-4948

REMEDIAL INVESTIGATION REPORT FOR OPERABLE UNIT 4

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

REMEDIAL INVESTIGATION and FEASIBILITY STUDY

VOLUME 2 OF 3

November 1993

U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE

FINAL

49 4 8

REMEDIAL INVESTIGATION REPORT FOR OPERABLE UNIT 4

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

REMEDIAL INVESTIGATION and FEASIBILITY STUDY

VOLUME 2 OF 3

November 1993

U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE

FINAL

OU4 RI/FS APPENDICES LISTING

APPENDIX A	SILO CONTENTS
APPENDIX B	SOILS
APPENDIX C	GROUNDWATER

OU4 RI/FS APPENDICES LISTING

APPENDIX A SILO CONTENTS

A.1	1991/92 SILO 1	RADIOLOGICAL CHEMICAL HSL TCLP GEOTECHNICAL BORING LOGS
A.2	1991/92 SILO 2	RADIOLOGICAL CHEMICAL HSL TCLP GEOTECHNICAL BORING LOGS
A.3	SILO 1 AND 2 TCLP RADIOLOGICAL DATA	
A.4	1989 SILO 1	RADIOLOGICAL HSL EP TOXICITY GEOTECHNICAL
A.5	1989 SILO 2	RADIOLOGICAL HSL EP TOXICITY GEOTECHNICAL
A.6	1989 SILO 3	RADIOLOGICAL HSL EP TOXICITY GEOTECHNICAL BORING LOGS
A.7	1990 DECANT TANK	RADIOLOGICAL CHEMICAL HSL
A.8	QA/QC RESULTS	1991/92 SILO 1, 2 DECANT TANK

APPENDIX A OU4 RI/FS SAMPLE NUMBER LIST

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
99737	SILO 1	2S1-NE-A	ZONE A	08/23/91	HSL VOLATILE ORGANICS
99738	SILO 1	2S1-NE-A	ZONE A	08/23/91	HSL METALS
99739	SILO 1	2S1-NE-A	ZONE A	08/23/91	HSL MERCURY
99740	SILO 1	2S1-NE-A	ZONE A	08/23/91	CYANIDE
99741	SILO 1	2S1-NE-A	ZONE A	08/23/91	TCLP VOLATILE ORGANICS
99742	SILO 1	2S1-NE-A	ZONE A	08/23/91	TCLP METALS
99743	SILO 1	2S1-NE-A	ZONE A	08/23/91	RADIOLOGICAL
99745	SILO 1	2S1-NE-A	ZONE A	08/23/91	CHEMICAL
99746	SILO 1	2S1-NE-A	ZONE A	08/23/91	CHEMICAL
99747	SILO 1	2S1-NE-A	ZONE A	08/23/91	CHEMICAL
99748	SILO 1	2S1-NE-A	ZONE A	08/23/91	HSL SEMIVOLATILES & PEST./PCB
99749	SILO 1	2S1-NE-A	ZONE A	08/23/91	TCLP SEMIVOLATILES & PEST./PCB
99750	SILO 1	2S1-NE-A	ZONE A	08/23/91	CHEMICAL
99751	SILO 1	2S1-NE-A	ZONE A	08/23/91	TRIP BLANK
99989	SILO 1	2S1-NE-B	ZONE B	08/23/91	RINSATE
99990	SILO 1	2S1-NE-B	ZONE B	08/23/91	RINSATE
99991	SILO 1	2S1-NE-B	ZONE B	08/23/91	RINSATE
99992	SILO 1	2S1-NE-B	ZONE B	08/23/91	RINSATE
99993	SILO 1	2S1-NE-B	ZONE B	08/23/91	RINSATE
99994	SILO 1	2S1-NE-B	ZONE B	08/23/91	RINSATE
99995	SILO 1	2S1-NE-B	ZONE B	08/25/91	TRIP BLANK
99996	SILO 1	2S1-NE-B	ZONE B	08/25/91	TRIP BLANK
99997	SILO 1	2S1-NE-B	ZONE B	08/25/91	RINSATE
99999	SILO 1	2S1-NE-B	ZONE B	08/25/91	HSL METALS
100000	SILO 1	2S1-NE-B	ZONE B	08/25/91	HSL MERCURY
100001	SILO 1	2S1-NE-B	ZONE B	08/25/91	CYANIDE
100003	SILO 1	2S1-NE-B	ZONE B	08/25/91	TCLP METALS
100004	SILO 1	2S1-NE-B	ZONE B	08/25/91	RADIOLOGICAL
100009	SILO 1	2S1-NE-B	ZONE B	08/25/91	HSL SEMIVOLATILES & PEST./PCB
100010	SILO 1	2S1-NE-B	ZONE B	08/25/91	TCLP SEMIVOLATILES & PEST./PCB
100012	SILO 1	2S1-NE-B	ZONE B	08/28/91	TRIP BLANK
100019	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL VOLATILE ORGANICS
100020	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL METALS
100021	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL MERCURY
100022	SILO 1	2S1-NE-C	ZONE C	08/27/91	CYANIDE
100023	SILO 1	2S1-NE-C	ZONE C	08/27/91	TCLP VOLATILE ORGANICS
100024	SILO 1	2S1-NE-C	ZONE C	08/27/91	TCLP METALS
100025	SILO 1	2S1-NE-C	ZONE C	08/27/91	RADIOLOGICAL
100026	SILO 1	2S1-NE-C	ZONE C	08/27/91	CHEMICAL
100027	SILO 1	2S1-NE-C	ZONE C	08/27/91	CHEMICAL
100028	SILO 1	2S1-NE-C	ZONE C	08/27/91	CHEMICAL
100029	SILO 1	2S1-NE-C	ZONE C	08/27/91	CHEMICAL
100030	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL SEMIVOLATILES & PEST./PCB
100031	SILO 1	2S1-NE-C	ZONE C	08/27/91	TCLP SEMIVOLATILES & PEST./PCB
100032	SILO 1	2S1-NE-C	ZONE C	08/27/91	CHEMICAL
100033	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL VOLATILE ORGANICS
100034	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL METALS
100035	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL MERCURY
100036	SILO 1	2S1-NE-C	ZONE C	08/27/91	CYANIDE
100037	SILO 1	2S1-NE-C	ZONE C	08/27/91	TCLP VOLATILE ORGANICS
100038	SILO 1	2S1-NE-C	ZONE C	08/27/91	TCLP METALS
100039	SILO 1	2S1-NE-C	ZONE C	08/27/91	RADIOLOGICAL
100040	SILO 1	2S1-NE-C	ZONE C	08/27/91	HSL SEMIVOLATILES & PEST./PCB
100041	SILO 1	2S1-NE-C	ZONE C	08/27/91	TCLP SEMIVOLATILES & PEST./PCB
99879	SILO 1	2S1-NW-A	ZONE A	08/09/91	HSL VOLATILE ORGANICS
99880	SILO 1	2S1-NW-A	ZONE A	08/09/91	HSL METALS
99881	SILO 1	2S1-NW-A	ZONE A	08/09/91	HSL MERCURY
99882	SILO 1	2S1-NW-A	ZONE A	08/09/91	CYANIDE
99883	SILO 1	2S1-NW-A	ZONE A	08/09/91	TCLP VOLATILE ORGANICS
99884	SILO 1	2S1-NW-A	ZONE A	08/09/91	TCLP METALS

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
99885	SILO 1	2S1-NW-A	ZONE A	08/09/91	RADIOLOGICAL
99886	SILO 1	2S1-NW-A	ZONE A	08/09/91	CHEMICAL
99887	SILO 1	2S1-NW-A	ZONE A	08/09/91	CHEMICAL
99888	SILO 1	2S1-NW-A	ZONE A	08/09/91	CHEMICAL
99889	SILO 1	2S1-NW-A	ZONE A	08/09/91	CHEMICAL
99890	SILO 1	2S1-NW-A	ZONE A	08/09/91	HSL SEMIVOLATILES & PEST./PCB
99891	SILO 1	2S1-NW-A	ZONE A	08/09/91	TCLP SEMIVOLATILES & PEST./PCB
99892	SILO 1	2S1-NW-A	ZONE A	08/09/91	CHEMICAL
99893	SILO 1	2S1-NW-A	ZONE A	08/09/91	TRIP BLANK
99894	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99895	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99896	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99897	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99898	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99899	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99900	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99901	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99902	SILO 1	2S1-NW-B	ZONE B	08/08/91	RINSATE
99903	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL VOLATILE ORGANICS
99904	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL METALS
99905	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL MERCURY
99906	SILO 1	2S1-NW-B	ZONE B	08/11/91	CYANIDE
99907	SILO 1	2S1-NW-B	ZONE B	08/11/91	TCLP VOLATILE ORGANICS
99908	SILO 1	2S1-NW-B	ZONE B	08/11/91	TCLP METALS
99909	SILO 1	2S1-NW-B	ZONE B	08/11/91	RADIOLOGICAL
99910	SILO 1	2S1-NW-B	ZONE B	08/11/91	CHEMICAL
99911	SILO 1	2S1-NW-B	ZONE B	08/11/91	CHEMICAL
99912	SILO 1	2S1-NW-B	ZONE B	08/11/91	CHEMICAL
99913	SILO 1	2S1-NW-B	ZONE B	08/11/91	CHEMICAL
99914	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL SEMIVOLATILES & PEST./PCB
99915	SILO 1	2S1-NW-B	ZONE B	08/11/91	TCLP SEMIVOLATILES & PEST./PCB
99916	SILO 1	2S1-NW-B	ZONE B	08/11/91	CHEMICAL
99917	SILO 1	2S1-NW-B	ZONE B	08/12/91	TRIP BLANK
99924	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL VOLATILE ORGANICS
99925	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL METALS
99926	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL MERCURY
99927	SILO 1	2S1-NW-B	ZONE B	08/11/91	CYANIDE
99928	SILO 1	2S1-NW-B	ZONE B	08/11/91	TCLP VOLATILE ORGANICS
99929	SILO 1	2S1-NW-B	ZONE B	08/11/91	TCLP METALS
99930	SILO 1	2S1-NW-B	ZONE B	08/11/91	RADIOLOGICAL
99931	SILO 1	2S1-NW-B	ZONE B	08/11/91	HSL SEMIVOLATILES & PEST./PCB
99932	SILO 1	2S1-NW-B	ZONE B	08/11/91	TCLP SEMIVOLATILES & PEST./PCB
99933	SILO 1	2S1-NW-C	ZONE C	08/14/91	HSL VOLATILE ORGANICS
99934	SILO 1	2S1-NW-C	ZONE C	08/14/91	HSL METALS
99935	SILO 1	2S1-NW-C	ZONE C	08/14/91	HSL MERCURY
99936	SILO 1	2S1-NW-C	ZONE C	08/14/91	CYANIDE
99937	SILO 1	2S1-NW-C	ZONE C	08/14/91	TCLP VOLATILE ORGANICS
99938	SILO 1	2S1-NW-C	ZONE C	08/14/91	TCLP METALS
99939	SILO 1	2S1-NW-C	ZONE C	08/14/91	RADIOLOGICAL
99940	SILO 1	2S1-NW-C	ZONE C	08/14/91	CHEMICAL
99941	SILO 1	2S1-NW-C	ZONE C	08/14/91	CHEMICAL
99942	SILO 1	2S1-NW-C	ZONE C	08/14/91	CHEMICAL
99943	SILO 1	2S1-NW-C	ZONE C	08/14/91	CHEMICAL
99944	SILO 1	2S1-NW-C	ZONE C	08/14/91	HSL SEMIVOLATILES & PEST./PCB
99945	SILO 1	2S1-NW-C	ZONE C	08/14/91	TCLP SEMIVOLATILES & PEST./PCB
99946	SILO 1	2S1-NW-C	ZONE C	08/14/91	CHEMICAL
99947	SILO 1	2S1-NW-C	ZONE C	08/15/91	TRIP BLANK
99948	SILO 1	2S1-NW-C	ZONE C	08/14/91	RADIOLOGICAL
99864	SILO 1	2S1-SE-A	ZONE A	08/16/91	HSL VOLATILE ORGANICS
99865	SILO 1	2S1-SE-A	ZONE A	08/16/91	HSL METALS

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
99866	SILO 1	2S1-SE-A	ZONE A	08/16/91	HSL MERCURY
99867	SILO 1	2S1-SE-A	ZONE A	08/16/91	CYANIDE
99868	SILO 1	2S1-SE-A	ZONE A	08/16/91	TCLP VOLATILE ORGANICS
99869	SILO 1	2S1-SE-A	ZONE A	08/16/91	TCLP METALS
99870	SILO 1	2S1-SE-A	ZONE A	08/16/91	RADIOLOGICAL
99871	SILO 1	2S1-SE-A	ZONE A	08/16/91	CHEMICAL
99872	SILO 1	2S1-SE-A	ZONE A	08/16/91	CHEMICAL
99873	SILO 1	2S1-SE-A	ZONE A	08/16/91	CHEMICAL
99874	SILO 1	2S1-SE-A	ZONE A	08/16/91	CHEMICAL
99875	SILO 1	2S1-SE-A	ZONE A	08/16/91	HSL SEMIVOLATILES & PEST./PCB
99876	SILO 1	2S1-SE-A	ZONE A	08/16/91	TCLP SEMIVOLATILES & PEST./PCB
99877	SILO 1	2S1-SE-A	ZONE A	08/16/91	CHEMICAL
99878	SILO 1	2S1-SE-A	ZONE A	08/17/91	TRIP BLANK
99949	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99950	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99951	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99952	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99954	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99955	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99956	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99957	SILO 1	2S1-SE-B	ZONE B	08/16/91	RINSATE
99958	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL VOLATILE ORGANICS
99959	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL SEMIVOLATILES & PEST./PCB
99960	SILO 1	2S1-SE-B	ZONE B	08/18/91	TCLP VOLATILE ORGANICS
99962	SILO 1	2S1-SE-B	ZONE B	08/18/91	TCLP SEMIVOLATILES
99963	SILO 1	2S1-SE-B	ZONE B	08/18/91	CYANIDE
99964	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL MERCURY
99965	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL METALS
99966	SILO 1	2S1-SE-B	ZONE B	08/18/91	RADIOLOGICAL
99967	SILO 1	2S1-SE-B	ZONE B	08/18/91	TCLP METALS
99975	SILO 1	2S1-SE-B	ZONE B	08/18/91	RADIOLOGICAL
99976	SILO 1	2S1-SE-B	ZONE B	08/18/91	TCLP VOLATILE ORGANICS
99977	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL VOLATILE ORGANICS
99979	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL SEMIVOLATILES & PEST./PCB
99980	SILO 1	2S1-SE-B	ZONE B	08/18/91	CHEMICAL
99981	SILO 1	2S1-SE-B	ZONE B	08/18/91	CHEMICAL
99982	SILO 1	2S1-SE-B	ZONE B	08/18/91	CHEMICAL
99983	SILO 1	2S1-SE-B	ZONE B	08/18/91	CHEMICAL
99984	SILO 1	2S1-SE-B	ZONE B	08/18/91	CYANIDE
99985	SILO 1	2S1-SE-B	ZONE B	08/18/91	TCLP METALS
99986	SILO 1	2S1-SE-B	ZONE B	08/18/91	HSL METALS
99987	SILO 1	2S1-SE-B	ZONE B	08/18/91	CHEMICAL
99988	SILO 1	2S1-SE-B	ZONE B	08/19/91	TRIP BLANK
99722	SILO 1	2S1-SE-C	ZONE C	08/21/91	HSL VOLATILE ORGANICS
99723	SILO 1	2S1-SE-C	ZONE C	08/21/91	HSL METALS
99724	SILO 1	2S1-SE-C	ZONE C	08/21/91	HSL MERCURY
99725	SILO 1	2S1-SE-C	ZONE C	08/21/91	CYANIDE
99726	SILO 1	2S1-SE-C	ZONE C	08/21/91	TCLP VOLATILE ORGANICS
99727	SILO 1	2S1-SE-C	ZONE C	08/21/91	TCLP METALS
99728	SILO 1	2S1-SE-C	ZONE C	08/21/91	RADIOLOGICAL
99729	SILO 1	2S1-SE-C	ZONE C	08/21/91	CHEMICAL
99730	SILO 1	2S1-SE-C	ZONE C	08/21/91	CHEMICAL
99731	SILO 1	2S1-SE-C	ZONE C	08/21/91	CHEMICAL
99732	SILO 1	2S1-SE-C	ZONE C	08/21/91	CHEMICAL
99733	SILO 1	2S1-SE-C	ZONE C	08/21/91	HSL SEMIVOLATILES & PEST./PCB
99734	SILO 1	2S1-SE-C	ZONE C	08/21/91	TCLP SEMIVOLATILES & PEST./PCB
99735	SILO 1	2S1-SE-C	ZONE C	08/21/91	CHEMICAL
99736	SILO 1	2S1-SE-C	ZONE C	08/22/91	TRIP BLANK
100053	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100054	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
100055	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100090	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100095	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100096	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100097	SILO 1	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100050	SILO 1	SILO 1	ZONE A	11/12/92	TCLP RADIOLOGICAL
100051	SILO 1	SILO 1	ZONE B	11/12/92	TCLP RADIOLOGICAL
100052	SILO 1	SILO 1	ZONE C	11/12/92	TCLP RADIOLOGICAL
99759	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99759	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99760	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99761	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99762	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99763	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99764	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99765	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99766	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99767	SILO 2	2S2-NE-A	ZONE A	07/30/91	RINSATE
99805	SILO 2	2S2-NE-A	ZONE A	08/01/91	HSL VOLATILE ORGANICS
99806	SILO 2	2S2-NE-A	ZONE A	08/01/91	HSL METALS
99807	SILO 2	2S2-NE-A	ZONE A	08/01/91	HSL MERCURY
99808	SILO 2	2S2-NE-A	ZONE A	08/01/91	CYANIDE
99809	SILO 2	2S2-NE-A	ZONE A	08/01/91	TCLP VOLATILE ORGANICS
99810	SILO 2	2S2-NE-A	ZONE A	08/01/91	TCLP METALS
99811	SILO 2	2S2-NE-A	ZONE A	08/01/91	RADIOLOGICAL
99812	SILO 2	2S2-NE-A	ZONE A	08/01/91	CHEMICAL
99813	SILO 2	2S2-NE-A	ZONE A	08/01/91	CHEMICAL
99814	SILO 2	2S2-NE-A	ZONE A	08/01/91	CHEMICAL
99815	SILO 2	2S2-NE-A	ZONE A	08/01/91	CHEMICAL
99816	SILO 2	2S2-NE-A	ZONE A	08/01/91	HSL SEMIVOLATILES & PEST./PCB
99817	SILO 2	2S2-NE-A	ZONE A	08/01/91	TCLP SEMIVOLATILES & PEST./PCB
99818	SILO 2	2S2-NE-A	ZONE A	08/01/91	CHEMICAL
99825	SILO 2	2S2-NE-B	ZONE B	08/03/91	HSL VOLATILE ORGANICS
99826	SILO 2	2S2-NE-B	ZONE B	08/03/91	HSL METALS
99827	SILO 2	2S2-NE-B	ZONE B	08/03/91	HSL MERCURY
99828	SILO 2	2S2-NE-B	ZONE B	08/03/91	CYANIDE
99829	SILO 2	2S2-NE-B	ZONE B	08/03/91	TCLP VOLATILE ORGANICS
99830	SILO 2	2S2-NE-B	ZONE B	08/03/91	TCLP METALS
99831	SILO 2	2S2-NE-B	ZONE B	08/03/91	RADIOLOGICAL
99832	SILO 2	2S2-NE-B	ZONE B	08/03/91	CHEMICAL
99833	SILO 2	2S2-NE-B	ZONE B	08/03/91	CHEMICAL
99834	SILO 2	2S2-NE-B	ZONE B	08/03/91	CHEMICAL
99835	SILO 2	2S2-NE-B	ZONE B	08/03/91	HSL SEMIVOLATILES & PEST./PCB
99836	SILO 2	2S2-NE-B	ZONE B	08/03/91	TCLP SEMIVOLATILES & PEST./PCB
99837	SILO 2	2S2-NE-B	ZONE B	08/03/91	CHEMICAL
99839	SILO 2	2S2-NE-B	ZONE B	08/03/91	CHEMICAL
99840	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL VOLATILE ORGANICS
99841	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL METALS
99842	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL MERCURY
99843	SILO 2	2S2-NE-C	ZONE C	08/06/91	CYANIDE
99844	SILO 2	2S2-NE-C	ZONE C	08/06/91	TCLP VOLATILE ORGANICS
99845	SILO 2	2S2-NE-C	ZONE C	08/06/91	TCLP METALS
99846	SILO 2	2S2-NE-C	ZONE C	08/06/91	RADIOLOGICAL
99847	SILO 2	2S2-NE-C	ZONE C	08/06/91	CHEMICAL
99848	SILO 2	2S2-NE-C	ZONE C	08/06/91	CHEMICAL
99849	SILO 2	2S2-NE-C	ZONE C	08/06/91	CHEMICAL
99850	SILO 2	2S2-NE-C	ZONE C	08/06/91	CHEMICAL
99851	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL SEMIVOLATILES & PEST./PCB
99852	SILO 2	2S2-NE-C	ZONE C	08/06/91	TCLP SEMIVOLATILES & PEST./PCB

