24	25	26	22	28	35	22	30	31	525490	913	213	388000	298700
TOTAL TENTATIVELY IDENTIFIED VOLATILES	262	232	200	1183	0	0	0	0	0	0	0	0	0	3.3	0	551	0	0	0
BASE/NEUTRALS AND ACIDS																			
N-NITROSODIMETHYLAMINE																			
PHENOL															7000				1100
ANILINE																			
1,3 DICHLOROBENZENE																			
1,4-DICHLOROBENZENE																			
BENZYL ALCOHOL																			
1,2-DICHLOROBENZENE																			
2-METHYLPHENOL																			210
BIS(2-CHLOROISOPROPYL)ETHER																			

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-17	MW 17			MW-7	MW-4	MW 5	MW-5	MW-17	MW-8	MW-20	MW-18	MW-19	MW-2	2866	2867	2868	2865	2865
Sample Number:	GW017001	GW017002	GW098001	GW099001	GW018001	GW019001	GW020001	GW020002	GW021001	GW022001	GW023001	GW024001	GW025001	GW026001	GW027001	GW028001	GW029001	GW030001	GW030002
Sample Type:	Offsite	Offsite	Blank	Blank	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
Date Sampled:	12/06/84	12/06/84	12/07/84	12/06/84	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/10/86	09/10/86	09/10/86	09/10/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86
DTG Number:	E9857	E9858	E9866	E9856	EB196	EB197	EB198	EB199	EB200	EC301	EC302	EC303	EC304	EC305	EC306	EC307	EC308	EC309	EC310
IIR Number:	ME4430	ME4431	ME4439	ME4429	ME6396	ME6397	ME6398	ME6399	ME6400	ME6743	ME6744	ME6745	ME6746	ME6747	ME6748	ME6749	ME6750	ME6751	ME6752
4-METHYLPHENOL																			510
HEXACHLOROETHANE																			
ISOPHORONE																3 J		920	1100
2-NITROPHENOL																			
2,4-DIMETHYLPHENOL																		120	140
BENZOIC ACID																		2700	2600
1,2,4-TRICHLOROBENZENE																			35 J
NAPHTHALENE															82			620	510
4-CHLORO-3-METHYLPHENOL																			130
2-METHYLNAPHTHALENE															60			370	350
HEXACHLOROCYCLOPENTADIENE																		2800	1100
DIMETHYL PHTHALATE															10				22 J
ACENAPHTHYLENE																			
ACENAPHTHENE																		110	78 J
4-NITROPHENOL																			
DIBENZOFURAN																		59 J	48 J
DIETHYLPHTHALATE																			53 J
FLUORENE																		75 J	57 J
N-NITROSODIPHENYLAMINE (1)																			
HEXACHLOROBENZENE																		630	430
PENTACHLOROPHENOL																			
PHENANTHRENE																		200	120
ANTHRACENE																		41 J	24 J
DI-N-BUTYLPHTHALATE						3 J,B	2 J,B	3 J,B		4 J,B	2 J	2 J	3 J		2 J,B			130 B	72 J,B
FLUORANTHENE																		77 J	41 J
PYRENE																		79 J	
BUTYLBENZYLPHTHALATE																		950	360
BENZO(A)ANTHRACENE																			
BIS(2-ETHYLHEXYL)PHTHALATE			12		5 J,B	8 J,B	6 J,B	5 J,B	3 J,B	6 J,B	12 B	3 J,B	3 J,B	8 J,B	10 B	8 J,B	8 J,B	8600 B	5900 B
CHRYSENE																			
DI-N-OCTYL PHTHALATE																		1600	860
BENZO(B)FLUORANTHENE																			
BENZO(K)FLUORANTHENE																			
BENZO(A)PYRENE																			
INDENO(1,2,3-CD)PYRENE																			
DIBENZ(A,H)ANTHRACENE																			
BENZO(G,H,I)PERYLENE																			
TOTAL BASE/NEUTRALS AND ACIDS			12		5	11	8	8	3	10	14	5	6	8	7164	11	8	20481	15050
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	0	0	0	0	40.1	35.4	103	72.2	62.5	81.5	182	45.7	75.7	0	1987	327	231	58775	40606

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-17	MW-17			MW-7	MW-4	MW-5	MW-5	MW-17	MW-8	MW-20	MW-18	MW-19	MW 2	2B06	2B07	2B08	2B05	2B05
Sample Number:	GW017001	GW017002	GW098001	GW099001	GW018001	GW019001	GW020001	GW020002	GW021001	GW022001	GW023001	GW024001	GW025001	GW026001	GW027001	GW028001	GW029001	GW030001	GW030002
Sample Type:	Offsite	Offsite	Blank	Blank	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
Date Sampled:	12/06/84	12/06/84	12/07/84	12/06/84	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/10/86	09/10/86	09/10/86	09/10/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86
DTR Number:	E9857	E9858	E9866	E9856	EB196	EB197	EB198	EB199	EB200	EC301	EC302	EC303	EC304	EC305	EC306	EC307	EC308	EC309	EC310
ITR Number:	ME4430	ME4431	ME4439	ME4429	MEB396	MEB397	MEB398	MEB399	MEB400	ME6743	ME6744	ME6745	ME6746	ME6747	ME6748	ME6749	ME6750	ME6751	ME6752
PESTICIDES and PCBs																			
ALPHA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
BETA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DELTA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
GAMMA-BHC (LINDANE)	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HEPTACHLOR	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ALDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HEPTACHLOR EPOXIDE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ENDOSULFAN I	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DIELDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4,4-DDE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ENDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4,4-DDT	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
TOXAPHENE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1232	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1242	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1248	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1254	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
TOTAL PESTICIDES and PCBs	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-17	MW-17			MW-7	MW-4	MW 5	MW-5	MW-17	MW-8	MW-20	MW 18	MW-19	MW 2	2BB6	2BB7	2BB8	2BB5	2BB5
Sample Number:	GW017001	GW017002	GW098001	GW099001	GW018001	GW019001	GW020001	GW020002	GW021001	GW022001	GW023001	GW024001	GW025001	GW026001	GW027001	GW028001	GW029001	GW030001	GW030002
Sample Type:	Offsite	Offsite	Blank	Blank	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
Date Sampled:	12/06/84	12/06/84	12/07/84	12/06/84	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/10/86	09/10/86	09/10/86	09/10/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86
OTK Number:	E9857	E9858	E9866	E9856	EB196	EB197	EB198	EB199	EB200	EC301	EC302	EC303	EC304	EC305	EC306	EC307	EC308	EC309	EC310
ITR Number:	NE4430	NE4431	NE4439	NE4429	NEB396	NEB397	NEB398	NEB399	NEB400	NE6743	NE6744	NE6745	NE6746	NE6747	NE6748	NE6749	NE6750	NE6751	NE6752
INORGANIC COMPOUNDS (units - ppb)																			
ALUMINUM	[105]	[100]		[60]	801	[47]		[170]	304	200	[130]	[129]	725	419	4840			1630	1620
ANTIMONY																		149	134
ARSENIC															16 S			12	18 S
BARIUM	[62] R	[60] R					[59]	[64]	[17]	[30]	[14]					[17]	[12]		
BERYLLIUM																			
CADMIUM	5.3	7.2													58				
CALCIUM	296200 R	310700 R	[734] R	[942] R	430000	505000	[1560]	[1780]	373000	[3080]	[1860]	432000	653000	384000	648000	194000	139000	607000	616000
CHROMIUM			36 E						[8.2]					[5]				[19]	[11]
COBALT	87 R	92 R			[24]				325				[36]	[36]	896			120	116
COPPER				[13]						[3.3]	[20]								
IRON	32970 R,E	34800 R,E	129 R,E		77900	19800	[97]	[86]	80600	[90]	650	4990	222000	183000	982000	2960	2480	539000	614000
LEAD																			
CYANIDE																			
MAGNESIUM	210000 R,E	213900 R,E			117000	228000	[504]	[604]	295000	[1050]	[245]	161000	298000	173000	309000	45000	35400	184000	189000
MANGANESE	26100	27420			5290	1530		[7.8]	40100	27		4280	14100	10600	72290	2340	1350	25600	26100
MERCURY																			
NICKEL	61 R	62 R			[31]				169				58	67	1120			198	182
POTASSIUM	8665	9039			[4840]	18300	[3680]	[3740]	8750	19200	[3560]	9040	18200	12300	1201001	7140	7770	19200	20500
SELENIUM																			
SILVER				[8.7] R			10												
SODIUM	37040 E	28980 E	[17013] E	[14501] E	21700	94800	434000	435000	43000	570000	465000	96400	409000	50600	350000	384000	950000	272000	289000
THALLIUM																			
TIN											3120								
VANADIUM	[23]	[25]									[7.1]								
ZINC	119	129			133	34	[3.8]	[6.4]	248	[8.6]	76	88	350	292	3750	[17]	[17]	295	324
FIELD PARAMETERS																			
pH (standard units)	6.6	6.5	NA	NA	NA	6.9	7.2	7.2	NA	6.0	NA	6.9	6.2	5.1	5.1	6.2	7.0	6.0	6.0
SPECIFIC CONDUCTANCE (umhos/cm)	2500	2500	NA	NA	1150	3000	1500	1500	3100	2000	2500	1500	2200	1700	850	300	500	250	250
TEMPERATURE (degrees F)	NA	NA	NA	NA	57	58	58	57	68	64	59	55	58	56	68	64	68	64	64

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
E: Value is estimated due to presence of interference.
J: An estimated value
R: Spike sample recovery is not within control limits.
[]: Positive values less than the contract required detection limit.
Note: All concentrations for metals are dissolved metals.
NA: Not Analyzed

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-15	Tipple	MW-24	MW-11	MW-22	MW-9	MW-10	MW-26	MW-25	MW-14	MW-14	MW-23	MW-3	MW-6	MW-13	MW-12	MW 16	MW 21
Sample Number:	GW031001	GW032001	GW033001	GW034001	GW035001	GW036001	GW037001	GW038001	GW039001	GW040001	GW040002	GW041001	GW042001	GW043001	GW044001	GW045001	GW046001	GW047001	GW097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite	Onsite	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Offsite	Blank
Date Sampled:	09/11/86	09/11/86	09/12/86	09/11/86	09/10/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/11/86	09/12/86	09/12/86	09/12/86	09/16/86	09/17/86	09/10/86
DTR Number:	EC311	EC312	EC313	EC314	EC315	EC316	EC317	EC318	EC319	EC320	EC321	EC322	EC323	EC324	EC325	EC326	EC327	EC328	EC330
ITR Number:	ME6753	ME6754	ME6755	ME6756	ME6757	ME6758	ME6759	ME6760	ME6761	ME6762	ME6763	ME6764	ME6765	ME6766	ME6767	ME6768	ME6769	ME6770	ME6772
ORGANIC COMPOUNDS (units-ppb)																			
VOLATILES																			
CHLOROMETHANE																			
VINYL CHLORIDE																			
METHYLENE CHLORIDE	1 J,B	2 J,B	180 J,B	6 J,B	1 J	10000 J,B	24000 J,B	1 J,B	3 J	5 B,J	2 J,B	2 J	2 J,B	2 J,B	1 J	1 J	2 J,B	5	2 J
ACETONE	16 B	5 J,B	2700 B,J	51 B	9 J,B	890000 B,J	1300000 B,J	18 B,J	13 B	14 B,J	19 B,J	11 B	7 J,B	7 J,B	11 B	15 B	9 J,B	8 J,B	6 J,B
CARBON DISULFIDE																			
1,1-DICHLOROETHENE				16 J									1 J		7				
1,1-DICHLOROETHANE	3 J		820 J	140					5				14				2 J		
TRANS-1,2-DICHLOROETHENE				12 J									32		32				
CHLOROFORM																			
1,2-DICHLOROETHANE	4 J		5806 J			110000 J			100				13				5		
2-BUTANONE	16 B	14 B	1800 B,J	100 B	15 B	430000 B,J	650000 B,J	15 B,J	15 B	19 B,J	19 B,J	11 B	15 B	16 B,J	13 B	14 B	12 B	17 B	13 B
1,1,1-TRICHLOROETHANE	19		360 J	650					3 J				23		3 J				
1,1,2,2-TETRACHLOROETHANE																			
TRICHLOROETHENE			55 J			6200 J							4 J		46				
1,1,2-TRICHLOROETHANE																			
BENZENE															1 J				
2-HEXANONE			96 J							6 J,B									
4-METHYL-2-PENTANONE			250 J							2 J,B				2 J,B					
TETRACHLOROETHENE						20000 J													
TOLUENE	1 J	7	3200 J					1 J	9	5 J	4 J		3 J	5 J					7
CHLOROBENZENE																			
ETHYLBENZENE			590 J																
STYRENE																			
TOTAL XYLENES			2100 J							1 J									
TOTAL VOLATILES	60	28	17951	975	25	1466200	1974000	35	148	52	44	24	114	32	114	30	30	30	28
TOTAL TENTATIVELY IDENTIFIED VOLATILES	23.4	0	221	53.7	0	166	0	0	0	207	0	0	12.3	54	0	0	0	0	0
BASE/NEUTRALS AND ACIDS																			
N-NITROSODIMETHYLAMINE																			
PHENOL			260			1800 J	910	6 J		3 J	3 J			3 J					
ANILINE																			
1,3-DICHLOROBENZENE																			
1,4-DICHLOROBENZENE																			
BENZYL ALCOHOL			90																
1,2-DICHLOROBENZENE																			
2-METHYLPHENOL			16																
BIS(2-CHLOROISOPROPYL)ETHER																			

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-15	Tipple	MW-24	MW 11	MW-22	MW 9	MW-10	MW 26	MW-25	MW 14	MW-14	MW-23	MW 3	MW 6	MW-13	MW 12	MW 16	MW 21	
Sample Number:	GW031001	GW032001	GW033001	GW034001	GW035001	GW036001	GW037001	GW038001	GW039001	GW040001	GW040002	GW041001	GW042001	GW043001	GW044001	GW045001	GW046001	GW047001	GW097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite	Onsite	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Offsite	Blank
Date Sampled:	09/11/86	09/11/86	09/12/86	09/11/86	09/10/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/11/86	09/12/86	09/12/86	09/12/86	09/16/86	09/17/86	09/10/86
DTR Number:	EC311	EC312	EC313	EC314	EC315	EC316	EC317	EC318	EC319	EC320	EC321	EC322	EC323	EC324	EC325	EC326	EC327	EC328	EC330
IIR Number:	MG6753	MG6754	MG6755	MG6756	MG6757	MG6758	MG6759	MG6760	MG6761	MG6762	MG6763	MG6764	MG6765	MG6766	MG6767	MG6768	MG6769	MG6770	MG6772
4-METHYLPHENOL			140			310 J	12 J												
HEXACHLOROETHANE																			
ISOPHORONE			41	18 J		2600 J	1600						4 J						
2-NITROPHENOL							140												
2,4-DIMETHYLPHENOL			16				32 J												
BENZOIC ACID	4 J		110																
1,2,4-TRICHLOROBENZENE																			
NAPHTHALENE			11		3 J														
4-CHLORO-3-METHYLPHENOL			14																
2-METHYLNAPHTHALENE			5 J		3 J														
HEXACHLOROCYCLOPENTADIENE																			
DIMETHYL PHTHALATE																			
ACENAPHTHYLENE																			
ACENAPHTHENE																			
4-NITROPHENOL																			
DIBENZOFURAN																			
DIETHYLPHTHALATE																			
FLUORENE																			
N-NITROSODIPHENYLAMINE (1)																			
HEXACHLOROBENZENE																			
PENTACHLOROPHENOL	7 J												6 J						
PHENANTHRENE																			
ANTHRACENE																			
DI-N-BUTYLPHTHALATE	2 J,B				3 J								2 J,B						3 J
FLUORANTHENE																			
PYRENE																			
BUTYLBENZYLPHTHALATE																			
BENZO(A)ANTHRACENE																			
BIS(2-ETHYLHEXYL)PHTHALATE	16 B,J	4 J,B	4 B,J	3 J	6 J,B	170 B,J	28 B,J	4 J	2 B,J			4 J	4 J,B						5 J,B
CHRYSENE																			
DI-N-OCTYL PHTHALATE																			
BENZO(B)FLUORANTHENE																			
BENZO(K)FLUORANTHENE																			
BENZO(A)PYRENE																			
INDENO(1,2,3-CD)PYRENE																			
DIBENZ(A,H)ANTHRACENE																			
BENZO(G,H,I)PERYLENE																			
TOTAL BASE/NEUTRALS AND ACIDS	29	4	707	21	15	4880	2722	10	2	3	3	4	16	3	0	0	0	0	8
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	[illegible]	69	1469	147	70.7	12559	5406	7.7	5.4	18.8	0	0	22.9	0	36.9	0	[illegible]	0	49.9

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-15	Tipple	MW 24	MW 11	MW-22	MW-9	MW-10	MW-26	MW-25	MW 14	MW-14	MW-23	MW-5	MW-6	MW-13	MW 12	MW 16	MW-21	
Sample Number:	GW031001	GW032001	GW033001	GW034001	GW035001	GW036001	GW037001	GW038001	GW039001	GW040001	GW040002	GW041001	GW042001	GW043001	GW044001	GW045001	GW046001	GW047001	GW097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite	Onsite	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Offsite	Blank
Date Sampled:	09/11/86	09/11/86	09/12/86	09/11/86	09/10/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/11/86	09/12/86	09/12/86	09/12/86	09/16/86	09/17/86	09/10/86
DIR Number:	EC311	EC312	EC313	EC314	EC315	EC316	EC317	EC318	EC319	EC320	EC321	EC322	EC323	EC324	EC325	EC326	EC327	EC328	EC330
IIR Number:	ME6753	ME6754	ME6755	ME6756	ME6757	ME6758	ME6759	ME6760	ME6761	ME6762	ME6763	ME6764	ME6765	ME6766	ME6767	ME6768	ME6769	ME6770	ME6772
PESTICIDES and PCBs																			
ALPHA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
BETA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DELTA-BHC	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
GAMMA BHC (LINDANE)	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HEPTACHLOR	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ALDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HEPTACHLOR EPOXIDE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ENDOSULFAN I	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DIELDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4,4-DDE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ENDRIN	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
4,4-DDT	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
TOXAPHENE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1232	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1242	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1248	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
AROCHLOR-1254	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
TOTAL PESTICIDES and PCBs	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-15	Tipple	MW-24	MW-11	MW-22	MW 9	MW-10	MW 26	MW-25	MW-14	MW-14	MW 23	MW-3	MW 6	MW-13	MW-12	MW 16	MW-21
Sample Number:	GW031001	GW032001	GW033001	GW034001	GW035001	GW036001	GW037001	GW038001	GW039001	GW040001	GW040002	GW041001	GW042001	GW043001	GW044001	GW045001	GW046001	GW047001	GW097001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Offsite	Onsite	Onsite	Onsite	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Offsite	Blank
Date Sampled:	09/11/86	09/11/86	09/12/86	09/11/86	09/10/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/11/86	09/12/86	09/12/86	09/12/86	09/16/86	09/17/86	09/10/86
DTR Number:	EC311	EC312	EC313	EC314	EC315	EC316	EC317	EC318	EC319	EC320	EC321	EC322	EC323	EC324	EC325	EC326	EC327	EC328	EC330
ITR Number:	MG6753	MG6754	MG6755	MG6756	MG6757	MG6758	MG6759	MG6760	MG6761	MG6762	MG6763	MG6764	MG6765	MG6766	MG6767	MG6768	MG6769	MG6770	MG6772
INORGANIC COMPOUNDS (units - ppb)																			
ALUMINUM		627		(83)	(46)	1100		2580		1410	257	(37)	785	816		(57)			(35)
ANTIMONY		(43)											67						
ARSENIC						19.5	14												
BARIUM			(48)		(27)	(284)	1550	(4.8)	(22)	(84)	(80)	(27)		(22)	(24)	(36)	(6.8)		(3.7)
BERYLLIUM																			
CADMIUM																			
CALCIUM	493000	461000	23400	627000	40300	775000	782000	(845)	46500	(38501)	(33101)	14000	551000	(2060)	268000	12000	54500		(337)
CHROMIUM		11		(4.2)		55	20						(6.8)						
COBALT	(7.5)	(33)				(40)	(26)						(11)						
COPPER		(6.7)				(6.1)													
IRON	13100	273000	(62)	38300	(47)	68800	806	(48)		371	(72)	(24)	296000	130	402	159			
LEAD																			
CYANIDE																			
MAGNESIUM	176000	181000	(408)	216000	(1200	282000	254000	(102)	22300	(1810)	(1620)	5180	176000	(255)	127000	(4510)	19300		(52)
MANGANESE	10100	8036		2710	90	14200	15700		78	50	39	(14)	11200		3690	157	124		
MERCURY																			
NICKEL	(12)	(27)	(12)	(11)		161	120						(14)						
POTASSIUM	9630	8420	158000	10800	12400	18800	37600	5870	11200	10400	10700	6410	(1500	5470	15600	9010	11800		
SELENIUM																			
SILVER																			
SODIUM	514000	52500	483000	295000	551000	1560000	1210000	462000	701000	609000	615000	640000	242000	355000	369000	690000	534000		(1680)
THALLIUM																			
TIN						122	113										(28)		
VANADIUM						(47)	(16)	(13)											
ZINC	(17)	1670	(7.6)	30	(6.3)	41	(6.3)	(13)	(7)	40	21	(5.5)	142	(11)	(6.1)	(9.9)	(19)		(5.6)
FIELD PARAMETERS																			
pH (standard units)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPECIFIC CONDUCTANCE (umhos/cm)	3500	2600	3800	4000	3250	11000	8000	4600	4600	2500	2500	3250	4000	1675	4300	4100	1500	1625	NA
TEMPERATURE (degrees F)	62	60	60	64	66	64	60	60	59	58	58	64	60	58	58	60	55	56	NA

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
( ): Positive values less than the contract required detection limit.
Note: All concentrations for metals are dissolved metals.
NA: Not Analyzed

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	---
Sample Number:	GW096001
Sample Type:	Blank
Date Sampled:	09/9/86
OTR Number:	EC331
ITR Number:	ME6773

****

ORGANIC COMPOUNDS (units-ppb)

****

VOLATILES	
CHLOROMETHANE	
VINYL CHLORIDE	
METHYLENE CHLORIDE	2 J
ACETONE	11 B
CARBON DISULFIDE	
1,1-DICHLOROETHENE	
1,1-DICHLOROETHANE	
TRANS-1,2-DICHLOROETHENE	
CHLOROFORM	
1,2-DICHLOROETHANE	
2-BUTANONE	13 B
1,1,1-TRICHLOROETHANE	
1,1,2,2-TETRACHLOROETHANE	
TRICHLOROETHENE	
1,1,2-TRICHLOROETHANE	
BENZENE	
2-METHANONE	
4-METHYL-2-PENTANONE	
TETRACHLOROETHENE	
TOLUENE	1 J
CHLOROBENZENE	
ETHYLBENZENE	
STYRENE	
TOTAL XYLENES	
TOTAL VOLATILES	27
TOTAL TENTATIVELY IDENTIFIED VOLATILES	0

****

BASE/NEUTRALS AND ACIDS	
N-NITROSODIMETHYLAMINE	
PHENOL	3 J
ANILINE	
1,3-DICHLOROBENZENE	
1,4-DICHLOROBENZENE	
BENZYL ALCOHOL	
1,2-DICHLOROBENZENE	
2-METHYLPHENOL	
BIS(2-CHLOROISOPROPYL)ETHER	

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:

Sample Number: GW096001
Sample Type: Blank
Date Sampled: 09/9/86
QIR Number: EC331
ITR Number: MEG773

****

4-METHYLPHENOL
HEXACHLOROETHANE
ISOPHORONE
2-NITROPHENOL
2,4-DIMETHYLPHENOL
BENZOIC ACID
1,2,4-TRICHLOROBENZENE
NAPHTHALENE
4-CHLORO-3-METHYLPHENOL
2-METHYLNAPHTHALENE
HEXACHLOROCYCLOPENTADIENE
DIMETHYL PHTHALATE
ACENAPHTHYLENE
ACENAPHTHENE
4-NITROPHENOL
DIBENZOFURAN
DIETHYLPHTHALATE
FLUORENE
N-NITROSODIPHENYLAMINE(1)
HEXACHLOROBENZENE
PENTACHLOROPHENOL
PHENANTHRENE
ANTHRACENE
DI-N-BUTYLPHTHALATE
FLUORANTHENE
PYRENE
BUTYLBENZYLPHTHALATE
BENZO(A)ANTHRACENE
BIS(2-ETHYLHEXYL)PHTHALATE
CHRYSENE
DI-N-OCTYL PHTHALATE
BENZO(B)FLUORANTHENE
BENZO(K)FLUORANTHENE
BENZO(A)PYRENE
INDENO(1,2,3-CD)PYRENE
DIBENZ(A,H)ANTHRACENE
BENZO(G,H,I)PERYLENE

TOTAL BASE/NEUTRALS AND ACIDS	3
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	11.7

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:

Sample Number: GW096001
Sample Type: Blank
Date Sampled: 09/9/86
DTR Number: EC331
ITR Number: MEG773

****

PESTICIDES and PCBs

ALPHA-BHC
BETA-BHC
DELTA-BHC
GAMMA-BHC (LINDANE)
HEPTACHLOR
ALDRIN
HEPTACHLOR EPOXIDE
ENDOSULFAN I
DIELDRIN
4,4-DDE
ENDRIN
4,4-DDT
TOXAPHENE
AROCHLOR-1232
AROCHLOR-1242
AROCHLOR-1248
AROCHLOR-1254

==========

TOTAL PESTICIDES and PCBs

==========

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:

Sample Number: GW096001
Sample Type: Blank
Date Sampled: 09/9/86
OTR Number: EC331
ITR Number: MEG773

INORGANIC COMPOUNDS (units - ppb)	
ALUMINUM	[97]
ANTIMONY	
ARSENIC	
BARIUM	[5.9]
BERYLLIUM	
CADMIUM	
CALCIUM	[1510]
CHROMIUM	
COBALT	
COPPER	
IRON	[90]
LEAD	
CYANIDE	
MAGNESIUM	[115]
MANGANESE	[6.2]
MERCURY	
NICKEL	
POTASSIUM	
SELENIUM	
SILVER	
SODIUM	[2700]
THALLIUM	
TIN	
VANADIUM	
ZINC	[2.4]

FIELD PARAMETERS	
pH (standard units)	NA
SPECIFIC CONDUCTANCE (umhos/cm)	NA
TEMPERATURE (degrees F)	NA

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
E: Value is estimated due to presence of interference.
J: An estimated value
N: Spike sample recovery is not within control limits.
[]: Positive values less than the contract required detection limit.
Note: All concentrations for metals are dissolved metals.
NA: Not Analyzed