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
99853	SILO 2	2S2-NE-C	ZONE C	08/06/91	CHEMICAL
99854	SILO 2	2S2-NE-C	ZONE C	08/06/91	TRIP BLANK
99855	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL VOLATILE ORGANICS
99856	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL METALS
99857	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL MERCURY
99858	SILO 2	2S2-NE-C	ZONE C	08/06/91	CYANIDE
99859	SILO 2	2S2-NE-C	ZONE C	08/06/91	TCLP VOLATILE ORGANICS
99860	SILO 2	2S2-NE-C	ZONE C	08/06/91	TCLP METALS
99861	SILO 2	2S2-NE-C	ZONE C	08/06/91	RADIOLOGICAL
99862	SILO 2	2S2-NE-C	ZONE C	08/06/91	HSL SEMIVOLATILES & PEST./PCB
99863	SILO 2	2S2-NE-C	ZONE C	08/06/91	TCLP SEMIVOLATILES & PEST./PCB
99768	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL VOLATILE ORGANICS
99769	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL METALS
99770	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL MERCURY
99771	SILO 2	2S2-NW-C	ZONE C	07/30/91	CYANIDE
99772	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP VOLATILE ORGANICS
99773	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP METALS
99774	SILO 2	2S2-NW-C	ZONE C	07/30/91	RADIOLOGICAL
99775	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL
99776	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL
99777	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL
99778	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL
99779	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL SEMIVOLATILES & PEST./PCB
99780	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP SEMIVOLATILES & PEST./PCB
99781	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL
99782	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL - QC DUPLICATE VOA
99783	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL - QC DUPLICATE METALS
99784	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL - QC DUPLICATE MERCURY
99785	SILO 2	2S2-NW-C	ZONE C	07/30/91	CYANIDE - QC DUPLICATE
99786	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP - QC DUPLICATE VOA
99787	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP - QC DUPLICATE METALS
99788	SILO 2	2S2-NW-C	ZONE C	07/30/91	RADIOLOGICAL - QC DUPLICATE
99790	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL - QC DUPLICATE
99791	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL - QC DUPLICATE
99793	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL - QC DUP. SEMIVOL. & PEST/PCB
99794	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP - QC DUP. SEMIVOL. & PEST/PCB
99795	SILO 2	2S2-NW-C	ZONE C	07/30/91	CHEMICAL - QC DUPLICATE
99796	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL VOLATILE ORGANICS
99797	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL METALS
99798	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL MERCURY
99799	SILO 2	2S2-NW-C	ZONE C	07/30/91	CYANIDE
99800	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP VOLATILE ORGANICS
99801	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP METALS
99802	SILO 2	2S2-NW-C	ZONE C	07/30/91	RADIOLOGICAL
99803	SILO 2	2S2-NW-C	ZONE C	07/30/91	HSL SEMIVOLATILES & PEST./PCB
99804	SILO 2	2S2-NW-C	ZONE C	07/30/91	TCLP SEMIVOLATILES & PEST./PCB
99355	SILO 2	2S2-SE-B	ZONE B	12/21/90	TCLP METALS
99359	SILO 2	2S2-SE-B	ZONE B	12/21/90	VOA, SEMIVOL., PEST/PCB, RADIOLOGICAL
99692	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99693	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99694	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99695	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99696	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99697	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99698	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99699	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99700	SILO 2	2S2-SE-C	ZONE C	07/18/91	RINSATE
99701	SILO 2	2S2-SE-C	ZONE C	07/19/91	HSL VOLATILE ORGANICS
99702	SILO 2	2S2-SE-C	ZONE C	07/19/91	HSL SEMIVOLATILES & PEST./PCB
99703	SILO 2	2S2-SE-C	ZONE C	07/19/91	TRIP BLANK

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
99704	SILO 2	2S2-SE-C	ZONE C	07/19/91	HSL METALS
99705	SILO 2	2S2-SE-C	ZONE C	07/19/91	HSL MERCURY
99706	SILO 2	2S2-SE-C	ZONE C	07/19/91	CYANIDE
99707	SILO 2	2S2-SE-C	ZONE C	07/19/91	TCLP VOLATILE ORGANICS
99708	SILO 2	2S2-SE-C	ZONE C	07/19/91	TCLP SEMIVOLATILES & PEST./PCB
99709	SILO 2	2S2-SE-C	ZONE C	07/19/91	TCLP METALS
99710	SILO 2	2S2-SE-C	ZONE C	07/19/91	RADIOLOGICAL
99711	SILO 2	2S2-SE-C	ZONE C	07/19/91	CHEMICAL
99712	SILO 2	2S2-SE-C	ZONE C	07/19/91	CHEMICAL
99713	SILO 2	2S2-SE-C	ZONE C	07/19/91	CHEMICAL
99715	SILO 2	2S2-SE-C	ZONE C	07/19/91	CHEMICAL
100068	SILO 2	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100069	SILO 2	NA	ZONE COMPOSITE	09/12/91	GEOTECHNICAL
100070	SILO 2	NA	ZONE COMPOSITE	09/13/91	GEOTECHNICAL
100091	SILO 2	NA	ZONE COMPOSITE	09/13/91	GEOTECHNICAL
100092	SILO 2	NA	ZONE COMPOSITE	09/13/91	GEOTECHNICAL
100093	SILO 2	NA	ZONE COMPOSITE	09/13/91	GEOTECHNICAL
100094	SILO 2	NA	ZONE COMPOSITE	09/13/91	GEOTECHNICAL
100065	SILO 2	NA	ZONE A	11/12/92	TCLP RADIOLOGICAL
100066	SILO 2	NA	ZONE B	11/12/92	TCLP RADIOLOGICAL
100067	SILO 2	NA	ZONE C	11/12/92	TCLP RADIOLOGICAL
100108	SILO 1	S1-NE-1A	NE-1A	07/06/89	FULL HSL/ RADIOLOGICAL
100109	SILO 1	S1-NE-1B	NE-1B	07/06/89	FULL HSL/ RADIOLOGICAL
100110	SILO 1	S1-NE-1C	NE-1C	07/06/89	FULL HSL/ RADIOLOGICAL
100111	SILO 1	S1-NW-1	NW-1	07/25/89	FULL HSL/ RADIOLOGICAL
100112	SILO 1	S1-SE-1	SE-1	11/30/89	FULL HSL/ RADIOLOGICAL
100113	SILO 1	S1-SE-2	SE-2	11/30/89	FULL HSL/ RADIOLOGICAL
100114	SILO 1	S1-SW-1	SW-1	07/25/89	FULL HSL/ RADIOLOGICAL
MM3336	SILO 1	S1-NE-1B	NE-1A	07/06/89	EP TOXICITY METALS
MM3337	SILO 1	S1-NE-1A	NE-1B	07/06/89	EP TOXICITY METALS
MM3338	SILO 1	S1-SE-2	SE-2	11/30/89	EP TOXICITY METALS
MM3339	SILO 1	S1-NE-1C	NE-1C	07/06/89	EP TOXICITY METALS
MM3341	SILO 1	S1-SW-1	SW-1	07/25/89	EP TOXICITY METALS
MM3342	SILO 1	S1-SE-1	SE-1	11/30/89	EP TOXICITY METALS
MM3343	SILO 1	S1-NW-1	NW-1	07/25/89	EP TOXICITY METALS
NE-1-A	SILO 1	NA	ZONE A	07/06/89	GEOTECHNICAL
NE-1-C	SILO 1	NA	ZONE C	07/06/89	GEOTECHNICAL
SE-2-BT	SILO 1	NA	ZONE B	11/30/89	GEOTECHNICAL
SW/ SE/ NW	SILO 1	NA	ZONE COMPOSITE	11/30/89	GEOTECHNICAL
100115	SILO 2	S2-NE-1	NE-1	06/23/89	FULL HSL/ RADIOLOGICAL
100116	SILO 2	S2-NE-2	NE-2	06/23/89	FULL HSL/ RADIOLOGICAL
100117	SILO 2	S2-NW-1	NW-1	06/22/89	FULL HSL/ RADIOLOGICAL
100118	SILO 2	S2-NW-2	NW-2	06/22/89	FULL HSL/ RADIOLOGICAL
100119	SILO 2	S2-SW-1	SW-1	06/23/89	FULL HSL/ RADIOLOGICAL
100120	SILO 2	S2-SW-2	SW-2	06/23/89	FULL HSL/ RADIOLOGICAL
MM3340	SILO 2	S2-SW-1	SW-1	06/23/89	EP TOXICITY METALS
MM3344	SILO 2	S2-NW-1	NW-1	06/22/89	EP TOXICITY METALS
MM3345	SILO 2	S2-NE-2	NE-2	06/23/89	EP TOXICITY METALS
MM3346	SILO 2	S2-SW-2	SW-2	06/23/89	EP TOXICITY METALS
MM3347	SILO 2	S2-NE-1	NE-1	06/23/89	EP TOXICITY METALS
MM3348	SILO 2	S2-NW-2	NW-2	06/22/89	EP TOXICITY METALS
NW-1-A	SILO 2	NA	ZONE A	06/22/89	GEOTECHNICAL
NW-1-C	SILO 2	NA	ZONE C	06/22/89	GEOTECHNICAL
SW-1-A	SILO 2	NA	ZONE A	06/23/89	GEOTECHNICAL
NE-2-BT	SILO 2	NA	ZONE B	06/23/89	GEOTECHNICAL
SW/ NW/ NE	SILO 2	NA	ZONE COMPOSITE	06/23/89	GEOTECHNICAL

APPENDIX A RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LOCATION	COLLECTION DATE	ANALYTICAL PARAMETERS
100097	SILO 3	S3SEA	ZONE A	05/25/89	FULL HSL/ RADIOLOGICAL
100098	SILO 3	S3NEABC	ZONE A,B,C	05/25/89	FULL HSL/ RADIOLOGICAL
100099	SILO 3	S3SEB	ZONE B	05/25/89	FULL HSL/ RADIOLOGICAL
100100	SILO 3	S3SEC	ZONE C	05/25/89	FULL HSL/ RADIOLOGICAL
100101	SILO 3	S3SEB	ZONE B	05/25/89	FULL HSL/ RADIOLOGICAL
100102	SILO 3	S3SEABC	ZONE A,B,C	05/25/89	FULL HSL/ RADIOLOGICAL
100103	SILO 3	S3NWA	ZONE A	05/25/89	FULL HSL/ RADIOLOGICAL
100104	SILO 3	S3NWB	ZONE B	05/25/89	FULL HSL/ RADIOLOGICAL
100105	SILO 3	S3NWC	ZONE C	05/25/89	FULL HSL/ RADIOLOGICAL
100106	SILO 3	S3NWC	ZONE C	05/25/89	FULL HSL/ RADIOLOGICAL
100107	SILO 3	S3NWABC	ZONE A,B,C	05/25/89	FULL HSL/ RADIOLOGICAL
MM3325	SILO 3	# 21	NA	05/25/89	EP TOXICITY
MM3326	SILO 3	# 22	NA	05/25/89	EP TOXICITY
MM3327	SILO 3	# 23	NA	05/25/89	EP TOXICITY
MM3328	SILO 3	# 24	NA	05/25/89	EP TOXICITY
MM3329	SILO 3	# 25	NA	05/25/89	EP TOXICITY
MM3330	SILO 3	# 26	NA	05/25/89	EP TOXICITY
MM3331	SILO 3	# 27	NA	05/25/89	EP TOXICITY
MM3332	SILO 3	# 28	NA	05/25/89	EP TOXICITY
MM3333	SILO 3	# 29	NA	05/25/89	EP TOXICITY
MM3334	SILO 3	# 30	NA	05/25/89	EP TOXICITY
MM3335	SILO 3	# 33	NA	05/25/89	EP TOXICITY
NW-1-A	SILO 3	NA	ZONE A	05/25/89	GEOTECHNICAL
NW-1-C	SILO 3	NA	ZONE C	05/25/89	GEOTECHNICAL
SE-1-A	SILO 3	NA	ZONE A	05/25/89	GEOTECHNICAL
SE-1-C	SILO 3	NA	ZONE C	05/25/89	GEOTECHNICAL
NE-1	SILO 3	NA	ZONE COMPOSITE	05/25/89	GEOTECHNICAL
100074	SILO 3	NA	ZONE COMPOSITE	11/12/92	TCLP RADIOLOGICAL
99410	DECANT TANK	NA	NA	04/09/91	RINSATE
99411	DECANT TANK	NA	NA	04/09/91	HSL METALS/ RADIOLOGICAL
99412	DECANT TANK	NA	NA	04/12/91	CHEMICAL/ FULL HSL/ RADIOLOGICAL
99414	DECANT TANK	NA	NA	04/16/91	TRIP BLANK
99415	DECANT TANK	NA	NA	04/16/91	CHEMICAL/ FULL HSL/ RADIOLOGICAL
99416	DECANT TANK	NA	NA	06/19/91	CHEMICAL/ FULL HSL/ RADIOLOGICAL
99417	DECANT TANK	NA	NA	08/21/91	RADIOLOGICAL
99420	DECANT TANK	NA	NA	07/18/91	RINSATE

FULL HSL = HSL VOLATILES, SEMIVOLATILES, PEST/PCB, METALS

OU4 RI/FS DATA VALIDATION QUALIFIERS

CHEMICAL VALIDATION QUALIFIERS

"N" Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

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

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

"UJ" Not detected, quantitation limit may be inaccurate or imprecise.

"UB" Not detected, quantitation limit is probably higher.

"JB" Approximate data due to blank contamination.

"J" Analyte present. Reported value may not be accurate or precise.

"R" Results unusable. Analyte may or may not be present in the sample. Supporting data necessary to confirm result. Resampling and reanalysis would be necessary.

"-" Validated, but not qualified.

LABORATORY QUALIFIERS

Organic Qualifiers

"U" Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

"J" Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

"B" This flag issued when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the user to take appropriate action.

"F" Estimated value due to a confirmed compound which is off-scale in both columns.

"Z" No estimated value reported, or an elevated CRQL reported because matrix effects interfere with or obscure the compound on one or both columns. In either situation, the compound does not confirm as a positive identification.

"C" This flag applies to pesticide results where the identification has been confirmed by GC/MS.

"E" This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and reanalyzed. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms I. The Form I for the diluted shall have the "DL" suffix appended to the sample number.

"D" This flag identifies all compounds identified in analysis at a secondary dilution factor.

"A" This flag indicates that a TIC is a suspected aldol-condensation product.

"X" A flag that FORMASTER III CLP software automatically inserts to indicate that the data was entered manually.

"Y" Indistinguishable isomer in tentatively identified compounds.

"*" Values outside of contract required QC limits.

LABORATORY QUALIFIERS

Inorganic Qualifiers

Concentration Qualifiers (C)

"B" Reported value was obtained from a reading that was less than Contract Required Detection Limit (CRQL) but greater than or equal to the Instrument Detection Limit (IDL).

"U" Analyte was analyzed for but not detected.

Quality Qualifiers (Q)

"E" The reported value is estimated because of the presence of interference.

"N" Spiked sample recovery not within control limits.

"S" The reported value was determined by the Method of Standard Additions.

"W" Post-digestion spike for Furnace AA analysis is not out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

"*" Duplicate analysis not within control limits.

"M" Duplicate injection precision not met.

"G" Native analyte > 4 times spike added, therefore acceptance criteria do not apply.

"X" Detection limit is higher than normal due to sample matrix interferences.

"+" Correlation coefficient for the MSA is less than 0.955.

Radiological Laboratory Qualifiers

"<" The radionuclide was analyzed for but not detected. The CRDL or lower limit of detection (LLD), which ever is greater for the analysis, follows the qualifier. The LLD is based on the 95% confidence interval of false detection and false rejection determination.

RADIOLOGICAL DATA VALIDATION QUALIFIERS

"C" The total uranium analytical result (mass) does not agree within +/- 20% of the calculated uranium mass as determined by isotope specific analyses. This qualifier is not applied to analytical results which are less than ten (10) times the contract required quantitation limit (CRQL).

"D" The radionuclide was analyzed for but not detected. The reported SQL exceeds the CRQL and professional judgement must be exercised in the use of this data depending on the media that was sampled and the end use of the data (ie. risk assessment, nature and extent, etc.).

"E" The calculated U-235/U-238 mass ratio is outside of 0.2 - 1.3% enrichment and may indicate man's involvement in isotope depletion or enrichment. Professional judgement should be exercised in evaluating the likelihood of this occurrence. The U-235/U-238 ratio for soil in nature is 0.0072. This qualifier is not applied to analytical results which are less than ten (10) times the contract required CRQL.

"F" The calculated U-234/U-238 activity ratio is less than 0.4 or greater than 1.3 and may indicate man's involvement in isotope separation. Professional judgement should be exercised in evaluating the likelihood of this occurrence. The U-234 and U-238 isotopes are generally in equilibrium (or slightly depleted in U-234) in soil impacted groundwater. This qualifier is not applied to analytical results which are less than ten (10) times the contract required CRQL.

"M" The matrix spike per cent recovery is not within the control limits of 70-130%.

"J" The reported value should be considered an estimate based on laboratory quality control results or lack of QC documentation.

"R" Laboratory quality control results indicates that the data are unusable (analyte may or may not be present). Re-sampling and/or re-analysis is necessary for verification.

"-" The analysis meets all requirements of the indicated analytical support level (ASL).

OU4 1991/92 SILO 1 RADIOLOGICAL RESULTS

OU4 1990/91 SILO 1 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S1-NE-A 099743 08/23/91			2S1-NE-B 100004 08/25/91			2S1-NE-C 100025 08/27/91			2S1-NE-C 100039 08/27/91		
	a		b	a		b	a		b	a		b
Actinium 227	5623	± 1655	-	9931	± 2423	-	9012	± 2623	-	5194	± 1746	-
Lead 210	117700	± 16360	-	200900	± 27840	J	183600	± 25450	J	182300	± 25270	J
Polonium 210	144000	± 45000	J	174000	± 38000	J	230000	± 59000	J	166000	± 32000	J
Protactinium 231	< 7374		-	< 10060		D	< 9189		D	< 9356		D
Radium 224	< 370		-	< 487		D	< 451		D	< 463		D
Radium 226	394900	± 53050	-	571700	± 76740	-	520600	± 69890	-	550600	± 73900	-
Radium 228	< 999		D	< 1395		D	< 1270		D	< 1325		D
Thorium 228	< 1235		D	< 970		J	< 1045		J	< 1276		J
Thorium 230	59274	± 9404	-	54521	± 8821	J	97353	± 16264	J	99494	± 15694	J
Thorium 230 (GAMMA)	NA			NA			71000	± 25760	Z	88370	± 31450	Z
Thorium 232	1106	± 657	-	< 775		J	< 1045		J	< 883		J
Total Thorium **	9986	± 5925	-	< 6996		J	< 9426		J	< 7968		J
Total Uranium **	2061	± 291	-	1888	± 256	-	2172	± 295	-	2061	± 281	-
Total Uranium (GAMMA) **	< 697		R	< 8951		Z	< 8288		Z	< 8434		Z
Uranium 234	750	± 102	-	758	± 99	-	696	± 94	-	746	± 99	-
Uranium 235/236	105	± 26	E	29.2	± 11.3	-	90	± 21.8	E	39.9	± 13.8	-
Uranium 238	677	± 94	-	631	± 84	-	717	± 96	-	687	± 92	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

018

-4948

OU4 1990/91 SILO 1 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S1-NW-A 099885 08/09/91		2S1-NW-B 099909 08/11/91		2S1-NW-B 099930 08/11/91		2S1-NW-C 099939 08/14/91	
	a	b	a	b	a	b	a	b
Actinium 227	4320 ± 1440	J	17390 ± 2516	-	10700 ± 3000	-	8118 ± 2239	J
Lead 210	77860 ± 9531	J	144300 ± 17500	-	191300 ± 26530	-	235900 ± 28560	-
Polonium 210	154000 ± 34000	J	269000 ± 56000	J	237000 ± 67000	J	273000 ± 63000	J
Protactinium 231	< 6556	D	< 9413	-	< 1150	-	< 9050	-
Radium 224	< 356	D	< 513	-	< 551	-	< 454	-
Radium 226	306800 ± 37720	J	397900 ± 48910	J	680900 ± 91350	J	510400 ± 62790	-
Radium 228	< 882	D	< 1311	D	< 1633	D	< 1193	D
Thorium 228	< 1700	-	< 630	D	2280 ± 1300	-	< 1065	DJ
Thorium 230	33100 ± 5700	-	64400 ± 9700	-	52300 ± 9700	-	83627 ± 13256	J
Thorium 230 (GAMMA)	NA		NA		63950 ± 32030	-	NA	
Thorium 232	735 ± 590	-	661 ± 530	-	< 610	D	< 851	DJ
Total Thorium **	6640 ± 5320	-	5970 ± 4780	-	< 5500	D	< 7677	DJ
Total Uranium **	< 6326	J	2156 ± 274	-	2020 ± 261	-	1690 ± 225	-
Total Uranium (GAMMA) **	NA		< 8035	-	< 9652	D	< 8394	D
Uranium 234	489 ± 62	-	875 ± 107	-	1089 ± 131	-	936 ± 115	F
Uranium 235/236	19.1 ± 7.2	-	39.4 ± 11.8	-	42.1 ± 12.6	-	31.5 ± 10.5	-
Uranium 238	387 ± 51	-	719 ± 90	-	673 ± 86	-	564 ± 74	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

019

J-4948

OU4 1990/91 SILO 1 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S1-NW-C 099948 08/14/91			2S1-SE-A 099870 08/16/91			2S1-SE-B 099966 08/18/91			2S1-SE-B 099975 08/18/91		
	a		b	a		b	a		b	a		b
Actinium 227	6054	± 1523	-	8486	± 1959	-	11130	± 2399	-	7016	± 1945	-
Lead 210	378500	± 22270	J	126800	± 15400	-	381400	± 52950	J	248100	± 34530	J
Polonium 210	232000	± 53000	J	296000	± 74000	J	434000	± 84000	J	276000	± 55000	J
Protactinium 231	< 8557		J	< 6579		J	< 18319		DJ	< 13622		J
Radium 224	< 430		J	< 346		J	< 923		DJ	< 690		D
Radium 226	508400	± 68240	J	367600	± 45200	J	890700	± 119800	J	503300	± 68080	J
Radium 228	< 1200		J	< 941		J	< 2474		DJ	< 1865		J
Thorium 228	835	± 600	-	< 1024		D	< 1252		D	< 960		D
Thorium 230	93038	± 12904	J	54050	± 8067	-	75370	± 10916	-	50917	± 8210	-
Thorium 230 (GAMMA)	75210	± 23970	-	NA			NA			NA		
Thorium 232	835	± 532	-	< 585		D	982	± 581	-	702	± 539	-
Total Thorium **	7540	± 4797	-	< 5278		D	8866	± 5243	-	6334	± 4862	-
Total Uranium **	1446	± 211	J	1952	± 268	-	2033	± 276	J	1940	± 270	-
Total Uranium (GAMMA) **	< 7823		J	< 5630		D	< 18117		DJ	< 13991		D
Uranium 234	508	± 73	-	1466	± 178	-	721	± 96	-	608	± 85	-
Uranium 235/236	< 13		D	43.7	± 14.5	-	29.2	± 12.7	-	22	± 10.6	-
Uranium 238	486	± 70	-	650	± 88	-	680	± 91	-	649	± 89	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 1990/91 SILO 1 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S1-SE-C 099728 08/21/91				
	a				b
Actinium 227		6870	±	1828	-
Lead 210		235200	±	28480	J
Polonium 210		267000	±	56000	J
Protactinium 231	<	8868			DJ
Radium 224	<	457			DJ
Radium 226		601600	±	73870	J
Radium 228	<	1201			DJ
Thorium 228	<	986			D
Thorium 230		105372	±	15232	-
Thorium 230 (GAMMA)		NA			
Thorium 232		981	±	606	-
Total Thorium **		8862	±	5469	-
Total Uranium **		2585	±	336	J
Total Uranium (GAMMA) **	<	8521			DJ
Uranium 234		1548	±	186	F
Uranium 235/236		57.4	±	16.4	-
Uranium 238		861	±	110	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4SL1RAD.PRN

-4948

021

OU4 1991/92 SILO 1 CHEMICAL RESULTS

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099738 08/23/91		2S1-NE-A 099739 08/23/91		2S1-NE-A 099740 08/23/91		2S1-NE-A 099745 08/23/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		6426	-
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

023

1948

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099746 08/23/91		2S1-NE-A 099747 08/23/91		2S1-NE-A 099750 08/23/91		2S1-NE-B 099999 08/25/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	1.1	J	NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		8.33	-	U 1	-	NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	133	J	NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	638.4	J	NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	637	J	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4948

024

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 100000 08/25/91		2S1-NE-B 100001 08/25/91		2S1-NE-C 100020 08/27/91		2S1-NE-C 100021 08/27/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

023

-4948

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100022 08/27/91		2S1-NE-C 100026 08/27/91		2S1-NE-C 100027 08/27/91		2S1-NE-C 100028 08/27/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		1.2	-
Bromide	NA		U 1	-	NA		NA	
Chloride	NA		343	-	NA		NA	
Fluoride	NA		U .4	-	NA		NA	
Nitrate	NA		2216	-	NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		U 1	-	NA		NA	
Phosphorus	NA		NA		NA		.4	-
Sulfate	NA		3356	-	NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		211	-
Total Organic Carbon	NA		NA		17593	-	NA	
Total Organic Nitrogen	NA		NA		NA		210	-

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

026

4948

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100029 08/27/91		2S1-NE-C 100032 08/27/91		2S1-NE-C 100034 08/27/91		2S1-NE-C 100035 08/27/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		27000	-	NA		NA	
pH **	9.94	-	NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

027

!-4048

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100036 08/27/91		2S1-NW-A 099880 08/09/91		2S1-NW-A 099881 08/09/91		2S1-NW-A 099882 08/09/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

028

4948

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099886 08/09/91		2S1-NW-A 099887 08/09/91		2S1-NW-A 099888 08/09/91		2S1-NW-A 099889 08/09/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		U .1	-	NA	
Bromide	U 10	-	NA		NA		NA	
Chloride	311	-	NA		NA		NA	
Fluoride	15	-	NA		NA		NA	
Nitrate	1923	R	NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		8.13	-
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		1046	-	NA	
Sulfate	1515	-	NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		51.6	-	NA	
Total Organic Carbon	NA		5166	-	NA		NA	
Total Organic Nitrogen	NA		NA		51.6	-	NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

029

-4048

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099892 08/09/91		2S1-NW-B 099904 08/11/91		2S1-NW-B 099905 08/11/91		2S1-NW-B 099906 08/11/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	401	-	NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4948

030

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099910 08/11/91		2S1-NW-B 099911 08/11/91		2S1-NW-B 099912 08/11/91		2S1-NW-B 099913 08/11/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	U 1	-	NA		U .1	-	NA	
Chloride	636	-	NA		NA		NA	
Fluoride	U .4	-	NA		NA		NA	
Nitrate	2399	-	NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		8.84	-
Phosphate	U 1	-	NA		NA		NA	
Phosphorus	NA		NA		1698	-	NA	
Sulfate	444	-	NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		721	-	NA	
Total Organic Carbon	NA		29130	J	NA		NA	
Total Organic Nitrogen	NA		NA		721	J	NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

031

-4048

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099916 08/11/91		2S1-NW-B 099925 08/11/91		2S1-NW-B 099926 08/11/91		2S1-NW-B 099927 08/11/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	211	-	NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4948

032

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-C 099934 08/14/91		2S1-NW-C 099935 08/14/91		2S1-NW-C 099936 08/14/91		2S1-NW-C 099940 08/14/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		U 1	-
Chloride	NA		NA		NA		566	-
Fluoride	NA		NA		NA		U .4	-
Nitrate	NA		NA		NA		2624	-
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		U 1	-
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		798	-
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

033

4948

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-C 099941 08/14/91		2S1-NW-C 099942 08/14/91		2S1-NW-C 099943 08/14/91		2S1-NW-C 099946 08/14/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		U .1	-	NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		9.65	-	92.2	-
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		3290	-	NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		459	-	NA		NA	
Total Organic Carbon	34769	-	NA		NA		NA	
Total Organic Nitrogen	NA		459	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4948
034

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099865 08/16/91		2S1-SE-A 099866 08/16/91		2S1-SE-A 099867 08/16/91		2S1-SE-A 099871 08/16/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		U 1	-
Chloride	NA		NA		NA		983	-
Fluoride	NA		NA		NA		U .4	-
Nitrate	NA		NA		NA		3246	-
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		U 1	-
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		785	-
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

035

-4948

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099872 08/16/91		2S1-SE-A 099873 08/16/91		2S1-SE-A 099874 08/16/91		2S1-SE-A 099877 08/16/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMSITRY								
Ammonia	NA		U 28.9	-	NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		50.8	-
Phosphate	NA		NA		8.74	-	NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		2669	-	NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	14492	-	782.5	-	NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	
			782	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

036

-4048

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099963 08/18/91		2S1-SE-B 099964 08/18/91		2S1-SE-B 099965 08/18/91		2S1-SE-B 099980 08/18/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		22409	-
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

031

-4048

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099981 08/18/91		2S1-SE-B 099982 08/18/91		2S1-SE-B 099983 08/18/91		2S1-SE-B 099984 08/18/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	8.1	-	NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		1400	-	NA		NA	
pH **	NA		NA		9.39	-	NA	
Phosphate	NA		NA		NA		NA	
Phosphorus	98	-	NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	487.3	-	NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	242	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099986 08/18/91		2S1-SE-B 099987 08/18/91		2S1-SE-C 099723 08/21/91		2S1-SE-C 099724 08/21/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		U 1	-	NA		NA	
Chloride	NA		1349	-	NA		NA	
Fluoride	NA		394	-	NA		NA	
Nitrate	NA		4764	-	NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		U 1	-	NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		3458	-	NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

030

!-4048

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099725 08/21/91		2S1-SE-C 099729 08/21/91		2S1-SE-C 099730 08/21/91		2S1-SE-C 099731 08/21/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		8.9	-
Bromide	NA		U 1	U	NA		NA	
Chloride	NA		269	-	NA		NA	
Fluoride	NA		U .4	U	NA		NA	
Nitrate	NA		1430	R	NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphate	NA		U 1	R	NA		NA	
Phosphorus	NA		NA		NA		73	-
Sulfate	NA		1056	R	NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		23760	-	NA	
Total Organic Nitrogen	NA		NA		NA		479	-

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

948

040

OU4 1990/91 SILO 1 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099732 08/21/91		2S1-SE-C 099735 08/21/91	
	a	b	a	b
GENERAL CHEMISTRY				
Ammonia	NA		NA	
Bromide	NA		NA	
Chloride	NA		NA	
Fluoride	NA		NA	
Nitrate	NA		NA	
Oil and Grease	NA		11.7	-
pH **	9.77	-	NA	
Phosphate	NA		NA	
Phosphorus	NA		NA	
Sulfate	NA		NA	
Total Kjeldahl Nitrogen	NA		NA	
Total Organic Carbon	NA		NA	
Total Organic Nitrogen	NA		NA	

041

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units
4SL1CHGC.PRN

-4948

-4948

OU4 1991/92 SILO 1
HSL RESULTS

042

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099738 08/23/91		2S1-NE-A 099739 08/23/91		2S1-NE-A 099740 08/23/91		2S1-NE-A 099745 08/23/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	* 1410	J	NA		NA		NA	
Antimony	N 46.2	J	NA		NA		NA	
Arsenic	S 17.1	-	NA		NA		NA	
Barium	20000	-	NA		NA		NA	
Beryllium	B 1.1	-	NA		NA		NA	
Boron	52.1	-	NA		NA		NA	
Cadmium	U .56	-	NA		NA		NA	
Calcium	2210	-	NA		NA		NA	
Chromium	* 72.2	-	NA		NA		NA	
Cobalt	808	-	NA		NA		NA	
Copper	284	-	NA		NA		NA	
Cyanide	2.6	-	NA		NA		NA	
Iron	37800	-	NA		2.6	-	NA	
Lead	57000	-	NA		NA		NA	
Magnesium	2700	-	NA		NA		NA	
Manganese	* 134	J	NA		NA		NA	
Mercury	NA		* .21	-	NA		NA	
Molybdenum	2250	-	NA		NA		NA	
Nickel	1510	-	NA		NA		NA	
Potassium	B 493	-	NA		NA		NA	
Selenium	* 84.7	J	NA		NA		NA	
Silicon	N 945	J	NA		NA		NA	
Silver	N 14.4	J	NA		NA		NA	
Sodium	3900	-	NA		NA		NA	
Thallium	UWN .54	J	NA		NA		NA	
Vanadium	* 156	-	NA		NA		NA	
Zinc	22	U	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

043

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099746 08/23/91		2S1-NE-A 099747 08/23/91		2S1-NE-A 099750 08/23/91		2S1-NE-B 099999 08/25/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		2460	-
Antimony	NA		NA		NA		N 25.3	J
Arsenic	NA		NA		NA		S 4.6	-
Barium	NA		NA		NA		22100	-
Beryllium	NA		NA		NA		B 1.2	-
Boron	NA		NA		NA		61.7	-
Cadmium	NA		NA		NA		B .76	-
Calcium	NA		NA		NA		2640	-
Chromium	NA		NA		NA		33.9	-
Cobalt	NA		NA		NA		1010	-
Copper	NA		NA		NA		N 257	J
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		* 10600	-
Lead	NA		NA		NA		133000	-
Magnesium	NA		NA		NA		4200	-
Manganese	NA		NA		NA		* 41.8	-
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		6120	-
Nickel	NA		NA		NA		1920	-
Potassium	NA		NA		NA		B 715	-
Selenium	NA		NA		NA		* 255	J
Silicon	NA		NA		NA		N* 1290	J
Silver	NA		NA		NA		11.3	-
Sodium	NA		NA		NA		12600	-
Thallium	NA		NA		NA		BN 1.4	J
Vanadium	NA		NA		NA		161	-
Zinc	NA		NA		NA		12.8	U

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4948
044

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 100000 08/25/91		2S1-NE-B 100001 08/25/91		2S1-NE-C 200020 08/27/91		2S1-NE-C 100021 08/27/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		1940	-	NA	
Antimony	NA		NA		N 28.5	J	NA	
Arsenic	NA		NA		5.7	-	NA	
Barium	NA		NA		19500	-	NA	
Beryllium	NA		NA		B 1.1	-	NA	
Boron	NA		NA		48.9	-	NA	
Cadmium	NA		NA		U .62	-	NA	
Calcium	NA		NA		B 1260	-	NA	
Chromium	NA		NA		37.6	-	NA	
Cobalt	NA		NA		1220	-	NA	
Copper	NA		NA		N 369	J	NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		N* 2.9	-	* 11000	-	NA	
Lead	NA		NA		99900	-	NA	
Magnesium	NA		NA		3090	-	NA	
Manganese	NA		NA		* 60.6	-	NA	
Mercury	.65	-	NA		NA		NA	
Molybdenum	NA		NA		1940	-	1.5	-
Nickel	NA		NA		2730	-	NA	
Potassium	NA		NA		B 413	-	NA	
Selenium	NA		NA		* 179	J	NA	
Silicon	NA		NA		N* 525	J	NA	
Silver	NA		NA		15.1	-	NA	
Sodium	NA		NA		16200	-	NA	
Thallium	NA		NA		UN .63	J	NA	
Vanadium	NA		NA		135	-	NA	
Zinc	NA		NA		18.2	U	NA	

045

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100022 08/27/91		2S1-NE-C 100026 08/27/91		2S1-NE-C 200027 08/27/91		2S1-NE-C 100028 08/27/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum		NA		NA		NA		NA
Antimony		NA		NA		NA		NA
Arsenic		NA		NA		NA		NA
Barium		NA		NA		NA		NA
Beryllium		NA		NA		NA		NA
Boron		NA		NA		NA		NA
Cadmium		NA		NA		NA		NA
Calcium		NA		NA		NA		NA
Chromium		NA		NA		NA		NA
Cobalt		NA		NA		NA		NA
Copper		NA		NA		NA		NA
Cyanide	N*	2.8	-	NA		NA		NA
Iron		NA		NA		NA		NA
Lead		NA		NA		NA		NA
Magnesium		NA		NA		NA		NA
Manganese		NA		NA		NA		NA
Mercury		NA		NA		NA		NA
Molybdenum		NA		NA		NA		NA
Nickel		NA		NA		NA		NA
Potassium		NA		NA		NA		NA
Selenium		NA		NA		NA		NA
Silicon		NA		NA		NA		NA
Silver		NA		NA		NA		NA
Sodium		NA		NA		NA		NA
Thallium		NA		NA		NA		NA
Vanadium		NA		NA		NA		NA
Zinc		NA		NA		NA		NA

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-1948
045

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100029 08/27/91		2S1-NE-C 100032 08/27/91		2S1-NE-C 200034 08/27/91		2S1-NE-C 100035 08/27/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		2140	-	NA	
Antimony	NA		NA		N 21.9	J	NA	
Arsenic	NA		NA		4.5	-	NA	
Barium	NA		NA		14700	-	NA	
Beryllium	NA		NA		B .85	-	NA	
Boron	NA		NA		45.5	-	NA	
Cadmium	NA		NA		U .61	-	NA	
Calcium	NA		NA		B 799	-	NA	
Chromium	NA		NA		24.4	-	NA	
Cobalt	NA		NA		1600	-	NA	
Copper	NA		NA		N 408	J	NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		* 7840	-	NA	
Lead	NA		NA		114000	-	NA	
Magnesium	NA		NA		3800	-	NA	
Manganese	NA		NA		* 61.8	-	NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		3610	-	.15	-
Nickel	NA		NA		3380	-	NA	
Potassium	NA		NA		B 229	-	NA	
Selenium	NA		NA		* 147	J	NA	
Silicon	NA		NA		N* 829	J	NA	
Silver	NA		NA		9.8	-	NA	
Sodium	NA		NA		16700	-	NA	
Thallium	NA		NA		UN .63	J	NA	
Vanadium	NA		NA		107	-	NA	
Zinc	NA		NA		17.5	U	NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

047

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100036 08/27/91		2S1-NW-A 099880 08/09/91		2S1-NW-A 099881 08/09/91		2S1-NW-A 099882 08/09/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		605	-	NA		NA	
Antimony	NA		N* 13.3	J	NA		NA	
Arsenic	NA		5.3	J	NA		NA	
Barium	NA		* 9840	J	NA		NA	
Beryllium	NA		B .59	-	NA		NA	
Boron	NA		23.8	-	NA		NA	
Cadmium	NA		UN* .43	R	NA		NA	
Calcium	NA		2480	-	NA		NA	
Chromium	NA		N 25.3	J	NA		NA	
Cobalt	NA		532	-	NA		NA	
Copper	NA		165	-	NA		NA	
Cyanide	N* 3.4	-	NA		NA		NA	
Iron	NA		* 7320	J	NA		* .85	-
Lead	NA		* 44000	-	NA		NA	
Magnesium	NA		1590	-	NA		NA	
Manganese	NA		37.2	-	NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		968	-	UN .1	J	NA	
Nickel	NA		959	-	NA		NA	
Potassium	NA		B 243	-	NA		NA	
Selenium	NA		58.5	J	NA		NA	
Silicon	NA		N* 359	J	NA		NA	
Silver	NA		9.8	-	NA		NA	
Sodium	NA		1380	-	NA		NA	
Thallium	NA		UWN .39	J	NA		NA	
Vanadium	NA		N* 63.1	J	NA		NA	
Zinc	NA		8.2	-	NA		NA	

048

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099886 08/09/91		2S1-NW-A 099887 08/09/91		2S1-NW-A 099888 08/09/91		2S1-NW-A 099889 08/09/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

046

1-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099892 08/09/91		2S1-NW-B 099904 08/11/91		2S1-NW-B 099905 08/11/91		2S1-NW-B 099906 08/11/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		724	-	NA		NA	
Antimony	NA		BN 14.5	J	NA		NA	
Arsenic	NA		N 4.9	J	NA		NA	
Barium	NA		17500	-	NA		NA	
Beryllium	NA		U .6	-	NA		NA	
Boron	NA		44.5	-	NA		NA	
Cadmium	NA		U .6	-	NA		NA	
Calcium	NA		4870	-	NA		NA	
Chromium	NA		20.6	-	NA		NA	
Cobalt	NA		N 499	J	NA		NA	
Copper	NA		136	-	NA		NA	
Cyanide	NA		NA		NA		1.7	-
Iron	NA		4280	-	NA		NA	
Lead	NA		109000	-	NA		NA	
Magnesium	NA		1710	-	NA		NA	
Manganese	NA		25.6	-	NA		NA	
Mercury	NA		NA		* .47	-	NA	
Molybdenum	NA		8600	-	NA		NA	
Nickel	NA		914	-	NA		NA	
Potassium	NA		B 555	-	NA		NA	
Selenium	NA		* 124	J	NA		NA	
Silicon	NA		677	-	NA		NA	
Silver	NA		9.2	-	NA		NA	
Sodium	NA		8300	-	NA		NA	
Thallium	NA		UN .56	J	NA		NA	
Vanadium	NA		111	-	NA		NA	
Zinc	NA		9.3	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4048
050

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099910 08/11/91		2S1-NW-B 099911 08/11/91		2S1-NW-B 099912 08/11/91		2S1-NW-B 099913 08/11/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

051

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099916 08/11/91		2S1-NW-B 099925 08/11/91		2S1-NW-B 099926 08/11/91		2S1-NW-B 099927 08/11/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		825	-	NA		NA	
Antimony	NA		BN 17	J	NA		NA	
Arsenic	NA		+N 4.8	J	NA		NA	
Barium	NA		17600	-	NA		NA	
Beryllium	NA		B .65	J	NA		NA	
Boron	NA		42	-	NA		NA	
Cadmium	NA		B .61	J	NA		NA	
Calcium	NA		5230	-	NA		NA	
Chromium	NA		24.1	-	NA		NA	
Cobalt	NA		N 655	J	NA		NA	
Copper	NA		167	-	NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		5130	-	NA		1.9	-
Lead	NA		117000	-	NA		NA	
Magnesium	NA		2070	-	NA		NA	
Manganese	NA		32.4	-	NA		NA	
Mercury	NA		NA		* .45	-	NA	
Molybdenum	NA		7870	-	NA		NA	
Nickel	NA		1220	-	NA		NA	
Potassium	NA		B 573	-	NA		NA	
Selenium	NA		* 83.3	J	NA		NA	
Silicon	NA		763	-	NA		NA	
Silver	NA		8.4	-	NA		NA	
Sodium	NA		7980	-	NA		NA	
Thallium	NA		BWN .56	J	NA		NA	
Vanadium	NA		102	-	NA		NA	
Zinc	NA		7.7	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

052

948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-C 099934 08/14/91		2S1-NW-C 099935 08/14/91		2S1-NW-C 099936 08/14/91		2S1-NW-C 099940 08/14/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	1090	-	NA		NA		NA	
Antimony	N 20.3	J	NA		NA		NA	
Arsenic	SN 3.4	UJ	NA		NA		NA	
Barium	14900	-	NA		NA		NA	
Beryllium	B .66	-	NA		NA		NA	
Boron	45.3	-	NA		NA		NA	
Cadmium	U .62	-	NA		NA		NA	
Calcium	B 1090	-	NA		NA		NA	
Chromium	19.7	-	NA		NA		NA	
Cobalt	N 1190	J	NA		NA		NA	
Copper	320	-	NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	7750	-	NA		3	-	NA	
Lead	112000	-	NA		NA		NA	
Magnesium	2630	-	NA		NA		NA	
Manganese	45.1	-	NA		NA		NA	
Mercury	NA		* .15	J	NA		NA	
Molybdenum	3460	-	NA		NA		NA	
Nickel	2400	-	NA		NA		NA	
Potassium	B 400	-	NA		NA		NA	
Selenium	* 110	J	NA		NA		NA	
Silicon	739	-	NA		NA		NA	
Silver	8.5	-	NA		NA		NA	
Sodium	15000	-	NA		NA		NA	
Thallium	UN .59	J	NA		NA		NA	
Vanadium	97.4	-	NA		NA		NA	
Zinc	15	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-C 099941 08/14/91		2S1-NW-C 099942 08/14/91		2S1-NW-C 099943 08/14/91		2S1-NW-C 099946 08/14/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

054

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099865 08/16/91		2S1-SE-A 099866 08/16/91		2S1-SE-A 099867 08/16/91		2S1-SE-A 099871 08/16/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	1050	-	NA		NA		NA	
Antimony	N 21.8	J	NA		NA		NA	
Arsenic	N 5.6	J	NA		NA		NA	
Barium	16000	-	NA		NA		NA	
Beryllium	B .82	-	NA		NA		NA	
Boron	50.7	-	NA		NA		NA	
Cadmium	U .58	-	NA		NA		NA	
Calcium	3490	-	NA		NA		NA	
Chromium	33.9	-	NA		NA		NA	
Cobalt	N 778	J	NA		NA		NA	
Copper	304	-	NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	14300	-	NA		2.9	-	NA	
Lead	107000	-	NA		NA		NA	
Magnesium	2220	-	NA		NA		NA	
Manganese	59.5	-	NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	6750	-	* .29	-	NA		NA	
Nickel	1400	-	NA		NA		NA	
Potassium	B 623	-	NA		NA		NA	
Selenium	S* 122	J	NA		NA		NA	
Silicon	845	-	NA		NA		NA	
Silver	12.3	-	NA		NA		NA	
Sodium	8220	-	NA		NA		NA	
Thallium	UWN .53	UJ	NA		NA		NA	
Vanadium	191	-	NA		NA		NA	
Zinc	10.3	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