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS (Total Metals)
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-7	MW-4	MW-5	MW-5	MW-17	MW-8	MW-20	MW-18	MW-19	MW-2	2BB6	2BB7	2BB8	2BB5	2BB5	MW-15	Tipple	MW-24	MW-11	MW-22
Sample Number:	GW018001	GW019001	GW020001	GW020002	GW021001	GW022001	GW023001	GW024001	GW025001	GW026001	GW027001	GW028001	GW029001	GW030001	GW030002	GW031001	GW032001	GW033001	GW034001	GW035001
Sample Type:	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Offsite
Date Sampled:	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/9/86	09/10/86	09/10/86	09/10/86	09/10/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86	09/12/86	09/11/86	09/10/86
DIR Number:	EB196	EB197	EB198	EB199	EB200	EC301	EC302	EC303	EC304	EC305	EC306	EC307	EC308	EC309	EC310	EC311	EC312	EC313	EC314	EC315
IIR Number:	NEB396	NEB397	NEB398	NEB399	NEB400	NEG743	NEG744	NEG745	NEG746	NEG747	NEG748	NEG749	NEG750	NEG751	NEG752	NEG753	NEG754	NEG755	NEG756	NEG757
INORGANIC COMPOUNDS (units - ppb, except where noted otherwise)																				
ALUMINUM	4850	994	3350	3920	19400	736	3110	25300	38800	12300	29000	10100	12600	14200	12200	221	853	255	[1261]	11000
ANTIMONY									64	69	240			110	121		[50]			
ARSENIC					13			18 S	30 S		62 S,+	72 S		30 S	28 S					
BARIUM	[14]	[154]	[137]	[149]	[180]	[45]	[118]	[146]	[139]	[80]	[86]	[65]	[80]	[28]	[23]			209		242
BERYLLIUM					[2.9]			[3.4]	[4.3]		[6.8]			[3.2]	[2.5]		[2.1]			
CADMIUM		5.4								7.5	175			5.1	8.7				5.1	
CALCIUM	407000	448000	11200	11800	312000	5610	50400	455000	62300	365000	540000	193000	141000	515000	554000	447000	437000	31100	570000	49400
CHROMIUM	[5.3]	[6.3]	[6.1]	[5.6]	38		[4.9]	42	58	25	32	13	21	44	45	[6.4]	11			16
COBALT	[27]				356			[45]	74	66	938	[16]	[18]	119	127		[34]			[15]
COPPER	[12]	[12]	[20]	[23]	40	[16]	[23]	63	89	40	[43]	28	33	[22]	[22]	[16]	47	[23]	[11]	37
IRON	80400	25900	5660	5750	148000	1180	3320	88300	288000	280000	1020000	36200	48700	534000	555000	31500	276000	497	37100	26200
LEAD													15 S,R							21 S,R
CYANIDE														16	18	26				
MAGNESIUM	109000	203000	[1580]	[1590]	270000	[1230]	[1510]	171000	296000	169000	267000	44700	40800	165000	177000	158000	171000	[6463]	202000	15100
MANGANESE	5030	1380	101	104	37300	63	125	6490	14100	11000	69500	2760	1870	22800	24100	9080	7910	21	2520	616
MERCURY					0.9	0.3	0.5	0.7	0.5	0.3		0.3	0.3							
NICKEL	[37]	[7.5]	[8.3]		255		[8.8]	87	149	137	1210	[33]	43	216	224	[15]	[32]	[12]	[24]	[35]
POTASSIUM	[4790] E	16500 E	[3700] E	[14030] E	10200 E	17700 E	[4850] E	13380 E	22200 E	10500 E	23600 E	8060 E	8800 E	18700 E	19200 E	8630	7780	144000	9940 E	13300 E
SELENIUM																				
SILVER																				
SODIUM	20100	81600	353000	376000	38900	513000	428000	95100	380000	41900	344000	383000	902000	240000	256000	472000	49900	446000	273000	539000
THALLIUM																				
TIN	[27]					[29]													[36]	
VANADIUM	[4]	[5.4]	[9.2]	[7.3]	[38]		[15]	[48]	54	[18]		[20]	[25]	[7.3]					[5.2]	[22]
ZINC	139	46	32	33	609	37	33	228	586	631	4360	121	128	703	615	63	1590	43	34	142
Total Alkalinity, as CaCO3 (mg/l)	143	245	842	830	100	1080	938	316	174	4.0	NR	677	947	248	271	778	157	231	713	380
Ammonia, as N (mg/l)	0.7	2.8	0.8	0.85	0.50	1.2	1.1	1.0	3.8	3.6	2.5	48	45	22	24	27	1.3	5.0	3.0	1.5
Nitrate/Nitrite, as N (mg/l)											0.11			0.14	0.15					
Chloride (mg/l)	15	109	12	13	39	42	107	95	1420	31	925	121	140	350	64	189	60	48	311	17
Suspended Solids (mg/l)	139	119	126	87	28400	47	201	10800	3640	1310	4240	4710	2400	6080	10900	85	162	30	49	932
Dissolved Solids (mg/l)	2400	3060	938	976	3150	1350	1100	2620	6080	3210	8420	1960	3320	5500	5660	3920	3270	1840	3900	1840
Sulfate (mg/l)	1500	1650	8.8	10	1970	1020	34	1380	2230	1870	3320	730	1240	2370	2400	2040	1950	800	1530	670
Acidity (mg/l)	NR	NA	NA	NR	NA	NR	NR	NR	NA	NA	2330	NR	NA	NA	NA	NR	NR	NR	NA	NR
FIELD PARAMETERS																				
pH (standard units)	NA	6.9	7.2	7.2	NA	6.0	NA	6.9	6.2	5.1	5.1	6.2	7.0	6.0	6.0	NA	NA	NA	NA	NA
SPECIFIC CONDUCTANCE (umhos/cm)	1150	3000	1500	1500	3100	2000	2500	1500	2200	1700	850	500	500	250	250	3500	2600	3800	4000	3250
TEMPERATURE (degrees F)	57	58	58	52	68	64	59	55	58	56	68	64	66	64	64	62	60	60	64	66

FOOTNOTES:
E: Value is estimated due to presence of interference.
R: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
+: Correlation coefficient for method of standard addition is less than 0.995

[]: Positive values less than the contract required detection limit.
Note: All concentrations for metals are dissolved metals.
NA: Not Analyzed
NR: Not Reported

TABLE 5
SUMMIT NATIONAL SITE
GROUNDWATER SAMPLE RESULTS (Total Metals)
REMEDIAL INVESTIGATION REPORT

Sample Location:	MW-9	MW-10	MW-26	MW-25	MW-14	MW-14	MW-23	MW-3	MW-6	MW-13	MW-12	MW-16	MW-21		
Sample Number:	GW036001	GW037001	GW038001	GW039001	GW040001	GW040002	GW041001	GW042001	GW043001	GW044001	GW045001	GW046001	GW047001	GW097001	GW096001
Sample Type:	Onsite	Onsite	Onsite	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Onsite	Offsite	Blank	Blank
Date Sampled:	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86	09/11/86	09/12/86	09/12/86	09/12/86	09/16/86	09/17/86	09/10/86	09/9/86
OTR Number:	EC316	EC317	EC318	EC319	EC320	EC321	EC322	EC323	EC324	EC325	EC326	EC327	EC328	EC330	EC331
ITR Number:	ME6758	ME6759	ME6760	ME6761	ME6762	ME6763	ME6764	ME6765	ME6766	ME6767	ME6768	ME6769	ME6770	ME6772	ME6773
INORGANIC COMPOUNDS *(units - ppb, except where noted otherwise)*															
ALUMINUM	1330	4140	2600	926	44800	37500	4200	649	14000	356	2950	1240	212000	(75)	(45)
ANTIMONY								(55)					(114)		
ARSENIC	35 S,R	22 R			18 R	17 R			10 R				39		
BARIUM	(320)	2730	(12)	(36)	172	1610	(52)		248	(33)	230	(21)	3520	(6.8)	(5.1)
BERYLLIUM					(3.1)	(2.9)							22		
CADMIUM															
CALCIUM	750000	665000	7700	51500	17800	17100	16200	532000	11200	270000	14300	49500 E	135000 E	(501)	(510)
CHROMIUM	52	30			68	60	(6.4)		19		(5.1)	(4.1)	318		
COBALT	(37)	(38)			52	(50)		(7.6)	(16)				343		
COPPER	(6.8)	(38)	(20)	(16)	91	90	(18)		42	(13)	25	28	502	(5.1)	(8.9)
IRON	69100	325000	160	1800	101000	90800	2450	286000	29000	2970	5540	6510	608000	(79)	(34)
LEAD		64			37	32			18			16 S,+	220		
CYANIDE	239	37								35					
MAGNESIUM	303000	252000	(94)	22900	19300	17400	5580	372000	(4800)	129000	5270	16900	98000	(84)	(112)
MANGANESE	13800	10800		122	2860	2630	53	11000	529	3680	300	586	10700		
MERCURY								0.7					0.4		
NICKEL	156	138			98	93	(8.4)	(11)	(56)			(10)	678		
POTASSIUM	20700	40000	5850	10100	16400	15000	6660	11100 E	8000	16400	9170	11400	34000		
SELENIUM															
SILVER															
SODIUM	1600000	1140000	462000	703000	565000	550000	634000	232000	331000	377000	684000	477000	320000	(1060)	
THALLIUM															
TIN												(28)			
VANADIUM	(52)	(19)	(14)		75	64	(6)		(26)		(9.2)		321		
ZINC	50	319	24	24	292	264	28	132	106	22	56	54	2000	(8.2)	(9.3)
Total Alkalinity, as $CaCO_3$ (mg/l)	2330	2490	991	466	1220	1220	433	150	678	646	457	480	460		62
Ammonia, as N (mg/l)	11	4.6	2.5	2.4	1.3	1.3	1.2	3.0	4.4	1.4	1.3	2.4	2.0		
Nitrate/Nitrite, as N (mg/l)											0.2				
Chloride (mg/l)	918	799	61	24	179	166	79	316	94	122	27	46	149		
Suspended Solids (mg/l)	90	462	31	51	2810	3340	172	46	510	27	144	172	37000		
Dissolved Solids (mg/l)	10800	9230	1150	2400	1870	1630	2030	4790	1100	2690	2180	1700	1280	14	22
Sulfate (mg/l)	650	33	75	1060	39	42	800	2100	49	950	1040	716	395		
Acidity (mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	NA
FIELD PARAMETERS															
pH (standard units)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPECIFIC CONDUCTANCE (umhos/cm)	11000	8000	4600	4600	2500	2500	3250	4000	1675	4300	4100	1500	1625	NA	NA
TEMPERATURE (degrees F)	64	60	60	59	58	58	64	60	58	58	60	55	56	NA	NA

FOOTNOTES:

E: Value is estimated due to presence of interference.
R: Spike sample recovery is not within control limits.
S: Value is determined by standard addition.
+: Correlation coefficient for method of standard addition is less than 0.995

(): Positive values less than the contract required detection limit.
Note: All concentrations for metals are dissolved metals.
NA: Not Analyzed
NR: Not Reported

TABLE 6
SUMMIT NATIONAL SITE
RESIDENTIAL WELLS SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Lemon	Watson	Watson	Martin	Carver		Lemon	Lockridge	Watson	O'Neil	Meyers	Meyers	Jones	Dreher	Kays	Meese	
Sample Number:	RW001001	RW002001	RW002002	RW004001	RW005001	RW099001	RW006001	RW007001	RW008001	RW009001	RW010001	RW010002	RW011001	RW012001	RW013001	RW014001	RW099001
Sample Type:	Residntl	Residntl	Residntl	Residntl	Residntl	Blank	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Blank
Date Sampled:	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86	09/16/86	09/16/86
OTR Number:	OR608	OR609	OR610	OR611	OR612	ORBR02	E01	E02	E06	E03	E04	E05	E08	E09	E10	E07	E11
ITR Number:	IWORR08	IWORR09	IWORR10	IWORR11	IWORR12	IWORR02	WE6774	WE6775	WE6776	WE6777	WE6778	WE6779	WE6780	WE6781	WE6782	WE6783	WE6784
ORGANIC COMPOUNDS (units-ppb)																	
VOLATILES																	
CHLOROMETHANE																	
VINYL CHLORIDE																	
METHYLENE CHLORIDE	0.7 SC	0.7 SC		0.7 SC		0.6 SC							5.5 B	10.9 B,J			0.7 B,J
ACETONE							15.0 B,J	9.3 B,J	10 B,J	11 B,J					10 B,J	9.3 B,J	
CARBON DISULFIDE																	
1,1-DICHLOROETHENE																	
1,1-DICHLOROETHANE																	
TRANS-1,2-DICHLOROETHENE																	
CHLOROFORM						0.6	0.4 B,J	0.3 B,J	0.2 B,J	0.3 B,J	0.3 B,J	0.2 B,J	0.3 B,J	0.3 B,J	0.3 B,J	0.1 B,J	0.4 B,J
1,2-DICHLOROETHANE																	
2-BUTANONE														0.6 B,J			
1,1,1-TRICHLOROETHANE																	
1,1,2,2-TETRACHLOROETHANE																	
TRICHLOROETHENE																	
1,1,2-TRICHLOROETHANE																	
BENZENE																	
2-HEXANONE																	
4-METHYL-2-PENTANONE																	
TETRACHLOROETHENE																	
TOLUENE							5.3 B	1.7 B	1 B,J	1.5 B	0.9 B,J	0.8 B,J	0.9 B,J	0.9 B,J	0.9 B,J	0.9 B,J	0.9 B,J
CHLOROBENZENE																	
ETHYLBENZENE															0.1		0.1 J
STYRENE																	
TOTAL XYLENES																	
TOTAL VOLATILES	0.7	0.7		0.7		1.2	10.7	11.3	11.2	12.8	1.2	1.0	6.7	2.7	11.3	10.3	2.1
TOTAL TENTATIVELY IDENTIFIED VOLATILES	3.6	3.7	0.8	0	1.4	9	0	0	0	0	0	0	0	0	0	0	0
BASE/NEUTRALS AND ACIDS																	
N-NITROSODIMETHYLAMINE																	
PHENOL																	
ANILINE																	
1,3-DICHLOROBENZENE																	
1,4-DICHLOROBENZENE																	
BENZYL ALCOHOL																	
1,2-DICHLOROBENZENE																	
2-METHYLPHENOL																	
BIS(2-CHLOROISOPROPYL)ETHER																	

TABLE 6
SUMMIT NATIONAL SITE
RESIDENTIAL WELLS SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Lemon	Watson	Watson	Martin	Carver		Lemon	Lockridge	Watson	O'Neil	Meyers	Meyers	Jones	Dreher	Kays	Meese	
Sample Number:	RW001001	RW002001	RW002002	RW004001	RW005001	RW099001	RW006001	RW007001	RW008001	RW009001	RW010001	RW010002	RW011001	RW012001	RW013001	RW014001	RW099001
Sample Type:	Residntl	Residntl	Residntl	Residntl	Residntl	Blank	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Blank
Date Sampled:	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86	09/16/86	09/16/86
DTR Number:	DRG08	DRG09	DRG10	DRG11	DRG12	DRGR02	E01	E02	E06	E03	E04	E05	E08	E09	E10	E07	E11
ITR Number:	INDRG08	INDRG09	INDRG10	INDRG11	INDRG12	INDRR02	NE6774	NE6775	NE6776	NE6777	NE6778	NE6779	NE6780	NE6781	NE6782	NE6783	NE6784
4-METHYLPHENOL																	
HEXACHLOROETHANE																	
ISOPHORONE																	
2-NITROPHENOL																	
2,4-DIMETHYLPHENOL																	
BENZOIC ACID																	
1,2,4-TRICHLOROBENZENE																	
NAPHTHALENE																	
4-CHLORO-3-METHYLPHENOL																	
2-METHYLNAPHTHALENE																	
HEXACHLOROCYCLOPENTADIENE																	
DIMETHYL PHTHALATE																	
ACENAPHTHYLENE																	
ACENAPHTHENE																	
4-NITROPHENOL																	
DIBENZOFURAN																	
DIETHYLPHTHALATE							0.2 B,J	0.2 B,J	0.2 B,J	0.3 B,J	0.1 B,J	0.2 B,J	0.1 B,J	0.1 B,J	0.1 B,J	0.1 B,J	0.1 B,J
FLUORENE																	
N-NITROSODIPHENYLAMINE (1)																	
HEXACHLOROBENZENE																	
PENTACHLOROPHENOL																	
PHENANTHRENE																	
ANTHRACENE																	
DI-N-BUTYLPHTHALATE							1 B,J	0.3 B,J	0.2 B,J	0.8 B,J	0.1 B,J	0.2 B,J	0.1 B,J	0.1 B,J	0.2 B,J	0.1 B,J	0.3 B,J
FLUORANTHENE																	
PYRENE																	
BUTYLBENZYLPHTHALATE										0.1 B,J							
BENZO(A)ANTHRACENE																	
BIS(2-ETHYLHEXYL)PHTHALATE							0.7 B,J	0.8 B,J	0.6 B,J	11.1 B,J	0.7 B,J	0.1 B,J	0.2 B,J	0.2 B,J	0.3 B,J	0.4 B,J	0.3 B,J
CHRYSENE																	
DI-N-OCTYL PHTHALATE																	
BENZO(B)FLUORANTHENE																	
BENZO(K)FLUORANTHENE																	
BENZO(A)PYRENE																	
INDENO(1,2,3-CD)PYRENE																	
DIBENZ(A,H)ANTHRACENE																	
BENZO(G,H,I)PERYLENE																	
TOTAL BASE/NEUTRALS AND ACIDS							1.9	1.3	1.0	2.3	0.9	0.5	0.4	0.4	0.6	0.6	0.7
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	0.4	0.8	4.2	0.4	1.4	0.1	3.1	1.1	11.4	1.8	13.2	10.9	2	5.9	25.9	9.2	0

TABLE 6
SUMMIT NATIONAL SITE
RESIDENTIAL WELLS SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Lemon	Watson	Watson	Martin	Carver		Lemon	Lockridge	Watson	O'Neil	Meyers	Meyers	Jones	Dreher	Kays	Weese	
Sample Number:	RW001001	RW002001	RW002002	RW004001	RW005001	RW099001	RW006001	RW007001	RW008001	RW009001	RW010001	RW010002	RW011001	RW012001	RW013001	RW014001	RW099001
Sample Type:	Residntl	Residntl	Residntl	Residntl	Residntl	Blank	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Blank
Date Sampled:	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86	09/16/86	09/16/86
OTR Number:	ORG08	ORG09	ORG10	ORG11	ORG12	ORGR02	E01	E02	E06	E03	E04	E05	E08	E09	E10	E07	E11
ITR Number:	INORG08	INORG09	INORG10	INORG11	INORG12	INORR02	NE6774	NE6775	NE6776	NE6777	NE6778	NE6779	NE6780	NE6781	NE6782	NE6783	NE6784
PESTICIDES and PCBs																	
ALPHA-BHC																	
BETA-BHC																	
DELTA-BHC																	
GAMMA-BHC (LINDANE)																	
HEPTACHLOR																	
ALDRIN																	
HEPTACHLOR EPOXIDE																	
ENDOSULFAN I																	
DIELDRIN																	
4,4-DDE																	
ENDRIN																	
4,4-DDT																	
TOXAPHENE																	
AROCHLOR-1232																	
AROCHLOR-1242																	
AROCHLOR-1248																	
AROCHLOR-1254																	
TOTAL PESTICIDES and PCBs																	

TABLE 6
SUMMIT NATIONAL SITE
RESIDENTIAL WELLS SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Lemon	Watson	Watson	Martin	Carver		Lemon	Lockridge	Watson	O'Neil	Meyers	Meyers	Jones	Archer	Kays	Meese	
Sample Number:	RW001001	RW002001	RW002002	RW004001	RW005001	RW099001	RW006001	RW007001	RW008001	RW009001	RW010001	RW010002	RW011001	RW012001	RW013001	RW014001	RW099001
Sample Type:	Residntl	Residntl	Residntl	Residntl	Residntl	Blank	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Blank
Date Sampled:	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86	09/16/86	09/16/86
OTR Number:	OR608	OR609	OR610	OR611	OR612	OR602	E01	E02	E06	E03	E04	E05	E08	E09	E10	E07	E11
ITR Number:	INOR608	INOR609	INOR610	INOR611	INOR612	INOR602	NE6774	NE6775	NE6776	NE6777	NE6778	NE6779	NE6780	NE6781	NE6782	NE6783	NE6784
INORGANIC COMPOUNDS (units - ppb, except where noted otherwise)																	
ALUMINUM									[127]	[36]				[30]		[129]	[38]
ANTIMONY									3.3 S		17 S	14 S	15 S	10 S		135	
ARSENIC																	
BARIUM	22	121	126	70.6	15		[11]	[86]	[184]	[28]					[26]		[5.8]
BERYLLIUM																	
BORON	521	564	560	725	450												
CADMIUM	2.79																
CALCIUM	47800	3040	2070	7090	81200		93600	9080	[2840]	[3840]	330000	339000	522000	529000	9970	346000	[3521]
CHROMIUM	10.1													[4]			
COBALT																	
COPPER		6.07					[7.8]	[6.9]	74	[7.1]	32	41	[17]	[18]	[7]	[12]	[5.8]
IRON	206						1090 J	470 J	370 J	349 J	6030 J	6610 J	10700 J	10900 J	[55] J	9620 J	[18] J
LEAD																	
LITHIUM	14.6			42.6	19.4												
CYANIDE																	
MAGNESIUM	18000	1050	932	2800	34800		44000	[3590]	[960]	[1450]	131000	135000	250000	254000	[4900]	141000	
MANGANESE	36.9			6.2	46.9		48	[14]			199	209	928	942		134	
MERCURY												0.5					
MOLYBDENUM																	
NICKEL	47.6												[7.5]	[7]			
POTASSIUM	4250			4520	7190		7090 E	[4340] E	[1560] E	[2740] E	13400 E	13600 E	18400 E	18600 E	[3470] E	15000 E	
SELENIUM																	
SILVER																	
SODIUM	399000	335000	341000	783000	274000		508000 E	835000 E	351000 E	544000 E	292000 E	274000 E	286000 E	289000 E	526000 E	281000 E	
STRONTIUM	740	58.8	55.6	241	1330												
THALLIUM																	
TIN																	
TITANIUM																	
VANADIUM																	
YTTRIDIUM																	
ZINC	62.2			42.4			[17]	[11]	29	[9.8]	23	24	[19]	[19]	[6.1]	[18]	[6.7]
Total Alkalinity, as CaCO3 (mg/l)							489	609	664	531	430	432	552	558	466	467	
Ammonia, as N (mg/l)																	
Nitrate/Nitrite, as N (mg/l)																	
Chloride (mg/l)							26	941	8.9	504	26	25	97	146	9.5	18	
Suspended Solids (mg/l)																	
Dissolved Solids (mg/l)							1940	2215	857	1380	2720	2730	4020	2600	1520	2850	
Sulfate (mg/l)																	
Acidity (mg/l)							NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	3.2
FIELD PARAMETERS																	
pH (standard units)	7.6	8.7	8.7	7.8	7.3	NA	6.5	6.5	7.0	6.5	6.5	6.5	NA	6.5	7.0	6.0	NA
Specific Conductance (mmhos/cm)	2500	1250	1350	4500	2000	NA	200	650	375	820	400	400	NA	300	450	315	NA

TABLE 6
SUMMIT NATIONAL SITE
RESIDENTIAL WELLS SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Lemon	Watson	Watson	Martin	Carver		Lemon	Lochridge	Watson	O'Neil	Meyers	Meyers	Jones	Dreher	Kays	Weese	
Sample Number:	RW001001	RW002001	RW002002	RW004001	RW005001	RW099001	RW006001	RW007001	RW008001	RW009001	RW010001	RW010002	RW011001	RW012001	RW013001	RW014001	RW099001
Sample Type:	Residntl	Residntl	Residntl	Residntl	Residntl	Blank	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Residntl	Blank
Date Sampled:	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	12/04/84	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86	09/16/86	09/16/86	09/16/86	09/16/86	09/16/86
DTR Number:	ORG08	ORG09	ORG10	ORG11	ORG12	ORGR02	E01	E02	E06	E03	E04	E05	E08	E09	E10	E07	E11
ITR Number:	INORG08	INORG09	INORG10	INORG11	INORG12	INORR02	WE6774	WE6775	WE6776	WE6777	WE6778	WE6779	WE6780	WE6781	WE6782	WE6783	WE6784
Temperature (degrees F)	NA	NA	NA	NA	NA	NA	58	60	62	62	60	60	NA	64	62	56	NA

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
C: Applies to pesticide parameters where the identification has been confirmed by GC/MS.
E: Value is estimated due to presence of interference.
J: An estimated value
S: Value is determined by standard addition.
SC: Suspected contaminant
( ): Positive values less than the contract required detection limit.
NA: Not Analyzed

TABLE 7
SUMMIT NATIONAL SITE
DRUM/TANK SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Incin.	Incin.	TP-1S	TP-1S	TP-1S	TP-1S	Zone I	Zone I	TP-1W	TP-9W	TP-2W	TP-2W	TP-3S	Tank A	Tank A	Tank A
Sample Number:	TK001001	TK001002	DR001001	DR001001	DR002001	DR002001	DR003001	DR003001	DR004001	DR005001	DR006001	DR007001	DR008001	TK002001	TK002001	TK002001
Sample Type:	Tank	Tank	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Tank	Tank	Tank
Date Sampled:	11/14/84	11/14/84	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/12/85	12/12/85	12/12/85	12/12/85	01/09/86	01/09/86	01/09/86
QTR Number:	E5801	E5802	E5804		E5805-11	E5805-13	E5806		E5807	E5808	E5809	E5810	E5811	E5803-11	E5803-12	E5803-13
ITR Number:	NE5801	NE5802	NE5813-11	NE5813-12	NE5814-11	NE5814-12	NE5815-11	NE5815-12	NE5348-13	NE5349-13	NE5350-11	NE5352-12	NE5353-13	NE5812-11	NE5812-12	
ORGANIC COMPOUNDS (units-ug/kg)																
VOLATILES																
CHLOROMETHANE									20000							
VINYL CHLORIDE																
METHYLENE CHLORIDE	110000 B	110000 B	9500 B		34000 J,B	1000000 J,B	6100 B		14000 B	8900 B,**	100000 B	5700 B,**	20000 J,B	1200000 J,B	6300 B	1100000 J,B
ACETONE			3300 J,B		61000 J,B	4800000 B	4100 B			1600 B,**	180000 B	2300 B,**	160000 B		36000 B	9500000 B
CARBON DISULFIDE																
1,1-DICHLOROETHENE	50000 J															
1,1-DICHLOROETHANE																
TRANS-1,2-DICHLOROETHENE										370 J,**			72000			
CHLOROFORM							620 J,B			770 B,**		690 J,B				
1,2-DICHLOROETHANE										3100 **						
2-BUTANONE	270000	250000	8600 B				5800 B			5400 B,**	84000 J,B	7000 B **	37000 J,B		72000 B	
1,1,1-TRICHLOROETHANE	3550000	3120000	19000				1500 J			1700 **			19000 J			
1,1,2,2-TETRACHLOROETHANE																
TRICHLOROETHENE			13000				1400 J			1500 **			140000			
1,1,2-TRICHLOROETHANE																
BENZENE							1200 J							1100000 J	43000	13000000
2-HEXANONE																
4-METHYL-2-PENTANONE																
TETRACHLOROETHENE																
TOLUENE	260000	240000	62000		26000 J		21000		2000 J	3200 **	340000	6100 **	31000 J	9100000	64000	54000000
CHLOROBENZENE					15000 J				110000							
ETHYLBENZENE	160000	140000	13000				570 J			2100 **	23000 J		190000	1300000 J	6000	10000000
STYRENE			370000													
TOTAL XYLENES	250000		10000				4400			8700 **	140000	650 J,**	840000	8400000	32000	55000000
TOTAL VOLATILES	4650000	3860000	508400		136000	6600000	46690		146000	37340	867000	22440	1509000	21100000	259300	142600000
TOTAL TENTATIVELY IDENTIFIED VOLATILES	3842000	4317000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASE/NEUTRALS AND ACIDS																
N-NITROSODIMETHYLAMINE																
PHENOL		67000 J	8200 J,**													
ANILINE																
1,3-DICHLOROBENZENE																
1,4-DICHLOROBENZENE																
BENZYL ALCOHOL																
1,2-DICHLOROBENZENE																
2-METHYLPHENOL																
BIS(2-CHLOROISOPROPYL)ETHER																
4-METHYLPHENOL	525000	664000														

TABLE 7
SUMMIT NATIONAL SITE
DRUM/TANK SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Incin.	Incin.	TP-1S	TP-1S	TP-1S	TP-1S	Zone I	Zone I	TP-1W	TP-9W	TP-2W	TP-2W	TP-3S	Tank A	Tank A	Tank A
Sample Number:	TK001001	TK001002	DR001001	DR001001	DR002001	DR002001	DR003001	DR003001	DR004001	DR005001	DR006001	DR007001	DR008001	TK002001	TK002001	TK002001
Sample Type:	Tank	Tank	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Tank	Tank	Tank
Date Sampled:	11/14/84	11/14/84	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/12/85	12/12/85	12/12/85	12/12/85	01/09/86	01/09/86	01/09/86
OTR Number:	E5801	E5802	E5804		E5805-11	E5805-13	E5806		E5807	E5808	E5809	E5810	E5811	E5803-11	E5803-12	E5803-13
ITK Number:	ME5801	ME5802	ME5813-11	ME5813-12	ME5814-11	ME5814-12	ME5815-11	ME5815-12	ME5348-13	ME5349-13	ME5350-11	ME5352-12	ME5353-13	ME5812-11	ME5812-12	
HEXACHLOROETHANE																
ISOPHORONE																
2-NITROPHENOL																
2,4-DIMETHYLPHENOL	101000	109000														
BENZOIC ACID																
1,2,4-TRICHLOROBENZENE																
NAPHTHALENE	23000 J	24000 J											85000 J	360000 **	12000 J,**	
4-CHLORO-3-METHYLPHENOL																
2-METHYLNAPHTHALENE														470000 **	11000 J,**	
HEXACHLOROCYCLOPENTADIENE																
DIMETHYL PHTHALATE																
ACENAPHTHYLENE																
ACENAPHTHENE														28000 J,**		
4-NITROPHENOL																
DIBENZOFURAN																
DIETHYLPHTHALATE																
FLUORENE														4200 J, **		
N-NITROSODIPHENYLAMINE(1)																
HEXACHLOROBENZENE																
PENTACHLOROPHENOL																34000 J,**
PHENANTHRENE	25000 J															34000 **
ANTHRACENE	25000 J	28000 J														4000 J,**
DI-N-BUTYLPHTHALATE	16000 J	112000			5700 J,**	14000 J,**							28000 J	28000 J,**		
FLUORANTHENE																
PYRENE			2900 J,**													4700 J,**
BUTYLBENZYLPHTHALATE																
BENZO(A)ANTHRACENE																2000 J,**
BIS(2-ETHYLHEXYL)PHTHALATE	281000	298000			21000 **											
CHRYSENE																2800 J,**
DI-N-OCTYL PHTHALATE					43000 **	100000 **										
BENZO(B)FLUORANTHENE																2300 J,**
BENZO(K)FLUORANTHENE																1600 J,**
BENZO(A)PYRENE																
INDENO(1,2,3-CD)PYRENE																
DIBENZ(A,H)ANTHRACENE																
BENZO(G,H,I)PERYLENE																
TOTAL BASE/NEUTRALS AND ACIDS	996000	1302000	11100		69700	114000							113000	890200	23000	85400
TOTAL TENTATIVELY IDENTIFIED BASE/NEUTRALS AND ACIDS	10973000	18235000	33000	0	32000	28000	0	0	0	170000	18000	0	0	10700000	209000	0