055

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099872 08/16/91		2S1-SE-A 099873 08/16/91		2S1-SE-A 099874 08/16/91		2S1-SE-A 099877 08/16/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4948
056

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099963 08/18/91		2S1-SE-B 099964 08/18/91		2S1-SE-B 099965 08/18/91		2S1-SE-B 099980 08/18/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		* 1420	J	NA	
Antimony	NA		NA		BN 13.6	J	NA	
Arsenic	NA		NA		S 7.1	-	NA	
Barium	NA		NA		14400	-	NA	
Beryllium	NA		NA		B .7	J	NA	
Boron	NA		NA		46.5	-	NA	
Cadmium	NA		NA		U .61	-	NA	
Calcium	NA		NA		B 1130	J	NA	
Chromium	NA		NA		* 23.2	-	NA	
Cobalt	NA		NA		1870	-	NA	
Copper	NA		NA		475	-	NA	
Cyanide	2.2	-	NA		NA		NA	
Iron	NA		NA		7110	-	NA	
Lead	NA		NA		121000	-	NA	
Magnesium	NA		NA		3250	-	NA	
Manganese	NA		NA		* 45.4	-	NA	
Mercury	NA		* .31	-	NA		NA	
Molybdenum	NA		NA		8140	-	NA	
Nickel	NA		NA		3360	-	NA	
Potassium	NA		NA		B 644	-	NA	
Selenium	NA		NA		275	J	NA	
Silicon	NA		NA		N 735	J	NA	
Silver	NA		NA		13.3	J	NA	
Sodium	NA		NA		12000	-	NA	
Thallium	NA		NA		U .5	J	NA	
Vanadium	NA		NA		* 293	-	NA	
Zinc	NA		NA		9.2	-	NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-1948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099981 08/18/91		2S1-SE-B 099982 08/18/91		2S1-SE-B 099983 08/18/91		2S1-SE-B 099984 08/18/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		2.3	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

0580

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099986 08/18/91		2S1-SE-B 099987 08/18/91		2S1-SE-C 099723 08/21/91		2S1-SE-C 099724 08/21/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	* 1390	J	NA		* 1790	J	NA	
Antimony	UN 9.1	UJ	NA		N 25.8	J	NA	
Arsenic	S 3.1	-	NA		5.3	-	NA	
Barium	13400	-	NA		11700	-	NA	
Beryllium	U .6	-	NA		B 1.3	-	NA	
Boron	41	-	NA		47.1	-	NA	
Cadmium	B .72	J	NA		B .56	-	NA	
Calcium	B 1010	J	NA		B 1220	-	NA	
Chromium	* 23.7	-	NA		* 34.2	-	NA	
Cobalt	1120	-	NA		1140	-	NA	
Copper	293	-	NA		378	-	NA	
Cyanide	NA		NA		NA		NA	
Iron	4730	-	NA		10800	-	NA	
Lead	102000	-	NA		17400	-	NA	
Magnesium	2780	-	NA		2760	-	NA	
Manganese	* 36.2	-	NA		* 53.2	-	NA	
Mercury	* .31	-	NA		NA		* .17	-
Molybdenum	6540	-	NA		2010	-	NA	
Nickel	2120	-	NA		2490	-	NA	
Potassium	B 560	-	NA		B 460	-	NA	
Selenium	* 2810	J	NA		* 106	J	NA	
Silicon	N 540	J	NA		N 431	J	NA	
Silver	N 12.5	J	NA		N 14	J	NA	
Sodium	11100	-	NA		13900	-	NA	
Thallium	UN .51	-	NA		UN .55	J	NA	
Vanadium	* 139	-	NA		* 143	-	NA	
Zinc	9.1	-	NA		18	U	NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099725 08/21/91		2S1-SE-C 099729 08/21/91		2S1-SE-C 099730 08/21/91		2S1-SE-C 099731 08/21/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	2.1		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4948
060

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099732 08/21/91		2S1-SE-C 099735 08/21/91	
	a	b	a	b
METALS				
Aluminum	NA		NA	
Antimony	NA		NA	
Arsenic	NA		NA	
Barium	NA		NA	
Beryllium	NA		NA	
Boron	NA		NA	
Cadmium	NA		NA	
Calcium	NA		NA	
Chromium	NA		NA	
Cobalt	NA		NA	
Copper	NA		NA	
Cyanide	NA		NA	
Iron	NA		NA	
Lead	NA		NA	
Magnesium	NA		NA	
Manganese	NA		NA	
Mercury	NA		NA	
Molybdenum	NA		NA	
Nickel	NA		NA	
Potassium	NA		NA	
Selenium	NA		NA	
Silicon	NA		NA	
Silver	NA		NA	
Sodium	NA		NA	
Thallium	NA		NA	
Vanadium	NA		NA	
Zinc	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units
4SL1CHM.PRN

051

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099737 08/23/91		2S1-NE-A 099748 08/23/91		2S1-NE-B 100009 08/25/91		2S1-NE-C 100019 08/27/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .610	-	U .260	-	NA	
4,4'-DDE	NA		U .610	-	U .260	-	NA	
4,4'-DDT	NA		U .610	-	U .260	-	NA	
Aldrin	NA		U .3	-	U .130	-	NA	
alpha-BHC	NA		U .3	-	U .130	-	NA	
alpha-Chlordane	NA		U 3	-	U 1.3	-	NA	
Aroclor-1016	NA		U 3	-	U 1.3	-	NA	
Aroclor-1221	NA		U 3	-	U 1.3	-	NA	
Aroclor-1232	NA		U 3	-	U 1.3	-	NA	
Aroclor-1242	NA		U 3	-	U 1.3	-	NA	
Aroclor-1248	NA		U 3	-	U 1.3	-	NA	
Aroclor-1254	NA		DX 7.4	-	DX 2.8	-	NA	
Aroclor-1260	NA		U 6.1	-	U 2.6	-	NA	
beta-BHC	NA		U .3	-	U .13	-	NA	
delta-BHC	NA		U .3	-	U .13	-	NA	
Dieldrin	NA		U .61	-	U .26	-	NA	
Endosulfan II	NA		U .61	-	U .26	-	NA	
Endosulfan sulfate	NA		U .61	-	U .26	-	NA	
Endosulfan-I	NA		U .61	-	U .13	-	NA	
Endrin	NA		U .3	-	U .26	-	NA	
Endrin ketone	NA		U .61	-	U .26	-	NA	
gamma-BHC (Lindane)	NA		U .3	-	U .13	-	NA	
gamma-Chlordane	NA		U .3	-	U 1.3	-	NA	
Heptachlor	NA		U .3	-	U .13	-	NA	
Heptachlor epoxide	NA		U .3	-	U .13	-	NA	
Methoxychlor	NA		U 3	-	U 1.3	-	NA	
Toxaphene	NA		U 6.1	-	U 2.6	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .5	UJ	U .67	-	NA	
1,2-Dichlorobenzene	NA		U .5	UJ	U .67	-	NA	
1,3-Dichlorobenzene	NA		U .5	UJ	U .67	-	NA	
1,4-Dichlorobenzene	NA		U .5	UJ	U .67	-	NA	
2,4,5-Trichlorophenol	NA		U 2.4	UJ	U 3.2	-	NA	
2,4,6-Trichlorophenol	NA		U .5	UJ	U .67	-	NA	
2,4-Dichlorophenol	NA		U .5	UJ	U .67	-	NA	
2,4-Dimethylphenol	NA		U .5	UJ	U .67	-	NA	
2,4-Dinitrophenol	NA		U 2.4	UJ	U 3.2	-	NA	
2,4-Dinitrotoluene	NA		U .5	UJ	U .67	-	NA	
2,6-Dinitrotoluene	NA		U .5	UJ	U .67	-	NA	
2-Chloronaphthalene	NA		U .5	UJ	U .67	-	NA	
2-Chlorophenol	NA		U .5	UJ	U .67	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099737 08/23/91		2S1-NE-A 099748 08/23/91		2S1-NE-B 100009 08/25/91		2S1-NE-C 100019 08/27/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .5	UJ	U .67	-	NA	
2-Methylphenol	NA		U .5	UJ	U .67	-	NA	
2-Nitroaniline	NA		U 2.4	UJ	U 3.2	-	NA	
2-Nitrophenol	NA		U .5	UJ	U .67	-	NA	
3,3'-Dichlorobenzidine	NA		U 1	UJ	U 1.3	-	NA	
3-Nitroaniline	NA		U 2.4	UJ	U 3.2	-	NA	
4,6-Dinitro-2-methylphenol	NA		U 2.4	UJ	U 3.2	-	NA	
4-Bromophenyl phenyl ether	NA		U .5	UJ	U .67	-	NA	
4-Chloro-3-methylphenol	NA		U .5	UJ	U .67	-	NA	
4-Chloroaniline	NA		U .5	UJ	U .67	-	NA	
4-Chlorophenylphenyl ether	NA		U .5	UJ	U .67	-	NA	
4-Methylphenol	NA		U .5	UJ	U .67	-	NA	
4-Nitroaniline	NA		U 2.4	UJ	U 3.2	-	NA	
4-Nitrophenol	NA		U 2.4	UJ	U 3.2	UJ	NA	
Acenaphthene	NA		U .5	UJ	U .67	-	NA	
Acenaphthylene	NA		U .5	UJ	U .67	-	NA	
Anthracene	NA		U .5	UJ	U .67	-	NA	
Benzo(a)anthracene	NA		U .5	UJ	U .67	-	NA	
Benzo(a)pyrene	NA		U .5	UJ	U .67	UJ	NA	
Benzo(b)fluoranthene	NA		U .5	UJ	U .67	UJ	NA	
Benzo(g,h,i)perylene	NA		U .5	UJ	U .67	UJ	NA	
Benzo(k)fluoranthene	NA		U .5	UJ	U .67	UJ	NA	
Benzoic acid	NA		BJ 2.4	UJ	BJ 3.2	UJ	NA	
Benzyl alcohol	NA		U .5	UJ	U .67	-	NA	
bis(2-Chloroethoxy)methane	NA		U .5	UJ	U .67	-	NA	
bis(2-Chloroethyl)ether	NA		U .5	UJ	U .67	-	NA	
bis(2-Chloroisopropyl) ether	NA		U .5	UJ	U .67	-	NA	
bis(2-Ethylhexyl) phthalate	NA		U .5	UJ	U .67	-	NA	
Butyl benzyl phthalate	NA		U .5	UJ	U .67	-	NA	
Chrysene	NA		U .5	UJ	U .67	-	NA	
Di-n-butyl phthalate	NA		U .5	UJ	U .67	-	NA	
Di-n-octyl phthalate	NA		U .5	UJ	U .67	-	NA	
Dibenzo(a,h)anthracene	NA		.97	J	J .26	J	NA	
Dibenzofuran	NA		U .5	UJ	U .67	UJ	NA	
Diethyl phthalate	NA		U .5	UJ	U .67	-	NA	
Dimethyl phthalate	NA		U .5	UJ	U .67	-	NA	
Fluoranthene	NA		U .5	UJ	U .67	-	NA	
Fluorene	NA		U .5	UJ	U .67	-	NA	
Hexachlorobenzene	NA		U .5	UJ	U .67	-	NA	
Hexachlorobutadiene	NA		U .5	UJ	U .67	-	NA	

a = lab qualifier
b = validated qualifier

0630

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099737 08/23/91		2S1-NE-A 099748 08/23/91		2S1-NE-B 100009 08/25/91		2S1-NE-C 100019 08/27/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .5	UJ	U .67	-	NA	
Hexachloroethane	NA		U .5	UJ	U .67	-	NA	
Indeno(1,2,3-cd)pyrene	NA		U .5	UJ	U .67	UJ	NA	
Isophorone	NA		U .5	UJ	U .67	-	NA	
N-Nitroso-di-n-propylamine	NA		J .059	J	U .67	-	NA	
N-Nitrosodiphenylamine	NA		U .5	UJ	U .67	-	NA	
Naphthalene	NA		U .5	UJ	U .67	-	NA	
Nitrobenzene	NA		U .5	UJ	U .67	-	NA	
Pentachlorophenol	NA		U 2.4	UJ	U 3.2	-	NA	
Phenanthrene	NA		U .5	UJ	U .67	-	NA	
Phenol	NA		U .5	UJ	J .4	-	NA	
Pyrene	NA		U .5	UJ	U .67	-	NA	
Tributyl phosphate	NA		J51.0	J	J .58	R	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .007	-	NA		NA		U .008	-
1,1,2,2-Tetrachloroethane	U .007	-	NA		NA		U .008	-
1,1,2-Trichloroethane	U .007	-	NA		NA		U .008	-
1,1-Dichloroethane	U .007	-	NA		NA		U .008	-
1,1-Dichloroethene	U .007	-	NA		NA		U .008	-
1,2-Dichloroethane	U .007	-	NA		NA		U .008	-
1,2-Dichloroethylene	U .007	-	NA		NA		U .008	-
1,2-Dichloropropane	U .007	-	NA		NA		U .008	-
2-Butanone	J .002	-	NA		NA		U .008	-
2-Hexanone	J .002	-	NA		NA		U .016	-
4-Methyl-2-pentanone	J .002	-	NA		NA		BJ .016	U
Acetone	.072	-	NA		NA		U .016	-
Benzene	U .007	-	NA		NA		B .029	U
Bromodichloromethane	U .007	-	NA		NA		U .008	UJ
Bromoform	U .007	-	NA		NA		U .008	-
Bromomethane	U .014	-	NA		NA		U .008	-
Carbon disulfide	U .007	-	NA		NA		U .016	-
Carbon Tetrachloride	U .007	UJ	NA		NA		U .008	UJ
Chlorobenzene	U .007	-	NA		NA		U .008	-
Chloroethane	U .014	-	NA		NA		U .008	UJ
Chloroform	U .007	-	NA		NA		U .016	-
Chloromethane	U .014	-	NA		NA		U .008	-
cis-1,3-Dichloropropene	U .007	-	NA		NA		U .016	UJ
Dibromochloromethane	U .007	-	NA		NA		U .008	UJ
Ethylbenzene	U .007	-	NA		NA		U .008	-
Methylene chloride	B .03	UJ	NA		NA		U .008	UJ
Styrene	U .007	-	NA		NA		B .05	U
Tetrachlorethene	U .007	-	NA		NA		U .008	UJ
							U .008	-

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099737 08/23/91		2S1-NE-A 099748 08/23/91		2S1-NE-B 100009 08/25/91		2S1-NE-C 100019 08/27/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	.19	-	NA		NA		.022	UJ
Total xylenes	U .007	-	NA		NA		U .008	UJ
trans-1,3-Dichloropropene	U .007	-	NA		NA		U .008	UJ
Trichloroethene	U .007	-	NA		NA		U .008	-
Vinyl Acetate	U .014	-	NA		NA		U .016	-
Vinyl chloride	U .014	-	NA		NA		U .016	-

a = lab qualifier
b = validated qualifier

065

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100030 08/27/91		2S1-NE-C 100033 08/27/91		2S1-NE-C 100040 08/27/91		2S1-NW-A 099879 08/09/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .53	-	NA		U 1.6	-	NA	
4,4'-DDE	U .53	-	NA		U 1.6	-	NA	
4,4'-DDT	U .53	-	NA		U 1.6	-	NA	
Aldrin	U .26	-	NA		U .78	-	NA	
alpha-BHC	U .26	-	NA		U .78	-	NA	
alpha-Chlordane	U 2.6	-	NA		U 7.8	-	NA	
Aroclor-1016	U 2.6	-	NA		U 7.8	-	NA	
Aroclor-1221	U 2.6	-	NA		U 7.8	-	NA	
Aroclor-1232	U 2.6	-	NA		U 7.8	-	NA	
Aroclor-1242	U 2.6	-	NA		U 7.8	-	NA	
Aroclor-1248	U 2.6	-	NA		U 7.8	-	NA	
Aroclor-1254	DX 6.6	-	NA		U 7.8	-	NA	
Aroclor-1260	U 5.3	-	NA		DX20	-	NA	
beta-BHC	U .26	-	NA		U16	-	NA	
delta-BHC	U .26	-	NA		U .78	-	NA	
Dieldrin	U .53	-	NA		U .78	-	NA	
Endosulfan II	U .53	-	NA		U 1.6	-	NA	
Endosulfan sulfate	U .53	-	NA		U 1.6	-	NA	
Endosulfan-I	U .26	-	NA		U 1.6	-	NA	
Endrin	U .53	-	NA		U .78	-	NA	
Endrin ketone	U .53	-	NA		U 1.6	-	NA	
gamma-BHC (Lindane)	U .26	-	NA		U 1.6	-	NA	
gamma-Chlordane	U 2.6	-	NA		U .78	-	NA	
Heptachlor	U .26	-	NA		U 7.8	-	NA	
Heptachlor epoxide	U .26	-	NA		U .78	-	NA	
Methoxychlor	U 2.6	-	NA		U .78	-	NA	
Toxaphene	U 5.3	-	NA		U 7.8	-	NA	
					U16	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .54	-	NA		U .54	-	NA	
1,2-Dichlorobenzene	U .54	-	NA		U .54	-	NA	
1,3-Dichlorobenzene	U .54	-	NA		U .54	-	NA	
1,4-Dichlorobenzene	U .54	-	NA		U .54	-	NA	
2,4,5-Trichlorophenol	U 2.6	-	NA		U 2.6	-	NA	
2,4,6-Trichlorophenol	U .54	-	NA		U .54	-	NA	
2,4-Dichlorophenol	U .54	-	NA		U .54	-	NA	
2,4-Dimethylphenol	U .54	-	NA		U .54	-	NA	
2,4-Dinitrophenol	U 2.6	UJ	NA		U 2.6	UJ	NA	
2,4-Dinitrotoluene	U .54	-	NA		U .54	-	NA	
2,6-Dinitrotoluene	U .54	-	NA		U .54	-	NA	
2-Chloronaphthalene	U .54	-	NA		U .54	-	NA	
2-Chlorophenol	U .54	-	NA		U .54	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100030 08/27/91		2S1-NE-C 100033 08/27/91		2S1-NE-C 100040 08/27/91		2S1-NW-A 099879 08/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .54	-	NA		U .54	-	NA	
2-Methylphenol	U .54	-	NA		U .54	-	NA	
2-Nitroaniline	U 2.6	-	NA		U 2.6	-	NA	
2-Nitrophenol	U .54	-	NA		U .54	-	NA	
3,3'-Dichlorobenzidine	U 1.1	-	NA		U 1.1	-	NA	
3-Nitroaniline	U 2.6	-	NA		U 2.6	-	NA	
4,6-Dinitro-2-methylphenol	U 2.6	UJ	NA		U 2.6	UJ	NA	
4-Bromophenyl phenyl ether	U .54	-	NA		U .54	-	NA	
4-Chloro-3-methylphenol	U .54	-	NA		U .54	-	NA	
4-Chloroaniline	U .54	-	NA		U .54	-	NA	
4-Chlorophenylphenyl ether	U .54	-	NA		U .54	-	NA	
4-Methylphenol	U .54	-	NA		U .54	-	NA	
4-Nitroaniline	U 2.6	-	NA		U 2.6	-	NA	
4-Nitrophenol	U 2.6	-	NA		U 2.6	-	NA	
Acenaphthene	U .54	-	NA		U .54	-	NA	
Acenaphthylene	U .54	-	NA		U .54	-	NA	
Anthracene	U .54	-	NA		U .54	-	NA	
Benzo(a)anthracene	U .54	-	NA		U .54	-	NA	
Benzo(a)pyrene	U .54	-	NA		U .54	-	NA	
Benzo(b)fluoranthene	U .54	-	NA		U .54	-	NA	
Benzo(g,h,i)perylene	U .54	-	NA		U .54	-	NA	
Benzo(k)fluoranthene	U .54	-	NA		U .54	-	NA	
Benzoic acid	U 2.6	UJ	NA		U 2.6	UJ	NA	
Benzyl alcohol	U .54	-	NA		U .54	-	NA	
bis(2-Chloroethoxy)methane	U .54	-	NA		U .54	-	NA	
bis(2-Chloroethyl)ether	U .54	-	NA		U .54	-	NA	
bis(2-Chloroisopropyl) ether	U .54	-	NA		U .54	-	NA	
bis(2-Ethylhexyl) phthalate	U .54	-	NA		J .073	-	NA	
Butyl benzyl phthalate	U .54	-	NA		U .54	-	NA	
Chrysene	U .54	-	NA		U .54	-	NA	
Di-n-butyl phthalate	U .54	-	NA		U .54	-	NA	
Di-n-octyl phthalate	J .24	-	NA		J .29	-	NA	
Dibenzo(a,h)anthracene	U .54	-	NA		U .54	-	NA	
Dibenzofuran	U .54	-	NA		U .54	-	NA	
Diethyl phthalate	U .54	-	NA		U .54	-	NA	
Dimethyl phthalate	U .54	-	NA		U .54	-	NA	
Fluoranthene	U .54	-	NA		U .54	-	NA	
Fluorene	U .54	-	NA		U .54	-	NA	
Hexachlorobenzene	U .54	-	NA		U .54	-	NA	
Hexachlorobutadiene	U .54	-	NA		U .54	-	NA	

a = lab qualifier
b = validated qualifier

190
-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100030 08/27/91		2S1-NE-C 100033 08/27/91		2S1-NE-C 100040 08/27/91		2S1-NW-A 099879 08/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .54	-	NA		U .54	-	NA	
Hexachloroethane	U .54	-	NA		U .54	-	NA	
Indeno(1,2,3-cd)pyrene	U .54	-	NA		U .54	-	NA	
Isophorone	U .54	-	NA		U .54	-	NA	
N-Nitroso-di-n-propylamine	U .54	-	NA		U .54	-	NA	
N-Nitrosodiphenylamine	U .54	-	NA		U .54	-	NA	
Naphthalene	U .54	-	NA		U .54	-	NA	
Nitrobenzene	U .54	-	NA		U .54	-	NA	
Pentachlorophenol	U 2.6	-	NA		U 2.6	-	NA	
Phenanthrene	U .54	-	NA		U .54	-	NA	
Phenol	U .54	-	NA		U .54	-	NA	
Pyrene	U .54	-	NA		U .54	-	NA	
Tributyl phosphate	1.6	R	NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .008	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	NA		U .008	-	NA		U .005	-
1,1,2-Trichloroethane	NA		U .008	-	NA		U .005	-
1,1-Dichloroethane	NA		U .008	-	NA		U .005	-
1,1-Dichloroethene	NA		U .008	-	NA		U .005	-
1,2-Dichloroethane	NA		U .008	-	NA		U .005	-
1,2-Dichloroethylene	NA		U .008	-	NA		U .005	-
1,2-Dichloropropane	NA		U .008	-	NA		U .005	-
2-Butanone	NA		B .019	U	NA		BJ .011	U
2-Hexanone	NA		BJ .013	U	NA		U .011	-
4-Methyl-2-pentanone	NA		J .003	-	NA		U .011	-
Acetone	NA		B .061	U	NA		B .031	UJ
Benzene	NA		U .008	UJ	NA		U .005	-
Bromodichloromethane	NA		U .008	-	NA		U .005	-
Bromoform	NA		U .008	-	NA		U .005	UJ
Bromomethane	NA		U .016	-	NA		U .011	UJ
Carbon disulfide	NA		U .008	UJ	NA		U .005	-
Carbon Tetrachloride	NA		U .008	-	NA		U .005	-
Chlorobenzene	NA		U .008	UJ	NA		U .005	-
Chloroethane	NA		U .016	-	NA		U .011	UJ
Chloroform	NA		U .008	-	NA		U .005	-
Chloromethane	NA		U .016	UJ	NA		U .011	UJ
cis-1,3-Dichloropropene	NA		U .008	UJ	NA		U .005	-
Dibromochloromethane	NA		U .008	-	NA		U .005	-
Ethylbenzene	NA		U .008	UJ	NA		U .005	-
Methylene chloride	NA		B .046	U	NA		B .036	U
Styrene	NA		U .008	UJ	NA		U .005	-
Tetrachlorethene	NA		U .008	-	NA		U .005	-

a = lab qualifier
b = validated qualifier

4948
890

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100030 08/27/91		2S1-NE-C 100033 08/27/91		2S1-NE-C 100040 08/27/91		2S1-NW-A 099879 08/09/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		.02	UJ	NA		B .009	U
Total xylenes	NA		U .008	UJ	NA		U .005	-
trans-1,3-Dichloropropene	NA		U .008	UJ	NA		U .005	-
Trichloroethene	NA		U .008	-	NA		U .005	-
Vinyl Acetate	NA		U .016	-	NA		U .011	-
Vinyl chloride	NA		U .016	-	NA		U .011	-

a = lab qualifier
b = validated qualifier

690

4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099890 08/09/91		2S1-NW-B 099903 08/11/91		2S1-NW-B 099914 08/11/91		2S1-NW-B 099924 08/11/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .36	-	NA		U 1.6	-	NA	
4,4'-DDE	U .36	-	NA		U 1.6	-	NA	
4,4'-DDT	U .36	-	NA		U 1.6	-	NA	
Aldrin	U .18	-	NA		U .79	-	NA	
alpha-BHC	U .18	-	NA		U .79	-	NA	
alpha-Chlordane	U 1.8	-	NA		U 7.9	-	NA	
Aroclor-1016	U 1.8	-	NA		U 7.9	-	NA	
Aroclor-1221	U 1.8	-	NA		U 7.9	-	NA	
Aroclor-1232	U 1.8	-	NA		U 7.9	-	NA	
Aroclor-1242	U 1.8	-	NA		U 7.9	-	NA	
Aroclor-1248	U 1.8	-	NA		U 7.9	-	NA	
Aroclor-1254	J 3.1	J	NA		DJX11	J	NA	
Aroclor-1260	U 3.6	-	NA		U16	-	NA	
beta-BHC	U .18	-	NA		U .79	-	NA	
delta-BHC	U .18	-	NA		U .79	-	NA	
Dieldrin	U .36	-	NA		U 1.6	-	NA	
Endosulfan II	U .036	-	NA		U 1.6	-	NA	
Endosulfan sulfate	U .36	-	NA		U 1.6	-	NA	
Endosulfan-I	U .18	-	NA		U .79	-	NA	
Endrin	U .36	-	NA		U 1.6	-	NA	
Endrin ketone	U .36	-	NA		U 1.6	-	NA	
gamma-BHC (Lindane)	U .18	-	NA		U .79	-	NA	
gamma-Chlordane	U .18	-	NA		U 7.9	-	NA	
Heptachlor	U .18	-	NA		U .79	-	NA	
Heptachlor epoxide	U .18	-	NA		U .79	-	NA	
Methoxychlor	U 1.8	-	NA		U 7.9	-	NA	
Toxaphene	U 3.6	-	NA		U16	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .37	-	NA		U .53	-	NA	
1,2-Dichlorobenzene	U .37	-	NA		U .53	-	NA	
1,3-Dichlorobenzene	U .37	-	NA		U .53	-	NA	
1,4-Dichlorobenzene	U .37	-	NA		U .53	-	NA	
2,4,5-Trichlorophenol	U 1.8	-	NA		U 2.6	-	NA	
2,4,6-Trichlorophenol	U .37	-	NA		U .53	-	NA	
2,4-Dichlorophenol	U .37	-	NA		U .53	-	NA	
2,4-Dimethylphenol	U .37	-	NA		U .53	-	NA	
2,4-Dinitrophenol	U 1.8	-	NA		U 2.6	UJ	NA	
2,4-Dinitrotoluene	U .37	-	NA		U .53	-	NA	
2,6-Dinitrotoluene	U .37	-	NA		U .53	-	NA	
2-Chloronaphthalene	U .37	-	NA		U .53	-	NA	
2-Chlorophenol	U .37	-	NA		U .53	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099890 08/09/91		2S1-NW-B 099903 08/11/91		2S1-NW-B 099914 08/11/91		2S1-NW-B 099924 08/11/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .37	-	NA		U .53	-	NA	
2-Methylphenol	U .37	-	NA		U .53	-	NA	
2-Nitroaniline	U 1.8	-	NA		U 2.6	-	NA	
2-Nitrophenol	U .37	-	NA		U .53	-	NA	
3,3'-Dichlorobenzidine	U .74	UJ	NA		U 1.1	UJ	NA	
3-Nitroaniline	U 1.8	-	NA		U 2.6	-	NA	
4,6-Dinitro-2-methylphenol	U 1.8	-	NA		U 2.6	UJ	NA	
4-Bromophenyl phenyl ether	U .37	-	NA		U .53	-	NA	
4-Chloro-3-methylphenol	U .37	-	NA		U .53	-	NA	
4-Chloroaniline	U .37	-	NA		U .53	-	NA	
4-Chlorophenylphenyl ether	U .37	-	NA		U .53	-	NA	
4-Methylphenol	U .37	-	NA		U .53	-	NA	
4-Nitroaniline	U 1.8	-	NA		U 2.6	UJ	NA	
4-Nitrophenol	U 1.8	-	NA		U 2.6	-	NA	
Acenaphthene	U .37	-	NA		U .53	-	NA	
Acenaphthylene	U .37	-	NA		U .53	-	NA	
Anthracene	U .37	-	NA		U .53	-	NA	
Benzo(a)anthracene	U .37	-	NA		U .53	-	NA	
Benzo(a)pyrene	U .37	-	NA		U .53	-	NA	
Benzo(b)fluoranthene	U .37	-	NA		U .53	-	NA	
Benzo(g,h,i)perylene	U .37	-	NA		U .53	-	NA	
Benzo(k)fluoranthene	U .37	-	NA		U .53	-	NA	
Benzoic acid	U 1.8	UJ	NA		J .12	J	NA	
Benzyl alcohol	U .37	-	NA		U .53	-	NA	
bis(2-Chloroethoxy)methane	U .37	-	NA		U .53	-	NA	
bis(2-Chloroethyl)ether	U .37	-	NA		U .53	-	NA	
bis(2-Chloroisopropyl) ether	U .37	-	NA		U .53	-	NA	
bis(2-Ethylhexyl) phthalate	J .07	-	NA		J .43	-	NA	
Butyl benzyl phthalate	U .37	-	NA		U .53	-	NA	
Chrysene	U .37	-	NA		U .53	-	NA	
Di-n-butyl phthalate	U .37	-	NA		U .53	-	NA	
Di-n-octyl phthalate	U .37	-	NA		U .53	-	NA	
Dibenzo(a,h)anthracene	U .37	-	NA		U .53	-	NA	
Dibenzofuran	U .37	-	NA		U .53	-	NA	
Diethyl phthalate	U .37	-	NA		U .53	-	NA	
Dimethyl phthalate	U .37	-	NA		U .53	-	NA	
Fluoranthene	U .37	-	NA		J .081	-	NA	
Fluorene	U .37	-	NA		U .53	-	NA	
Hexachlorobenzene	U .37	-	NA		U .53	-	NA	
Hexachlorobutadiene	U .37	-	NA		U .53	-	NA	

a = lab qualifier
b = validated qualifier

071

-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099890 08/09/91		2S1-NW-B 099903 08/11/91		2S1-NW-B 099914 08/11/91		2S1-NW-B 099924 08/11/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .37	-	NA		U .53	-	NA	
Hexachloroethane	U .37	-	NA		U .53	-	NA	
Indeno(1,2,3-cd)pyrene	U .37	-	NA		U .53	-	NA	
Isophorone	U .37	-	NA		U .53	-	NA	
N-Nitroso-di-n-propylamine	U .37	-	NA		U .53	UJ	NA	
N-Nitrosodiphenylamine	U .37	-	NA		U .53	-	NA	
Naphthalene	U .37	-	NA		U .53	-	NA	
Nitrobenzene	U .37	-	NA		U .53	-	NA	
Pentachlorophenol	U 1.8	-	NA		U 2.6	-	NA	
Phenanthrene	U .37	-	NA		U .53	-	NA	
Phenol	U .37	-	NA		U .53	-	NA	
Pyrene	U .37	-	NA		U .53	-	NA	
Tributyl phosphate	41	-	NA		6	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .008	-	NA		U .008	-
1,1,2,2-Tetrachloroethane	NA		U .008	-	NA		U .008	-
1,1,2-Trichloroethane	NA		U .008	-	NA		U .008	-
1,1-Dichloroethane	NA		U .008	-	NA		U .008	-
1,1-Dichloroethene	NA		U .008	-	NA		U .008	-
1,2-Dichloroethane	NA		U .008	-	NA		U .008	-
1,2-Dichloroethylene	NA		U .008	-	NA		U .008	-
1,2-Dichloropropane	NA		U .008	-	NA		U .008	-
2-Butanone	NA		BJ .015	U	NA		BJ .015	U
2-Hexanone	NA		U .015	-	NA		BJ .015	U
4-Methyl-2-pentanone	NA		U .015	UJ	NA		U .015	UJ
Acetone	NA		B .058	UJ	NA		B .15	J
Benzene	NA		U .008	-	NA		U .008	-
Bromodichloromethane	NA		U .008	-	NA		U .008	-
Bromoform	NA		U .008	-	NA		U .008	-
Bromomethane	NA		U .015	-	NA		U .015	-
Carbon disulfide	NA		U .008	-	NA		U .008	-
Carbon Tetrachloride	NA		U .008	-	NA		U .008	-
Chlorobenzene	NA		U .008	-	NA		U .008	-
Chloroethane	NA		U .015	-	NA		U .015	-
Chloroform	NA		U .008	-	NA		U .008	-
Chloromethane	NA		U .015	-	NA		U .015	-
cis-1,3-Dichloropropene	NA		U .008	-	NA		U .008	-
Dibromochloromethane	NA		U .008	-	NA		U .008	-
Ethylbenzene	NA		U .008	-	NA		U .008	-
Methylene chloride	NA		B .038	-	NA		B .19	-
Styrene	NA		U .008	-	NA		U .008	-
Tetrachlorethene	NA		U .008	-	NA		U .008	-

a = lab qualifier
b = validated qualifier

-4048
072

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099890 08/09/91		2S1-NW-B 099903 08/11/91		2S1-NW-B 099914 08/11/91		2S1-NW-B 099924 08/11/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		BJ .008	U	NA		BJ .008	U
Total xylenes	NA		U .008	-	NA		U .008	-
trans-1,3-Dichloropropene	NA		U .008	-	NA		U .008	-
Trichloroethene	NA		U .008	-	NA		U .008	-
Vinyl Acetate	NA		U .015	-	NA		U .015	-
Vinyl chloride	NA		U .015	-	NA		U .015	-

a = lab qualifier
b = validated qualifier

073

1-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099931 08/11/91		2S1-NW-C 099933 08/14/91		2S1-NW-C 099944 08/14/91		2S1-SE-A 099864 08/16/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U 1.5	-	NA		U 1.1	U	NA	
4,4'-DDE	U 1.5	-	NA		U 1.1	U	NA	
4,4'-DDT	U 1.5	-	NA		U 1.1	U	NA	
Aldrin	U .74	-	NA		U .56	U	NA	
alpha-BHC	U .74	-	NA		U .56	U	NA	
alpha-Chlordane	U 7.4	-	NA		U 5.6	U	NA	
Aroclor-1016	U 7.4	-	NA		U 5.6	U	NA	
Aroclor-1221	U 7.4	-	NA		U 5.6	U	NA	
Aroclor-1232	U 7.4	-	NA		U 5.6	U	NA	
Aroclor-1242	U 7.4	-	NA		U 5.6	U	NA	
Aroclor-1248	U 7.4	-	NA		U 5.6	U	NA	
Aroclor-1254	DJX14	J	NA		DJX10.0	J	NA	
Aroclor-1260	U15	-	NA		U11.0	U	NA	
beta-BHC	U .74	-	NA		U .56	U	NA	
delta-BHC	U .74	-	NA		U .56	U	NA	
Dieldrin	U 1.5	-	NA		U 1.1	U	NA	
Endosulfan II	U 1.5	-	NA		U 1.1	U	NA	
Endosulfan sulfate	U 1.5	-	NA		U 1.1	U	NA	
Endosulfan-I	U .74	-	NA		U .56	U	NA	
Endrin	U 1.5	-	NA		U 1.1	-	NA	
Endrin ketone	U 1.5	-	NA		U 1.1	U	NA	
gamma-BHC (Lindane)	U .74	-	NA		U .56	U	NA	
gamma-Chlordane	U .74	-	NA		U 5.6	U	NA	
Heptachlor	U .74	-	NA		U .56	U	NA	
Heptachlor epoxide	U .74	-	NA		U .56	U	NA	
Methoxychlor	U 7.4	-	NA		U 5.6	U	NA	
Toxaphene	U15	-	NA		U11.0	U	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .54	-	NA		U .93	-	NA	
1,2-Dichlorobenzene	U .54	-	NA		U .93	-	NA	
1,3-Dichlorobenzene	U .54	-	NA		U .93	-	NA	
1,4-Dichlorobenzene	U .54	-	NA		U .93	-	NA	
2,4,5-Trichlorophenol	U 2.6	-	NA		U 4.5	-	NA	
2,4,6-Trichlorophenol	U .54	-	NA		U .93	-	NA	
2,4-Dichlorophenol	U .54	-	NA		U .93	-	NA	
2,4-Dimethylphenol	U .54	-	NA		U .93	-	NA	
2,4-Dinitrophenol	U 2.6	UJ	NA		U 4.5	UJ	NA	
2,4-Dinitrotoluene	U .54	-	NA		U .93	-	NA	
2,6-Dinitrotoluene	U .54	-	NA		U .93	-	NA	
2-Chloronaphthalene	U .54	-	NA		U .93	-	NA	
2-Chlorophenol	U .54	-	NA		U .93	-	NA	

a = lab qualifier
b = validated qualifier

1948
074

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099931 08/11/91		2S1-NW-C 099933 08/14/91		2S1-NW-C 099944 08/14/91		2S1-SE-A 099864 08/16/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .54	-	NA		U .93	-	NA	
2-Methylphenol	U .54	-	NA		U .93	UJ	NA	
2-Nitroaniline	U 2.6	-	NA		U 4.5	-	NA	
2-Nitrophenol	U .54	-	NA		U .93	-	NA	
3,3'-Dichlorobenzidine	U 1.1	UJ	NA		U 1.9	-	NA	
3-Nitroaniline	U 2.6	UJ	NA		U 4.5	-	NA	
4,6-Dinitro-2-methylphenol	U 2.6	UJ	NA		U 4.5	UJ	NA	
4-Bromophenyl phenyl ether	U .54	-	NA		U .93	-	NA	
4-Chloro-3-methylphenol	U .54	-	NA		U .93	-	NA	
4-Chloroaniline	U .54	-	NA		U .93	-	NA	
4-Chlorophenylphenyl ether	U .54	-	NA		U .93	-	NA	
4-Methylphenol	U .54	-	NA		U .93	UJ	NA	
4-Nitroaniline	U 2.6	UJ	NA		U 4.5	UJ	NA	
4-Nitrophenol	U 2.6	UJ	NA		U 4.5	-	NA	
Acenaphthene	U .54	-	NA		U .93	-	NA	
Acenaphthylene	U .54	-	NA		U .93	-	NA	
Anthracene	U .54	-	NA		U .93	-	NA	
Benzo(a)anthracene	U .54	-	NA		U .93	-	NA	
Benzo(a)pyrene	U .54	-	NA		U .93	-	NA	
Benzo(b)fluoranthene	U .54	-	NA		U .93	-	NA	
Benzo(g,h,i)perylene	U .54	-	NA		U .93	-	NA	
Benzo(k)fluoranthene	U .54	-	NA		U .93	-	NA	
Benzoic acid	J .094	J	NA		J .098	-	NA	
Benzyl alcohol	U .54	-	NA		U .93	UJ	NA	
bis(2-Chloroethoxy)methane	U .54	-	NA		U .93	-	NA	
bis(2-Chloroethyl)ether	U .54	-	NA		U .93	-	NA	
bis(2-Chloroisopropyl) ether	U .54	-	NA		U .93	UJ	NA	
bis(2-Ethylhexyl) phthalate	J .46	-	NA		J .7	-	NA	
Butyl benzyl phthalate	U .54	-	NA		U .93	-	NA	
Chrysene	U .54	-	NA		U .93	-	NA	
Di-n-butyl phthalate	U .54	-	NA		U .93	-	NA	
Di-n-octyl phthalate	U .54	-	NA		U .93	-	NA	
Dibenzo(a,h)anthracene	U .54	-	NA		U .93	-	NA	
Dibenzofuran	U .54	-	NA		U .93	-	NA	
Diethyl phthalate	U .54	-	NA		U .93	-	NA	
Dimethyl phthalate	U .54	-	NA		U .93	-	NA	
Fluoranthene	U .54	-	NA		J .16	-	NA	
Fluorene	U .54	-	NA		U .93	UJ	NA	
Hexachlorobenzene	U .54	-	NA		U .93	-	NA	
Hexachlorobutadiene	U .54	-	NA		U .93	-	NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099931 08/11/91		2S1-NW-C 099933 08/14/91		2S1-NW-C 099944 08/14/91		2S1-SE-A 099864 08/16/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .54	-	NA		U .93	-	NA	
Hexachloroethane	U .54	UJ	NA		U .93	UJ	NA	
Indeno(1,2,3-cd)pyrene	U .54	-	NA		U .93	-	NA	
Isophorone	U .54	-	NA		U .93	UJ	NA	
N-Nitroso-di-n-propylamine	U .54	-	NA		U .93	-	NA	
N-Nitrosodiphenylamine	U .54	-	NA		U .93	-	NA	
Naphthalene	U .54	-	NA		U .93	-	NA	
Nitrobenzene	U .54	-	NA		U .93	UJ	NA	
Pentachlorophenol	U 2.6	-	NA		U 4.5	-	NA	
Phenanthrene	U .54	-	NA		U .93	-	NA	
Phenol	U .54	-	NA		U .93	-	NA	
Pyrene	U .54	-	NA		U .93	UJ	NA	
Tributyl phosphate	B 5.3	-	NA		J 4.5	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .008	-	NA		U .007	-
1,1,2,2-Tetrachloroethane	NA		U .008	-	NA		U .007	-
1,1,2-Trichloroethane	NA		U .008	-	NA		U .007	-
1,1-Dichloroethane	NA		U .008	-	NA		U .007	-
1,1-Dichloroethene	NA		U .008	-	NA		U .007	-
1,2-Dichloroethane	NA		U .008	-	NA		U .007	-
1,2-Dichloroethylene	NA		U .008	-	NA		U .007	-
1,2-Dichloropropane	NA		U .008	-	NA		U .007	-
2-Butanone	NA		J .015	J	NA		J .004	UJ
2-Hexanone	NA		J .008	-	NA		J .005	-
4-Methyl-2-pentanone	NA		J .002	-	NA		U .014	-
Acetone	NA		B .12	J	NA		B .019	UJ
Benzene	NA		U .008	-	NA		U .007	-
Bromodichloromethane	NA		U .008	-	NA		U .007	-
Bromoform	NA		U .008	-	NA		U .007	-
Bromomethane	NA		U .015	UJ	NA		U .014	UJ
Carbon disulfide	NA		U .008	-	NA		U .007	-
Carbon Tetrachloride	NA		U .008	-	NA		U .007	-
Chlorobenzene	NA		U .008	-	NA		U .007	-
Chloroethane	NA		U .015	-	NA		U .014	-
Chloroform	NA		U .008	-	NA		U .007	-
Chloromethane	NA		U .015	-	NA		U .014	-
cis-1,3-Dichloropropene	NA		U .008	-	NA		U .007	-
Dibromochloromethane	NA		U .008	-	NA		U .007	-
Ethylbenzene	NA		U .008	-	NA		U .007	-
Methylene chloride	NA		B .036	U	NA		B .008	U
Styrene	NA		U .008	-	NA		U .007	-
Tetrachlorethene	NA		U .008	-	NA		U .007	-