PESTICIDES AND PCBs

ALPHA-BHC																

TABLE 7
SUMMIT NATIONAL SITE
DRUM/TANK SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Incin.	Incin.	TP-1S	TP-1S	TP-1S	TP-1S	Zone I	Zone I	TP-1W	TP-9W	TP-2W	TP-2W	TP-3S	Tank A	Tank A	Tank A
Sample Number:	TK001001	TK001002	DR001001	DR001001	DR002001	DR002001	DR003001	DR003001	DR004001	DR005001	DR006001	DR007001	DR008001	TK002001	TK002001	TK002001
Sample Type:	Tank	Tank	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Tank	Tank	Tank
Date Sampled:	11/14/84	11/14/84	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/12/85	12/12/85	12/12/85	12/12/85	01/09/86	01/09/86	01/09/86
DTR Number:	E5801	E5802	E5804		E5805-11	E5805-13	E5806		E5807	E5808	E5809	E5810	E5811	E5803-11	E5803-12	E5803-13
ITR Number:	ME5801	ME5802	ME5813-11	ME5813-12	ME5814-11	ME5814-12	ME5815-11	ME5815-12	ME5348-13	ME5349-13	ME5350-11	ME5352-12	ME5353-13	ME5812-11	ME5812-12	
BETA-BHC																
DELTA-BHC	6250 **															
GAMMA-BHC(LINDANE)																
HEPTACHLOR																
ALDRIN	4750 **															
HEPTACHLOR EPOXIDE																
ENDOSULFAN I	1700 **															
DIELDRIN																
4,4-DDE	1800 **															
ENDRIN																
4,4-DDI																
TOXAPHENE																
AROCHLOR-1232																
AROCHLOR-1242																
AROCHLOR-1248																
AROCHLOR-1254																
TOTAL PESTICIDES and PCBs	14500															

TABLE 7
SUMMIT NATIONAL SITE
DRUM/TANK SAMPLE RESULTS
REMEDIAL INVESTIGATION REPORT

Sample Location:	Incin.	Incin.	TP-1S	TP-1S	TP-1S	TP-1S	Zone I	Zone I	TP-1W	TP-9W	TP-2W	TP-2W	TP-3S	Tank A	Tank A	Tank A
Sample Number:	TK001001	TK001002	DR001001	DR001001	DR002001	DR002001	DR003001	DR003001	DR004001	DR005001	DR006001	DR007001	DR008001	TK002001	TK002001	TK002001
Sample Type:	Tank	Tank	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Tank	Tank	Tank
Date Sampled:	11/14/84	11/14/84	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/11/85	12/12/85	12/12/85	12/12/85	12/12/85	01/09/86	01/09/86	01/09/86
DTA Number:	E5801	E5802	E5804		E5805-11	E5805-13	E5806		E5807	E5808	E5809	E5810	E5811	E5803-11	E5803-12	E5803-13
ITA Number:	NE5801	NE5802	NE5813-11	NE5813-12	NE5814-11	NE5814-12	NE5815-11	NE5815-12	NE5348-13	NE5349-13	NE5350-11	NE5352-12	NE5353-13	NE5812-11	NE5812-12	
INORGANIC COMPOUNDS (units) MG/KG DRY WEIGHT																
ALUMINUM	699	803			7810		2790				16500			6210		
ANTIMONY																
ARSENIC																
BARIUM	(89)	88														
BERYLLIUM																
CADMIUM	2.4	7.9									139 B		88 B			
CALCIUM			3130	2830	3800	2700	4010	3040	6240		4090	2800		1600	2600	
CHROMIUM	207 R	189 B									60					
COBALT																
COPPER	28	28									527		69.7	120		
IRON	2050	2050	226		5360		14900		404		25700 F	710		162000 F		
LEAD	160	195												460		
CYANIDE											768	1330 F				
MAGNESIUM					1440		809		1410		2340			871		
MANGANESE	14	17			77		60.6				982			331		
MERCURY																
NICKEL			64	55	117	70.9	86.7	99.8	241	142	57.9	74	189			
POTASSIUM																
SELENIUM																
SILICON			1400 E	897	31100 E		2710 E		2900		49700 E			21900 E	2160	
SILVER																
SODIUM	4800	4760														
THALLIUM		(2.3)														
TIN		18 B														
TITANIUM					602						979			428		
VANADIUM																
ZINC	67	71			203		150				198000		111	629		

FOOTNOTES:

B: Analyte has been found in the laboratory blank as well as the sample. Indicates possible/probable contamination.
E: Value is estimated due to presence of interference.
F: Sample Concentration is greater than 4 times the spike value.
J: An estimated value
R: Spike sample recovery is not within control limits.
**: Samples analysed at medium concentrations.
(): Positive values less than the contract required detection limit.
11: Top Liquid Phase
12: Middle Liquid Phase
13: Solid Phase

Appendix B

APPENDIX B - LABORATORY AND EPA QA PROTOCOL

CHAPTER V
PROGRAM QUALITY ASSURANCE

The purpose of this chapter is to present a summary of the different aspects of quality assurance (QA) and to show their interrelationship within the overall structure of the program. This information is included to familiarize users with the program's basic QA principles and their application, and to facilitate a more complete understanding of the quality of CLP analytical data in terms of potential utilization.

A. Interface with Agency Quality Assurance

The primary role of the CLP is to support the Agency's Superfund investigation and cleanup efforts by producing analytical data of known and documented quality useable for Agency enforcement actions keyed to identification of pollutant sources and recovery of cleanup costs. Therefore, a comprehensive quality assurance program that reflects Agency QA objectives has been incorporated into all aspects of CLP operations. The CLP links two primary aspects of quality assurance (QA): field QA, which includes field sampling operations and QA project planning; and laboratory QA, which is comprised of analytical method QC and external or program QA.

Field operations include sampling activities performed by the EPA Regions and National Remedial Action/Field Investigation Team (REM/FIT) and Technical Assistance Team (TAT) contractors, which result in samples being processed through the CLP for analysis. The CLP NPO coordinates closely with these and other Agency sampling groups and Agency QA teams, in the development and application of quality-controlled Program Plans and site-specific Project Plans. These plans include the consistent use of Agency-specified containers, sampling techniques, sample preservation, sample tags and chain-of-custody documents, and adherence to DOT regulations in sample shipment. The CLP strongly supports the use of consistent field sampling, and sample packaging and shipment

techniques, and specifies types of sample containers and required sample volumes for appropriate target analyses. Through its Sample Bottle Repository system, the CLP provides Superfund samplers with the precleaned sampling bottles for use in the field.

The CLP is directly involved in all aspects of laboratory QA. Analytical methods require extensive Agency-specified quality control (QC) procedures and documentation to ensure a complete data product that will withstand legal scrutiny. The CLP operates an extensive external QA program, which includes: pre-award and post-award laboratory performance evaluation sample analyses and laboratory facility evaluations, required submission of laboratory Standard Operating Procedures (SOPs) for analytical operations and documentation, continuous monitoring of lab performance by Headquarters contract POs and Regional DPOs, and a multi-level data review process to evaluate the validity of the data product.

The CLP, through a variety of mechanisms, continuously strives to improve the quality of program data by maintaining state-of-the-art analytical methods, refining the structure and requirements of analytical contracts, and strengthening lab operations. CLP QA activities are coordinated through the NPO QA Officer, to ensure that the CLP is operating in accordance with overall Agency QA mandates.

The application of field QA is addressed in Chapters II and III, where sample volume, container, preservation, packaging, shipment and documentation requirements are discussed. Analysis or method QC is addressed for each analytical program in Chapter II, which contains a description of contract analytical methods and QC requirements for each program. The following sections of this chapter describe the program's external laboratory QA activities.

B. Laboratory Selection Process

1. Bid Price

The first criterion for laboratory selection is bid price. Following bid opening, bid abstracts are reviewed and evaluated by NPO and EPA contract officials. The lowest competitive bidders are selected to participate in pre-award bid confirmation, the process through which bidder responsiveness and responsibility for award are demonstrated and evaluated.

2. Pre-Award Bid Confirmation

Pre-award bid confirmation may include three activities: (1) bidder analysis of performance evaluation (PE) samples; (2) bidder submission of Standard Operating Procedures (SOPs); and (3) site evaluation of the bidder's facility, performed by EPA program management and contracts personnel.

a. Performance Evaluation Sample Analysis

Laboratories chosen to participate in the pre-award process are sent a set of PE samples for analysis. The PE samples are prepared by EMSL/LV and are representative of the types of field samples that the contractor would routinely be analyzing under the subject procurement. The laboratory is required to analyze PE samples according to contract procedures set forth in the IFB, and to report PE sample data according to IFB requirements, within a time period of 21 days. Bidders' PE sample data are evaluated by NPO and EMSL/LV personnel, in terms of compliance with contract requirements and accuracy of determination of compounds at the levels

known to be in the PE samples. Analysis results are rated by a scoresheet developed by EMSL/LV. The PE sample score is a primary consideration in determining bidder responsiveness/responsibility for contract award.

b. Standard Operating Procedures

Bidders are required to submit copies of all laboratory Standard Operating Procedures (SOPs) at the time of submission of PE sample data. SOPs are not required to coincide with each specific detail of the contract requirement, but must be representative of good laboratory practices and must demonstrate that the laboratory has a facility-wide quality assurance program in place and operating. Bidder SOPs are reviewed by NPO and EMSL/LV personnel and are utilized by EPA in performance of the site evaluation.

c. Laboratory Evaluation

EPA NPO and EMSL/LV personnel participate in site evaluations of laboratory facilities of bidders which scored acceptably on the PE sample analyses. EPA personnel perform a walk-through of the facility and complete a site evaluation questionnaire. The results of the site evaluation are considered in final determination of bidder responsiveness/responsibility for contract award.

C. Laboratory Start-Up Process

Laboratories entering the program undergo a learning curve process during which they become fully familiarized and obtain expertise in application of program methodologies and quality control procedures. To reduce the learning curve period and bring laboratories "up to speed" in a timely manner, CLP management employs a series of laboratory start-up procedures which are utilized during the laboratory's initial contract operations and whenever laboratory problems are identified during contract performance.

1. Provision of Standards to Laboratory

Immediately following contract award, EMSL/LV arranges for the provision of standard materials (SMs) to the contractor, through the Agency's contractor-operated QA Materials Bank. These SMs are utilized by the laboratory in performing initial instrument calibrations and as reference standards throughout contract performance.

2. PO Review of First Data Packages

Initial data packages are targeted for immediate review and evaluation by the NPO Project Officer (PO), EMSL/LV and the Region. This review is intensive and focuses on any problems the laboratory has, either in applying methodologies or in reporting the data. The PO then supplies feedback to the laboratory concerning the status of the data and works with the laboratory in identifying and remedying problems.

3. PO/DPO Laboratory Visits

Depending on the extent of the problems found during the review of an initial data package, the PO may visit the laboratory facility and work on-site with laboratory personnel in rectifying problems. This process also

occurs on an ongoing basis during the life of the contract. Site evaluations are performed yearly by EPA staff, and the PO and/or Deputy Project Officer (DPO) visit the laboratory on an as-needed basis to resolve performance problems.

4. PO/DPO/SMO/Laboratory Communication

Telephone communication is the most widely applied method for problem solving and maintaining efficient laboratory operations, both during the laboratory start-up phase and throughout the performance of the contract. During the start-up period, communication links are established and the laboratory becomes familiarized with the communication process. In general, the laboratory notifies SMO immediately upon identification of any problem regarding the samples (e.g., insufficient sample volume) or any difficulties encountered in analysis. SMO routinely resolves sample-related problems in coordination with the Regional client, and refers technical problems to the contract PO, who contacts the laboratory and resolves the problem. The resolution and any specific actions taken are reported to SMO which records this information as part of the permanent Case record. The laboratory also records the problem and resolution on the sample data report, so that the Region considers this information in association with evaluating and using the data. With the appointment of Regional DPOs to assist in the monitoring of contractor performance, the DPO will play a major role in ongoing laboratory problem resolution in coordination with the PO.

D. Laboratory Performance Evaluation

1. Performance Evaluation Sample Analysis

Performance Evaluation (PE) samples are prepared by ORD EMSL/LV and sent to contractor laboratories for analysis, normally on a quarterly basis. PE samples are typically shipped as "double blind" samples, i.e., the PE samples are not discernable from routine field samples, to ensure that the laboratory processes the samples in a routine manner. Evalution of PE sample data is performed by EMSL/LV and is used by the NPO in formally evaluating laboratory contract performance. Additionally, PE sample QC data are entered by EMSL/LV into the program's QA Data Base, and are utilized, along with other laboratory data, in trend analyses, and evaluation and revision of contract QC criteria.

2. Laboratory Site Evaluation

At least once a year, EPA NPO, Regional and EMSL/LV personnel visit each laboratory facility and evaluate laboratory procedures. The evaluation reports which result from these site visits are utilized by the NPO in identifying and remedying laboratory performance problems. Repeat site visits by EPA NPO, Regional and EMSL/LV personnel are made on an as-needed basis throughout the year, to resolve laboratory problems.

3. Corrective Action

Upon identification of laboratory performance problems, the PO and DPO work closely with the laboratory to effect correction of the problems. Depending on the scope of the problems, the laboratory may be placed on temporary hold, whereby the laboratory does not receive additional samples for analysis until the problem has been corrected.

Should the contractor's non-compliance to contract performance or deliverable requirements continue, the EPA Contracting Officer is requested by the NPO to issue a Show Cause Notice to the contractor. This document requires the contractor, within a ten-day period of time, to present the government with any facts bearing on the issue, to be used in the government's determination regarding whether the contractor's failure to perform arose out of causes beyond the laboratory's control and without fault or negligence on the part of the contractor. The contractor, in response, must submit substantial evidence to demonstrate that the contract should not be terminated for default.

A recovery plan is generally included as part of the contractor's response to the Show Cause Notice. EPA Contracts and NPO officials review the contractor's response and proposed recovery plan, and determine whether the contractor has presented sufficient evidence to demonstrate timely remedy of the noncompliance. Following this review, if the contractor has presented acceptable evidence toward recovery, the government issues a Cure Notice to the contractor which delineates the government-accepted recovery plan that the contractor must follow to avoid contract termination. The government's recovery plan includes actions and time schedules for completion of each step of the recovery process, and specifies an overall time period acceptable for completion of recovery.

Should the contractor not comply with the recovery schedule, the next and final step may be contract termination by the government for default. In addition to terminating the laboratory's contract, this action impacts on evaluation of the contractor's responsiveness/responsibility for award under future CLP solicitations.

E. Sample Data Evaluation

1. Intercomparison Check Sample Studies

Intercomparison check sample studies are initiated by the EPA Regions on a periodic basis and involve simultaneous shipment of known samples to two or more CLP and/or Regional laboratories for analysis. Check samples are routinely shipped as "single blind" sample, i.e., the laboratory is aware samples are check samples but does not know sample composition. Analytical data from study participants are compiled by the Region and used in comparative data evaluation. The Region provides intercomparison sample study results to the NPO and EMSL/LV for use in programmatic applications. These studies differ from the PE sample program in that check sample data do not result in contractual evaluation of individual laboratory performance.

2. Regional Sample Split/Spike Programs

This Regionally-directed program involves simultaneous sample analysis by two or more CLP and/or Regional laboratory facilities, and provides the Region with comparative data utilized in evaluating application of methods. In the sample split program, the Regions arrange to have field samples split and sent to different contractor and Regional laboratories for analysis. In the sample spike program, a known sample volume is prepared and divided into two or more equivalent portions. Each sample portion is then spiked with known levels of contaminants, and sent to different contractor and/or Regional laboratories for analysis. Results of split/spike sample analyses performed by CLP laboratories are provided to the NPO and EMSL/LV by the Region.

F. Analytical Data Review

Upon completion of analysis and data reporting, the laboratory simultaneously sends a copy of the complete data package to the CLP SMO, EMSL/LV and the Regional client. Each of these groups performs complementary aspects of data review.

1. EMSL/LV Data Review

On a routine basis, EMSL/LV performs a comprehensive QA audit on CLP sample data packages using Mil. Standard 105D. Based on this review, EMSL/LV prepares a detailed report on the data packages, which is provided to the NPO and to Regional clients by SMO. This review package is valuable to both program management and users in evaluating the suitability of the contract methods to the types of samples analyzed, the quality of the analytical data, and the performance of the contractor laboratories.

In addition, EMSL/LV enters surrogate and spike recovery information into the program's QA Data Base. These data are then statistically evaluated and utilized to determine and revise contract QC acceptance windows for CLP-generated data and to characterize laboratory performance.

2. Regional Data Review

The Regional client reviews all data packages resulting from Regional sampling efforts. It is the responsibility of the Region, as the data user, to determine the applicability of each data package to its intended use, e.g., site investigation support, cleanup activities and/or enforcement actions. In this review, the Region applies its standard CLP data review procedures and references the requirements of the contract Statement of Work under which the analyses were performed.

3. SMO Data Check for Completeness

Each CLP-generated data package is checked for completeness by SMO upon receipt. SMO reviews the data package verifying that all contractually-required forms are included and that forms are completed according to contract specifications. Should SMO identify any missing information, incomplete forms or other problems with the data package, SMO immediately notifies the NPO PO, EMSL/LV and the Regional client. At this time, the laboratory is contacted and instructed to submit the missing or incorrect portions of the data package.

4. SMO Data Review Services

Under direction of CLP management, SMO may perform additional data review, checking the data for compliance to contract QC procedures and parameters and for applicability to its intended uses. This review is provided on a limited basis in response to specific Regional request. Consult Chapter IV, Section E, for a complete description of the data review services provided and appropriate request procedures.

G. Analytical Methodology Improvement/Development

1. Protocol Standardization and Improvement

Refining and improving analytical protocols to maintain state-of-the-art status and to reflect newly-defined or changed requirements of the Superfund effort, is an ongoing activity for all CLP participants. This effort is accomplished through an established system of information transfer coordinated through the NPO. All program participants submit comments or recommendations to the NPO on an ongoing basis. The NPO reviews all submitted information and considers recommendations for program application, on a periodic basis.

Since 1982, input on protocol improvements has come primarily through the CLP Technical Caucuses which involve NPO, EMSL/LV, EMSL/Cincinnati, EPA Region, SMO, laboratory and other program support contractor personnel. Analytical methods and data reporting formats are reviewed and discussed in detail at the caucus sessions. EPA personnel then review caucus discussions and compile concensus recommendations for protocol changes. Following NPO approval of recommended changes, laboratory contracts are modified by the Contracting Officer to include recommended revisions, through contract change order actions. All laboratory contracts within an analytical program are changed concurrently to maintain consistency across the program.

2. Method Development

Development of new analytical methods may be initiated by a newly identified or redefined Agency analysis requirement, such as dioxin analysis. Analytical methods utilized in the CLP are based on EPA-developed and approved methodologies. The NPO, EMSL/LV, EMSL/Cincinnati, and/or EPA Regions have historically contributed to development of new program analytical methodologies. Regardless of the group responsible for method development, methods are reviewed by several sources and are tested prior to implementation, to the extent possible to meet program requirements.

A. Organic Routine Analytical Services (RAS)

1. Sample Matrices, Concentration Levels and Volumes Required

The organic RAS contract methods apply to analysis of water (aqueous) and soil/sediment samples. Samples for analysis should be single-phase, homogeneous samples of a similar matrix. Sample matrices other than water, sediment or soil are processed through the SAS program.

Organic RAS contract methods determine concentrations of organic compounds ranging from low or environmental levels of concentration to medium levels, where a compound may comprise as much as 15 percent of the total sample, at the lowest appropriate detection limits. Low level samples are considered to be those collected off-site, around the perimeter of a waste site, or in areas where hazards are thought to be significantly reduced by normal environmental processes. Medium level samples are most often those collected on-site, in areas of moderate dilution by normal environmental processes. Low and medium level designations are made in the field by the sampler to determine packaging and shipment procedures. Low and medium level analysis designations are performed within the laboratory to determine the appropriate analytical protocol to be used.

Samples collected on-site where high levels of contamination are suspected (i.e., drum samples) are routinely shipped to a Hazardous Substances Laboratory for sample preparation prior to analysis. High hazard sample preparation is discussed in Section D of this chapter. Alternatively, HH sample preparation and analysis can be obtained through SAS as described in Section E.

The sample volume and container types required for RAS organic analysis vary according to the matrix and estimated concentration level of the sample. For RAS organic analysis of a water sample estimated as low level, one gallon sample volume is required for extractables (B/N/A), and 80 ml for volatiles (VOA). The sample should be collected in two ½-gallon

or four 1-liter amber glass bottles, and two 40-ml glass vials. For RAS organics analysis of a water sample estimated as medium level, a four liter volume is required for extractables and 80 ml for volatiles. The sample should be collected in four 1-liter amber glass bottles or four 32-ounce glass jars, and two 40-ml glass vials. For RAS analysis of a soil/sediment sample estimated as low or medium level, a six ounce volume is required. The sample should be collected in one 8-ounce glass jar for extractables and two 120-ml glass vials for volatiles.

Each sample estimated as medium level (both water and soil) must be enclosed and sealed in a metal paint can for shipment. If it is not certain whether a sample should be categorized as low or medium level, volume should be collected as specified for low level samples, however shipping procedures must be followed as designated for medium level samples. Sample portions for volatile analysis (water and soil) should be collected so that the containers are completely filled, leaving no headspace.

Water samples for duplicate analyses must be collected at double the volume specified for extractables, and triple the volume specified for volatiles. Additionally, for water samples one field blank should be supplied per Case, and one volatile trip blank should be supplied per shipment. No additional volume is required for soil sample duplicate analyses, and no blanks are currently required for soil samples. Soil blanks will be used in the future and will be supplied to Regions by EMSL/LV.

If sufficient sample volume is not provided, complete analysis may not be possible. If this occurs, SMO will contact the RSCC to determine appropriate adjustments in analysis.

Required sample volumes and container types for RAS organic analysis of water and soil samples are illustrated in Appendix C. Pre-cleaned sample bottles are available through the Sample Bottle Repository, as detailed in Chapter IV.

2. Compounds Identified and Quantified

The organic RAS program provides identification and quantification of EPA Hazardous Substances List (HSList) organic compounds in water and soil/sediment samples. These compounds, which include priority pollutant compounds and other organics of interest, are identified on the organic data reporting sheets in Appendix B.

In addition, the laboratory is required to execute a maximum of 30 EPA/NIH Mass Spectral Library searches for compounds not identified on the HSL. The 10 peaks of greatest apparent concentration in the volatile fraction and the 20 peaks in the base/neutral/acid fraction are tentatively identified and the concentration estimated, following a visual comparison of sample spectra with the nearest library matches. The tentative identification of non-HSL organic compounds provides information on potential organic contaminants outside of the analytical parameters of the RAS program.

3. Contract Deliverable Requirements

The organic RAS program specifies contractually-required deliverables for sample extraction, volatile analysis and data reporting. These requirements include: completion of sample extraction within five days of sample receipt by the laboratory, completion of volatile analysis within seven days of sample receipt, and completion of extractable analysis and reporting of data within 30 days of sample receipt. Laboratories are subject to financial penalties for late delivery in meeting these deadlines and incentives for early delivery of the final data package. Illegible data reports are considered unacceptable, and the laboratory is required to resubmit readable versions of any illegible pages.

The organic RAS data package supports independent sample data review by the client user. Through review of data package components, the client can determine the quality of the analytical data.

Each organic RAS data package includes the following components:

- o Narrative report, describing analytical problems encountered and internal decision tree processes applied.
- o Copies of sample Traffic Reports.
- o Quality control summary, containing surrogate, reagent blank and duplicate matrix spike analyses recoveries and instrument tuning and performance information.
- o Sample data, including tabulated results of the organic HSL compounds identified and quantified, and the tentative identification and estimated concentration of up to 30 non-HSL organic compounds in greatest apparent concentration, reported in ug/l or mg/kg.
- o Raw sample analytical data, including sample chromatograms, spectra, quantitation reports, and calculations.
- o Standards data package (for each Case of samples), including chromatograms, spectra and data system printouts.
- o QC data package, documenting instrument tuning and analytical QC criteria.

The organic RAS deliverables index and copies of organic data reporting sheets are contained in Appendix B.

4. Analytical Protocols

The standardized organic analytical methods are based on Federal Register (FR) Methods 625, 608, and 624 modified for CLP use in the analysis of both water and soil samples. Analysis for the organic HSL compounds includes a GC and GC/MS analysis to achieve the lowest appropriate detection limits for each sample fraction.

a. Water Method

Water samples for full organic analysis (base/neutral/acid, volatile and pesticide/PCB compounds) are first prepared and/or solvent extracted, resulting in three individual sample fractions: extractable or semivolatile (B/N/A); volatile (VOA); and pesticide/PCB. Extracts are cleaned up when necessary, using optional column chromatography techniques.

The identification and quantification of the organic HSL compounds in water samples is performed by GC/MS for B/N/A and VOA fractions, and by GC/EC for the pesticide/PCB fractions.

In addition, the 20 highest non-HSL base/neutral/acid compound peaks and the 10 highest non-HSL volatile peaks are tentatively identified and their concentration estimated, using a forward search of the EPA/NIH Mass Spectral Library.

b. Soil Method

Soil samples for full organic analysis (base/neutral/acid, volatile and pesticide/PCB compounds) are prepared by sonification prior to solvent extraction. Extracts are cleaned up using optional column chromatography techniques when necessary.

The identification and quantification of the organic HSL compounds in soil samples is performed by GC/MS for B/N/A and VOA fractions, and by GC/EC for the pesticide/PCB fraction.

In addition, the 20 highest non-HSL base/neutral, acid peaks and the 10 highest non-HSL volatile peaks are tentatively identified and their concentration estimated, using a forward search of the EPA/NIH Mass Spectral Library.

c. Method Detection Limits

Low level analysis method detection limits (MDLs) for water samples are based on MDLs for each organic compound using FR Methods 624, 625, and 608, and are at the part-per-billion (ppb) level. Approximate achievable MDLs for low and medium level water and soil samples can be calculated based on the sample size and on concentration/dilution factors.

MDLs are provided for analytical guidance, as the limits are highly matrix dependent. Matrix interferences vary considerably depending on the nature and homogeneity of the sample, on the interferent contaminants which coextract from the sample, and on the sample volume taken for analysis. The list of contract-specified MDLs for low level water samples is included in Appendix B.

5. Contract Quality Control Requirements

The CLP quality control (QC) program for organic RAS laboratory analysis is structured to provide consistent results of known and documented quality. The program therefore places stringent quality control requirements on all laboratories performing sample analyses. Sample data packages contain documentation of a series of QC operations that allow an experienced chemist to determine the quality of the data and its applicability to each sampling effort. In addition, laboratory contracts contain provisions for sample re-analysis if and when specified QC criteria are not met by the contract laboratory. Each CLP laboratory is also encouraged to develop additional internal QA/QC procedures.

The minimum QC requirements of the organic RAS program consist of both an initial and ongoing demonstration of laboratory capability to generate acceptable precision and accuracy with the contract methods in the

analysis of water and soil samples. CLP contracts define extensive QC procedures that must be performed and documented, and criteria that must be met. These include, but are not limited to, the following:

- o GC/MS instrument tunes for both volatile and semi-volatile compound analyses.
- o Initial multi-level calibration for each HSL compound.
- o Continuing calibration for each HSL compound.
- o Addition of surrogate compounds to each sample and blank for determining percent recovery information.
- o Duplicate matrix spike analyses.
- o Reagent blank analyses.

Certain of the above-listed QC procedures demonstrate that the instrument is operating within contract specifications. These include: a demonstration that the two tuning compounds (DFTPP for extractables and BFB for volatiles) meet the defined ion abundance criteria; determination of an average response factor ($\overline{RF}$) based on a calibration using several concentrations of each HSL compound that must meet a defined relative standard deviation (RSD) and minimum RF; and, a continuing calibration at a single concentration for each HSL compound for which specified compounds are flagged as controls which must meet defined percent difference (%D) from the initial RF or a new initial calibration must be performed.

Other QC procedures are required to demonstrate the quality of the analytical data generated. These include: addition of surrogate spikes to all samples and blanks to monitor sample preparation and analysis and to provide percent recovery information for each sample, so that the suitability of the method for each sample (regardless of matrix) may be established; analysis of duplicate matrix spiked samples to display the

precision of the method for the particular Case and also to provide percent recovery information for defined HSL compounds (specified matrix spikes) as for surrogates; analysis of reagent blanks for each Case or each set of 20 samples (whichever is less) and for each matrix within a Case, to assure that laboratory contaminants are not reflected in data results.

It is the responsibility of the contractor laboratory to document, in each data package submitted, that both initial and ongoing instrument and analytical QC criteria have been met. The laboratory must demonstrate that instrument tuning and calibration criteria have been met, that interferences from the analytical system are under control, and that surrogate spike, matrix spike and matrix spike duplicate recoveries falling outside contract acceptance windows are attributable to sample matrix interferences and not to laboratory analytical errors. Any samples analyzed when contract QC criteria have not been met are re-analyzed by the laboratory when sufficient sample volume is available.