a = lab qualifier
b = validated qualifier

948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099931 08/11/91		2S1-NW-C 099933 08/14/91		2S1-NW-C 099944 08/14/91		2S1-SE-A 099864 08/16/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		J .008	U	NA		U .007	-
Total xylenes	NA		U .008	-	NA		U .007	-
trans-1,3-Dichloropropene	NA		U .008	-	NA		U .007	-
Trichloroethene	NA		U .008	-	NA		U .007	-
Vinyl Acetate	NA		U .015	-	NA		U .014	-
Vinyl chloride	NA		U .015	-	NA		U .014	-

a = lab qualifier
b = validated qualifier

-4948

077

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099875 08/16/91		2S1-SE-B 099958 08/18/91		2S1-SE-B 099959 08/18/91		2S1-SE-B 099977 08/18/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .620	-	NA		U .026	-	NA	
4,4'-DDE	U .620	-	NA		XZ .029	J	NA	
4,4'-DDT	U .620	-	NA		JX .014	J	NA	
Aldrin	U .310	-	NA		U .013	-	NA	
alpha-BHC	U .310	-	NA		U .013	-	NA	
alpha-Chlordane	U 3.1	-	NA		U .13	-	NA	
Aroclor-1016	U 3.1	-	NA		U .13	-	NA	
Aroclor-1221	U 3.1	-	NA		U .13	-	NA	
Aroclor-1232	U 3.1	-	NA		U .13	-	NA	
Aroclor-1242	U 3.1	-	NA		U .13	-	NA	
Aroclor-1248	U 3.1	-	NA		U .13	-	NA	
Aroclor-1254	DJX 5.3	J	NA		X 1.2	J	NA	
Aroclor-1260	U 6.2	-	NA		X 1.3	J	NA	
beta-BHC	U .31	-	NA		U .013	-	NA	
delta-BHC	U .31	-	NA		U .013	-	NA	
Dieldrin	U .62	-	NA		U .026	-	NA	
Endosulfan II	U .62	-	NA		XZ .082	J	NA	
Endosulfan sulfate	U .62	-	NA		U .026	-	NA	
Endosulfan-I	U .31	-	NA		JX .011	J	NA	
Endrin	U .62	-	NA		U .026	-	NA	
Endrin ketone	U .62	-	NA		U .026	-	NA	
gamma-BHC (Lindane)	U .31	-	NA		U .013	-	NA	
gamma-Chlordane	U 3.1	-	NA		U .13	-	NA	
Heptachlor	U .31	-	NA		U .013	-	NA	
Heptachlor epoxide	U .31	-	NA		XZ .022	J	NA	
Methoxychlor	U 3.1	-	NA		U .13	-	NA	
Toxaphene	U 6.2	-	NA		U .26	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .53	-	NA		U .53	-	NA	
1,2-Dichlorobenzene	U .53	-	NA		U .53	-	NA	
1,3-Dichlorobenzene	U .53	-	NA		U .53	-	NA	
1,4-Dichlorobenzene	U .53	-	NA		U .53	-	NA	
2,4,5-Trichlorophenol	U 2.6	-	NA		U 2.6	-	NA	
2,4,6-Trichlorophenol	U .53	-	NA		U .53	-	NA	
2,4-Dichlorophenol	U .53	-	NA		U .53	-	NA	
2,4-Dimethylphenol	U .53	-	NA		U .53	-	NA	
2,4-Dinitrophenol	U 2.6	UJ	NA		U 2.6	UJ	NA	
2,4-Dinitrotoluene	U .53	-	NA		U .53	-	NA	
2,6-Dinitrotoluene	U .53	-	NA		U .53	-	NA	
2-Chloronaphthalene	U .53	-	NA		U .53	-	NA	
2-Chlorophenol	U .53	-	NA		U .53	-	NA	

a = lab qualifier
b = validated qualifier

4948
078

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099875 08/16/91		2S1-SE-B 099958 08/18/91		2S1-SE-B 099959 08/18/91		2S1-SE-B 099977 08/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .53	-	NA		U .53	-	NA	
2-Methylphenol	U .53	UJ	NA		U .53	-	NA	
2-Nitroaniline	U 2.6	-	NA		U 2.6	-	NA	
2-Nitrophenol	U .53	-	NA		U .53	UJ	NA	
3,3'-Dichlorobenzidine	U 1.1	-	NA		U 1.1	-	NA	
3-Nitroaniline	U 2.6	-	NA		U 2.6	-	NA	
4,6-Dinitro-2-methylphenol	U 2.6	UJ	NA		U 2.6	UJ	NA	
4-Bromophenyl phenyl ether	U .53	-	NA		U .53	-	NA	
4-Chloro-3-methylphenol	U .53	-	NA		U .53	-	NA	
4-Chloroaniline	U .53	-	NA		U .53	-	NA	
4-Chlorophenylphenyl ether	U .53	-	NA		U .53	-	NA	
4-Methylphenol	U .53	UJ	NA		U .53	UJ	NA	
4-Nitroaniline	U 2.6	UJ	NA		U 2.6	UJ	NA	
4-Nitrophenol	U 2.6	-	NA		U 2.6	-	NA	
Acenaphthene	U .53	-	NA		U .53	-	NA	
Acenaphthylene	U .53	-	NA		U .53	-	NA	
Anthracene	U .53	-	NA		U .53	-	NA	
Benzo(a)anthracene	U .53	-	NA		U .53	-	NA	
Benzo(a)pyrene	U .53	-	NA		U .53	-	NA	
Benzo(b)fluoranthene	U .53	-	NA		U .53	-	NA	
Benzo(g,h,i)perylene	U .53	-	NA		U .53	-	NA	
Benzo(k)fluoranthene	U .53	-	NA		U .53	-	NA	
Benzoic acid	U 2.6	UJ	NA		U 2.6	UJ	NA	
Benzyl alcohol	U .53	UJ	NA		U .53	-	NA	
bis(2-Chloroethoxy)methane	U .53	UJ	NA		U .53	-	NA	
bis(2-Chloroethyl)ether	U .53	-	NA		U .53	UJ	NA	
bis(2-Chloroisopropyl) ether	U .53	UJ	NA		U .53	-	NA	
bis(2-Ethylhexyl) phthalate	J .4	-	NA		J .13	J	NA	
Butyl benzyl phthalate	U .53	-	NA		U .53	-	NA	
Chrysene	U .53	-	NA		U .53	-	NA	
Di-n-butyl phthalate	U .53	-	NA		U .53	-	NA	
Di-n-octyl phthalate	U .53	-	NA		U .53	-	NA	
Dibenzo(a,h)anthracene	U .53	-	NA		U .53	-	NA	
Dibenzofuran	U .53	-	NA		U .53	-	NA	
Diethyl phthalate	U .53	-	NA		U .53	-	NA	
Dimethyl phthalate	J .08	-	NA		J .068	J	NA	
Fluoranthene	U .53	UJ	NA		U .53	-	NA	
Fluorene	U .53	-	NA		U .53	-	NA	
Hexachlorobenzene	U .53	-	NA		U .53	-	NA	
Hexachlorobutadiene	U .53	-	NA		U .53	-	NA	

a = lab qualifier
b = validated qualifier

079

--4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099875 08/16/91		2S1-SE-B 099958 08/18/91		2S1-SE-B 099959 08/18/91		2S1-SE-B 099977 08/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .53	-	NA		U .53	-	NA	
Hexachloroethane	U .53	UJ	NA		U .53	UJ	NA	
Indeno(1,2,3-cd)pyrene	U .53	-	NA		U .53	-	NA	
Isophorone	U .53	UJ	NA		U .53	UJ	NA	
N-Nitroso-di-n-propylamine	U .53	-	NA		U .53	-	NA	
N-Nitrosodiphenylamine	U .53	-	NA		U .53	-	NA	
Naphthalene	U .53	-	NA		U .53	-	NA	
Nitrobenzene	U .53	UJ	NA		U .53	-	NA	
Pentachlorophenol	U 2.6	-	NA		U 2.6	-	NA	
Phenanthrene	U .53	-	NA		U .53	-	NA	
Phenol	U .53	-	NA		U .53	-	NA	
Pyrene	U .53	UJ	NA		U .53	UJ	NA	
Tributyl phosphate	J34	-	NA		J .2	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .008	-	NA		U .008	-
1,1,2,2-Tetrachloroethane	NA		U .008	-	NA		U .008	-
1,1,2-Trichloroethane	NA		U .008	-	NA		U .008	-
1,1-Dichloroethane	NA		U .008	-	NA		U .008	-
1,1-Dichloroethene	NA		U .008	-	NA		U .008	-
1,2-Dichloroethane	NA		U .008	-	NA		U .008	-
1,2-Dichloroethylene	NA		U .008	-	NA		U .008	-
1,2-Dichloropropane	NA		U .008	-	NA		U .008	-
2-Butanone	NA		.019	J	NA		.022	J
2-Hexanone	NA		.017	-	NA		J .009	-
4-Methyl-2-pentanone	NA		U .016	-	NA		U .016	-
Acetone	NA		B .12	J	NA		B .13	J
Benzene	NA		U .008	-	NA		U .008	-
Bromodichloromethane	NA		U .008	-	NA		U .008	-
Bromoform	NA		U .008	-	NA		U .008	-
Bromomethane	NA		U .016	-	NA		U .016	-
Carbon disulfide	NA		U .008	-	NA		U .008	-
Carbon Tetrachloride	NA		U .008	-	NA		U .008	-
Chlorobenzene	NA		U .008	-	NA		U .008	-
Chloroethane	NA		U .016	-	NA		U .016	-
Chloroform	NA		U .008	-	NA		U .008	-
Chloromethane	NA		U .016	-	NA		U .016	-
cis-1,3-Dichloropropene	NA		U .008	-	NA		U .008	-
Dibromochloromethane	NA		U .008	-	NA		U .008	-
Ethylbenzene	NA		U .008	-	NA		U .008	-
Methylene chloride	NA		B .035	U	NA		B .042	U
Styrene	NA		U .008	-	NA		U .008	-
Tetrachlorethene	NA		U .008	-	NA		U .008	-

a = lab qualifier
b = validated qualifier

080

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099875 08/16/91		2S1-SE-B 099958 08/18/91		2S1-SE-B 099959 08/18/91		2S1-SE-B 099977 08/18/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		.009	-	NA		J .002	-
Total xylenes	NA		U .008	-	NA		U .008	-
trans-1,3-Dichloropropene	NA		U .008	-	NA		U .008	-
Trichloroethene	NA		U .008	-	NA		U .008	-
Vinyl Acetate	NA		U .016	-	NA		U .016	-
Vinyl chloride	NA		U .016	-	NA		U .016	-

a = lab qualifier
b = validated qualifier

081

-4948

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099979 08/18/91		2S1-SE-C 099722 08/21/91		2S1-SE-C 099733 08/21/91	
	a	b	a	b	a	b
PESTICIDES/PCB						
4,4'-DDD	U .026	-	NA		U .67	-
4,4'-DDE	XFZ .12	J	NA		U .67	-
4,4'-DDT	XF .068	J	NA		U .67	-
Aldrin	XF .056	J	NA		U .34	-
alpha-BHC	U .013	-	NA		U .34	-
alpha-Chlordane	U .13	-	NA		U 3.4	-
Aroclor-1016	U .13	-	NA		U 3.4	-
Aroclor-1221	U .13	-	NA		U 3.4	-
Aroclor-1232	U .13	-	NA		U 3.4	-
Aroclor-1242	U .13	-	NA		U 3.4	-
Aroclor-1248	U .13	-	NA		U 3.4	-
Aroclor-1254	XF12	J	NA		U 3.4	-
Aroclor-1260	XFZ 3.5	J	NA		DJX 6	J
beta-BHC	U .013	-	NA		U 6.7	-
delta-BHC	U .013	-	NA		U .34	-
Dieldrin	XFZ .093	J	NA		U .34	-
Endosulfan II	XF .26	J	NA		U .67	-
Endosulfan sulfate	U .026	-	NA		U .67	-
Endosulfan-I	XF .092	J	NA		U .67	-
Endrin	XFZ .089	J	NA		U .34	-
Endrin ketone	U .026	-	NA		U .67	-
gamma-BHC (Lindane)	U .013	-	NA		U .67	-
gamma-Chlordane	U .13	-	NA		U .34	-
Heptachlor	U .013	-	NA		U 3.4	-
Heptachlor epoxide	XFZ .2	J	NA		U .34	-
Methoxychlor	U .13	-	NA		U .34	-
Toxaphene	U .26	-	NA		U 3.4	-
			NA		U 6.7	-
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene	U .54	-	NA		U .53	-
1,2-Dichlorobenzene	U .54	-	NA		U .53	-
1,3-Dichlorobenzene	U .54	-	NA		U .53	-
1,4-Dichlorobenzene	U .54	-	NA		U .53	-
2,4,5-Trichlorophenol	U 2.6	-	NA		U 2.6	-
2,4,6-Trichlorophenol	U .54	-	NA		U .53	-
2,4-Dichlorophenol	U .54	-	NA		U .53	-
2,4-Dimethylphenol	U .54	-	NA		U .53	-
2,4-Dinitrophenol	U 2.6	UJ	NA		U 2.6	-
2,4-Dinitrotoluene	U .54	-	NA		U .53	-
2,6-Dinitrotoluene	U .54	-	NA		U .53	-
2-Chloronaphthalene	U .54	-	NA		U .53	-
2-Chlorophenol	U .54	-	NA		U .53	-

a = lab qualifier
b = validated qualifier

082

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099979 08/18/91		2S1-SE-C 099722 08/21/91		2S1-SE-C 099733 08/21/91	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
2-Methylnaphthalene	U .54	-	NA		U .53	-
2-Methylphenol	U .54	UJ	NA		U .53	-
2-Nitroaniline	U 2.6	-	NA		U 2.6	-
2-Nitrophenol	U .54	-	NA		U .53	-
3,3'-Dichlorobenzidine	U 1.1	-	NA		U 1.1	-
3-Nitroaniline	U 2.6	-	NA		U 2.6	-
4,6-Dinitro-2-methylphenol	U 2.6	-	NA		U 2.6	-
4-Bromophenyl phenyl ether	U .54	-	NA		U .53	-
4-Chloro-3-methylphenol	U .54	-	NA		U .53	-
4-Chloroaniline	U .54	-	NA		U .53	-
4-Chlorophenylphenyl ether	U .54	-	NA		U .53	-
4-Methylphenol	U .54	UJ	NA		U .53	-
4-Nitroaniline	U 2.6	-	NA		U 2.6	-
4-Nitrophenol	U 2.6	-	NA		U 2.6	-
Acenaphthene	U .54	-	NA		U .53	-
Acenaphthylene	U .54	-	NA		U .53	-
Anthracene	U .54	-	NA		U .53	-
Benzo(a)anthracene	U .54	-	NA		U .53	-
Benzo(a)pyrene	U .54	-	NA		U .53	-
Benzo(b)fluoranthene	U .54	-	NA		U .53	-
Benzo(g,h,i)perylene	U .54	-	NA		U .53	-
Benzo(k)fluoranthene	U .54	-	NA		U .53	-
Benzoic acid	J .075	J	NA		U 2.6	-
Benzyl alcohol	U .54	UJ	NA		U .53	-
bis(2-Chloroethoxy)methane	U .54	-	NA		U .53	-
bis(2-Chloroethyl)ether	U .54	-	NA		U .53	-
bis(2-Chloroisopropyl) ether	U .54	UJ	NA		U .53	-
bis(2-Ethylhexyl) phthalate	J .2	J	NA		U .53	-
Butyl benzyl phthalate	U .54	-	NA		U .53	-
Chrysene	U .54	-	NA		U .53	-
Di-n-butyl phthalate	U .54	-	NA		U .53	-
Di-n-octyl phthalate	U .54	-	NA		J .42	-
Dibenzo(a,h)anthracene	U .54	-	NA		U .53	-
Dibenzofuran	U .54	-	NA		U .53	-
Diethyl phthalate	U .54	-	NA		U .53	-
Dimethyl phthalate	J .07	J	NA		U .53	-
Fluoranthene	U .54	-	NA		U .53	-
Fluorene	U .54	-	NA		U .53	-
Hexachlorobenzene	U .54	-	NA		U .53	-
Hexachlorobutadiene	U .54	-	NA		U .53	-

a = lab qualifier
b = validated qualifier

1-4048

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099979 08/18/91		2S1-SE-C 099722 08/21/91		2S1-SE-C 099733 08/21/91	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
Hexachlorocyclopentadiene	U .54	-	NA		U .53	-
Hexachloroethane	U .54	UJ	NA		U .53	-
Indeno(1,2,3-cd)pyrene	U .54	-	NA		U .53	-
Isophorone	U .54	-	NA		U .53	-
N-Nitroso-di-n-propylamine	U .54	UJ	NA		U .53	-
N-Nitrosodiphenylamine	U .54	-	NA		U .53	-
Naphthalene	U .54	-	NA		U .53	-
Nitrobenzene	U .54	-	NA		U .53	-
Pentachlorophenol	U 2.6	-	NA		U 2.6	-
Phenanthrene	U .54	-	NA		U .53	-
Phenol	U .54	-	NA		U .53	-
Pyrene	U .54	-	NA		U .53	-
Tributyl phosphate	.59	-	NA		8.4	-
VOLATILE ORGANICS						
1,1,1-Trichloroethane	NA		U .007	-	NA	
1,1,2,2-Tetrachloroethane	NA		U .007	-	NA	
1,1,2-Trichloroethane	NA		U .007	-	NA	
1,1-Dichloroethane	NA		U .007	-	NA	
1,1-Dichloroethene	NA		U .007	-	NA	
1,2-Dichloroethane	NA		U .007	-	NA	
1,2-Dichloroethylene	NA		U .007	-	NA	
1,2-Dichloropropane	NA		U .007	-	NA	
2-Butanone	NA		B .014	UJ	NA	
2-Hexanone	NA		J .005	J	NA	
4-Methyl-2-pentanone	NA		U .014	-	NA	
Acetone	NA		B .064	J	NA	
Benzene	NA		U .007	-	NA	
Bromodichloromethane	NA		U .007	-	NA	
Bromoform	NA		U .007	-	NA	
Bromomethane	NA		U .014	UJ	NA	
Carbon disulfide	NA		U .007	-	NA	
Carbon Tetrachloride	NA		U .007	-	NA	
Chlorobenzene	NA		U .007	-	NA	
Chloroethane	NA		U .014	-	NA	
Chloroform	NA		U .007	-	NA	
Chloromethane	NA		U .014	-	NA	
cis-1,3-Dichloropropene	NA		U .007	-	NA	
Dibromochloromethane	NA		U .007	-	NA	
Ethylbenzene	NA		U .007	-	NA	
Methylene chloride	NA		B .014	U	NA	
Styrene	NA		U .007	-	NA	
Tetrachlorethene	NA		U .007	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099979 08/18/91		2S1-SE-C 099722 08/21/91		2S1-SE-C 099733 08/21/91	
	a	b	a	b	a	b
VOLATILE ORGANICS						
Toluene	NA		.009	-	NA	
Total xylenes	NA		U .007	-	NA	
trans-1,3-Dichloropropene	NA		U .007	-	NA	
Trichloroethene	NA		U .007	-	NA	
Vinyl Acetate	NA		U .014	-	NA	
Vinyl chloride	NA		U .014	-	NA	