B. Inorganic Routine Analytical Services (RAS)

1. Sample Matrices, Concentration Levels, Volumes Required and Preservation Techniques

The inorganic RAS contract methods apply to analysis of water and soil/sediment samples. Samples for analysis should be single-phase, homogeneous samples of a similar matrix. Sample matrices other than water, sediment or soil are processed through the SAS program.

Inorganic RAS contract methods determine concentrations of inorganic priority pollutant (PP) constituents ranging from low or background levels of concentration to medium levels, where a compound may comprise up to 15 percent of the total sample. Low level samples are generally those collected off-site, around the perimeters of a waste site, or in areas where hazards are thought to be significantly reduced by normal environmental processes. Low level samples are estimated to contain less than 10 ppm of the inorganic PP contaminants. Medium level samples are most often those collected on-site, in areas of moderate dilution by normal environmental processes. Medium level samples are estimated to contain concentrations of inorganic PP contaminants up to 15 percent. Low and medium level designations are made for sample collection volume and shipment purposes, and for determination of appropriate analytical methods and QA/QC requirements. Samples estimated to contain concentrations of inorganic contaminants higher than 15 percent of the sample must be sent to a Hazardous Substances Laboratory for sample preparation prior to analysis. High hazard sample preparation is discussed in section D of this chapter.

The sample volume and container types required for inorganic analysis vary according to the matrix and estimated concentration level of the sample. For RAS inorganic analysis of a water sample estimated as low level, one

liter volume is required for metals analysis and one liter volume for cyanide analysis. The sample should be collected in two 1-liter polyethylene bottles. For RAS inorganic analysis of a water sample estimated as medium level, sixteen ounce volume is required for metals and sixteen ounce volume for cyanide. The sample should be collected in two 16-ounce glass jars. For RAS inorganic analysis of a soil sample estimated as low or medium level, six ounce sample volume is required for both metals and cyanide analyses. The sample should be collected in one 8-ounce glass jar.

For the inorganics RAS program only, it is recommended that a Case of samples be collected over no more than a three-day period and samples shipped collectively when the Case is completed.

When collecting low level water samples, a sample aliquot for cyanide analysis must be collected separately, and different preservation techniques applied to the metals and cyanide portions, as follows. For the metals analysis aliquot, the sample should be filtered, then acidified to pH ≤ 2 with HNO_3. (If filtration is not possible, the sample should not be acidified.) For the cyanide aliquot, the preservation techniques specified in Methods for Chemical Analysis of Water and Waste should be applied. (Consult Appendix E for complete reference.) No preservation is required for medium level water samples or low or medium level soil samples.

Each medium level sample (water and soil) must be enclosed and sealed in a metal paint can for shipment. If it is not certain whether a sample should be categorized as low or medium concentration, volume should be collected and the sample preserved as specified for low level samples, however shipping procedures must be followed as designated for medium level samples. For water samples, one field blank should be supplied for each Case. No blanks are currently required for soil samples. No additional volume is required for duplicate analyses of either water or soil samples.

If sufficient sample volume is not provided, analysis of all required parameters and/or complete QA/QC determination may not be possible. If this occurs, SMO will contact the RSCC to determine appropriate adjustments in analysis.

Required sample volume and container types for inorganic RAS analysis of water and soil samples are illustrated in Appendix C. Pre-cleaned sample bottles are available through the Sample Bottle Repository, as detailed in Chapter IV.

2. Constituents Identified and Quantified

The inorganic RAS program provides identification and quantification of metals and cyanide in water and soil/sediment samples. These compounds are listed on the inorganic data reporting form included in Appendix B.

3. Contract Deliverable Requirements

The inorganic RAS program specifies contractually-required deliverables for completion of metals and cyanide analysis and submission of the final data package within 30 days of sample receipt at the laboratory. Laboratories are subject to financial penalties for late delivery and incentives for early delivery of the final data package. Illegible data reports are considered unacceptable and the laboratory is required to resubmit readable versions of any illegible pages.

The inorganic RAS data package supports independent sample data review by the client user. Through review of data package components, the client can determine the quality of the analytical data.

Each inorganic RAS data package includes the following components:

- Cover sheet, listing the samples included in the report and narrative comments describing problems encountered in analysis.
- Tabulated results of inorganic compounds identified and quantified, reported in ug/l or mg/kg.

- Analytical results for QC spikes, duplicates, standards, preparation blanks calibration verification and interference checks.
- Tabulation of instrument detection limits determined in pure water solutions.
- Raw data system printouts, identifying calibration standards, calibration blanks, preparation blanks, samples and any atypical dilution, duplicates, spikes, interference checks and any instrument adjustments or apparent anomalies on the measurement record.

A summary of RAS inorganic contract deliverables and copies of data reporting forms are contained in Appendix B.

4. Analytical Protocols

The standardized inorganic analytical methods are based on Federal Register (FR) methods, EPA Methods for Chemical Analysis of Water and Wastes (MCAWW), and Test Methods for Evaluating Solid Waste (SW-846), for the analysis of water and soil samples. Analysis for specified metals and cyanide is performed by flame, furnace and cold vapor atomic absorption (AA), colorimetric, distillation, and inductively coupled argon plasma (ICP) methods.

a. Water Method

Water samples for metals analysis are prepared, acid digested and the digestate filtered to remove insoluble materials prior to analysis. Samples are analyzed by AA or ICP methods, and dilutions are performed where any analyte concentration exceeds the calibrated range.

For water samples, a quantitative determination for cyanide is made by midi-distillation and automated colorimetric analysis by MCAWW Method 335.2.

b. Soil/Sediment Method

Soil samples for metals analysis are prepared and acid digested and the digestate filtered to remove insoluble materials prior to analysis. Samples are analyzed by AA or ICP methods, and dilutions are performed where any analyte concentration exceeds the calibrated range.

For soil samples, a quantitative determination for cyanide is made by midi-distillation and automated colorimetric analysis by MCAWW Method 335.2.

c. Detection Limits

The detection limits listed on the inorganic data sheets (see Appendix B) are based on analysis of analytes in pure water. Detection limits for the sample analyses will be higher, depending on the sample matrix.

Detection limits for low level water samples can be achieved in the part-per-billion (ppb) to low part-per-million (ppm) range; detection limits for medium water and soil samples can be achieved in the low-ppm to mid-ppm range. Detection limits are significantly affected by matrix interferences and other sample parameters that vary considerably depending on the nature and homogeneity of the sample, interferent contaminants that coextract from the sample, and analytical method. Lowest detection limits are achieved on low level water samples in the ppb range, where sample matrix interferences are minimal.

Exhibit C of the Statement of Work of inorganics IFB contracts contains minimum contract-required instrument detection levels (IDLs) that must be met by all laboratories for each of the metals and cyanide in pure water.

Extrapolations from the "pure water" IDLs must be made to estimate the detection limits for low and medium water and soil samples, since the detection levels achievable for these samples will be highly dependent on the inorganic species and matrix of each sample. Although data is reported down to the "pure water" IDL, results below the contract-required detection levels should be used with caution.

5. Contract Quality Control Requirements

The CLP quality control (QC) program for inorganic RAS laboratory analysis is structured to provide consistent results of known and documented quality. The program therefore places stringent quality control requirements on all laboratories performing sample analysis. Sample data packages contain documentation of a series of QC operations that allow an experienced chemist to determine the quality of the data and its applicability to each investigation. In addition, laboratory contracts contain provisions for sample re-analysis if and when specified QC criteria are not met by the contract laboratory. Each CLP laboratory is also encouraged to develop additional internal QA/QC procedures.

The minimum QC requirements of the inorganic RAS program consist of both an initial and ongoing demonstration of laboratory capability to generate acceptable precision and accuracy with the contract methods in the analysis of water and soil samples. CLP contracts define extensive QA

procedures that must be performed and documented, and criteria that must be met. These include, but are not limited to, the following:

- Initial calibration and calibration verification.
- Continuing calibration verification.
- ICP interference check sample analysis.
- Preparation blank analysis.
- Matrix spike analysis.
- Duplicate sample analysis.
- Laboratory control sample analysis.

The instrument QC operations include initial and continuing calibration checks, which are performed daily and/or every ten samples. These checks determine that the analytical system is meeting contract-required criteria.

Analytical QC operations include: ICP interference check sample, preparation blank, spiked sample, and duplicate sample analyses. ICP interference check sample analyses are performed at least twice per eight-hour shift, to verify interelement and background correction factors. Preparation blank analyses are performed for each batch of samples or for each set of 20 samples, to ascertain whether sample concentrations reflect contamination. Spiked sample analyses and duplicate sample analyses are performed for each matrix within a Case of samples or for each set of 20 samples of a similar matrix within a Case, to provide information concerning sample homogeneity, analytical precision and accuracy, the effect of the sample matrix on the analytical methodology, and to enable the Agency to evaluate the long-term precision of the method. The laboratory control sample is a standard carried through sample preparation and analysis procedures to document the performance of the entire sample process.

It is the responsibility of the contractor laboratory to document, in each data package submitted, that both initial and ongoing instrument and analytical QC criteria have been met. The laboratory must demonstrate that instrument calibration criteria have been met, that interferences from the analytical system are under control, and that spike recoveries falling outside contract acceptance windows are attributable to sample matrix interferences and not to laboratory analytical errors. Any samples analyzed when contract QC criteria have not been met are re-analyzed by the laboratory.

Appendix C

APPENDIX C - CONTRACT REQUIRED DETECTION LIMITS

EXHIBIT C

Hazardous Substance List (HSL) and Contract Required Detection Limits (CRDL)**

Volatiles	CAS Number	Detection Limits* Low Water[a] ug/L	Detection Limits* Low Soil/Sediment[b] ug/Kg
1. Chloromethane	74-87-3	10	10
2. Bromomethane	74-83-9	10	10
3. Vinyl Chloride	75-01-4	10	10
4. Chloroethane	75-00-3	10	10
5. Methylene Chloride	75-09-2	5	5
6. Acetone	67-64-1	10	10
7. Carbon Disulfide	75-15-0	5	5
8. 1,1-Dichloroethene	75-35-4	5	5
9. 1,1-Dichloroethane	75-35-3	5	5
10. trans-1,2-Dichloroethene	156-60-5	5	5
11. Chloroform	67-66-3	5	5
12. 1,2-Dichloroethane	107-06-2	5	5
13. 2-Butanone	78-93-3	10	10
14. 1,1,1-Trichloroethane	71-55-6	5	5
15. Carbon Tetrachloride	56-23-5	5	5
16. Vinyl Acetate	108-05-4	10	10
17. Bromodichloromethane	75-27-4	5	5
18. 1,1,2,2-Tetrachloroethane	79-34-5	5	5
19. 1,2-Dichloropropane	78-87-5	5	5
20. trans-1,3-Dichloropropene	10061-02-6	5	5
21. Trichloroethene	79-01-6	5	5
22. Dibromochloromethane	124-48-1	5	5
23. 1,1,2-Trichloroethane	79-00-5	5	5
24. Benzene	71-43-2	5	5
25. cis-1,3-Dichloropropene	10061-01-5	5	5

(continued)

Volatiles	CAS Number	Detection Limits* Low Water[a] ug/L	Low Soil/Sediment[b] ug/Kg
26. 2-Chloroethyl Vinyl Ether	110-75-8	10	10
27. Bromoform	75-25-2	5	5
28. 2-Hexanone	591-78-6	10	10
29. 4-Methyl-2-pentanone	108-10-1	10	10
30. Tetrachloroethene	127-18-4	5	5
31. Toluene	108-88-3	5	5
32. Chlorobenzene	108-90-7	5	5
33. Ethyl Benzene	100-41-4	5	5
34. Styrene	100-42-5	5	5
35. Total Xylenes		5	5

[a]Medium Water Contract Required Detection Limits (CRDL) for Volatile HSL Compounds are 100 times the individual Low Water CRDL.

[b]Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Volatile HSL Compounds are 100 times the individual Low Soil/Sediment CRDL.

Semi-Volatiles	CAS Number	Detection Limits[a] Low Water[c] ug/L	Low Soil/Sediment[d] ug/Kg
36. Phenol	108-95-2	10	330
37. bis(2-Chloroethyl) ether	111-44-4	10	330
38. 2-Chlorophenol	95-57-8	10	330
39. 1,3-Dichlorobenzene	541-73-1	10	330
40. 1,4-Dichlorobenzene	106-46-7	10	330
41. Benzyl Alcohol	100-51-6	10	330
42. 1,2-Dichlorobenzene	95-50-1	10	330
43. 2-Methylphenol	95-48-7	10	330
44. bis(2-Chloroisopropyl) ether	39638-32-9	10	330
45. 4-Methylphenol	106-44-5	10	330
46. N-Nitroso-Dipropylamine	621-64-7	10	330
47. Hexachloroethane	67-72-1	10	330
48. Nitrobenzene	98-95-3	10	330
49. Isophorone	78-59-1	10	330
50. 2-Nitrophenol	88-75-5	10	330
51. 2,4-Dimethylphenol	105-67-9	10	330
52. Benzoic Acid	65-85-0	50	1600
53. bis(2-Chloroethoxy) methane	111-91-1	10	330
54 2,4-Dichlorophenol	120-83-2	10	330
55. 1,2,4-Trichlorobenzene	120-82-1	10	330
56. Naphthalene	91-20-3	10	330
57. 4-Chloroaniline	106-47-8	10	330
58. Hexachlorobutadiene	87-68-3	10	330
59. 4-Chloro-3-methylphenol (para-chloro-meta-cresol)	59-50-7	10	330
60. 2-Methylnaphthalene	91-57-6	10	330
61. Hexachlorocyclopentadiene	77-47-4	10	330
62. 2,4,6-Trichlorophenol	88-06-2	10	330
63. 2,4,5-Trichlorophenol	95-95-4	50	1600

(continued

Semi-Volatiles	CAS Number	Detection Limits[a] Low Water[c] ug/L	Low Soil/Sediment[d] ug/Kg
64. 2-Chloronaphthalene	91-58-7	10	330
65. 2-Nitroaniline	88-74-4	50	1600
66. Dimethyl Phthalate	131-11-3	10	330
67. Acenaphthylene	208-96-8	10	330
68. 3-Nitroaniline	99-09-2	50	1600
69. Acenaphthene	83-32-9	10	330
70. 2,4-Dinitrophenol	51-28-5	50	1600
71. 4-Nitrophenol	100-02-7	50	1600
72. Dibenzofuran	132-64-9	10	330
73. 2,4-Dinitrotoluene	121-14-2	10	330
74. 2,6-Dinitrotoluene	606-20-2	10	330
75. Diethylphthalate	84-66-2	10	330
76. 4-Chlorophenyl Phenyl ether	7005-72-3	10	330
77. Fluorene	86-73-7	10	330
78. 4-Nitroaniline	100-01-6	50	1600
79. 4,6-Dinitro-2-methylphenol	534-52-1	50	1600
80. N-nitrosodiphenylamine	86-30-6	10	330
81. 4-Bromophenyl Phenyl ether	101-55-3	10	330
82. Hexachlorobenzene	118-74-1	10	330
83. Pentachlorophenol	87-86-5	50	1600
84. Phenanthrene	85-01-8	10	330
85. Anthracene	120-12-7	10	330
86. Di-n-butylphthalate	84-74-2	10	330
87. Fluoranthene	206-44-0	10	330
88. Pyrene	129-00-0	10	330
89. Butyl Benzyl Phthalate	85-68-7	10	330
90. 3,3'-Dichlorobenzidine	91-94-1	20	660
91. Benzo(a)anthracene	56-55-3	10	330
92. bis(2-ethylhexyl)phthalate	117-81-7	10	330
93. Chrysene	218-01-9	10	330
94. Di-n-octyl Phthalate	117-84-0	10	330
95. Benzo(b)fluoranthene	205-99-2	10	330
96. Benzo(k)fluoranthene	207-08-9	10	330
97. Benzo(a)pyrene	50-32-8	10	330

(continued)

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW7 MW8

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	5					Till, tan-brown silt w/coarse and fine sand			
	10								
	15								
						Coal (Bedford)			
						Carbonaceous Shale			
	20					Brown-gray Claystone, Broken			BOH @ 20
	25					Gray shale, interlaminated w/light-gray sandstone, tr bituminous fossils			
	30								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW7 MW8

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	35					Gray shale, interlaminated w/light-gray sandstone, tr bituminous fossils			
	40								
	45					Coal (lower mercer?) interbedded claystone and shale			
	50					Brown-gray limestone			
						Dark-gray claystone			
	55					Dark-gray shale and claystone w/some soft seams and carbonaceous intervals			
	60								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	65					Dark-gray shale and claystone w/some soft seams and carbonaceous intervals			
	70								
	75								
	80								
						Coal (unknown) w/tr-pyrite			
						Light-gray sandstone, fine			
	85					Gray siltstone and silty shale, occasional silty sandstone laminate and bands of dark-gray clayey siltstone			
	90					Carbonaceous shale and coal			

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Carbonaceous shale and coal			
	95								
						Silty shale			
	100								
						Gray siltstone and silty shale, occasional silty sandstone laminate and bands of dark-gray clayey siltstone			
						Silty sandstone			
	105								
	110								
						Black - carbonaceous			
	115								
	120								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW7 MW8

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	125					Gray siltstone and silty shale, occasional silty sandstone laminate and bands of dark-gray clayey siltstone			
	130								
	135								
	140					Green-gray siltstone, sandy			
						BOH 140' Elev. 966.84			BOH @ 140'

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW9 MW10

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	5								
	10					Fill, tan-brown silt, some sandy, w/rock frags and fine coal refuse			
	15								
	20								
	25								BOH
	30					Black carbonaceous shale, weathered			

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW9 MW10

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	35					??(Inadequate recovery and logging)			
	40					Coal (lower mercer)			
						BOH @ 40' Elev. 1057.07			BOH @ 40'

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW13 MW12 MW11

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	5					Fill, dark-brown silt, w/rock frags, coarse sand, and crushed limestone			
	10								
	15					Till, medium-brown silt, some sandy, w/coal and rock frags			
	20								
	25								BOH @ 25'
	30					Tan sandy silt and clay w/tr sand			

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW13 MW12 MW11

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Tan sandy silt and clay w/tr sand			
						Gray siltstone, sandy			
	35					Limestone			
	40					Dark-gray shale, silty some limestone			
	45								
	50								
						Coal (lower mercer?)			
	55					Silty SS Light to dark-gray siltstone and interbedded silty sandstone and shale, some limestone			
	60								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Siltstone			
						Limestone			
	65								
						Shale			
	70								
						Light to dark-gray siltstone and interbedded silty sandstone and shale, some limestone			
						Siltstone			
	75								
						Silty SS			
	80								
						Siltstone			
	85								BOH @ 87'
	90								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW13 MW12 MW11

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	95					Siltstone			
	100					Interbedded SS & Shale			
	105					Light-gray sandstone, fine, some silty sandstone grading to sandy siltstone			
	110					Siltstone			
	115					Shale			
						Silty SS			
						BOH @ 117' Elev. 979.43			BOH @ 117'

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW14

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	5								
	10					Fill, tan silt, some sandy, w/rock frags and sand			
	15								
	20								
	25								
						Coal (unknown)			
	30					Dark-gray siltstone			

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW14

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Dark-gray siltstone			
						Medium-gray silty sandstone			
	35								
	40								
						Siltstone			
						Dark-gray to gray siltstone w/interbedded silty shale and limestone			
	45								
	50								
						Limestone			
	55					Shale			
						Siltstone			
	60								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW14

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Siltstone			
						Coal (lower mercer?) and carbonaceous shale			
	65								
	70								
	75					Green-gray siltstone w/interbedded silty claystone and shale, some carbonaceous shale and sandstone			
	80								
	85								
	90								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	95					Green-gray siltstone w/interbedded silty claystone and shale, some carbonaceous shale and sandstone			
	100								
	105								
	110					Medium to dark-gray silty sandstone w/interbedded black shale			
	115								
	120					Medium to dark-gray siltstone, some silty sandstone, little fine sand			

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	125					Medium to dark-gray siltstone, some silty sandstone, little fine sand			
	130					Light-gray sandstone, fine, some silty sandstone grading to sandy siltstone			
						BOH @ 132' Elev. 967.34			BOH @ 132'

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW16 MW15

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	5					Fill, brown and tan silt, some sandy w/rock and coal frags and sand			
	10								
	15								
						Till, light to medium-brown silt and fine sand			
	20								BOH @ 19'
						Coal (bedford)			
	25					Gray siltstone, weathered and broken			
	30								

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW16 MW15

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	35					Gray siltstone, weathered and broken			
						Coal (lower mercer)			
	40					BOH @ 40.9 Elev. 1056.22			BOH @ 40.9'

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION MW17

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER _____

ELEVATION	DEPTH BELOW SURFACE	SAMPLE: INTERVAL	SAMPLE: TYPE AND NUMBER	SAMPLE: RECOVERY	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	HEAD SPACE OVA (HNu)	COMMENTS: DEPTH OF CASING DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Fill, brown silt w/decomposed rock and coal, tr wood			
	5					Tan and gray clay, mottled			
	10					Medium-gray silty shale, weathered and iron stained			
						BOH @ 10.4' Elev. 1073.85			BOH @ 10.4'

WELL / BORING NO.: MW 1B BY: DS

DATE COMPLETED: 6/30/85 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD, OHIO

DRILLING COMPANY: BOWSER MORNER BORING DIAMETER 6¼"

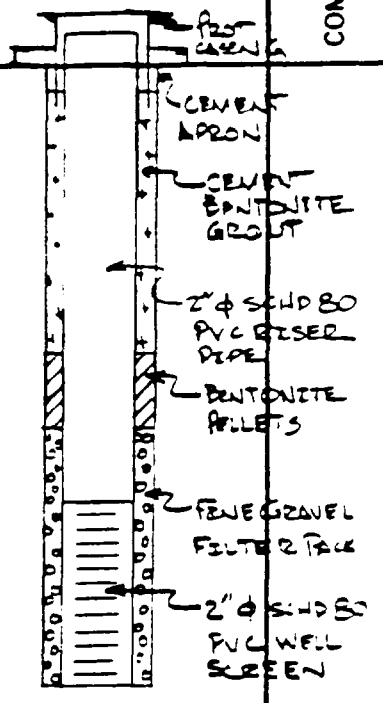
DRILLING METHOD: HOLLOW STEM AUGER DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: 2" PVC SCALE: 1" = 10 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	BLACK TO BROWN SILTY CLAY TO SAND WITH ROCK FRAGMENTS AND COAL FRAGMENTS			2,4,3,4					
				3,3,3,3					
10	— MINE SPOIL —			3,3,4,5					
	— FILL —			6,6,6,7					
20				8,8,10,12					
				20,10,12,10					
30	TOP OF ROCK			7,10,12,15					
33'	BOTTOM OF BORING 1/10/12								



WELL / BORING NO.: MW-19 BY: [illegible]

DATE COMPLETED: 1/9/86 JOB NO.: 84110

JOB NAME: Summit National Site

LOCATION: Deerfield, Ohio

DRILLING COMPANY: Pennsylvania Drilling BORING DIAMETER ____

DRILLING METHOD: Auger and coring [illegible] DEVELOPMENT: ____

ELEVATION: GROUND SURFACE: ____ OUTER CASING: ____

INNER CASING: ____ SCALE: 1" = 10 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
1.5	Black shale fragments, fine coal retuse, occasional silt (MINE SPOIL)	0.8		3,7,7	1				
5.0									
6.5		1.3		6,8,15	2				
10.0									
11.5		0.2		3,4,6	3				
15.0									
16.5		0.8		10,4,6	4				
20.0									approx water table
21.5		0.9		6,7,8	5				
25.0									
26.5	Medium-brown silt and sand, some gravel, fines at top (TILL)	1.0		5,7,12	6			Borings grouted and abandoned	
30.0									
31.5		1.0		7,10,11	7				
35.0									
36.5		1.5		8,10,14	8				
40.0									
40.4	Shale, very-dark-gray, highly weathered.	0.2		50/4	9				probable bedrock

WELL / BORING NO.: MW 19 BY: DS

DATE COMPLETED: 6-25-86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: BOWER MOORE BORING DIAMETER 6 1/4"

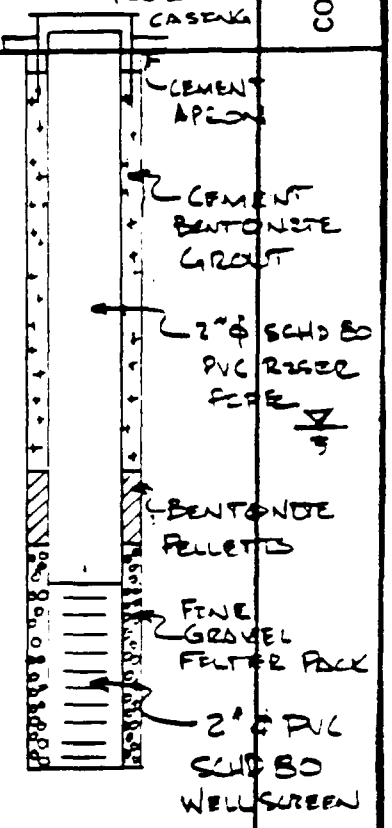
DRILLING METHOD: HOLLOW STEM AUGER DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: 2" PVC SCALE: 1" = 10 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	BLACK SHALE AND COAL REFUSE FRAGMENTS WITH OCCASIONAL ZONES OF BROWN SILTY CLAY (MINE SPOIL)								
10									
20									
	MEDIUM BROWN SILT AND SAND, SOME GRAVEL (FILL)								
30									
35'	BOTTOM OF HOLE								



WELL / BORING NO.: [illegible] BY: [illegible]
DATE COMPLETED: [illegible] JOB NO.: [illegible]
JOB NAME: Summit [illegible]
LOCATION: [illegible]
DRILLING COMPANY: [illegible] BORING DIAMETER ____
DRILLING METHOD: [illegible] DEVELOPMENT ____
ELEVATION: GROUND SURFACE: ____ OUTER CASING ____
INNER CASING: ____ SCALE: 1" = [illegible] FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
5	SILT w/ SAND, ROCK FRAGMENTS, ASH, COAL (FILL)	1.5	100	1,3,6	1			protective steel casing	
7.5	BLACK SANDY SILT w/ ORGANICS, COARSE SAND & GRAVEL, ROCK FRAGMENTS, WET (FILL)	1.1		4,12,17	2				
10.0									
11.5	SILTSTONE, GREEN-GRAY, FINING DOWNWARD, VERY WEATHERED AT TOP, FINING DOWNWARD	1.2		7,46,100	3				STARTED CORING
12.0		0.7		0%	1				
	SILTY SHALE, GREEN-GRAY TO DARK-GRAY, HARD CONCRETIONS, TRACE PYRITE, FINING DOWNWARD	9.4	94	0%	2				WATER BLOW [illegible]
25.0	CHECK DEFLECTION ANGLE AND BORE TEST								
25.9									
27.4	CLAYSTONE, VERY DARK GRAY, UNDULOUS LAMINAE, GRADING DOWNWARD TO BROWN CLAYSTONE WITH CARBONACEOUS LAMINAE	9.3	93	15%	3				
29.5	SILTSTONE, LIGHT-GREEN-GRAY, WITH SAND & BANDS, SLIGHTLY FOSSILIFEROUS								
	MUDSTONE, DARK-GRAY, GRADING TO SANDSTONE LAMINAE, HARD SIDERITE CONCRETIONS LARGE, TRACE PYRITE								
35.0								PVC pipe, 4" nominal, SCH 40, flush joint	
37.7									
	SHALE, DARK-GRAY, HARD SILTSTONE CONCRETIONS, CALCITE VEINS IN LOWER HALF	7.4	94	31%	4				
41.1									
41.6	LIMESTONE, GRAY, FOSSILIFEROUS, SOMETIMES CLASTIC								
42.0	CLAYSTONE, GRADING DOWNWARD TO SHALE, DARK-GRAY								
	SILTSTONE, MEDIUM-GRAY, SANDY, BIOTITIC								
	SILTSTONE, DARK-GRAY, THIN BEDDED	4.7	47	0	5				
	GREEN-GRAY MUDSTONE, FOSSILIFEROUS, TO CLAYSTONE								
55.0									
	SILTSTONE, DARK GREEN-GRAY, SLIGHTLY SANDY THIN BEDDED	5.2	52	35%	6				
	LIMESTONE, DARK-GRAY, SLIGHTLY CLAY, TALUS FOSSILIFEROUS								
	FINE-TO-MEDIUM SANDSTONE, ARGILLACEOUS MATRIX, VERY SOFT						60.0		
63.0							64.0		
63.4	SILTY SHALE, VERY DARK-GRAY, FOSSILIFEROUS						63.4		
	SILTSTONE, DARK-GREEN-GRAY, MICACEOUS, SHALELY PARTING,	5.7		46%	7			Fine gravel	
71.0									

SRW ASSOCIATES, INC. PITTSBURGH, PA

WELL/BORING NO.: MW-20 JOB NO.: 84110 1" = 10 FT.