085

a = lab qualifier
b = validated qualifier
4SL1CHH.PRN

140048

-4948

OU4 1991/92 SILO 1 TCLP RESULTS

086

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099742 08/23/91		2S1-NE-B 100003 08/25/91		2S1-NE-C 100024 08/27/91		2S1-NE-C 100038 08/27/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	.326	-	.37	-	.334	-	.349	-
Antimony	.103	-	.1	-	.0744	-	.0739	-
Arsenic	U .002	U	UN .002	UJ	UN .002	UJ	UN .002	UJ
Barium	1.4	-	1.83	-	.691	-	.348	-
Beryllium	B .0023	-	B .0021	J	U .002	-	B .0022	J
Boron	.182	-	.384	-	.266	-	.281	-
Cadmium	.0051	-	B .002	J	B .0022	J	B .0027	J
Calcium	83.4	-	31.1	-	73.5	-	17.6	-
Chromium	.071	-	.052	-	.0522	-	.0557	-
Cobalt	1.39	-	2.81	-	2.97	-	2.65	-
Copper	.197	-	.404	-	.298	-	.24	-
Iron	B .0492	-	B .0623	UJ	B .0181	J	B .0179	UJ
Lead	564	-	786	R	304	R	352	R
Magnesium	13.8	-	9.35	-	10.4	-	9.77	-
Manganese	.171	-	.242	-	.308	-	.232	-
Mercury	U .0002	U	U .0002	-	U .0002	-	U .0002	-
Molybdenum	.0771	-	.0885	-	.0393	-	.0445	-
Nickel	3.05	-	4.56	-	5.57	-	4.77	-
Potassium	12.4	-	B 9.56	J	B 3.34	J	B 2.95	J
Selenium	.0878	-	+ .0765	J	.131	-	.0865	-
Silicon	31.3	-	37.9	-	41.8	-	42.1	-
Silver	.0411	-	.028	-	.0339	-	.029	-
Thallium	UWN .002	U	B .0058	J	B .0027	J	U .002	-
Vanadium	B .0288	-	B .0176	J	B .0208	J	B .0203	J
Zinc	.0838	-	.323	-	.104	-	.0938	-

a = lab qualifier
b = validated qualifier

087
-4048

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099884 08/09/91		2S1-NW-B 099908 08/11/91		2S1-NW-B 099929 08/11/91		2S1-NW-C 099938 08/14/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	.441	-	.228	-	.232	-	.269	-
Antimony	.103	-	.0744	-	.0747	-	.104	-
Arsenic	U .002	-	U .002	-	UW .002	-	UW .002	R
Barium	.808	-	.728	-	.699	-	1.13	-
Beryllium	B .0031	-	U .002	-	U .002	-	U .002	-
Boron	.179	-	.188	U	.168	-	.231	-
Cadmium	B .0041	-	B .0031	-	B .0034	-	B .0028	-
Calcium	85.6	-	85.3	-	83.4	-	31	-
Chromium	.0781	-	.0498	-	.0528	-	.0469	-
Cobalt	.82	-	.738	-	.72	-	2.16	-
Copper	.163	-	.0727	-	.0681	-	.245	-
Iron	B .0587	-	B .1	-	B .0335	-	B .0374	-
Lead	698	-	356	U	348	-	714	-
Magnesium	7.16	-	8.76	-	8.56	-	8	-
Manganese	.145	-	.0688	-	.0671	-	.178	-
Mercury	U .0002	-	U .0002	-	U .0002	-	U .0002	-
Molybdenum	.0893	-	.0516	J	.0502	-	.0915	-
Nickel	1.32	-	1.71	-	1.67	-	3.68	-
Potassium	6.22	-	14	-	14	-	8.8	-
Selenium	+N .0147	-	.114	-	.143	-	.0598	R
Silicon	13.5	-	26.5	-	26	-	37.7	-
Silver	.0425	-	.0319	-	.0331	-	.0238	-
Thallium	B .0024	-	B .0094	-	B .0083	-	BW .0026	-
Vanadium	B .0293	-	B .0208	-	B .0226	-	B .0172	-
Zinc	.0837	-	.02	-	.0899	-	.172	-

a = lab qualifier
b = validated qualifier

4948
083

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099869 08/16/91		2S1-SE-B 099967 08/18/91		2S1-SE-B 099985 08/18/91		2S1-SE-C 099727 08/21/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	.39	-	.313	-	.278	-	.241	-
Antimony	.108	-	.129	-	.104	-	.0673	-
Arsenic	WN .002	J	UN .002	J	UWN .002	J	U .002	U
Barium	.603	-	.65	-	.829	-	.706	-
Beryllium	.0028	-	B .0023	-	U .002	-	U .002	U
Boron	.199	-	.346	-	.284	-	.283	-
Cadmium	.0039	-	B .0045	-	B .0037	-	B .0021	-
Calcium	108	-	23	-	21.6	-	21.7	-
Chromium	.081	-	.0654	-	.0561	-	.0447	-
Cobalt	1.17	-	3.06	-	1.67	-	1.64	-
Copper	.189	-	.289	-	.215	-	.12	-
Iron	.0468	-	B .0462	-	B .0419	-	B .0261	-
Lead	682	-	E841	-	E833	-	229	-
Magnesium	9.2	-	9.68	-	6.12	-	6.79	-
Manganese	.136	-	.145	-	.111	-	.153	-
Mercury	.0002	-	U .0002	-	U .0002	-	U .0002	-
Molybdenum	.0886	-	.108	-	.101	-	.0362	-
Nickel	2.18	-	4.33	-	2.56	-	2.8	-
Potassium	16.1	-	18.3	-	14.5	-	B 3.83	-
Selenium	.0837	-	.283	-	.306	-	.161	-
Silicon	27.5	-	36.1	J	27.6	JB	35.2	-
Silver	.0475	-	.0387	-	.0301	-	.0227	-
Thallium	.0063	-	BW .0044	-	B .0039	-	U .002	U
Vanadium	.0319	-	B .0269	-	B .0216	-	B .0168	-
Zinc	.0672	-	.194	-	.17	-	.129	-

a = lab qualifier
b = validated qualifier
4SL1TCGC.PRN

089

L-4048

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099741 08/23/91		2S1-NE-A 099749 08/23/91		2S1-NE-B 100010 08/25/91		2S1-NE-C 100023 08/27/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .0001	-	U .00016	R	NA	
4,4'-DDE	NA		U .0001	-	U .00016	R	NA	
4,4'-DDT	NA		U .0001	-	U .00016	R	NA	
Aldrin	NA		U .00005	-	U .00008	R	NA	
alpha-BHC	NA		U .00005	-	U .00008	R	NA	
alpha-Chlordane	NA		U .0005	-	U .0008	R	NA	
Aroclor-1016	NA		U .0005	-	U .0008	R	NA	
Aroclor-1221	NA		U .0005	-	U .0008	R	NA	
Aroclor-1232	NA		U .0005	-	U .0008	R	NA	
Aroclor-1242	NA		U .0005	-	U .0008	R	NA	
Aroclor-1248	NA		U .0005	-	U .0008	R	NA	
Aroclor-1254	NA		U .001	-	U .0016	R	NA	
Aroclor-1260	NA		U .001	-	U .0016	R	NA	
beta-BHC	NA		U .00005	-	U .00008	R	NA	
delta-BHC	NA		U .00005	-	U .00008	R	NA	
Dieldrin	NA		U .0001	-	U .00016	R	NA	
Endosulfan II	NA		U .0001	-	U .00016	R	NA	
Endosulfan sulfate	NA		U .0001	-	U .00016	R	NA	
Endosulfan-I	NA		U .00005	-	U .00008	R	NA	
Endrin	NA		U .0001	-	U .00016	R	NA	
Endrin ketone	NA		U .0001	-	U .00016	R	NA	
gamma-BHC (Lindane)	NA		U .00005	-	U .00008	R	NA	
gamma-Chlordane	NA		U .0005	-	U .0008	R	NA	
Heptachlor	NA		U .00005	-	U .00008	R	NA	
Heptachlor epoxide	NA		U .00005	-	U .00008	R	NA	
Methoxychlor	NA		U .0005	-	U .0008	R	NA	
Toxaphene	NA		U .001	-	U .0016	R	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .02	-	U .02	-	NA	
1,2-Dichlorobenzene	NA		U .02	-	U .02	-	NA	
1,3-Dichlorobenzene	NA		U .02	-	U .02	-	NA	
1,4-Dichlorobenzene	NA		U .02	-	U .02	-	NA	
2,4,5-Trichlorophenol	NA		U .1	-	U .1	-	NA	
2,4,6-Trichlorophenol	NA		U .02	-	U .02	-	NA	
2,4-Dichlorophenol	NA		U .02	-	U .02	-	NA	
2,4-Dimethylphenol	NA		U .02	-	U .02	-	NA	
2,4-Dinitrophenol	NA		U .1	-	U .1	-	NA	
2,4-Dinitrotoluene	NA		U .02	-	U .02	-	NA	
2,6-Dinitrotoluene	NA		U .02	-	U .02	-	NA	
2-Chloronaphthalene	NA		U .02	-	U .02	-	NA	
2-Chlorophenol	NA		U .02	-	U .02	-	NA	

a = lab qualifier
b = validated qualifier

-4948
090

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099741 08/23/91		2S1-NE-A 099749 08/23/91		2S1-NE-B 100010 08/25/91		2S1-NE-C 100023 08/27/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .02	-	U .02	-	NA	
2-Methylphenol	NA		U .02	-	U .02	-	NA	
2-Nitroaniline	NA		U .1	-	U .1	-	NA	
2-Nitrophenol	NA		U .02	-	U .02	-	NA	
3,3'-Dichlorobenzidine	NA		U .04	-	U .04	-	NA	
3-Nitroaniline	NA		U .1	-	U .1	-	NA	
4,6-Dinitro-2-methylphenol	NA		U .1	-	U .1	-	NA	
4-Bromophenyl phenyl ether	NA		U .02	-	U .02	-	NA	
4-Chloro-3-methylphenol	NA		U .02	-	U .02	-	NA	
4-Chloroaniline	NA		U .02	-	U .02	-	NA	
4-Chlorophenylphenyl ether	NA		U .02	-	U .02	-	NA	
4-Methylphenol	NA		U .02	-	U .02	-	NA	
4-Nitroaniline	NA		U .1	-	U .1	-	NA	
4-Nitrophenol	NA		U .1	-	U .1	-	NA	
Acenaphthene	NA		U .02	-	U .02	-	NA	
Acenaphthylene	NA		U .02	-	U .02	-	NA	
Anthracene	NA		U .02	-	U .02	-	NA	
Benzo(a)anthracene	NA		U .02	-	U .02	-	NA	
Benzo(a)pyrene	NA		U .02	-	U .02	-	NA	
Benzo(b)fluoranthene	NA		U .02	-	U .02	-	NA	
Benzo(g,h,i)perylene	NA		U .02	-	U .02	-	NA	
Benzo(k)fluoranthene	NA		U .02	-	U .02	-	NA	
Benzoic acid	NA		BJ .1	-	U .1	-	NA	
Benzyl alcohol	NA		U .02	-	U .02	-	NA	
bis(2-Chloroethoxy)methane	NA		U .02	-	U .02	-	NA	
bis(2-Chloroethyl)ether	NA		U .02	-	U .02	-	NA	
bis(2-Chloroisopropyl) ether	NA		U .02	-	U .02	-	NA	
bis(2-Ethylhexyl) phthalate	NA		U .02	-	U .02	-	NA	
Butyl benzyl phthalate	NA		U .02	-	U .02	-	NA	
Chrysene	NA		U .02	-	U .02	-	NA	
Di-n-butyl phthalate	NA		U .02	-	U .02	-	NA	
Di-n-octyl phthalate	NA		BJ .02	-	U .02	-	NA	
Dibenzo(a,h)anthracene	NA		U .02	-	U .02	-	NA	
Dibenzofuran	NA		U .02	-	U .02	-	NA	
Diethyl phthalate	NA		U .02	-	U .02	-	NA	
Dimethyl phthalate	NA		U .02	-	U .02	-	NA	
Fluoranthene	NA		U .02	-	U .02	-	NA	
Fluorene	NA		U .02	-	U .02	-	NA	
Hexachlorobenzene	NA		U .02	-	U .02	-	NA	
Hexachlorobutadiene	NA		U .02	-	U .02	-	NA	

a = lab qualifier
b = validated qualifier

091
8494

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099741 08/23/91		2S1-NE-A 099749 08/23/91		2S1-NE-B 100010 08/25/91		2S1-NE-C 100023 08/27/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .02	-	U .02	-	NA	
Hexachloroethane	NA		U .02	-	U .02	-	NA	
Indeno(1,2,3-cd)pyrene	NA		U .02	-	U .02	-	NA	
Isophorone	NA		U .02	-	U .02	-	NA	
N-Nitroso-di-n-propylamine	NA		U .02	-	U .02	-	NA	
N-Nitrosodiphenylamine	NA		U .02	-	U .02	-	NA	
Naphthalene	NA		U .02	-	U .02	-	NA	
Nitrobenzene	NA		U .02	-	U .02	-	NA	
Pentachlorophenol	NA		U .1	-	U .1	-	NA	
Phenanthrene	NA		U .02	-	U .02	-	NA	
Phenol	NA		U .02	-	U .02	-	NA	
Pyrene	NA		U .02	-	U .02	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		NA		U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		NA		U .005	-
1,1,2-Trichloroethane	U .005	-	NA		NA		U .005	-
1,1-Dichloroethane	U .005	-	NA		NA		U .005	-
1,1-Dichloroethene	U .005	-	NA		NA		U .005	-
1,2-Dichloroethane	U .005	-	NA		NA		U .005	R
1,2-Dichloroethylene	U .005	R	NA		NA		U .005	-
1,2-Dichloropropane	U .005	-	NA		NA		U .005	-
2-Butanone	J .01	-	NA		NA		J .007	R
2-Hexanone	U .01	-	NA		NA		U .01	-
4-Methyl-2-pentanone	J .01	-	NA		NA		J .001	J
Acetone	B .15	-	NA		NA		B .072	-
Benzene	U .005	-	NA		NA		U .005	-
Bromodichloromethane	U .005	-	NA		NA		U .005	-
Bromoform	U .005	-	NA		NA		U .005	-
Bromomethane	U .01	-	NA		NA		U .01	-
Carbon disulfide	U .005	-	NA		NA		U .005	-
Carbon Tetrachloride	U .005	R	NA		NA		U .005	R
Chlorobenzene	U .005	-	NA		NA		U .005	-
Chloroethane	U .01	-	NA		NA		U .01	-
Chloroform	U .005	R	NA		NA		U .005	R
Chloromethane	U .01	-	NA		NA		U .01	-
cis-1,3-Dichloropropene	U .005	-	NA		NA		U .005	-
Dibromochloromethane	U .005	-	NA		NA		U .005	-
Ethylbenzene	U .005	-	NA		NA		U .005	-
Methylene chloride	B .029	-	NA		NA		B .011	-
Styrene	U .005	-	NA		NA		U .005	-
Tetrachlorethene	U .005	R	NA		NA		U .005	R

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099741 08/23/91		2S1-NE-A 099749 08/23/91		2S1-NE-B 100010 08/25/91		2S1-NE-C 100023 08/27/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	.005	J	NA		NA		BJ .002	-
Total xylenes	U .005	-	NA		NA		U .005	-
trans-1,3-Dichloropropene	U .005	-	NA		NA		U .005	-
Trichloroethene	U .005	-	NA		NA		U .005	-
Vinyl Acetate	U .01	-	NA		NA		U .01	-
Vinyl chloride	U .01	R	NA		NA		U .01	R

a = lab qualifier
b = validated qualifier

093

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100031 08/27/91		2S1-NE-C 100037 08/27/91		2S1-NE-C 100041 08/27/91		2S1-NW-A 099883 08/09/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0001	R	NA		U .0001	R	NA	
4,4'-DDE	U .0001	R	NA		U .0001	R	NA	
4,4'-DDT	U .0001	R	NA		U .0001	R	NA	
Aldrin	U .00005	R	NA		U .00005	R	NA	
alpha-BHC	U .00005	R	NA		U .00005	R	NA	
alpha-Chlordane	U .0005	R	NA		U .0005	R	NA	
Aroclor-1016	U .0005	R	NA		U .0005	R	NA	
Aroclor-1221	U .0005	R	NA		U .0005	R	NA	
Aroclor-1232	U .0005	R	NA		U .0005	R	NA	
Aroclor-1242	U .0005	R	NA		U .0005	R	NA	
Aroclor-1248	U .0005	R	NA		U .0005	R	NA	
Aroclor-1254	U .001	R	NA		U .001	R	NA	
Aroclor-1260	U .001	R	NA		U .001	R	NA	
beta-BHC	U .00005	R	NA		U .00005	R	NA	
delta-BHC	U .00005	-	NA		U .00005	R	NA	
Dieldrin	U .0001	R	NA		U .0001	R	NA	
Endosulfan II	U .0001	R	NA		U .0001	R	NA	
Endosulfan sulfate	U .0001	R	NA		U .0001	R	NA	
Endosulfan-I	U .00005	R	NA		U .00005	R	NA	
Endrin	U .0001	R	NA		U .0001	R	NA	
Endrin ketone	U .0001	R	NA		U .0001	R	NA	
gamma-BHC (Lindane)	U .00005	R	NA		U .00005	R	NA	
gamma-Chlordane	U .0005	R	NA		U .0005	R	NA	
Heptachlor	U .00005	R	NA		U .00005	R	NA	
Heptachlor epoxide	U .00005	R	NA		U .00005	R	NA	
Methoxychlor	U .0005	R	NA		U .0005	R	NA	
Toxaphene	U .001	R	NA		U .001	R	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .02	-	NA		U .02	R	NA	
1,2-Dichlorobenzene	U .02	-	NA		U .02	R	NA	
1,3-Dichlorobenzene	U .02	-	NA		U .02	R	NA	
1,4-Dichlorobenzene	U .02	-	NA		U .02	-	NA	
2,4,5-Trichlorophenol	U .1	-	NA		U .1	-	NA	
2,4,6-Trichlorophenol	U .02	-	NA		U .02	-	NA	
2,4-Dichlorophenol	U .02	-	NA		U .02	R	NA	
2,4-Dimethylphenol	U .02	-	NA		U .02	R	NA	
2,4-Dinitrophenol	U .1	-	NA		U .1	-	NA	
2,4-Dinitrotoluene	U .02	-	NA		U .02	-	NA	
2,6-Dinitrotoluene	U .02	-	NA		U .02	R	NA	
2-Chloronaphthalene	U .02	-	NA		U .02	R	NA	
2-Chlorophenol	J .005	R	NA		U .02	R	NA	

a = lab qualifier
b = validated qualifier

094

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100031 08/27/91		2S1-NE-C 100037 08/27/91		2S1-NE-C 100041 08/27/91		2S1-NW-A 099883 08/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .02	-	NA		U .02	R	NA	
2-Methylphenol	U .02	-	NA		U .02	-	NA	
2-Nitroaniline	U .1	-	NA		U .1	R	NA	
2-Nitrophenol	U .02	-	NA		U .02	R	NA	
3,3'-Dichlorobenzidine	U .04	-	NA		U .04	R	NA	
3-Nitroaniline	U .1	-	NA		U .1	R	NA	
4,6-Dinitro-2-methylphenol	U .1	-	NA		U .1	R	NA	
4-Bromophenyl phenyl ether	U .02	-	NA		U .02	R	NA	
4-Chloro-3-methylphenol	J .004	J	NA		U .02	R	NA	
4-Chloroaniline	U .02	-	NA		U .02	R	NA	
4-Chlorophenylphenyl ether	U .02	-	NA		U .02	R	NA	
4-Methylphenol	U .02	-	NA		U .02	-	NA	
4-Nitroaniline	U .1	-	NA		U .1	R	NA	
4-Nitrophenol	J .008	J	NA		U .1	-	NA	
Acenaphthene	U .02	-	NA		U .02	R	NA	
Acenaphthylene	U .02	-	NA		U .02	R	NA	
Anthracene	U .02	-	NA		U .02	R	NA	
Benzo(a)anthracene	U .02	-	NA		U .02	R	NA	
Benzo(a)pyrene	U .02	-	NA		NA		NA	
Benzo(b)fluoranthene	U .02	-	NA		U .02	R	NA	
Benzo(g,h,i)perylene	U .02	-	NA		U .02	R	NA	
Benzo(k)fluoranthene	U .02	-	NA		U .02	R	NA	
Benzoic acid	U .1	-	NA		U .1	R	NA	
Benzyl alcohol	U .02	-	NA		U .02	R	NA	
bis(2-Chloroethoxy)methane	U .02	-	NA		U .02	R	NA	
bis(2-Chloroethyl)ether	U .02	-	NA		U .02	R	NA	
bis(2-Chloroisopropyl) ether	U .02	-	NA		U .02	R	NA	
bis(2-Ethylhexyl) phthalate	U .02	-	NA		U .02	R	NA	
Butyl benzyl phthalate	U .02	-	NA		U .02	R	NA	
Chrysene	U .02	-	NA		U .02	R	NA	
Di-n-butyl phthalate	U .02	-	NA		U .02	R	NA	
Di-n-octyl phthalate	J .005	J	NA		J .011	R	NA	
Dibenzo(a,h)anthracene	U .02	-	NA		U .02	R	NA	
Dibenzofuran	U .02	-	NA		U .02	R	NA	
Diethyl phthalate	U .02	-	NA		U .02	R	NA	
Dimethyl phthalate	U .02	-	NA		U .02	R	NA	
Fluoranthene	U .02	-	NA		U .02	R	NA	
Fluorene	U .02	-	NA		U .02	R	NA	
Hexachlorobenzene	U .02	-	NA		U .02	-	NA	
Hexachlorobutadiene	U .02	-	NA		U .02	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100031 08/27/91		2S1-NE-C 100037 08/27/91		2S1-NE-C 100041 08/27/91		2S1-NW-A 099883 08/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .02	-	NA		U .02	R	NA	
Hexachloroethane	U .02	-	NA		U .02	R	NA	
Indeno(1,2,3-cd)pyrene	U .02	-	NA		U .02	R	NA	
Isophorone	U .02	R	NA		U .02	R	NA	
N-Nitroso-di-n-propylamine	U .02	-	NA		U .02	R	NA	
N-Nitrosodiphenylamine	U .02	-	NA		U .02	R	NA	
Naphthalene	U .02	-	NA		U .02	R	NA	
Nitrobenzene	U .02	-	NA		U .02	R	NA	
Pentachlorophenol	U .1	-	NA		U .1	-	NA	
Phenanthrene	U .02	-	NA		U .02	R	NA	
Phenol	U .02	-	NA		U .02	R	NA	
Pyrene	U .02	-	NA		U .02	R	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	NA		U .005	-	NA		U .005	-
1,1,2-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethene	NA		U .005	-	NA		U .005	-
1,2-Dichloroethane	NA		U .005	R	NA		U .005	R
1,2-Dichloroethylene	NA		U .005	-	NA		U .005	-
1,2-Dichloropropane	NA		U .005	-	NA		U .005	-
2-Butanone	NA		J .003	R	NA		BJ .01	U
2-Hexanone	NA		U .01	-	NA		U .01	U
4-Methyl-2-pentanone	NA		U .01	-	NA		BJ .01	U
Acetone	NA		BE .49	-	NA		.3	-
Benzene	NA		U .005	-	NA		U .005	-
Bromodichloromethane	NA		U .005	-	NA		U .005	-
Bromoform	NA		U .005	-	NA		U .005	-
Bromomethane	NA		U .01	-	NA		U .01	-
Carbon disulfide	NA		U .005	-	NA		U .005	-
Carbon Tetrachloride	NA		U .005	R	NA		U .005	R
Chlorobenzene	NA		U .005	-	NA		U .005	-
Chloroethane	NA		U .01	-	NA		U .01	-
Chloroform	NA		U .005	-	NA		U .005	R
Chloromethane	NA		U .01	-	NA		U .01	-
cis-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Dibromochloromethane	NA		U .005	-	NA		U .005	-
Ethylbenzene	NA		U .005	-	NA		U .005	-
Methylene chloride	NA		B .019	-	NA		B .005	U
Styrene	NA		U .005	-	NA		U .005	-
Tetrachlorethene	NA		U .005	R	NA		U .005	-

a = lab qualifier
b = validated qualifier

-4948
056

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-C 100031 08/27/91		2S1-NE-C 100037 08/27/91		2S1-NE-C 100041 08/27/91		2S1-NW-A 099883 08/09/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		BJ .002	-	NA		U .005	-
Total xylenes	NA		U .005	-	NA		U .005	-
trans-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Trichloroethene	NA		U .005	-	NA		U .005	R
Vinyl Acetate	NA		U .01	-	NA		U .01	-
Vinyl chloride	NA		U .01	R	NA		U .01	R