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
73.0'	SAME	2 ft		40					
74.0	BLACK SHALE TO CARBONACEOUS SHALE								
	LAST 2' OF RUN YIELDED LIGHT-COLORED DUST BUT NO RECOVERY							CULVERT CUTTING	

WELL / BORING NO.: MW-01 BY: TFF

DATE COMPLETED: 6/27/86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD 01410

DRILLING COMPANY: DUNCAN BROS BORING DIAMETER 8"

DRILLING METHOD: AIR ROTARY DEVELOPMENT:

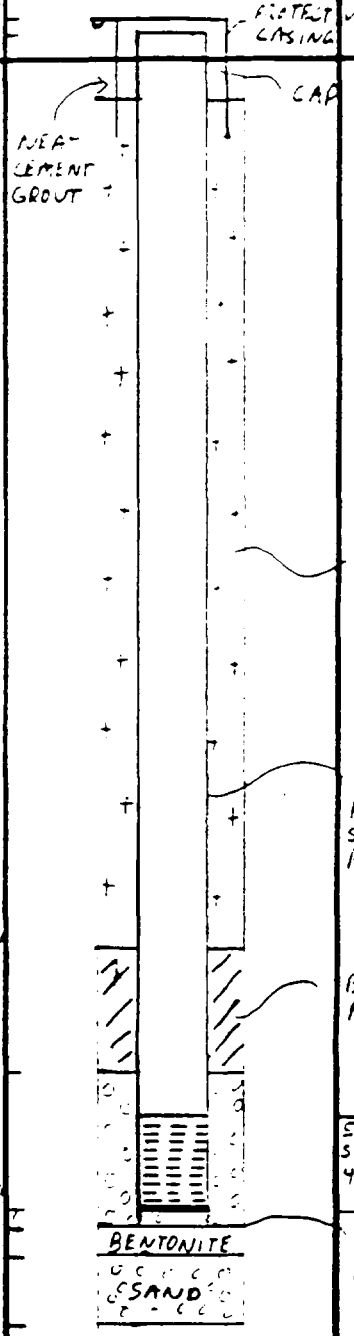
ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: 4" PVC SCALE: 1" = 10 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH
10	SEE LOG OF MW-20 FOR DESCRIPTION OF SOIL AND BEDROCK						2.0
20							
30							
40							
50							46'3"
							55'1"
60							60'9"
							63'3"
							65'
70							69'

WELL CONSTRUCTION



COMMENTS

WELL / BORING NO.: [illegible] BY: [illegible]
DATE COMPLETED: 12/19/85 JOB NO.: [illegible]
JOB NAME: Summit Natural Site
LOCATION: Deerfield Ohio
DRILLING COMPANY: [illegible] BORING DIAMETER: 10 5/8"
DRILLING METHOD: [illegible] DEVELOPMENT:
ELEVATION: GROUND SURFACE: [illegible] OUTER CASING:
INNER CASING: SCALE: 1" = 10 FT

SRW

DEPTH	LITHOLOGY	RECOVERY, ft	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
1.5	[illegible]	1.1	55	2,3,4	1				
5.0	SILTY SALLY FRAGMENTS, SILT, SAND, TRACE COAL (MIXED [illegible])								
6.5		0.6	86	3,3/6,5	2				
10.0									
11.5		0.7	47	2,1,7	3				
15.0									
16.5		0.5	53	4,4,5	4				
20.0									
21.5		0.6	40	4,5,5	5				
25.0									
26.5		1.1	73	6,8,7	6			CEMENT CONTAINING SLURRY	
30.0									
31.5	MEDIUM-BROWN SILT, ABUNDANT SAND, TRACE GRAVEL	0.2	13	6,9,7	7				
34	START CASING FROM 34 TO 40								30-34 [illegible] 0-41
40.0									
42.5	SILTSTONE, VERY DARK-GRAY, VERY BROKEN AND WEATHERED, FOSSILIFEROUS	5.5	55	7%	1			4" PVC PIPE [illegible]	
45	MUDSTONE, SHALY-GRAY, FOSSILIFEROUS								
49.2	SILTSTONE, MEDIUM-GRAY, SOMETIMES SHALY								
50.0									
53.3	LIMESTONE, MEDIUM-GRAY, MICRITIC, FOSSILIFEROUS	10	100%	35%	2		53.3	BENTONITE PELLETS	COALFIELD FILLED [illegible]
54.4	SILTY SHALE, BLACK								
60.0	SILTSTONE, MEDIUM- TO DARK-GRAY, SOMETIMES SHALY						56.6	PVC SCREEN 4" ϕ 0.020 SLOT	
61.6	CARBONACEOUS SHALE, TRACE COAL								
70.0	MUDSTONE, LIGHT-GRAY, FOSSILIFEROUS	5.1	51%	3%	3		63.4	BENTONITE PELLETS	Due to poor core recoveries contacts are approximate

APPENDIX D - BORING LOGS AND WELL CONSTRUCTIONS

Appendix D

Table 1. Elements Determined by Inductively Coupled Plasma Emission or Atomic Absorption Spectroscopy

Element	Contract Required Detection Level[1,2] (ug/L)
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Magnesium	5000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5000
Selenium	5
Silver	10
Sodium	5000
Thallium	10
Vanadium	50
Zinc	20

Semi-Volatiles	CAS Number	Detection Limits[a] Low Water[c] ug/L	Low Soil/Sediment[d] ug/Kg
98. Indeno(1,2,3-cd)pyrene	193-39-5	10	330
99. Dibenz(a,h)anthracene	53-70-3	10	330
100. Benzo(g,h,i)perylene	191-24-2	10	330

[c]Medium Water Contract Required Detection Limits (CRDL) for Semi-Volatile HSL Compounds are 100 times the individual Low Water CRDL.

[d]Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Semi-Volatile HSL Compounds are 60 times the individual Low Soil/Sediment CRDL.

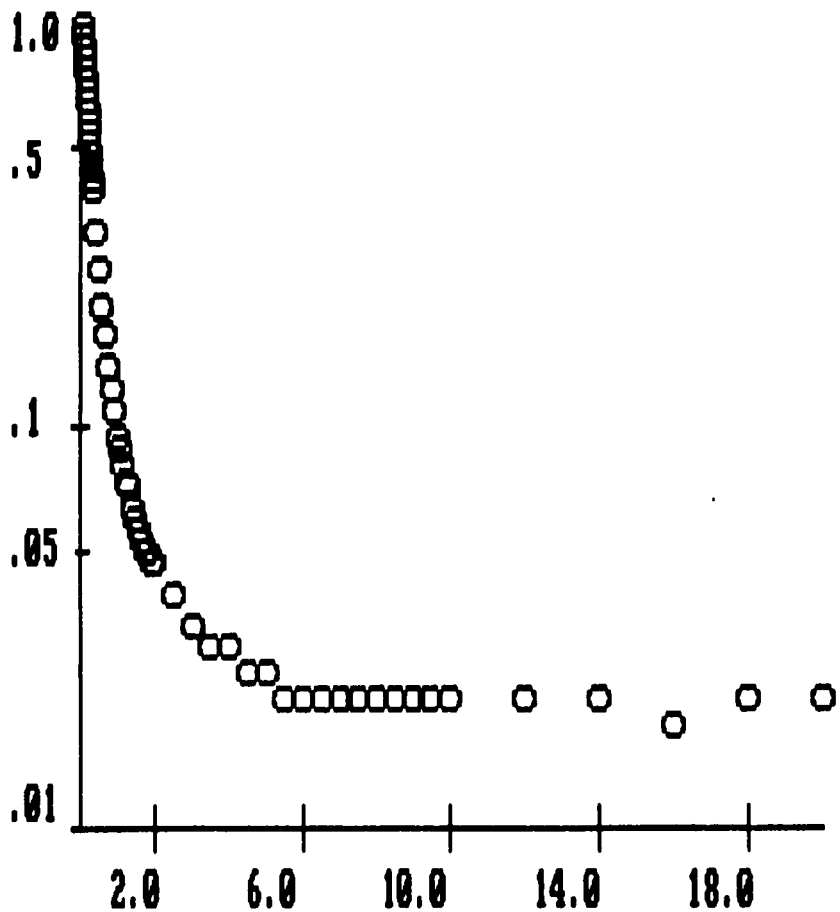
Pesticides	CAS Number	Detection Limits* Low Water[g] ug/L	Low Soil/Sediment[f] ug/Kg
101. alpha-BHC	319-84-6	0.05	8.0
102. beta-BHC	319-85-7	0.05	8.0
103. delta-BHC	319-86-8	0.05	8.0
104. gamma-BHC (Lindane)	58-89-9	0.05	8.0
105. Heptachlor	76-44-8	0.05	8.0
106. Aldrin	309-00-2	0.05	8.0
107. Heptachlor Epoxide	1024-57-3	0.05	8.0
108. Endosulfan I	959-98-8	0.05	8.0
109. Dieldrin	60-57-1	0.10	16.0
110. 4,4'-DDE	72-55-9	0.10	16.0
111. Endrin	72-20-8	0.10	16.0
112. Endosulfan II	33213-65-9	0.10	16.0
113. 4,4'-DDD	72-54-8	0.10	16.0
114. Endosulfan Sulfate	1031-07-8	0.10	16.0
115. 4,4'-DDT	50-29-3	0.10	16.0
116. Endrin Ketone	53494-70-5	0.10	16.0
117. Methoxychlor	72-43-5	0.5	80.0
118. Chlordane	57-74-9	0.5	80.0
119. Toxaphene	8001-35-2	1.0	160.0
120. AROCLOR-1016	12674-11-2	0.5	80.0
121. AROCLOR-1221	11104-28-2	0.5	80.0
122. AROCLOR-1232	11141-16-5	0.5	80.0
123. AROCLOR-1242	53469-21-9	0.5	80.0
124. AROCLOR-1248	12672-29-6	0.5	80.0
125. AROCLOR-1254	11097-69-1	1.0	160.0
126. AROCLOR-1260	11096-82-5	1.0	160.0

[g]Medium Water Contract Required Detection Limits (CRDL) for Pesticide HSL Compounds are 100 times the individual Low Water CRDL.

[f]Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Pesticide HSL compounds are 15 times the individual Low Soil/Sediment CRDL.

*Detection limits listed for soil/sediment are based on wet weight. The detection limits calculated by the laboratory for soil/sediment, calculated on dry weight basis, as required by the contract, will be higher.

** Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable.



X AXIS:
TIME, min

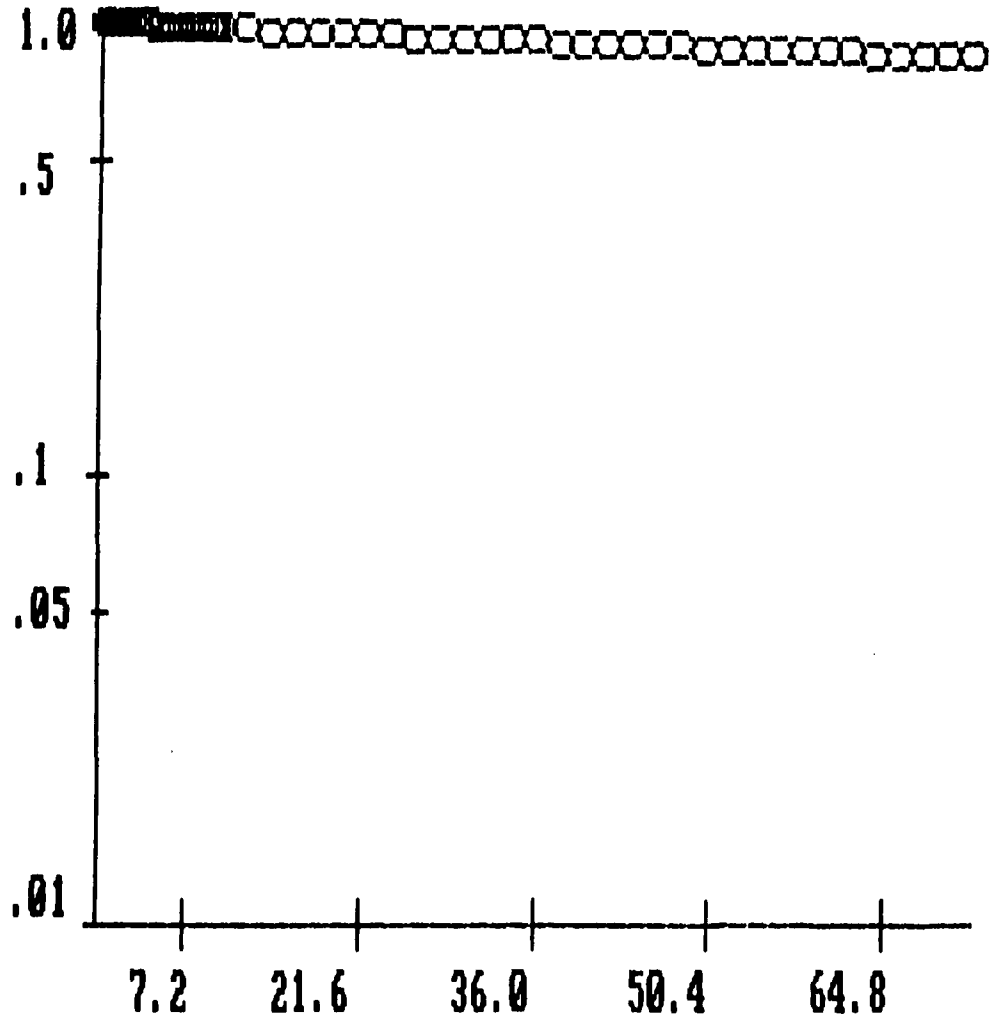
Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-7 (cont'd.)

Summit National Site -- MW-8

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
3.996	3.57	3.57	1
4.998	3.54	3.54	.9915967
6	3.46	3.46	.9691877
6.996	3.45	3.45	.9663866
7.998	3.46	3.46	.9691877
9	3.46	3.46	.9691877
9.996	3.46	3.46	.9691877
10.998	3.46	3.46	.9691877
12	3.46	3.46	.9691877
12.996	3.46	3.46	.9691877
13.998	3.46	3.46	.9691877
15	3.46	3.46	.9691877
15.996	3.46	3.46	.9691877
16.998	3.45	3.45	.9663866
18	3.45	3.45	.9663866
18.996	3.45	3.45	.9663866
19.998	3.45	3.45	.9663866
25.002	3.45	3.45	.9663866
30	3.45	3.45	.9663866
34.998	3.45	3.45	.9663866
40.002	3.45	3.45	.9663866
45	3.44	3.44	.9635854
49.998	3.44	3.44	.9635854
55.002	3.44	3.44	.9635854
60	3.44	3.44	.9635854
64.998	3.43	3.43	.9607844
70.002	3.43	3.43	.9607844
75	3.44	3.44	.9635854
79.998	3.42	3.42	.9579833
84.996	3.42	3.42	.9579833
90	3.42	3.42	.9579833
94.998	3.41	3.41	.9551821
100.002	3.41	3.41	.9551821
105	3.41	3.41	.9551821
109.998	3.4	3.40	.9523809
115.002	3.4	3.40	.9523809
120	3.4	3.40	.9523809
150	3.38	3.38	.9467788
180	3.36	3.36	.9411765
210	3.34	3.34	.9355742
240	3.32	3.32	.929972
270	3.3	3.30	.9243698
300	3.28	3.28	.9187675
330	3.26	3.26	.9131652
360	3.25	3.25	.9103641
390	3.23	3.23	.9047619
420	3.22	3.22	.9019609
450	3.2	3.20	.8963586
480	3.19	3.19	.8935575
510	3.18	3.18	.8907564
540	3.17	3.17	.8879552
570	3.16	3.16	.8851541
600	3.14	3.14	.8795519



X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-6 (cont'd.)

Summit National Site -- MW-7

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
3.996	2.83	2.83	1
4.998	2.67	2.67	.9434629
6	2.51	2.51	.8869258
6.996	2.35	2.35	.8303887
7.998	2.2	2.20	.7773852
9	2.07	2.07	.7314487
9.996	1.94	1.94	.6855125
10.998	1.83	1.83	.6466432
12	1.72	1.72	.6077738
12.996	1.62	1.62	.5724382
13.998	1.52	1.52	.5371025
15	1.44	1.44	.508834
15.996	1.36	1.36	.4805654
16.998	1.29	1.29	.4558304
18	1.22	1.22	.4310954
18.996	1.15	1.15	.4063604
19.998	1.09	1.09	.385159
25.002	.86	0.86	.3038869
30	.69	0.69	.2438163
34.998	.56	0.56	.1978799
40.002	.47	0.47	.1660778
45	.4	0.40	.1413428
49.998	.35	0.35	.1236749
55.002	.31	0.31	.1095406
60	.27	0.27	9.540637E-02
64.998	.25	0.25	8.833922E-02
70.002	.23	0.23	8.127209E-02
75	.21	0.21	7.420495E-02
79.998	.2	0.20	7.067138E-02
84.996	.18	0.18	6.360425E-02
90	.17	0.17	6.007068E-02

UNCONFINED AQUIFER

K = 0.2E-02 cm/sec
= 40.4 gpd/ft2
= 0.6E-04 ft/sec
= 5.4 ft/day

REGRESSION COEFFICIENT = -.978916

SUMMIT NATIONAL SITE -- MW-6

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
7.998	3.65	3.65	1
9	3.64	3.64	.9972603
9.996	3.64	3.64	.9972603
10.998	3.64	3.64	.9972603
12	3.65	3.65	1
12.996	3.65	3.65	1
13.998	3.65	3.65	1
15	3.65	3.65	1
15.996	3.65	3.65	1
16.998	3.65	3.65	1
18	3.64	3.64	.9972603
18.996	3.65	3.65	1
19.998	3.65	3.65	1
25.002	3.65	3.65	1
30	3.65	3.65	1
34.998	3.65	3.65	1
40.002	3.65	3.65	1
45	3.65	3.65	1
49.998	3.65	3.65	1
55.002	3.64	3.64	.9972603
60	3.66	3.66	1.00274
64.998	3.64	3.64	.9972603
70.002	3.64	3.64	.9972603
75	3.64	3.64	.9972603
79.998	3.64	3.64	.9972603
84.996	3.64	3.64	.9972603
90	3.64	3.64	.9972603
94.998	3.64	3.64	.9972603
100.002	3.63	3.63	.9945207
105	3.63	3.63	.9945207
109.998	3.63	3.63	.9945207
115.002	3.63	3.63	.9945207
120	3.63	3.63	.9945207
150	3.62	3.62	.9917808
180	3.62	3.62	.9917808
210	3.61	3.61	.9890411
240	3.62	3.62	.9917808
270	3.59	3.59	.9835616
300	3.58	3.58	.9808219
330	3.58	3.58	.9808219
360	3.57	3.57	.9780822
390	3.57	3.57	.9780822
420	3.56	3.56	.9753425
450	3.55	3.55	.9726028
480	3.55	3.55	.9726028
510	3.56	3.56	.9753425
540	3.53	3.53	.9671232
570	3.52	3.52	.9643836

MW-6 (con't.)

600	3.52	3.52	.9643836
720	3.51	3.51	.9616439
840	3.48	3.48	.9534247
960	3.46	3.46	.9479452
1080	3.44	3.44	.9424658
1200	3.42	3.42	.9369864
1320	3.41	3.41	.9342466
1440	3.39	3.39	.9287671
1560	3.37	3.37	.9232876
1680	3.35	3.35	.9178082
1800	3.33	3.33	.9123288
1920	3.32	3.32	.909589
2040	3.3	3.30	.9041096
2160	3.29	3.29	.9013699
2280	3.27	3.27	.8958904
2400	3.25	3.25	.8904109
2520	3.24	3.24	.8876712
2640	3.22	3.22	.8821918
2760	3.21	3.21	.8794521
2880	3.19	3.19	.8739726
3000	3.17	3.17	.8684932
3120	3.16	3.16	.8657535
3240	3.16	3.16	.8657535
3360	3.14	3.14	.860274
3480	3.12	3.12	.8547945
3600	3.1	3.10	.8493151
3720	3.1	3.10	.8493151
3840	3.08	3.08	.8438356
3960	3.06	3.06	.8383562
4080	3.05	3.05	.8356165
4200	3.04	3.04	.8328768
4320	3.02	3.02	.8273973

CONFINED AQUIFER, FULLY PENETRATING CONDITION

K = 0.5E-05 cm/sec
= 0.1 gpd/ft2
= 0.2E-06 ft/sec
= 0.0 ft/day

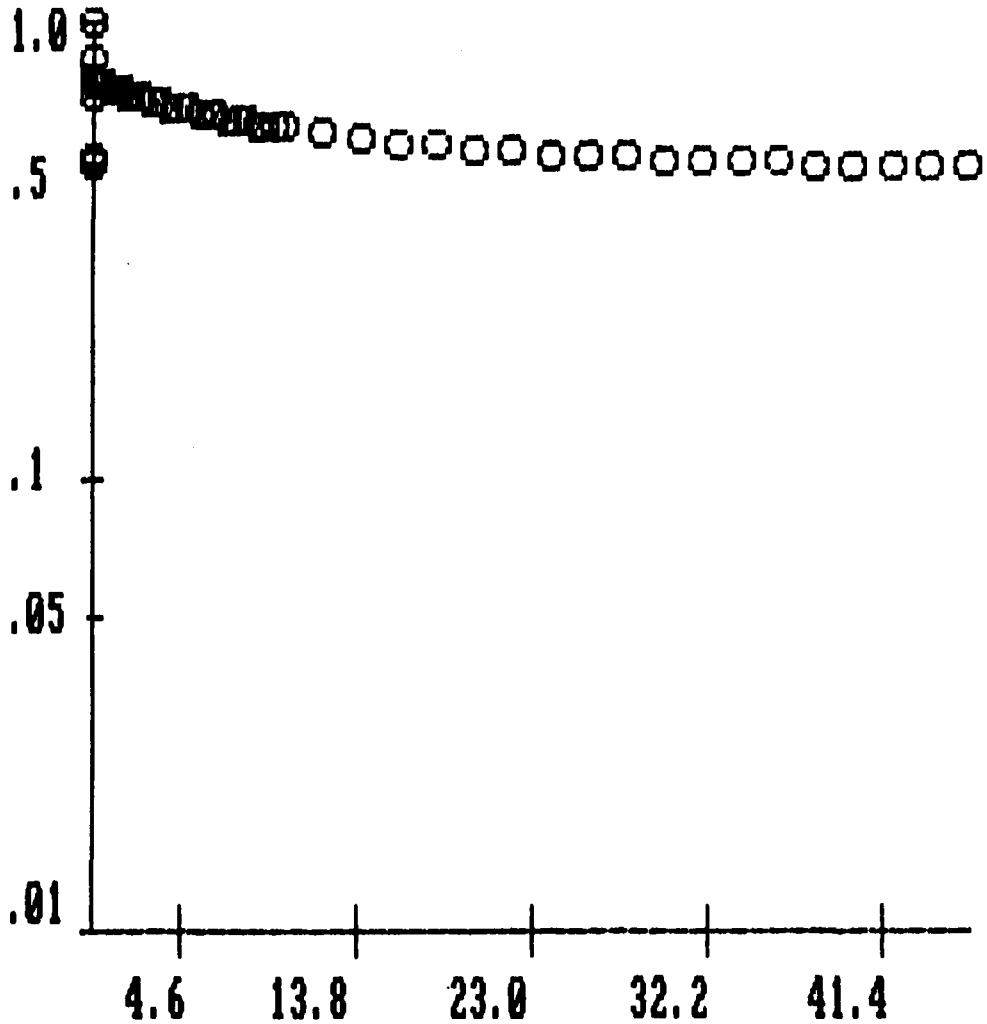
REGRESSION COEFFICIENT = -.9971494

2280	5.4	5.40	.4856116
2400	5.35	5.35	.4811151
2520	5.33	5.33	.4793166
2640	5.3	5.30	.4766188

CONFINED AQUIFER, FULLY PENETRATING CONDITION

K = 0.4E-04 cm/sec
= 0.8 gpd/ft2
= 0.1E-05 ft/sec
= 0.1 ft/day

REGRESSION COEFFICIENT = -.9519105



X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-5 (con't.)

SUMMIT NATIONAL SITE -- MW-5

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	r/-0
240	7.33	7.33	.6591727
270	7.24	7.24	.6510791
300	7.16	7.16	.6438849
330	7.08	7.08	.6366907
360	7.01	7.01	.6303958
390	6.94	6.94	.6241008
420	6.87	6.87	.6178058
450	6.8	6.80	.6115108
480	6.75	6.75	.6070145
510	6.69	6.69	.6016188
540	6.64	6.64	.5971223
570	6.59	6.59	.592626
600	6.53	6.53	.5872303
720	6.35	6.35	.5710432
840	6.2	6.20	.557554
960	6.08	6.08	.5467626
1080	5.97	5.97	.5368705
1200	5.87	5.87	.5278777
1320	5.8	5.80	.5215828
1440	5.72	5.72	.5143885
1560	5.66	5.66	.5089928
1680	5.6	5.60	.5035972
1800	5.55	5.55	.4991008
1920	5.5	5.50	.4946044
2040	5.46	5.46	.4910072
2160	5.42	5.42	.4874101
2280	5.4	5.40	.4856116
2400	5.35	5.35	.4811151
2520	5.33	5.33	.4793166
2640	5.3	5.30	.4766188

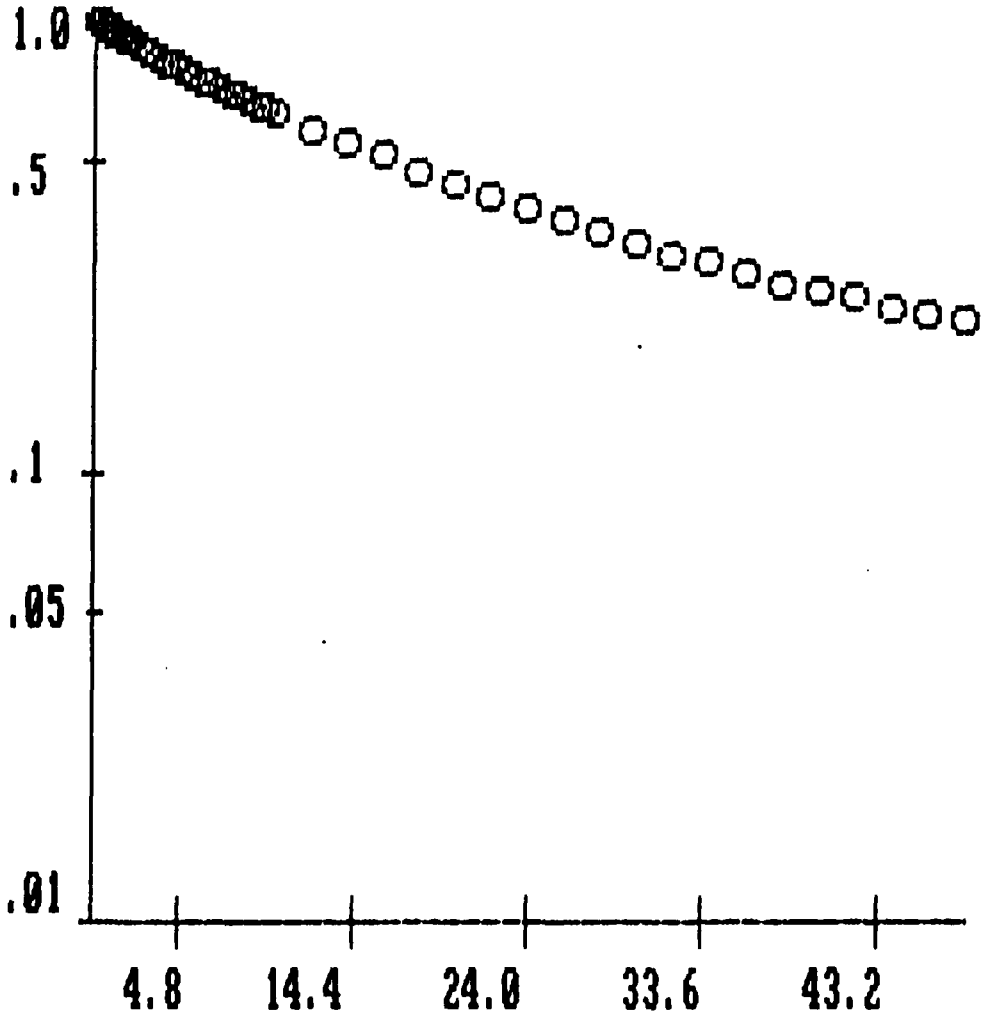
CONFINED AQUIFER, FULLY PENETRATING CONDITION

- = 0.3E-04 cm/sec
= 0.6 gpd/ft2
= 0.1E-05 ft/sec
= 0.1 ft/day

REGRESSION COEFFICIENT = -.9636249

NATIONAL SITE -- MW-5

[illegible]	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
[illegible]	8.12	8.12	.7302159
[illegible].998	8.100001	8.10	.7284173
[illegible].002	8.08	8.08	.7266187
[illegible]	8.05	8.05	.7239209
[illegible].998	8.020001	8.02	.7212231
[illegible].002	8	8.00	.7194245
[illegible]	7.98	7.98	.717626
54.998	7.95	7.95	.7149281
70.002	7.93	7.93	.7131295
75	7.91	7.91	.711331
79.998	7.89	7.89	.7095324
84.996	7.87	7.87	.7077339
90	7.85	7.85	.7059353
94.998	7.83	7.83	.7041368
100.002	7.81	7.81	.7023381
105	7.79	7.79	.7005396
109.998	7.77	7.77	.698741
115.002	7.75	7.75	.6969425
120	7.73	7.73	.6951439
150	7.62	7.62	.6852518
180	7.51	7.51	.6753598
210	7.42	7.42	.6672662
240	7.33	7.33	.6591727
270	7.24	7.24	.6510791
300	7.16	7.16	.6438849
330	7.08	7.08	.6366907
360	7.01	7.01	.6303958
390	6.94	6.94	.6241008
420	6.87	6.87	.6178058
450	6.8	6.80	.6115108
480	6.75	6.75	.6070145
510	6.69	6.69	.6016188
540	6.64	6.64	.5971223
570	6.59	6.59	.592626
600	6.53	6.53	.5872303
720	6.35	6.35	.5710432
840	6.2	6.20	.557554
960	6.08	6.08	.5467626
1080	5.97	5.97	.5368705
1200	5.87	5.87	.5278777
1320	5.8	5.80	.5215828
1440	5.72	5.72	.5143885
1560	5.66	5.66	.5089928
1680	5.6	5.60	.5035972
1800	5.55	5.55	.4991008
1920	5.5	5.50	.4946044
2040	5.46	5.46	.4910072
2160	5.42	5.42	.4874101



X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-4 (CONT'D)

SUMMIT NATIONAL SITE -- MW-5

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	-/-0
12	8.21	8.21	.7383094
12.996	8.21	8.21	.7383094
13.998	8.21	8.21	.7383094
15	8.2	8.20	.7374101
15.996	8.2	8.20	.7374101
16.998	8.18	8.18	.7356116
18	8.18	8.18	.7356116
18.996	8.17	8.17	.7347123
19.998	8.17	8.17	.7347123
25.002	8.15	8.15	.7329137
30	8.12	8.12	.7302159
34.998	8.100001	8.10	.7284173
40.002	8.08	8.08	.7266187
45	8.05	8.05	.7239209
49.998	8.020001	8.02	.7212231
55.002	8	8.00	.7194245
60	7.98	7.98	.717626
64.998	7.95	7.95	.7149281
70.002	7.93	7.93	.7131295
75	7.91	7.91	.711331
79.998	7.89	7.89	.7095324
84.996	7.87	7.87	.7077339
90	7.85	7.85	.7059353
94.998	7.83	7.83	.7041368
100.002	7.81	7.81	.7023381
105	7.79	7.79	.7005396
109.998	7.77	7.77	.698741
115.002	7.75	7.75	.6969425
120	7.73	7.73	.6951439
150	7.62	7.62	.6852518
180	7.51	7.51	.6753598
210	7.42	7.42	.6672662
240	7.33	7.33	.6591727
270	7.24	7.24	.6510791
300	7.16	7.16	.6438849

CONFINED AQUIFER, FULLY PENETRATING CONDITION

K = 0.1E-03 cm/sec
= 2.3 gpd/ft2
= 0.4E-05 ft/sec
= 0.3 ft/day

REGRESSION COEFFICIENT = -.9963438

SUMMIT NATIONAL SITE -- MW-4

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
6.996	3.62	3.62	1
7.998	3.61	3.61	.9972376
9	3.61	3.61	.9972376
9.996	3.61	3.61	.9972376
10.998	3.61	3.61	.9972376
12	3.61	3.61	.9972376
12.996	3.61	3.61	.9972376
13.998	3.6	3.60	.9944752
15	3.6	3.60	.9944752
15.996	3.6	3.60	.9944752
16.998	3.6	3.60	.9944752
18	3.6	3.60	.9944752
18.996	3.59	3.59	.9917128
19.998	3.59	3.59	.9917128
25.002	3.57	3.57	.9861879
30	3.55	3.55	.980663
34.998	3.53	3.53	.9751381
40.002	3.52	3.52	.9723758
45	3.5	3.50	.9668509
49.998	3.48	3.48	.9613261
55.002	3.46	3.46	.9558012
60	3.45	3.45	.9530388
64.998	3.43	3.43	.9475139
70.002	3.41	3.41	.9419891
75	3.4	3.40	.9392266
79.998	3.38	3.38	.9337018
84.996	3.37	3.37	.9309392
90	3.36	3.36	.9281768
94.998	3.34	3.34	.9226519
100.002	3.33	3.33	.9198896
105	3.31	3.31	.9143647
109.998	3.3	3.30	.9116022
115.002	3.28	3.28	.9060774
120	3.27	3.27	.903315
150	3.19	3.19	.8812156
180	3.11	3.11	.859116
210	3.03	3.03	.8370166
240	2.96	2.96	.8176796
270	2.89	2.89	.7983426
300	2.82	2.82	.7790056
330	2.76	2.76	.762431
360	2.7	2.70	.7458564
390	2.64	2.64	.7292819
420	2.59	2.59	.7154697
450	2.53	2.53	.6988951
480	2.49	2.49	.6878454
510	2.44	2.44	.6740333
540	2.38	2.38	.6574587

570	2.34	2.34	.6464089
600	2.29	2.29	.6325968
720	2.11	2.11	.582873
840	1.96	1.96	.5414365
960	1.82	1.82	.5027625
1080	1.7	1.70	.4696133
1200	1.59	1.59	.4392266
1320	1.49	1.49	.4116023
1440	1.41	1.41	.3895028
1560	1.32	1.32	.364641
1680	1.24	1.24	.3425415
1800	1.16	1.16	.320442
1920	1.11	1.11	.3066299
2040	1.05	1.05	.2900553
2160	1	1.00	.2762431
2280	.95	0.95	.262431
2400	.91	0.91	.2513813
2520	.87	0.87	.2403315
2640	.83	0.83	.2292818

UNCONFINED AQUIFER

K = 0.1E-03 cm/sec
= 2.9 gpd/ft2
= 0.4E-05 ft/sec
= 0.4 ft/day

REGRESSION COEFFICIENT = -.9945094

Mw-3 (con't.)

```
=      62.9 gpd/ft2
= 0.1E-03 ft/sec
=      8.4  ft/day

REGRESSION COEFFICIENT = -.9978448
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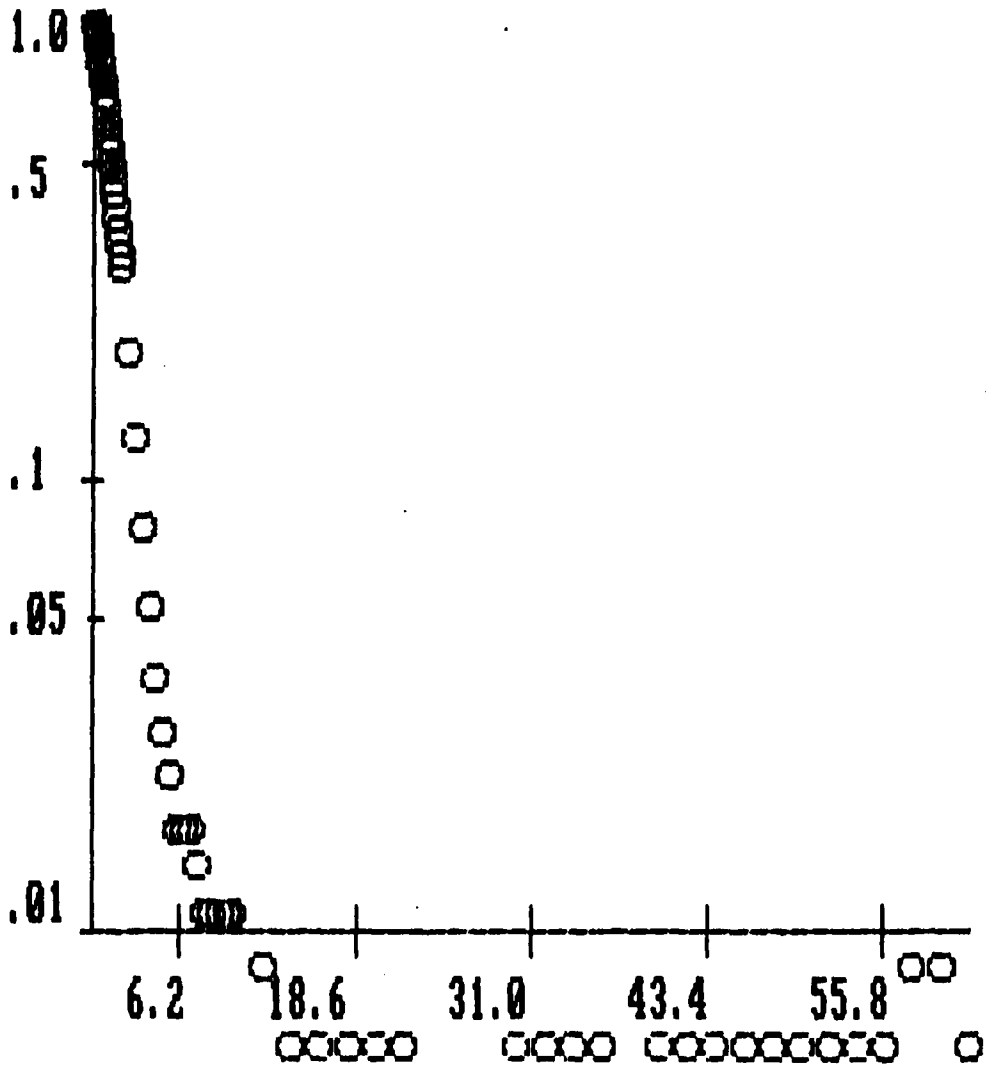
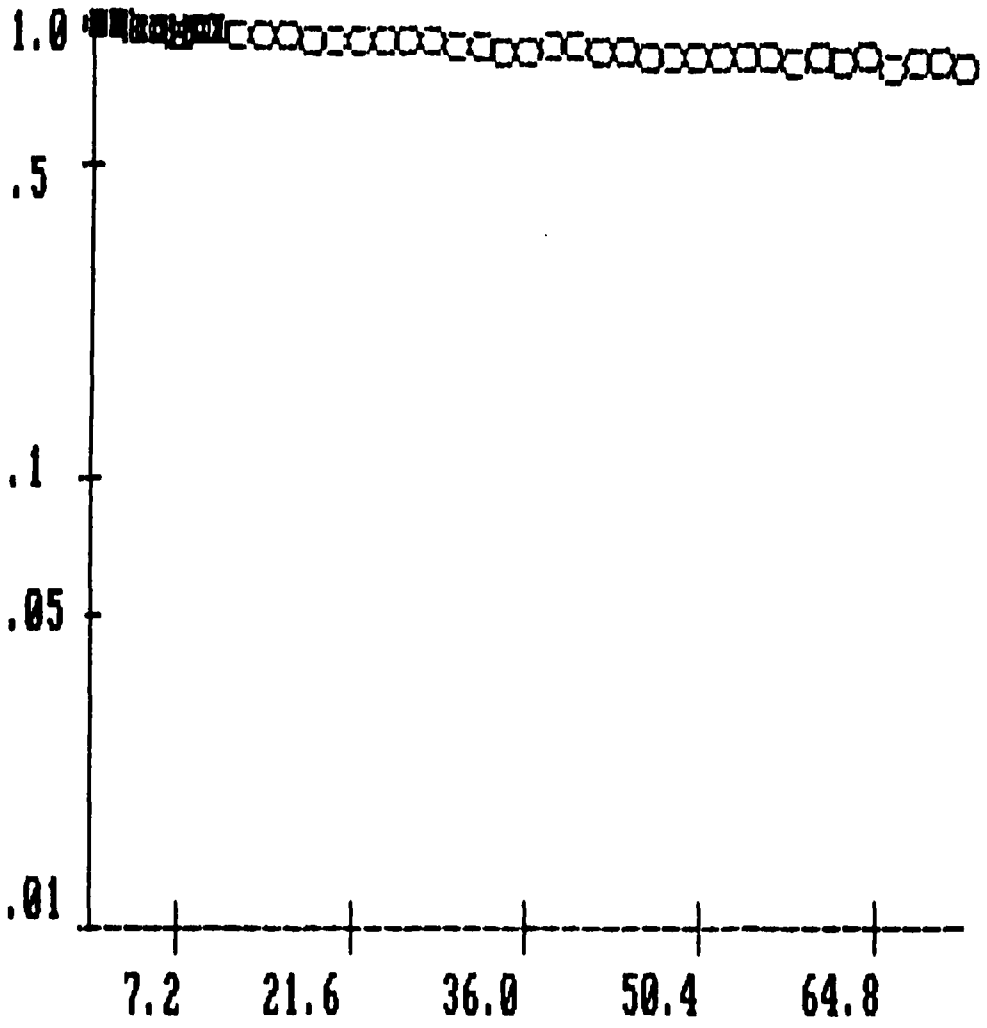


X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-3 (cont'd.)



X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-2 (cont'd.)

SUMMIT NATIONAL SITE -- MW-3

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/HO
4.998	3.6	3.60	1
6	3.59	3.59	.9972222
6.996	3.54	3.54	.9833333
7.998	3.53	3.53	.9805555
9	3.51	3.51	.975
9.996	3.48	3.48	.9666666
10.998	3.44	3.44	.9555555
12	3.44	3.44	.9555555
12.996	3.39	3.39	.9416667
13.998	3.36	3.36	.9333332
15	3.33	3.33	.925
15.996	3.3	3.30	.9166666
16.998	3.27	3.27	.9083333
18	3.24	3.24	.9
18.996	3.21	3.21	.8916667
19.998	3.19	3.19	.8861111
25.002	3.03	3.03	.8416666
30	2.88	2.88	.8000001
34.998	2.75	2.75	.7638889
40.002	2.62	2.62	.7277778
45	2.48	2.48	.688889
49.998	2.35	2.35	.6527778
55.002	2.23	2.23	.6194445
60	2.11	2.11	.5861111
64.998	2	2.00	.5555555
70.002	1.9	1.90	.5277778
75	1.79	1.79	.4972222
79.998	1.7	1.70	.4722222
84.996	1.6	1.60	.4444445
90	1.51	1.51	.4194445
94.998	1.42	1.42	.3944444
100.002	1.34	1.34	.3722222
105	1.26	1.26	.35
109.998	1.18	1.18	.3277778
115.002	1.11	1.11	.3083333
120	1.04	1.04	.2888889
150	.69	0.69	.1916667
180	.44	0.44	.1222222
210	.28	0.28	7.777778E-02
240	.19	0.19	5.277778E-02
270	.13	0.13	3.611111E-02
300	.1	0.10	2.777778E-02
330	.08	0.08	2.222222E-02
360	.06	0.06	1.666667E-02

UNCONFINED AQUIFER

K = 0.3E-02 cm/sec

SUMMIT NATIONAL SITE -- MW-2

TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
7.998	3.64	3.64	.9972603
9	3.64	3.64	.9972603
9.996	3.64	3.64	.9972603
10.998	3.64	3.64	.9972603
12	3.64	3.64	.9972603
12.996	3.64	3.64	.9972603
13.998	3.64	3.64	.9972603
15	3.65	3.65	1
15.996	3.64	3.64	.9972603
16.998	3.64	3.64	.9972603
18	3.65	3.65	1
18.996	3.65	3.65	1
19.998	3.65	3.65	1
25.002	3.65	3.65	1
30	3.65	3.65	1
34.998	3.65	3.65	1
40.002	3.65	3.65	1
45	3.65	3.65	1
49.998	3.65	3.65	1
55.002	3.65	3.65	1
60	3.64	3.64	.9972603
64.998	3.64	3.64	.9972603
70.002	3.64	3.64	.9972603
75	3.63	3.63	.9945207
79.998	3.63	3.63	.9945207
84.996	3.63	3.63	.9945207
90	3.62	3.62	.9917808
94.998	3.62	3.62	.9917808
100.002	3.62	3.62	.9917808
105	3.62	3.62	.9917808
109.998	3.61	3.61	.9890411
115.002	3.61	3.61	.9890411
120	3.61	3.61	.9890411
150	3.6	3.60	.9863014
180	3.59	3.59	.9835616
210	3.58	3.58	.9808219
240	3.57	3.57	.9780822
270	3.56	3.56	.9753425
300	3.55	3.55	.9726028
330	3.54	3.54	.9698631
360	3.52	3.52	.9643836
390	3.45	3.45	.9452055
420	3.45	3.45	.9452055
450	3.47	3.47	.9506849
480	3.49	3.49	.9561645
510	3.52	3.52	.9643836
540	3.53	3.53	.9671232

	3.52	3.52	.9643836
	3.51	3.51	.9616439
	3.45	3.45	.9452055
	3.42	3.42	.9369864
	3.39	3.39	.9287671
	3.34	3.34	.9150684
	3.36	3.36	.9205479
	3.37	3.37	.9232876
	3.34	3.34	.9150684
	3.32	3.32	.909589
	3.29	3.29	.9013699
	3.27	3.27	.8958904
	3.2	3.20	.8767124
	3.17	3.17	.8684932
	3.17	3.17	.8684932
	3.25	3.25	.8904109
	3.2	3.20	.8767124
	3.12	3.12	.8547945
	3.11	3.11	.8520548
	3.07	3.07	.8410959
	3.06	3.06	.8383562
	3.04	3.04	.8328768
3120	3.03	3.03	.830137
3240	3.03	3.03	.830137
3360	3.04	3.04	.8328768
3480	2.97	2.97	.8136986
3600	3.01	3.01	.8246576
3720	2.95	2.95	.8082192
3840	2.99	2.99	.8191781
3960	2.86	2.86	.7835616
4080	2.94	2.94	.8054795
4200	2.92	2.92	.8

UNCONFINED AQUIFER

K = 0.1E-04 cm/sec
= 0.3 gpd/ft2
= 0.4E-06 ft/sec
= 0.0 ft/day

REGRESSION COEFFICIENT = -.990636

NOTES ON HYDRAULIC-CONDUCTIVITY TESTS
SUMMIT NATIONAL SITE

ZONE DESIGNATION	WELL #	HYDRAULIC CONDUCTIVITY	COMMENTS ON TEST	LITHOLOGIES MONITORED
Bedford Coal	MW- 4	1E-4	Very good.	shale, coal
Fill	2BB5		NONE PERFORMED	Fill
	2BB6		NONE PERFORMED	Fill
	2BB7		NONE PERFORMED	Fill
	2BB8		NONE PERFORMED	Fill
	MW- 3	3E-3	Good.	fill, siltstone
	MW- 9	2E-4	Good until time=10 minutes.	fill, weathered carbonaceous shale
	MW-15	1E-4	Fair; some tailing-off on both ends.	fill, till
	MW-18	8E-5	Poor; recovery ceased at 50%.	Fill
Till	MW- 7	2E-3	Linear recovery is of very short duration.	till, coal, carbonaceous shale
	MW-11	3E-3	Poor linear trend, very short duration until recovery.	till, outwash
	MW-17	6E-5	Very good.	clay, weathered silty shale
	MW-19	6E-4	Fair; very short duration for linear trend.	till
Unnamed Coal #1	MW- 2	1E-5	Slow recovery, but good linear trend	carbonaceous shale, coal, siltstone, underclay
Unnamed Coal #1a	MW-10	2E-5	Very good.	poor recovery, but some coal apparent
	MW-16	6E-7	Good linear trend, but very little recovery during test.	siltstone, coal
Unnamed Coal #2	MW-22	3E-6	Good linear trend, but very little recovery during test.	siltstone, mudstone, carbonaceous shale, sandstone
	MW-25	5E-6	Fair linear trend; very little recovery during test.	limestone, silty shale
Unnamed Coal #3	MW-12	6E-6	Very good.	siltstone, silty sandstone
	MW-20	9E-6	Good linear trend, but little recovery during test.	siltstone, black to carbonaceous shale
	MW-23	1E-5	Good linear trend, but little recovery during test.	Siltstone, carbonaceous shale
	MW-24	6E-5	Good.	siltstone, coal, carbonaceous shale, silty shale
Unnamed Limestone	MW-21	2E-8	Unacceptable. No recovery during test.	mudstone, sandstone, siltstone, limestone
Upper Sharon	MW- 5	3E-4	Fair. Low regression coefficient.	siltstone, sandstone
	MW- 6	5E-6	Good test, but field observations indicate that well is damaged.	sandstone, siltstone
	MW- 8	1E-5	Very good.	siltstone, sandy siltstone
	MW-13	2E-7	Poor linear trend, very slow recovery	sandstone, shale, siltstone, silty sandstone
	MW-14	5E-5	Poor linear trend, irregular recovery.	siltstone, black shale, silty sandstone, sandy siltstone, sandstone
	MW-26	2E-4	Good for time < 10 minutes.	sandstone, silty shale, sandy siltstone, silty sandstone

NOTE: All values are cm/sec.
Fill includes mine spoil

COMMENTS ON METHODOLOGY

1. All data collected are shown on the plots, but only data selected for calculations are presented in tables.

2. Calculations performed by a computer program (Thompson, in press) which uses the methods of Cedergren (1977).

3. Data for calculations were selected to maximize the regression coefficient.

APPENDIX E - HYDROGEOLOGIC CALCULATIONS

Appendix E

PLEASE USE PENCIL
OR TYPEWRITER.
DO NOT USE INK.

DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

No. 234652

County Portage Township Deerfield Section of Township

Owner Roy Rays Address Akron Canfield Road

Location of property Approx 800 West of 225 on S. Side

CONSTRUCTION DETAILS

Casing diameter 4 Length of casing 53

Type of screen none Length of screen

Type of pump

Capacity of pump

Depth of pump setting 75

Date of completion

BAILING OR PUMPING TEST

Pumping rate 10 G.P.M. Duration of test hrs.

Drawdown 45 ft. Date

Developed capacity

Static level—depth to water 24 ft.

Pump installed by

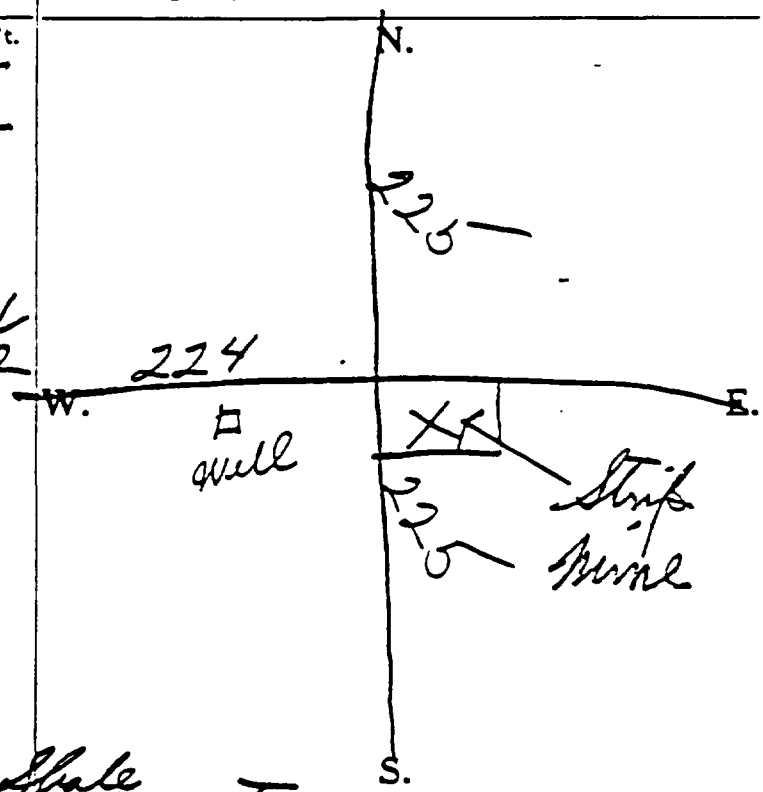
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	0	15
Sandstone	15	25
Shale	25	51
Limestone	51	52 1/2
Shale	52	91

Water at 81
Drilled pocket for settling
6" hole drilled open to Shale under limestone

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Date June 1 1959

Signed R. I. Wolverton

Watson Domestic Well
RW008001
Source: Pinzon, 1986

LOCATED
112

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

500980

COUNTY PORTAGE TOWNSHIP DEERFIELD SECTION OF TOWNSHIP

OWNER SUMMIT HOMES (RALPH DREHER) ADDRESS HARTVILLE, OHIO

LOCATION OF PROPERTY RTE. 225 ONE MILE SOUTH OF 224

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 31'8"

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 15 gpm Duration of test 1 hr

Drawdown 25 ft Date 4-21-77

Static level (depth to water) 10 ft

Quality (clear, cloudy, taste, odor)

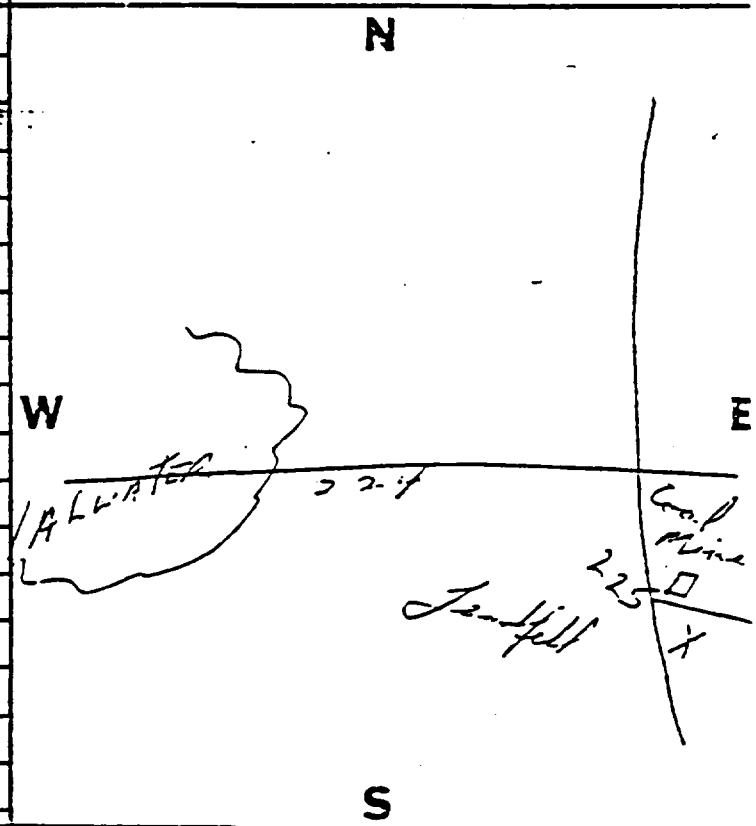
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
SAND & GRAVEL	0 ft	20 ft
GRAY SHALE	20	26
LIMESTONE	26	30'6"
GRAY SANDY SHALE	30'6"	45
LIMESTONE	45	47'6"
LIGHT GRAY SHALE	47'6"	55
COAL	55	56
CLAY	56	58
GRAY SHALE	58	62

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



Dreher Domestic Well
RW012001
Source: Pinzan, 1986

DATE May 3, 1977

SIGNED M. P. Greenwalt Sec

*If additional space is needed to complete well log, use next consecutive numbered form.

OR TYPEWRITER
DO NOT USE INK.

Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

County Portage Township Deerfield Section of Township

Owner Richard Rohde Address 8253 St Rt 224 Deerfield

Location of property 2 Hours East of Rt 225 South side

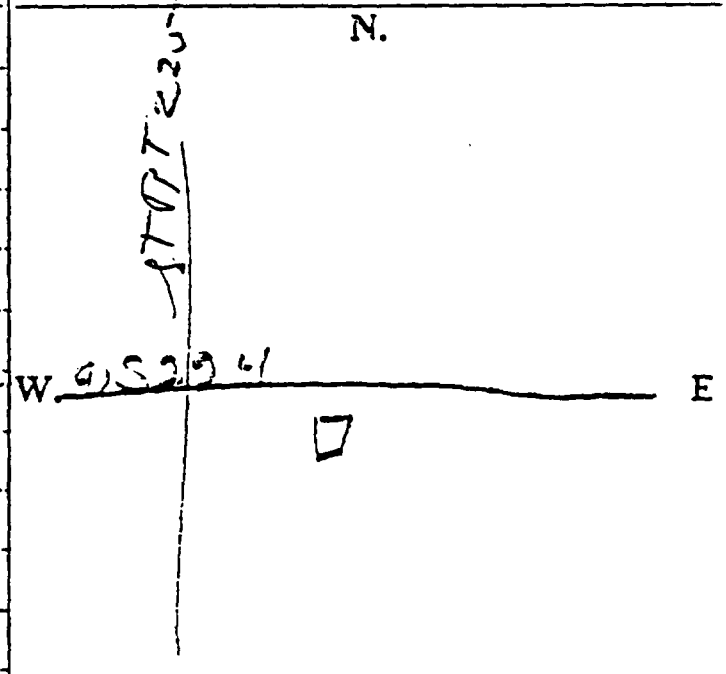
CONSTRUCTION DETAILS Martin	BAILING OR PUMPING TEST
Casing diameter 6 2 ft 4 Length of casing 100	Pumping Rate 2 G.P.M. Duration of test ___ hrs
Type of screen ___ Length of screen ___	Drawdown 140 ft. Date April 1965
Type of pump Deep well	Static level-depth to water 140 ft
Capacity of pump ___	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting 190	Sand Gas, Taste
Date of completion April 1 1965	Pump installed by Carl Pittman

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	15 Ft.
Fire Clay	15	20
Shale	20	30
Limestone	30	36
Shale	36	90
Limestone	90	101
Shale	101	215
Sand Stone	215	225
1 Gal Pressure at 210		
Shale	225	258
Sandstone, shale	258	276
Sand Stone	276	281
Shale 9 Gal at 281	281	290

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Lockridge Domestic Well
RW007001
Source: Pinzon, 1986

Date April 1, 1965

Signed Carl Pittman

*If additional space is needed to complete well log, use next consecutive numbered form

LOCAT
118

TYPEWRITER
DO NOT USE INK.

Division of Water
1562 W. First Avenue
Columbus 12, Ohio

N. 321720

County PORTAGE Township DEERFIELD Section of Township O. E.

Owner TIM ADAMS Address RD1 Deerfield

Location of property 1 mile East of Deerfield on State RT 224

CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 6" 4" Length of casing 33 183	Pumping Rate 10 G.P.M. Duration of test 3 hrs.
Type of screen Length of screen	Drawdown 100 ft. Date 7-6-65
Type of pump SUBMERSIBLE	Static level-depth to water 85 ft.
Capacity of pump 15	Quality (clear, cloudy, taste, odor) Cloudy
Depth of pump setting 186	
Date of completion 7-8-65	Pump installed by O R Scott Jr

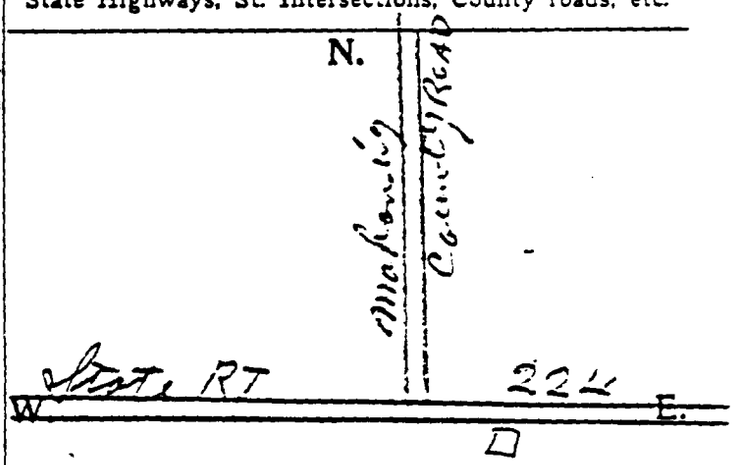
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
CLAY YELLOW	0 Feet	Ft.
Clay Blue	0	24
Shale Gray	24	30
Sand Rock	30	70
Coal mine open	70	177
Clay Blue	177	183
Blue Lime HARD	183	187
Shale DARK	187	198
	198	225

WATER 198

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

O'Neil Domestic Well
RW009001
Source: Pinzon, 1986

Date 7-9-65

Signed O R Scott

LOCATED 119

LOGS FOR
SAMPLED RESIDENTIAL WELLS

DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

N? 160810

County Portage Township ~~Atwater~~ Deerfield Section of Township or Lot Number —

Owner Jones Address Route # 225 -

Location of property 1/2 mi S. of 224 on Route 225

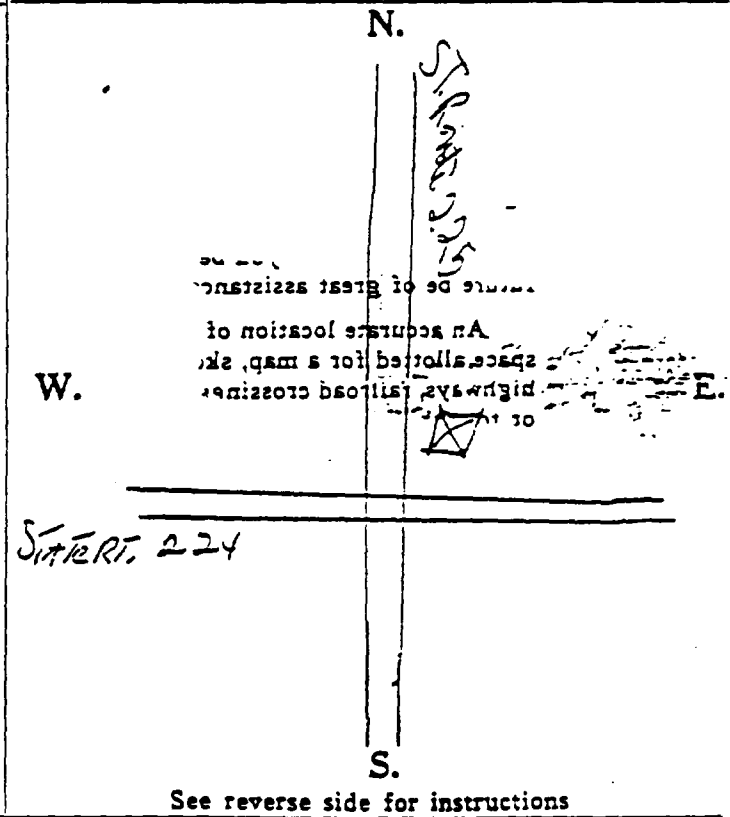
CONSTRUCTION DETAILS	PUMPING TEST
Casing diameter 6" Length of casing 34'	Pumping rate ..... G.P.M. Duration of test ..... hrs.
Type of screen ..... Length of screen	Drawdown ..... ft. Date .....
Type of pump	Developed capacity .....
Capacity of pump	Static level—depth to water ..... ft.
Depth of pump setting	Pump installed by .....

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay, yellow	0 Feet	6 Ft.
Sand, yellow	6'	20'
Clay	20'	34'
Rock	34'	40'
Shale	~~40~~ 40'	61'
Water at 55'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Jones Domestic Well
RW011001
Source: Pinzon, 1986

Date 11/29/58

Signed [illegible]

LOCATED 113

Boring No. B-6
Sheet 9 of 10
Date July 9, 1980

Run Number	Depth (Feet)	Recovery	% Recovery	RQD	Profile	Description
	115.0					Medium dark gray (N4) claystone.
#10		117.5"	98%	70%		Medium gray (N5) fine grained sandstone and siltstone (wavy and flat laminations) cleaner at base, pyrite grains. Lost water at 117.0 feet
	125.0					
#11		96.2"	80%	23%		Medium light gray (N6) fine to medium grained sandstone with localized siltstone beds.

Boring No. L-6
Sheet 10 of 10
Date July 9, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
	135.5	96.2"	80%	23%		Wavy and planar laminations.
#12	140.5	57"	95%	20%		Medium light gray siltstone (N6).
						Grayish black (N2) clay shale carbonaceous.
						Medium gray argillaceous sandstone fine to medium grained, micaceous.

Boring No. B-6
Sheet 7 of 10
Date July 9, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#7		116.5"	97%	88%		Medium dark gray (N4) mudstone to siltstone thinly laminated with some iron-stained units.
	95					Medium dark gray (N4) interbedded siltstone and fine grained sandstone, carbonaceous, planar to wavy laminations.
#8		115"	96%	51%		

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#8	105.0	115"	96%	51%		Dark gray (N3) mudstone slightly micaceous, some carbonaceous plant fossils.
						Dark gray (N3) carbonaceous, shale.
#9	115.0	118"	94%	41%		Dark gray (N3) siltstone with thin clay laminations, iron stained in places.

Boring No. B-6
Sheet 5 of 10
Date July 9, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
	55.5					Dark gray (N3) clay shale.
						Dark gray (N3) claystone to mudstone. Shaly in places, carbonaceous.
03		54"	90%	25%		Dark gray (N3) siltstone, very carbonaceous at base, slightly fossiliferous.
	60.5					
						Black coal (N1), pyritic.
						Olive gray (5 Y 4/1) claystone and siltstone rooted at top, carbonaceous plant fossils, slightly micaceous.
04		58"	96%	0		
	65.5					
						Olive gray (5 Y 4/1) to light olive gray (5 Y 6/1) fine grained sandstone and siltstone, ferruginous non-calcareous oolite-like grains, calcite fracture fillings.
05		109"	96%	48%		Olive gray (5 Y 4/1) sandstone, fine-grained, oolite-like grains, chert and ferruginous clasts.
	70					Medium light gray (N6) arenaceous shale increasing carbonaceous material towards bottom.

Boring No. B-6
Sheet 6 of 10
Date July 9, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#5	75.0	109"	96%	48%		Dark gray (N3) siltstone with a few arenaceous laminations, slightly micaceous, increasing carbonaceous material towards base.
#6	85.0	113.5"	95%	46%		Black (N1) coal and carbonaceous shale.
						Dark gray (N3) claystone.
						Medium gray (N5) siltstone and fine grained sandstone, clay lenses present.

Boring No. B-6
Sheet 3 of 10
Date June 30, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
	40.0					

Boring No. B-6
Sheet 4 of 10
Date July 9, 1980

Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
45.0					
1	45.6"	69%	0		Dark gray (N3) mudstone, with calcite filling fractures, slightly pyritic shaley in places claystone at base.
50.5					Dark gray (N3) limestone fossiliferous, dense, slightly pyritic, very argillaceous.
52	57"	95%	73%		Black (N1) carbonaceous shale slightly fossiliferous and pyritic.
					Dark gray (N3) siltstone.

Boring No. B-6
Sheet 1 of 10
Date July 9, 1980

VISUAL CLASSIFICATION OF ROCK

Project Name NUS - Deerfield Project No. 396-01
Location Deerfield, Ohio Coordinates
Geologist/Engineer R. T. Petrus Drilling Contractor Lake Drilling Co.
Drill ATV - Penn Drill Driller R. Valega
Drilling Method Auger, Roller Bit, Core Core Size NX Elevation 1100.9
Plunge from Horiz. -- Bearing Azimuth --

Casing Information		Groundwater Level Data			
Size	Depth	Actual Time	Depth	Actual Time	Depth
* 4" PVC	136 feet	July 17, 1980	25.0'		

* Bottom 10 feet is 4" PVC Johnson 0.020 slot screen.

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
						Augered to 45 feet geologic profile may be inferred from adjacent hole (B-3). Water encountered at 29.0 feet.

Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
25.0					

Boring No. 1-5
Sheet 7 of 8
Date June 30, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#5	88	120"	100%	40%		
#6	98	116"	97%	42%		Medium dark gray (N4) siltstone increasing in grain size towards base. Slightly micaceous, iron stained.
						Medium dark gray (N4) sandy shale, carbonaceous, micaceous.
						Medium light gray (N5) argillaceous sandstone with planar to wavy bedding, porous, carbonaceous, iron stained and micaceous.
						Black (N1) coal, pyritic
#7		113"	94%	65%		Light gray (N7) argillaceous sandstone planar to wavy bedded, carbonaceous.

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
07		113"	94%	65%		Dark gray (N3) siltstone/mudstone, slightly micaceous, carbonaceous.
	108					End of Boring

Drilling No. 1-5
Sheet 5 of 8
Date June 30, 1985

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#2	58	113"	94%	29%		Light gray (N7) underclay rooted and irregular structure.
						Medium gray (N5) siltstone.
						Medium gray (N5) claystone, contorted.
#3		116"	97%	30%		Dark gray (N3) siltstone increasing clay content toward base.
						Brownish black (5 YR 2/1) fossiliferous limestone with interbedded argillaceous material.
						Light olive gray (5 Y 6/1) sandstone fine grained. Contains cavities with pyrite coatings. Approximately 10 percent of rock has 1.0 mm non-calcareous oolite-like grains.
						Dark gray (N5) shale with variable amounts of sand, pyritic, carbonaceous.
	68					Medium dark gray (N6) siltstone. Variable amounts of carbonaceous material slightly micaceous and shaly in places.
#4		109"	91%			

Boring No. B-5
Sheet 6 of 8
Date June 30, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#4		109"	91%	50%		Grayish black (N2) shale, coal beds in places gradational lower contact.
	78					Light olive gray (5 Y 6/1) sandstone fine grained mostly quartz, slightly micaceous increasing clay content towards base.
#5		120"	100%	40%		Medium gray (N5) clay shale.
						Medium gray (N5) sandstone fine grained, iron stained, micaceous.
						Medium dark gray (N4) siltstone with lenses of clay and sand.

Boring No. _____
Sheet 3 of 6
Date June 30, 1980

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
	38.0					
#1		118"	98%	59%		Brownish black (5 YR 2/1). Fossiliferous limestone with thin laminations of argillaceous material, carbonaceous with pyritic replacement of some fossils.

Boring No. B-5
Sheet 4 of 6
Date June 30, 1983

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
1		118"	98%	59%		Medium dark gray (N4) siltstone and shales. Carbonaceous plant fragments, non-calcareous with 1 inch coal bed at base.
	48					Medium dark gray siltstone (N4) interbedded with brownish gray (5 YR 4/1) irregularly laminated claystone.
						Light gray (N7) claystone with irregular bedding.
2		113"	94%	29%		Medium dark gray (N4) siltstone with varying clay content. Middle of unit is shaly. Slightly micaceous. Carbonaceous rich fragments are present.
						Dark gray (N3) to black (N1) carbonaceous shale and coal pyritic.

Date June 30, 1980

VISUAL CLASSIFICATION OF ROCK

Project Name NUS-Deerfield Site Project No. 396-01
Location Deerfield, Ohio Coordinates Datum arbitrary
Geologist/Engineer R.T. Petrus Drilling Contractor Lake Drilling Co.
Drill Truck Mounted Penn Drill Driller R. Valero
Drilling Method Auger, Conc, Roller bit Core Size NX Elevation 1087.7
Plunge from Horiz. N/A Bearing Azimuth N/A

Casing Information		Groundwater Level Data			
Size	Depth	Actual Time	Depth	Actual Time	Depth
* 4" PVC	102 feet	July 9	21'6"		
		July 17	20'11"		

* Bottom 10 feet is 4" PVC Johnson 0.020 slot screen.

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
						Boring was advanced by augers to 38 feet. Profile may be inferred from adjacent hole (B4).

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
	25.0					

Boring No. 1-4

Sheet 2 of

Depth	Sample	Sample no.	Blows on Sampler 0/6	6/12	12/18	18/24	N	Blows on Casing C	Soil or Rock Classification
		4	5	15	25				Medium light gray (N6) iron stained clay shale.
5									
									Augered to 15 feet, interbedded claystone and muds
10									
		5	52						Dark gray (N3) shale.
									Augered to 20.0 feet, same as above.
20		6	50/4						
									Dark gray (N3) clayey shale.
									Augered to 25.0 feet coal brought up in augers at 2 feet.
30									
									Go to core sheets.

N = Number blows to drive 2 " spoon 6 " with 140 lb. pin weight falling 30 " per blow.

Classification manual-visual USCS

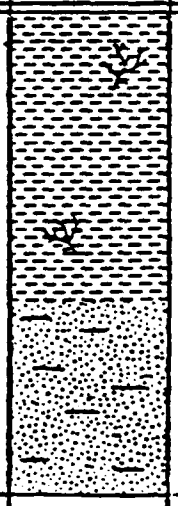
C = Number blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow.

METHOD OF INVESTIGATION _____

VISUAL CLASSIFICATION OF ROCK

Project Name NUS-Deerfield Project No. 396-01
Location Deerfield, Ohio Coordinates ____
Geologist/Engineer ____ Drilling Contractor ____
Drill ____ Driller ____
Drilling Method ____ Core Size ____ Elevation ____
Plunge from Horiz. ____ Bearing Azimuth ____

Casing Information		Groundwater Level Data			
Size	Depth	Actual Time	Depth	Actual Time	Depth

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#1	25.0	24"	40%	10%		Upper 3.0 feet is probably claystone (not recovered) light gray (N7) very fine grained sandstone, carbonaceous plant fossils, high clay content in places micaceous.
	30.0					End of Boring

VISUAL CLASSIFICATION OF ROCK

Project Name NUS - Deerfield Site Project No. 396-01
Location Deerfield, Ohio Coordinates
Geologist/Engineer Drilling Contractor
Drill Driller
Drilling Method Core Size Elevation
Plunge from Horiz. Bearing Azimuth

Casing Information		Groundwater Level Data			
Size	Depth	Actual Time	Depth	Actual Time	Depth

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#1		18"	37.5%	0%		Light gray claystone, no recovery.
						Light gray (N7) fine grained sandstone and siltstone carbonaceous plant fossils, oolitic-like grains.
	43					Light gray (N7) claystone.
#2	48	54"	90%	10%		Dark gray (N7) siltstone, pyritic in places.

Sheet 1 of
Date Started June 3
Date Finished July 1,

SUBSURFACE LOG

Project Name NUS - Deerfield Site
Project Number 396-01
Location Deerfield, Ohio
Datum
Geologist/Engineer R. T. Petrus
Drilling Contractor Lake Drilling
Drill ATU Penn Drill
Driller R. Valera
Drilling Method Spoon, auger, core
Core Size NX
Surface Elevation 1088.
Boring Depth 30.0'
Well Screen Interval 19.0-24.0 feet
Johnson 0.010 slot PVC screen

CASING INFORMATION		GROUNDWATER LEVEL DATA			
Size	Depth	Date	Depth	Date	Depth
4" PVC	19.0 feet	July 7, 1980	6'11"		
		July 10, 1980	6'11"		
		July 17, 1980	6'11"		

depth-ft	samples	sample no	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Blows on Casing C	SOIL OR ROCK CLASSIFICATION
2.0									Augered to 2.0 feet, black (N4) carbonaceous sha (spoil).
3.5		1	3	8	9				Black (N4) carbonaceous shale, silty clay and co moist, spoil.
5.0									Augered to 5.0 feet, spoil as above, water at 4. feet.
6.5		2	3	3	3				Coal, sandstone and shale fragments, wet (spoil)
8.0									Augered to 8.0 feet, same as above.
10.0		3	1	1	[illegible]	[illegible]			Medium light gray (N6) to moderate brown (5 YR 4 mottled CLAY, little silt and gravel, damp calca

depth-ft	samples	sample no.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Blows on Casing C	SOIL OR ROCK CLASSIFICATION
		4	3	3	4	4			Dark gray (N3) to dark yellowish brown (10 YR 4 CLAY and ROCK fragments, some silt moist (distu
2.0									
		5	3	4	4	3			Dark gray (N3) to dark yellowish brown (10 YR 4 CLAY, some silt and rock fragments (disturbed).
		6	2	3	4	5			Medium dark gray (N4) SILT and CLAY, some grave trace sand wet at 15 feet.
6.0									
		7	5	5	10	3			Dark gray (N3) ROCK fragments, some clay and si (disturbed) rock fragments have Fe-oxide coatir
8.0									
		8	1	2	3	3			Mottled CLAY some silt and shale rock fragments (angular), damp (disturbed).
1.0									
		9	4	7	6	4			Dark gray (N3) ROCK fragments, some clay and si moist (disturbed) rock fragments are siltstone.
2.0									
		10	3	5	5	5			Olive gray (5 Y 3/2) CLAY and ROCK fragments, s silt (disturbed).

N = Number blows to drive 2 " spoon 6 " with 140 lb. pin weight falling 30 " per blow.

Classification manual visual l

C = Number blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow.

METHOD OF INVESTIGATION _____

Boring No. B-1

Sheet 3 of

depth-ft	samples	sample no.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Blows on Casing C	SOIL OR ROCK CLASSIFICATION
		11	3	5	5	7			Weathered dark gray rock fragments (siltstone) disturbed.
.0									
		12	5	6	5	7			Dark yellowish brown (10 YR 4/2), CLAY, some si little gray mudstone rock fragments, moist (dis
.0									
		13	4	3	6	8			Medium dark gray (N4) to brownish gray (5 YR 4/. siltstone rock fragments, some clay, little sil: (disturbed).
.0									
		14	5	5	11	11			Medium gray (N5) CLAY, some silt and rock fragm damp, (disturbed) coal fragments.
.0									
		15	16	17	49				Gray siltstone rock fragments little clay and si (disturbed).
.5									
									Bedrock at 35 feet, augered to 39.0 feet, predor light gray siltstone.
.0									
									Go to core sheets

N = Number blows to drive 2 " spoon 6 " with 140 lb. pin weight falling 30 " per blow.

Classification manual-visual U

C = Number blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow.

METHOD OF INVESTIGATION _____

6-2 Date June 24, 1980

VISUAL CLASSIFICATION OF ROCK

Project Name _____ Project No. _____
Location _____ Coordinates _____
Geologist/Engineer _____ Drilling Contractor _____
Drill _____ Driller _____
Drilling Method _____ Core Size _____ Elevation _____
Plunge from Horiz. _____ Bearing Azimuth _____

Casing Information		Groundwater Level Data			
Size	Depth	Actual Time	Depth	Actual Time	Depth

Run Number	Depth (feet)	Recovery	% Recovery	RQD	Profile	Description
#1		30"	50%	0%		Dark gray (N3) siltstone, slightly micaceous, plant fossils.
	27.5					
#2		54"	90%	0%		Grayish black coal, pyritic with carbonaceous shale. (Bedford Coal)
						Light olive gray (5 Y 6/1) underclay, very hard, fractured, rooted
	32.5					End of Boring

8-3 Sheet 1 of
Date Started July
Date Finished July

SUBSURFACE LOG

Project Name NUS - Deerfield
Project Number 396-01
Location Deerfield, Ohio
Datum
Geologist/Engineer R. T. Petrus
Drilling Contractor Lake Drilling Comp
Drill ATV Penn Drill
Driller R. Valega
Drilling Method Spoon, Auger, Core
Core Size NX
Surface Elevation 1098
Boring Depth 48 feet
Well Screen Interval 33.5-38.0 feet
Johnson slot 0.010 PVC screen

CASING INFORMATION		GROUNDWATER LEVEL DATA			
Size	Depth	Date	Depth	Date	Depth
4" PVC	33.5 feet	July 7, 1980	12'3"		
		July 10, 1980	11'10"		
		July 17, 1980	12'0"		

depth-ft	samples	sample no.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Blows on Casing C	SOIL OR ROCK CLASSIFICATION
2.0									Augered to 2.0 feet, FILL from septic tank manufacturer.
3.5		1	1	3	4				FILL, dark gray (N3) SILT, some sand and gravel
5.0									Augered to 5.0 feet.
6.5		2	3	3	3				Mottled dark gray (N3) to moderate yellowish br (10 YR 5/4) CLAY, some silt and rock fragments turbed).
8.5									Augered to 8.5 feet.
10.4		3	3	4	6				Mottled dark gray (N3) to moderate yellowish br CLAY, some silt and rock fragments moist (distu

B-2 Sheet 1 of 3
Date Started June 24,
Date Finished June 26,

SUBSURFACE LOG

Project Name NUS - Deerfield
Project Number 396-01
Location Deerfield, Ohio
Datum
Geologist/Engineer R. T. Petrus
Drilling Contractor Lake Drilling
Drill ATV Penn Drill
Driller R. Valera
Drilling Method Spoon, Auger, Core
Core Size NX
Surface Elevation 1100.2
Boring Depth 32.5 feet
Well Screen Interval 26-31 feet
Johnson 0.010 slot PVC screen

CASING INFORMATION		GROUNDWATER LEVEL DATA			
Size	Depth	Date	Depth	Date	Depth
4" PVC	26.0 feet	July 3, 1980	14'11"		
		July 7, 1980	9'0"		
		July 17, 1980	9'0"		

Depth ft	samples	sample no	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Blows on Casing C	SOIL OR ROCK CLASSIFICATION
		1	4	3	3	4			Fill, olive gray (5 Y 4/1) clay and rock fragment some gravel, dry
0									
		2	5	6	6	12			Black (N1) coal and carbonaceous shale fragments (coal refuse) with dark yellowish orange (10 YR 6 sandstone rock fragments.
4.0									
		3	52	36	16	19			
0									
		4	5	3	5	4			Dark gray (N4) CLAY and SILT, little sand (topsoi
8.0									Moderate brown (5 YR 4/4) silt and clay, damp
		5	2	4	5	8			Medium gray (N4) and moderate yellowish brown (10 YR 5/4) mottled clay and silt, few gravel, thin sand lense (2 cm), dry, slightly calcareous.
0.0									

Sample	Sample No.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Blows on Casing C	SOIL OR ROCK CLASSIFICATION
	6	5	4	7	10			Same as above.
	7	8	9	10	14			Dark yellowish brown (10 YR 4/2) silt, some fine little clay trace gravel, calcareous, dry.
	8	5	8	17	12			
								Dark gray (N3) SILT and GRAVEL, some sand, trace dry, carbonaceous shale fragments.
	9	6	15	40				Dusky yellowish brown (10 YR 4/2) SILT, some clay gravel, little sand, damp
	10	23	60					Brownish black (5 YR 2/1) SILT, little clay and gravel, weathered
	11	31	62					Dark gray (N3) weathered SHALE, carbonaceous, iron-stained, moist
								Augered
	12	32	65					Medium dark gray (N4) clay shale; iron stained.
	13	70						Medium dark gray (N4) clay shale, micaceous.
								Proceed with core boring sheet.

* Number blows to drive 2.0 " spoon 6 " with 140 lb. pin weight falling 30 " per blow.

Classification manual-visual USCS

* Number blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow.

METHOD OF INVESTIGATION _____

WELL / BORING NO.: 23-BS BY: DS

DATE COMPLETED: 7-7-86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: BOWSER MORNER BORING DIAMETER: 3 1/4"

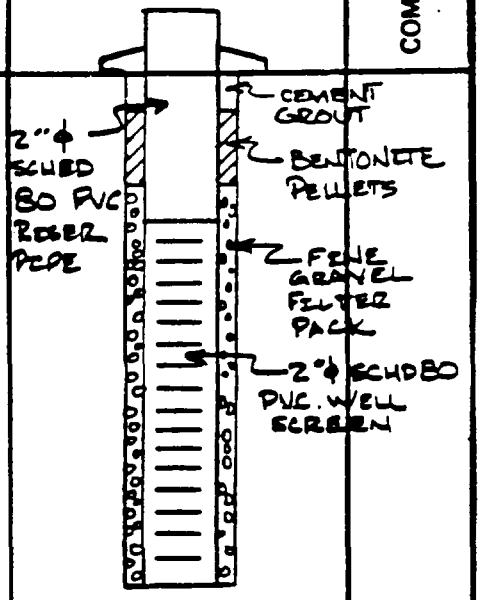
DRILLING METHOD: HOLLOW STEM AUGER DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = 5 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	BROWN AND BLACK SILTY CLAY WITH ROCK FRAGMENTS			3,4,5,5					
				3,3,3,4					
5	TARRY SUBSTANCE IN FIRST SAMPLE			3,4,4,5					
			14	3,5,12,11					
				17,7,7					
10	NOT SAMPLED								
14	BOTTOM OF WELL								



BORING LOGS FROM
PENN ENVIRONMENTAL CONSULTANTS

WELL / BORING NO.: 2B-B6 BY: DS

DATE COMPLETED: 7-3-86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: BOWSER MORNER BORING DIAMETER: 3¼

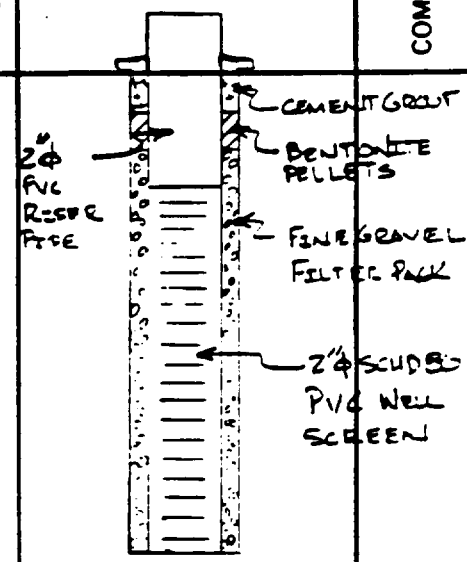
DRILLING METHOD: HOLLOW STEM AUGER DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = 5 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	BROWN TO BLACK SILTY CLAY WITH ROCK FRAGMENTS AND FOREIGN MATERIALS SUCH AS TAR AND OIL.			3,4,6,6					
				5,5,6,7					
				6,6,9,9					
	- FILL -			2,4,6,6					
10	NOT SAMPLED								
13	BOTTOM OF WELL								



WELL / BORING NO.: 2BB7 BY: DS

DATE COMPLETED: 7-8-86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: BOWSER MORNER BORING DIAMETER 3¼"

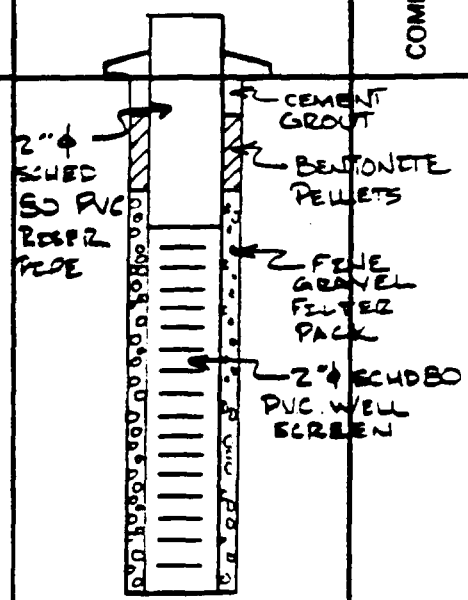
DRILLING METHOD: HOLLOW STEM AUGER DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = 5 FT

SRW

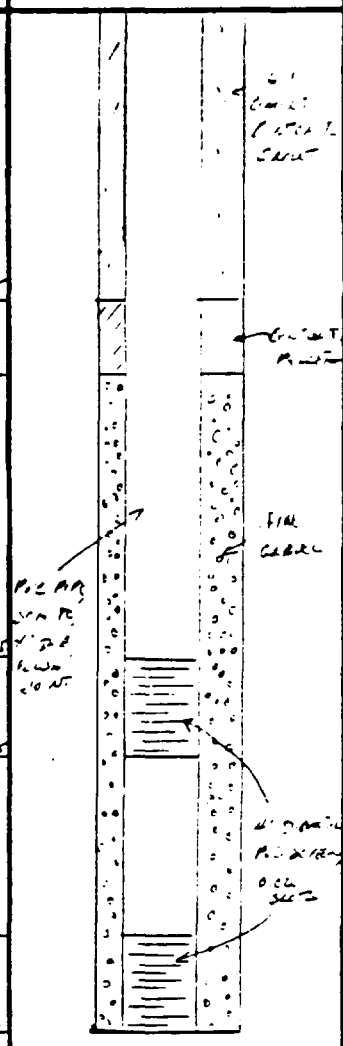
DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	BROWN AND BLACK SILTY CLAY WITH ROCK AND COAL FRAGMENTS, LEADING INTO BLACK SAND WITH ROCK FRAGMENTS			4,4,4,5					
				4,5,6,8					
5				3,4,4,3					
	— FILL —			1,1,1,3					
				3,4,4,3					
10	NOT SAMPLED								
14	BOTTOM OF WELL								



WELL/BORING NO.: [illegible] JOB NO.: [illegible] 1" = [illegible] FT.

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
[illegible]	SANDY SILTSTONE TO SILTY SANDSTONE, LIGHT FOSSILIFEROUS				4				
75.0	SANDY SHALE TO SHALEY SANDSTONE, GRAY, [illegible] CARBONACEOUS BANDS [illegible], CROSS BEDDED				[illegible]				
	SILTY SHALE, [illegible] GRAY, MICACEOUS								
	[illegible]	24	24	0%	5				[illegible]
85.5	SILTSTONE & MUDSTONE, GRAY, FOSSILIFEROUS						85.5		
	BECOMING SHALEY & LESS FOSSILIFEROUS								
95.0	[illegible] FINE SANDSTONE, LIGHT-GRAY, DARK GRAY SHALE LAMINAE	61	61	10%	6		96.0		
95.0									
105.0	SHALE TO SILTY SHALE, MEDIUM GRAY, MICACEOUS	79	79	12%	7		105.5		
	- SLIGHTLY CARB. [illegible] BEDDED								
115.0	SANDY SILTSTONE, LIGHT-GRAY, MICACEOUS	23	23	0%	8		115.5		
[illegible]	SILTSTONE LAMINAE DARK-GREEN GRAY								
[illegible]	INTERBEDDED SANDY SILTSTONE, SILTSTONE, MUDSTONE, MICACEOUS, VARYING FROM LAMINATE TO MASSIVE	4.2	8%	12%	9		[illegible]		
[illegible]	SILTY SANDSTONE TO SANDY SILTSTONE, LIGHT-GRAY TO GREEN GRAY, MICACEOUS, HARD, CARB. [illegible] STRUCTURE	5.0	100%	27%	10		[illegible]		[illegible]



WELL / BORING NO.: 28-35 BY: DS

DATE COMPLETED: 7-3-86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: BOWSER MORNER BORING DIAMETER: 3¼

DRILLING METHOD: HOLLOW STEM AUGER DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = 5 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	BROWN TO BLACK SILTY CLAY WITH ROCK FRAGMENTS AND FOREIGN MATERIALS SUCH AS TAR AND OIL. - FILL -			2,3,3,5 / 5,5,5,5 / 5,6,8,8 / 7,8,10,10				2" Φ PVC RISER PIPE; CEMENT GROUT; BENTONITE PELLETS; FINE GRAVEL FILTER PACK; 2" Φ SCHD 80 PVC WELL SCREEN	
10	(NOT SAMPLED)								
13	BOTTOM OF WELL								

WELL / BORING NO.: MW-25 BY: TFF

DATE COMPLETED: 7/7/86 JOB NO.: 86304

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD, OHIO

DRILLING COMPANY: DUNCAN BROS BORING DIAMETER 8"

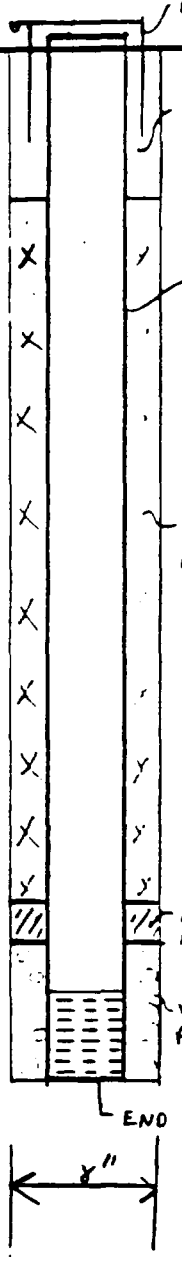
DRILLING METHOD: AIR ROTARY DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	SEE LOG OF MW-26 FOR DESCRIPTION OF SOILS AND BEDROCK						8'		
10									
20									
30									
40									
							44'	10"	
							47'	6"	
50									
							55		
60									



WELL / BORING NO.: [illegible] BY: [illegible]

DATE COMPLETED: [illegible] JOB NO.: [illegible]

JOB NAME: [illegible]

LOCATION: [illegible]

DRILLING COMPANY: [illegible] BORING DIAMETER ____

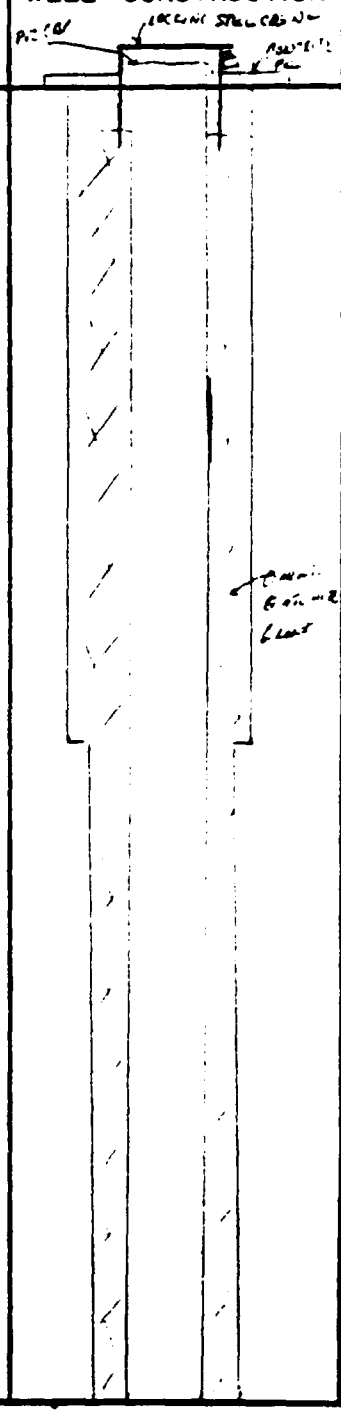
DRILLING METHOD: [illegible] DEVELOPMENT: ____

ELEVATION: GROUND SURFACE: ____ OUTER CASING: ____

INNER CASING: ____ SCALE: 1" = 11 FT

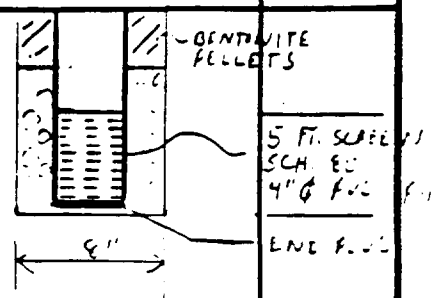
SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
2.0	Mine spoil & fill	0.4		[illegible]	1				[illegible]
4.0		1.6		[illegible]	2				[illegible]
6.0		1.6		[illegible]	3				[illegible]
8.0		1.4		[illegible]	4				[illegible]
10.0									
12.5				[illegible]	5				
15.0									
17.5				[illegible]	6				
20.0									
21.5				[illegible]	7				
25.0									
26.5				[illegible]	8				
30.0									
31.0	Claystone, brown-gray, contorted bedding (unvercary)	0.85	85	[illegible]	9				[illegible]
35.0		[illegible]	[illegible]	[illegible]	10				[illegible]
37.5	Siltstone, very dark-gray								
40.0	Siltstone, dark-gray, contorted bedding; Mudstone, medium gray, hard concretion [illegible]	8.9	89	27%	1				
41.0	Claystone, medium-gray, slickensides, [illegible] medium-gray mudstone								
50.0	Siltstone, very dark-gray, becoming black & carbonaceous @ base; Limestone, medium-gray, fossiliferous	8.5	85	25%	2				
55.0									
61.7	Siltstone, very dark-gray trace pyrite; Siltstone, medium-gray, laminar, slightly sandy	7.4	74	9%	3				
65.0	Coal & carbonaceous shale								
67.9	Siltstone, gray & brown-gray, fossiliferous, contorted bedding @ top	7.8	78	8%	4				
70.0									



SRW ASSOCIATES, INC. PITTSBURGH, PA PAGE 1 OF 2

WELL/BORING NO.: MW-23 JOB NO.: E6301 1" = 10 FT. **SRW**

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	SEE LOG OF MW-23 FOR DESCRIPTION OF						70'2"	 B.O.H = 81'	
							73'		
							75.5'		
							81'		

WELL / BORING NO.: MW-24 BY: TFF

DATE COMPLETED: 7/10/86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: DUNCAN BROS. BORING DIAMETER 8"

DRILLING METHOD: AIR ROTARY DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = 10 FT

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	SEE LOG OF MW-26 FOR DESCRIPTION OF SOIL & BEDROCK MATERIALS						1'	VENT CAP	
10							8'		
20									4" ϕ SCH. 80 PVC PIPE RISER
								BENTONITE CEMENT GROUT	
30									
40									
50									
							57'		
60							59'7"		
									5 FT. SCREEN SCH 80 4" ϕ PVC
							68'	END PLUG	
70								B.O.H. 61'	

SRW ASSOCIATES, INC. PITTSBURGH, PA

WELL / BORING NO.: MW-23 JOB NO.: 84110 1" = 10 FT.

SRW

DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
[illegible]									
[illegible]	SHALE, BLACK, SLIGHTLY CARBONACEOUS								
75.6	SILTSTONE, MEDIUM-GRAY	6.0	60%		4				
80.0	SILTSTONE, MEDIUM-GRAY, SOFTER THAN ABOVE, VERY BROKEN, UNDULATING PARTINGS						76		
[illegible]	CARBONACEOUS SHALE								
[illegible]	CLAYSTONE, DARK-GRAY, FOSSILIFEROUS MAL TOP, SLICKENSIDES AT BASE	3.0	60%	6%	5			BENTONITE AND GRAVEL	
[illegible]	SILTSTONE AND CLAYSTONE, GRAY-BROWN, FOSSILIFEROUS						82		OVERREAM

WELL / BORING NO.: MW-23 BY: TFF

DATE COMPLETED: 7/2/86 JOB NO.: 86301

JOB NAME: SUMMIT NATIONAL

LOCATION: DEERFIELD OHIO

DRILLING COMPANY: DUNCAN BORING DIAMETER 8"

DRILLING METHOD: AIR ROTARY DEVELOPMENT:

ELEVATION: GROUND SURFACE: OUTER CASING:

INNER CASING: SCALE: 1" = 10' FT

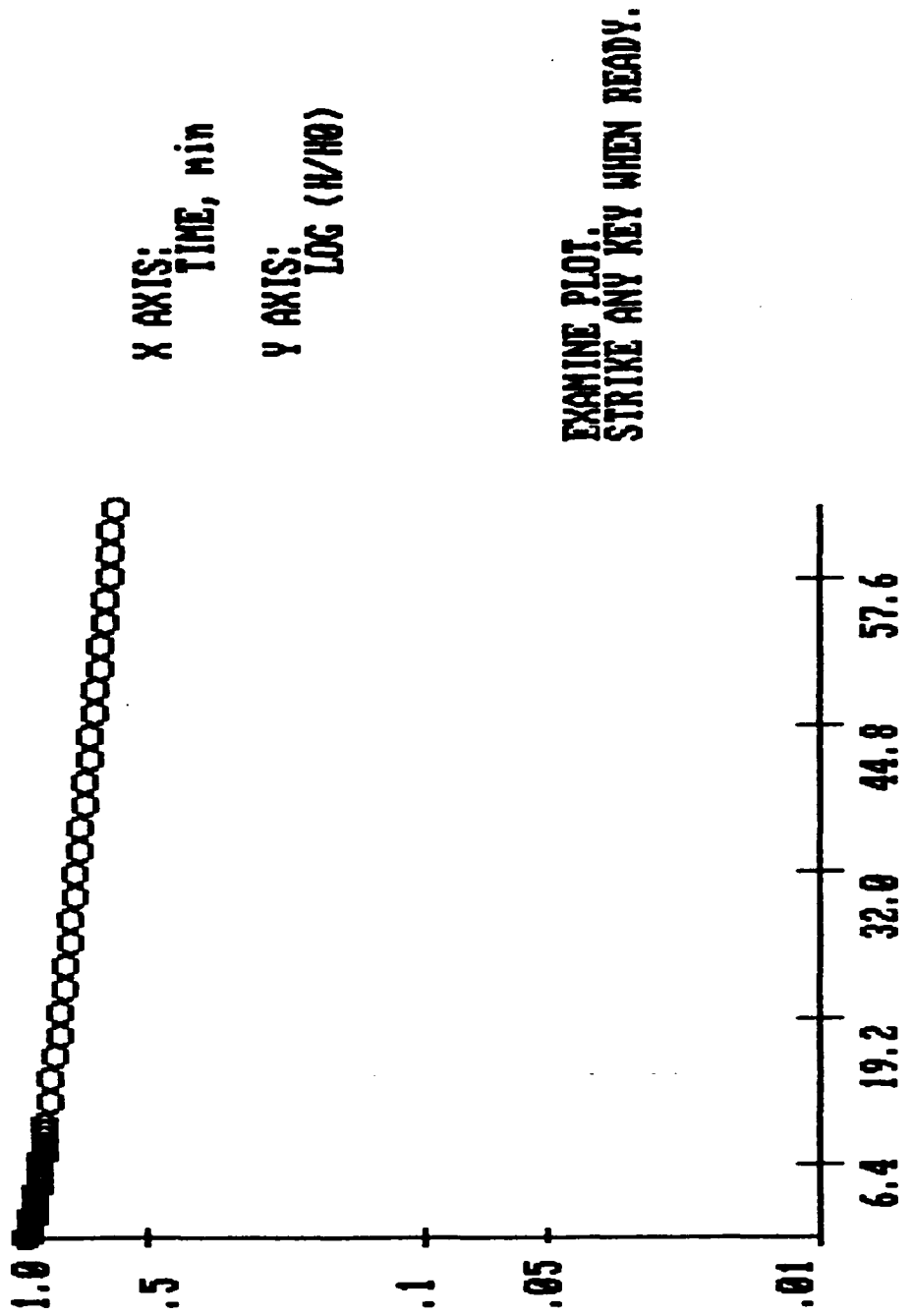
DEPTH	LITHOLOGY	RECOVERY	% RECOVERY	BLOWS/RQD	RUN	PROFILE	DEPTH	WELL CONSTRUCTION	COMMENTS
	SEE LOG OF MW-23 FOR DESCRIPTION OF SOIL AND BEDROCK MATERIALS						2'	VENT CAP; NEAT CEMENT; PROTECTIVE CASING; BENTONITE - CEMENT GROUT; 4" ϕ SCH 80 PVC PIPE RISER	
10									
20									
30									
40									
50									
60									
70									

720	3.09	3.09	.8655463
840	3.04	3.04	.8515406
960	2.99	2.99	.8375351
1080	2.92	2.92	.8179273
1200	2.86	2.86	.8011204
1320	2.82	2.82	.789916
1440	2.77	2.77	.7759104
1560	2.73	2.73	.764706
1680	2.68	2.68	.7507003
1800	2.64	2.64	.7394959
1920	2.6	2.60	.7282913
2040	2.55	2.55	.7142858
2160	2.52	2.52	.7058824
2280	2.49	2.49	.697479
2400	2.44	2.44	.6834735
2520	2.4	2.40	.672269
2640	2.37	2.37	.6638656
2760	2.34	2.34	.6554622
2880	2.3	2.30	.6442578
3000	2.28	2.28	.6386555
3120	2.24	2.24	.627451
3240	2.21	2.21	.6190476
3360	2.18	2.18	.6106443
3480	2.15	2.15	.602241
3600	2.12	2.12	.5938376
3720	2.1	2.10	.5882353
3840	2.07	2.07	.5798319

CONFINED AQUIFER, FULLY PENETRATING CONDITION

K = 0.1E-04 cm/sec
= 0.2 gpd/ft2
= 0.4E-06 ft/sec
= 0.0 ft/day

REGRESSION COEFFICIENT = -.9978846


X AXIS: TIME, min
Y AXIS: LOG (H/H0)
EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.
1.0
.5
.1
.05
.01
6.4
19.2
32.0
44.8
57.6

SUMMIT NATIONAL SITE -- MW-9

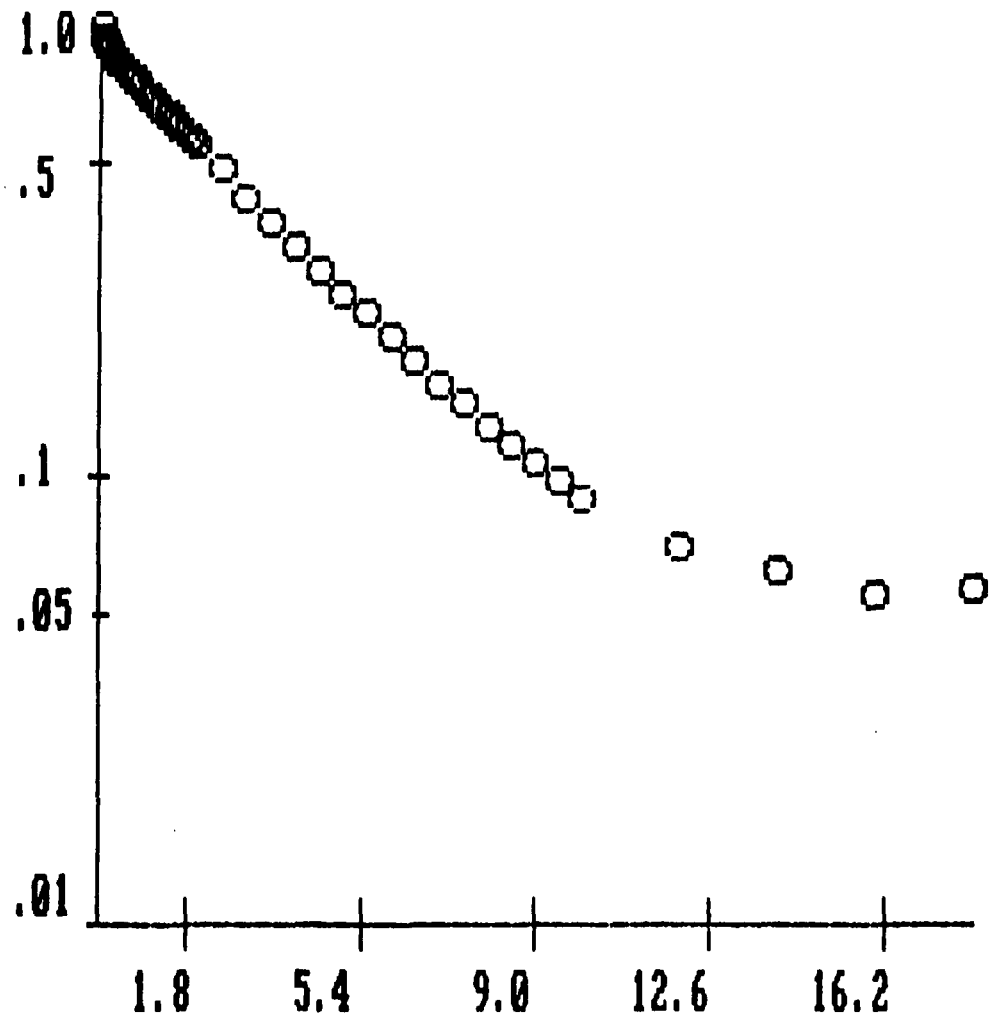
TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
3	4.25	4.25	1
3.996	3.99	3.99	.9388234
4.998	3.94	3.94	.9270588
6	3.94	3.94	.9270588
6.996	3.9	3.90	.917647
7.998	3.86	3.86	.9082352
9	3.83	3.83	.9011764
9.996	3.81	3.81	.8964706
10.998	3.77	3.77	.8870588
12	3.75	3.75	.8823529
12.996	3.73	3.73	.8776471
13.998	3.7	3.70	.8705882
15	3.68	3.68	.8658824
15.996	3.66	3.66	.8611765
16.998	3.64	3.64	.8564706
18	3.61	3.61	.8494118
18.996	3.6	3.60	.8470588
19.998	3.58	3.58	.8423529
25.002	3.49	3.49	.8211765
30	3.4	3.40	.8
34.998	3.33	3.33	.7835294
40.002	3.26	3.26	.7670588
45	3.18	3.18	.7482353
49.998	3.11	3.11	.7317647
55.002	3.03	3.03	.7129412
60	2.97	2.97	.6988236
64.998	2.9	2.90	.682353
70.002	2.84	2.84	.6682353
75	2.78	2.78	.6541176
79.998	2.72	2.72	.64
84.996	2.66	2.66	.6258823
90	2.6	2.60	.6117647
94.998	2.54	2.54	.597647
100.002	2.49	2.49	.5858824
105	2.44	2.44	.5741177
109.998	2.39	2.39	.562353
115.002	2.34	2.34	.5505882
120	2.29	2.29	.5388235
150	2.01	2.01	.4729412
180	1.76	1.76	.4141176
210	1.55	1.55	.3647059
240	1.37	1.37	.322353
270	1.22	1.22	.2870588
300	1.08	1.08	.2541177
330	.96	0.96	.2258823
360	.85	0.85	.2
390	.76	0.76	.1788235
420	.67	0.67	.1576471

450	.61	0.61	.1435294
480	.54	0.54	.1270588
510	.49	0.49	.1152941
540	.45	0.45	.1058824
570	.41	0.41	9.647059E-02
600	.38	0.38	8.941176E-02

UNCONFINED AQUIFER

K = 0.2E-03 cm/sec
= 4.8 gpd/ft2
= 0.7E-05 ft/sec
= 0.6 ft/day

REGRESSION COEFFICIENT = -.9984327



X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-9 (con't.)

Summit National Site -- MW-10

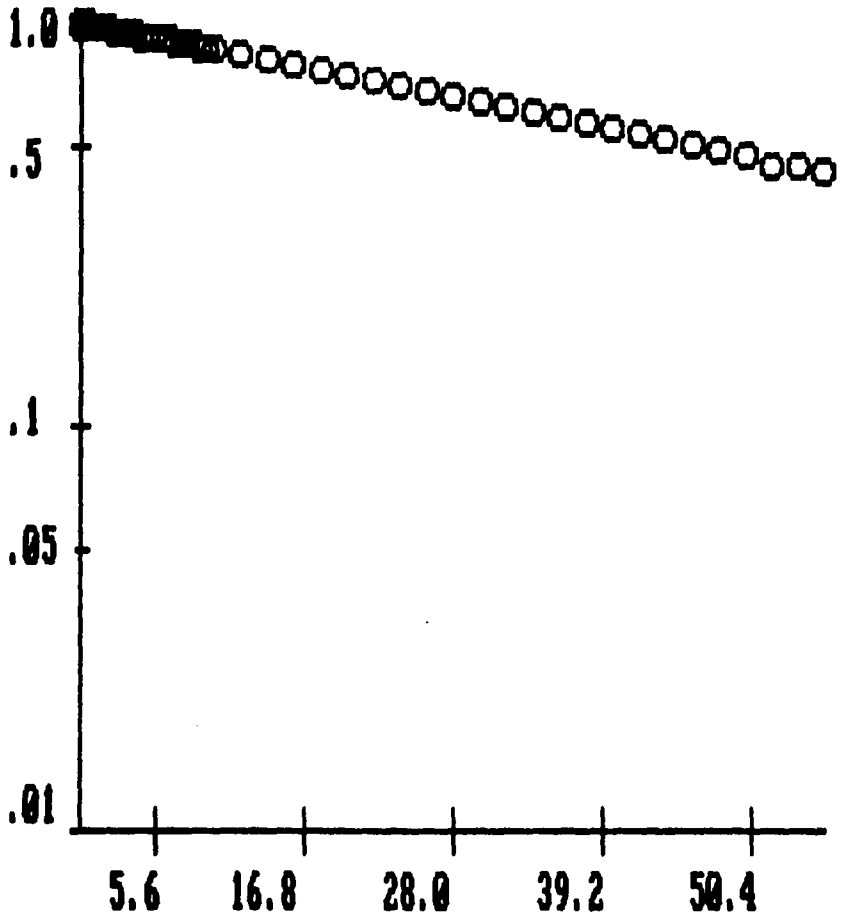
TIME (seconds)	WATER LEVEL (feet)	DRAWDOWN (feet)	H/H0
3	4.58	4.58	1
3.996	4.5	4.50	.9825328
4.998	4.45	4.45	.9716158
6	4.58	4.58	1
6.996	4.5	4.50	.9825328
7.998	4.52	4.52	.9868996
9	4.51	4.51	.9847163
9.996	4.52	4.52	.9868996
10.998	4.52	4.52	.9868996
12	4.52	4.52	.9868996
12.996	4.52	4.52	.9868996
13.998	4.52	4.52	.9868996
15	4.52	4.52	.9868996
15.996	4.52	4.52	.9868996
16.998	4.52	4.52	.9868996
18	4.52	4.52	.9868996
18.996	4.52	4.52	.9868996
19.998	4.52	4.52	.9868996
25.002	4.52	4.52	.9868996
30	4.52	4.52	.9868996
34.998	4.51	4.51	.9847163
40.002	4.5	4.50	.9825328
45	4.5	4.50	.9825328
49.998	4.49	4.49	.9803494
55.002	4.48	4.48	.978166
60	4.48	4.48	.978166
64.998	4.47	4.47	.9759826
70.002	4.46	4.46	.9737992
75	4.45	4.45	.9716158
79.998	4.45	4.45	.9716158
84.996	4.44	4.44	.9694324
90	4.44	4.44	.9694324
94.998	4.43	4.43	.9672489
100.002	4.43	4.43	.9672489
105	4.42	4.42	.9650656
109.998	4.41	4.41	.9628821
115.002	4.4	4.40	.9606988
120	4.4	4.40	.9606988
150	4.36	4.36	.9519651
180	4.34	4.34	.9475984
210	4.31	4.31	.9410481
240	4.28	4.28	.9344979
270	4.24	4.24	.9257642
300	4.21	4.21	.919214
330	4.19	4.19	.9148472
360	4.17	4.17	.9104804
390	4.14	4.14	.9039301
420	4.1	4.10	.8951966
450	4.08	4.08	.8908297
480	4.04	4.04	.8820961
510	4.01	4.01	.8755459

540	3.98	3.98	.8689957
570	3.95	3.95	.8624455
600	3.93	3.93	.8580787
720	3.81	3.81	.8318778
840	3.69	3.69	.8056769
960	3.58	3.58	.7816595
1080	3.47	3.47	.757642
1200	3.36	3.36	.7336245
1320	3.28	3.28	.7161573
1440	3.18	3.18	.6943232
1560	3.1	3.10	.676856
1680	2.99	2.99	.6528385
1800	2.91	2.91	.6353712
1920	2.8	2.80	.6113538
2040	2.7	2.70	.5895197
2160	2.64	2.64	.5764193
2280	2.54	2.54	.5545852
2400	2.47	2.47	.5393013
2520	2.4	2.40	.5240175
2640	2.32	2.32	.5065503
2760	2.24	2.24	.489083
2880	2.16	2.16	.4716158
3000	2.1	2.10	.4585153
3120	2.03	2.03	.4432315
3240	1.97	1.97	.430131
3360	1.91	1.91	.4170306

CONFINED AQUIFER, FULLY PENETRATING CONDITION

K = 0.2E-04 cm/sec
= 0.5 gpd/ft2
= 0.8E-06 ft/sec
= 0.1 ft/day

REGRESSION COEFFICIENT = -.9997384



X AXIS:
TIME, min

Y AXIS:
LOG (H/H0)

EXAMINE PLOT.
STRIKE ANY KEY WHEN READY.

MW-10 (con't.)