a = lab qualifier
b = validated qualifier

097

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099891 08/09/91		2S1-NW-B 099907 08/11/91		2S1-NW-B 099915 08/11/91		2S1-NW-B 099928 08/11/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0003	UJ	NA		U .0001	-	NA	
4,4'-DDE	U .0003	UJ	NA		U .0001	-	NA	
4,4'-DDT	U .0003	UJ	NA		U .0001	-	NA	
Aldrin	U .00015	UJ	NA		U .00005	-	NA	
alpha-BHC	U .00015	UJ	NA		U .00005	-	NA	
alpha-Chlordane	U .0015	UJ	NA		U .0005	-	NA	
Aroclor-1016	U .0015	UJ	NA		U .0005	-	NA	
Aroclor-1221	U .0015	UJ	NA		U .0005	-	NA	
Aroclor-1232	U .0015	UJ	NA		U .0005	-	NA	
Aroclor-1242	U .0015	UJ	NA		U .0005	-	NA	
Aroclor-1248	U .0015	UJ	NA		U .0005	-	NA	
Aroclor-1254	U .003	UJ	NA		U .001	-	NA	
Aroclor-1260	U .003	UJ	NA		U .001	-	NA	
beta-BHC	U .00015	UJ	NA		U .00005	-	NA	
delta-BHC	U .00015	UJ	NA		U .00005	-	NA	
Dieldrin	U .0003	UJ	NA		U .0001	-	NA	
Endosulfan II	U .0003	UJ	NA		U .0001	-	NA	
Endosulfan sulfate	U .0003	UJ	NA		U .0001	-	NA	
Endosulfan-I	U .00015	UJ	NA		U .00005	-	NA	
Endrin	U .0003	UJ	NA		U .0001	-	NA	
Endrin ketone	U .0003	UJ	NA		U .0001	-	NA	
gamma-BHC (Lindane)	U .00015	UJ	NA		U .00005	-	NA	
gamma-Chlordane	U .0015	UJ	NA		U .0005	-	NA	
Heptachlor	U .00015	UJ	NA		U .00005	-	NA	
Heptachlor epoxide	U .00015	UJ	NA		U .00005	-	NA	
Methoxychlor	U .0015	UJ	NA		U .0005	-	NA	
Toxaphene	U .003	UJ	NA		U .001	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .02	J	NA		U .02	-	NA	
1,2-Dichlorobenzene	U .02	J	NA		U .02	-	NA	
1,3-Dichlorobenzene	U .02	J	NA		U .02	-	NA	
1,4-Dichlorobenzene	U .02	J	NA		U .02	-	NA	
2,4,5-Trichlorophenol	U .1	-	NA		U .1	-	NA	
2,4,6-Trichlorophenol	U .02	J	NA		U .02	-	NA	
2,4-Dichlorophenol	U .02	J	NA		U .02	-	NA	
2,4-Dimethylphenol	U .02	J	NA		U .02	-	NA	
2,4-Dinitrophenol	U .1	-	NA		U .1	-	NA	
2,4-Dinitrotoluene	U .02	J	NA		U .02	-	NA	
2,6-Dinitrotoluene	U .02	J	NA		U .02	-	NA	
2-Chloronaphthalene	U .02	J	NA		U .02	-	NA	
2-Chlorophenol	U .02	J	NA		U .02	-	NA	

a = lab qualifier
b = validated qualifier

-4048
098

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099891 08/09/91		2S1-NW-B 099907 08/11/91		2S1-NW-B 099915 08/11/91		2S1-NW-B 099928 08/11/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .02	J	NA		U .02	-	NA	
2-Methylphenol	U .02	J	NA		U .02	-	NA	
2-Nitroaniline	U .1	J	NA		U .1	-	NA	
2-Nitrophenol	U .02	-	NA		U .02	-	NA	
3,3'-Dichlorobenzidine	U .04	-	NA		U .04	-	NA	
3-Nitroaniline	U .1	-	NA		U .1	-	NA	
4,6-Dinitro-2-methylphenol	U .1	J	NA		U .1	-	NA	
4-Bromophenyl phenyl ether	U .02	J	NA		U .02	-	NA	
4-Chloro-3-methylphenol	U .02	J	NA		U .02	-	NA	
4-Chloroaniline	U .02	J	NA		U .02	-	NA	
4-Chlorophenylphenyl ether	U .02	J	NA		U .02	-	NA	
4-Methylphenol	U .02	J	NA		U .02	-	NA	
4-Nitroaniline	U .1	J	NA		U .1	-	NA	
4-Nitrophenol	U .1	J	NA		U .1	-	NA	
Acenaphthene	U .02	J	NA		U .02	-	NA	
Acenaphthylene	U .02	J	NA		U .02	-	NA	
Anthracene	U .02	J	NA		U .02	-	NA	
Benzo(a)anthracene	U .02	J	NA		U .02	-	NA	
Benzo(a)pyrene	U .02	J	NA		U .02	-	NA	
Benzo(b)fluoranthene	U .02	J	NA		U .02	-	NA	
Benzo(g,h,i)perylene	U .02	J	NA		U .02	-	NA	
Benzo(k)fluoranthene	U .02	J	NA		U .02	-	NA	
Benzoic acid	BJ .05	J	NA		U .02	-	NA	
Benzyl alcohol	U .02	J	NA		BJ .006	-	NA	
bis(2-Chloroethoxy)methane	U .02	J	NA		U .02	-	NA	
bis(2-Chloroethyl)ether	U .02	J	NA		U .02	-	NA	
bis(2-Chloroisopropyl) ether	U .02	J	NA		U .02	-	NA	
bis(2-Ethylhexyl) phthalate	.098	J	NA		U .02	-	NA	
Butyl benzyl phthalate	U .02	J	NA		U .02	-	NA	
Chrysene	U .02	J	NA		U .02	-	NA	
Di-n-butyl phthalate	U .02	J	NA		U .02	-	NA	
Di-n-octyl phthalate	U .02	J	NA		U .02	-	NA	
Dibenzo(a,h)anthracene	U .02	J	NA		U .02	-	NA	
Dibenzofuran	U .02	J	NA		U .02	-	NA	
Diethyl phthalate	U .02	J	NA		U .02	-	NA	
Dimethyl phthalate	U .02	J	NA		U .02	-	NA	
Fluoranthene	U .02	J	NA		U .02	-	NA	
Fluorene	U .02	J	NA		U .02	-	NA	
Hexachlorobenzene	U .02	J	NA		U .02	-	NA	
Hexachlorobutadiene	U .02	-	NA		U .02	-	NA	

a = lab qualifier
b = validated qualifier

099

1 4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099891 08/09/91		2S1-NW-B 099907 08/11/91		2S1-NW-B 099915 08/11/91		2S1-NW-B 099928 08/11/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .02	J	NA		U .02	-	NA	
Hexachloroethane	U .02	-	NA		U .02	-	NA	
Indeno(1,2,3-cd)pyrene	U .02	J	NA		U .02	-	NA	
Isophorone	U .02	J	NA		U .02	-	NA	
N-Nitroso-di-n-propylamine	U .02	J	NA		U .02	-	NA	
N-Nitrosodiphenylamine	U .02	J	NA		U .02	-	NA	
Naphthalene	U .02	J	NA		U .02	-	NA	
Nitrobenzene	U .02	J	NA		U .02	-	NA	
Pentachlorophenol	U .1	J	NA		U .1	-	NA	
Phenanthrene	U .02	J	NA		U .02	-	NA	
Phenol	U .02	J	NA		U .02	-	NA	
Pyrene	U .02	J	NA		U .02	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	NA		U .005	-	NA		U .005	-
1,1,2-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethene	NA		U .005	-	NA		U .005	-
1,2-Dichloroethane	NA		U .005	R	NA		U .005	-
1,2-Dichloroethylene	NA		U .005	-	NA		U .005	-
1,2-Dichloropropane	NA		U .005	-	NA		U .005	-
2-Butanone	NA		BJ .01	U	NA		BJ .002	-
2-Hexanone	NA		U .01	-	NA		U .01	-
4-Methyl-2-pentanone	NA		J .001	-	NA		J .002	-
Acetone	NA		BE .01	U	NA		BE .43	-
Benzene	NA		U .005	-	NA		U .005	-
Bromodichloromethane	NA		U .005	-	NA		U .005	-
Bromoform	NA		U .005	-	NA		U .005	-
Bromomethane	NA		U .01	-	NA		U .01	-
Carbon disulfide	NA		U .005	-	NA		U .005	-
Carbon Tetrachloride	NA		U .005	R	NA		U .005	-
Chlorobenzene	NA		U .005	-	NA		U .005	-
Chloroethane	NA		U .01	-	NA		U .01	-
Chloroform	NA		U .005	R	NA		U .005	-
Chloromethane	NA		U .01	-	NA		U .01	-
cis-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Dibromochloromethane	NA		U .005	-	NA		U .005	-
Ethylbenzene	NA		U .005	-	NA		U .005	-
Methylene chloride	NA		B .005	U	NA		B .013	-
Styrene	NA		U .005	-	NA		U .005	-
Tetrachlorethene	NA		U .005	-	NA		J .001	-

a = lab qualifier
b = validated qualifier

-4948

100

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-A 099891 08/09/91		2S1-NW-B 099907 08/11/91		2S1-NW-B 099915 08/11/91		2S1-NW-B 099928 08/11/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		U .005	-	NA		U .005	-
Total xylenes	NA		U .005	-	NA		U .005	-
trans-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Trichloroethene	NA		U .005	-	NA		U .005	-
Vinyl Acetate	NA		U .01	-	NA		U .01	-
Vinyl chloride	NA		U .01	R	NA		U .01	-

a = lab qualifier
b = validated qualifier

74948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099932 08/11/91		2S1-NW-C 099937 08/14/91		2S1-NW-C 099945 08/14/91		2S1-SE-A 099868 08/16/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0001	-	NA		U .0001	-	NA	
4,4'-DDE	U .0001	-	NA		U .0001	-	NA	
4,4'-DDT	U .0001	-	NA		U .0001	-	NA	
Aldrin	U .00005	-	NA		U .00005	-	NA	
alpha-BHC	U .00005	-	NA		U .00005	-	NA	
alpha-Chlordane	U .0005	-	NA		U .0005	J	NA	
Aroclor-1016	U .0005	-	NA		U .0005	-	NA	
Aroclor-1221	U .0005	-	NA		U .0005	-	NA	
Aroclor-1232	U .0005	-	NA		U .0005	-	NA	
Aroclor-1242	U .0005	-	NA		U .0005	-	NA	
Aroclor-1248	U .0005	-	NA		U .0005	-	NA	
Aroclor-1254	U .001	-	NA		U .001	-	NA	
Aroclor-1260	U .001	-	NA		U .00005	-	NA	
beta-BHC	U .00005	-	NA		U .00005	-	NA	
delta-BHC	U .0001	-	NA		U .0001	-	NA	
Dieldrin	U .0001	-	NA		U .0001	-	NA	
Endosulfan II	U .0001	-	NA		U .0001	-	NA	
Endosulfan sulfate	U .00005	-	NA		U .00005	-	NA	
Endosulfan-I	U .0001	-	NA		U .0001	-	NA	
Endrin	U .0001	-	NA		U .0001	-	NA	
Endrin ketone	U .00005	-	NA		U .00005	J	NA	
gamma-BHC (Lindane)	U .0005	-	NA		U .0005	J	NA	
gamma-Chlordane	U .00005	-	NA		U .00005	-	NA	
Heptachlor	U .00005	-	NA		U .0005	-	NA	
Heptachlor epoxide	U .001	R	NA		U .001	R	NA	
Methoxychlor								
Toxaphene								
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .022	-	NA		U .022	-	NA	
1,2-Dichlorobenzene	U .022	-	NA		U .022	-	NA	
1,3-Dichlorobenzene	U .022	-	NA		U .022	-	NA	
1,4-Dichlorobenzene	U .022	-	NA		U .022	-	NA	
2,4,5-Trichlorophenol	U .11	-	NA		U .11	-	NA	
2,4,6-Trichlorophenol	U .022	-	NA		U .022	-	NA	
2,4-Dichlorophenol	U .022	-	NA		U .022	-	NA	
2,4-Dimethylphenol	U .022	-	NA		U .022	-	NA	
2,4-Dinitrophenol	U .11	-	NA		U .11	-	NA	
2,4-Dinitrotoluene	U .022	-	NA		U .022	R	NA	
2,6-Dinitrotoluene	U .022	R	NA		U .022	-	NA	
2-Chloronaphthalene	U .022	-	NA		U .022	-	NA	
2-Chlorophenol	U .022	-	NA		U .022	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099932 08/11/91		2S1-NW-C 099937 08/14/91		2S1-NW-C 099945 08/14/91		2S1-SE-A 099868 08/16/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .022	-	NA		U .022	-	NA	
2-Methylphenol	U .022	-	NA		U .022	-	NA	
2-Nitroaniline	U .11	-	NA		U .11	-	NA	
2-Nitrophenol	U .022	-	NA		U .022	-	NA	
3,3'-Dichlorobenzidine	U .044	-	NA		U .043	-	NA	
3-Nitroaniline	U .11	-	NA		U .11	-	NA	
4,6-Dinitro-2-methylphenol	U .11	-	NA		U .11	-	NA	
4-Bromophenyl phenyl ether	U .022	-	NA		U .022	-	NA	
4-Chloro-3-methylphenol	U .022	-	NA		U .022	-	NA	
4-Chloroaniline	U .022	-	NA		U .022	-	NA	
4-Chlorophenylphenyl ether	U .022	-	NA		U .022	-	NA	
4-Methylphenol	U .022	-	NA		U .022	-	NA	
4-Nitroaniline	U .11	-	NA		U .11	-	NA	
4-Nitrophenol	U .11	-	NA		U .11	-	NA	
Acenaphthene	U .022	-	NA		U .022	-	NA	
Acenaphthylene	U .022	-	NA		U .022	-	NA	
Anthracene	U .022	-	NA		U .022	-	NA	
Benzo(a)anthracene	U .022	-	NA		U .022	-	NA	
Benzo(a)pyrene	U .022	-	NA		U .022	-	NA	
Benzo(b)fluoranthene	U .022	-	NA		U .022	-	NA	
Benzo(g,h,i)perylene	U .022	-	NA		U .022	-	NA	
Benzo(k)fluoranthene	U .022	-	NA		U .022	-	NA	
Benzoic acid	U .11	-	NA		U .11	-	NA	
Benzyl alcohol	U .022	-	NA		U .022	-	NA	
bis(2-Chloroethoxy)methane	U .022	-	NA		U .022	-	NA	
bis(2-Chloroethyl)ether	U .022	-	NA		U .022	-	NA	
bis(2-Chloroisopropyl) ether	U .022	-	NA		U .022	-	NA	
bis(2-Ethylhexyl) phthalate	U .022	-	NA		J .006	J	NA	
Butyl benzyl phthalate	U .022	-	NA		U .022	-	NA	
Chrysene	U .022	-	NA		U .022	-	NA	
Di-n-butyl phthalate	U .022	-	NA		U .022	-	NA	
Di-n-octyl phthalate	U .022	-	NA		U .022	-	NA	
Dibenzo(a,h)anthracene	U .022	-	NA		U .022	-	NA	
Dibenzofuran	U .022	-	NA		U .022	-	NA	
Diethyl phthalate	U .022	-	NA		U .022	-	NA	
Dimethyl phthalate	U .022	-	NA		U .022	-	NA	
Fluoranthene	U .022	-	NA		U .022	-	NA	
Fluorene	U .022	-	NA		U .022	-	NA	
Hexachlorobenzene	U .022	-	NA		U .022	-	NA	
Hexachlorobutadiene	U .022	R	NA		U .022	R	NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099932 08/11/91		2S1-NW-C 099937 08/14/91		2S1-NW-C 099945 08/14/91		2S1-SE-A 099868 08/16/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .022	-	NA		U .022	-	NA	
Hexachloroethane	U .022	-	NA		U .022	-	NA	
Indeno(1,2,3-cd)pyrene	U .022	-	NA		U .022	-	NA	
Isophorone	U .022	-	NA		U .022	-	NA	
N-Nitroso-di-n-propylamine	J .018	-	NA		.28	-	NA	
N-Nitrosodiphenylamine	U .022	-	NA		U .022	-	NA	
Naphthalene	U .022	-	NA		U .022	-	NA	
Nitrobenzene	U .022	-	NA		U .022	-	NA	
Pentachlorophenol	U .11	-	NA		U .11	-	NA	
Phenanthrene	U .022	-	NA		U .022	-	NA	
Phenol	U .022	-	NA		U .022	-	NA	
Pyrene	U .022	-	NA		U .022	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	NA		U .005	-	NA		U .005	-
1,1,2-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethene	NA		U .005	-	NA		U .005	-
1,2-Dichloroethane	NA		U .005	R	NA		U .005	R
1,2-Dichloroethylene	NA		U .005	-	NA		U .005	-
1,2-Dichloropropane	NA		U .005	-	NA		U .005	-
2-Butanone	NA		BJ .006	J	NA		BJ .005	J
2-Hexanone	NA		U .01	-	NA		U .01	-
4-Methyl-2-pentanone	NA		J .002	J	NA		J .001	-
Acetone	NA		BE .22	J	NA		B .11	J
Benzene	NA		U .005	-	NA		U .005	-
Bromodichloromethane	NA		U .005	-	NA		U .005	-
Bromoform	NA		U .005	-	NA		U .005	-
Bromomethane	NA		U .01	-	NA		U .01	-
Carbon disulfide	NA		U .005	-	NA		U .005	-
Carbon Tetrachloride	NA		U .005	R	NA		U .005	R
Chlorobenzene	NA		U .005	-	NA		U .005	-
Chloroethane	NA		U .01	-	NA		U .01	-
Chloroform	NA		U .005	R	NA		U .005	R
Chloromethane	NA		U .01	-	NA		U .01	-
cis-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Dibromochloromethane	NA		U .005	-	NA		U .005	-
Ethylbenzene	NA		U .005	-	NA		U .005	-
Methylene chloride	NA		B .012	-	NA		B .013	J
Styrene	NA		U .005	-	NA		U .005	-
Tetrachlorethene	NA		U .005	R	NA		U .005	R

a = lab qualifier
b = validated qualifier

104

-4048

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099932 08/11/91		2S1-NW-C 099937 08/14/91		2S1-NW-C 099945 08/14/91		2S1-SE-A 099868 08/16/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		J .001	J	NA		U .005	-
Total xylenes	NA		U .005	-	NA		U .005	-
trans-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Trichloroethene	NA		U .005	-	NA		U .005	-
Vinyl Acetate	NA		U .01	-	NA		U .01	-
Vinyl chloride	NA		U .01	R	NA		U .01	R

a = lab qualifier
b = validated qualifier

105

1-4094

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099876 08/16/91		2S1-SE-B 099960 08/18/91		2S1-SE-B 099962 08/18/91		2S1-SE-B 099976 08/18/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0001	-	NA		NA		NA	
4,4'-DDE	U .0001	-	NA		NA		NA	
4,4'-DDT	U .0001	-	NA		NA		NA	
Aldrin	U .00005	-	NA		NA		NA	
alpha-BHC	U .00005	-	NA		NA		NA	
alpha-Chlordane	U .0005	-	NA		NA		NA	
Aroclor-1016	U .0005	-	NA		NA		NA	
Aroclor-1221	U .0005	-	NA		NA		NA	
Aroclor-1232	U .0005	-	NA		NA		NA	
Aroclor-1242	U .0005	-	NA		NA		NA	
Aroclor-1248	U .0005	-	NA		NA		NA	
Aroclor-1254	U .001	-	NA		NA		NA	
Aroclor-1260	U .001	-	NA		NA		NA	
beta-BHC	U .00005	-	NA		NA		NA	
delta-BHC	U .00005	-	NA		NA		NA	
Dieldrin	U .0001	-	NA		NA		NA	
Endosulfan II	U .0001	-	NA		NA		NA	
Endosulfan sulfate	U .0001	-	NA		NA		NA	
Endosulfan-I	U .00005	-	NA		NA		NA	
Endrin	U .0001	-	NA		NA		NA	
Endrin ketone	U .0001	-	NA		NA		NA	
gamma-BHC (Lindane)	U .00005	-	NA		NA		NA	
gamma-Chlordane	U .0005	-	NA		NA		NA	
Heptachlor	U .00005	-	NA		NA		NA	
Heptachlor epoxide	U .00005	-	NA		NA		NA	
Methoxychlor	U .0005	-	NA		NA		NA	
Toxaphene	U .001	R	NA		NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .025	-	NA		U .029	-	NA	
1,2-Dichlorobenzene	U .025	-	NA		U .029	-	NA	
1,3-Dichlorobenzene	U .025	-	NA		U .029	-	NA	
1,4-Dichlorobenzene	U .025	-	NA		U .029	-	NA	
2,4,5-Trichlorophenol	U .12	-	NA		U .14	-	NA	
2,4,6-Trichlorophenol	U .025	-	NA		U .029	-	NA	
2,4-Dichlorophenol	U .025	-	NA		U .029	-	NA	
2,4-Dimethylphenol	U .025	-	NA		U .029	-	NA	
2,4-Dinitrophenol	U .12	-	NA		U .14	-	NA	
2,4-Dinitrotoluene	U .025	R	NA		U .029	-	NA	
2,6-Dinitrotoluene	U .025	-	NA		U .029	-	NA	
2-Chloronaphthalene	U .025	-	NA		U .029	-	NA	
2-Chlorophenol	U .025	-	NA		U .029	-	NA	

a = lab qualifier
b = validated qualifier

1-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099876 08/16/91		2S1-SE-B 099960 08/18/91		2S1-SE-B 099962 08/18/91		2S1-SE-B 099976 08/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .025	-	NA		U .029	-	NA	
2-Methylphenol	U .025	-	NA		U .029	-	NA	
2-Nitroaniline	U .12	-	NA		U .14	-	NA	
2-Nitrophenol	U .025	-	NA		U .029	-	NA	
3,3'-Dichlorobenzidine	U .05	-	NA		U .057	-	NA	
3-Nitroaniline	U .12	-	NA		U .14	-	NA	
4,6-Dinitro-2-methylphenol	U .12	-	NA		U .14	-	NA	
4-Bromophenyl phenyl ether	U .025	-	NA		U .029	-	NA	
4-Chloro-3-methylphenol	U .025	-	NA		U .029	-	NA	
4-Chloroaniline	U .025	-	NA		U .029	-	NA	
4-Chlorophenylphenyl ether	U .025	-	NA		U .029	-	NA	
4-Methylphenol	U .025	-	NA		U .029	-	NA	
4-Nitroaniline	U .12	-	NA		U .029	-	NA	
4-Nitrophenol	U .12	-	NA		U .14	-	NA	
Acenaphthene	U .025	-	NA		U .14	-	NA	
Acenaphthylene	U .025	-	NA		U .029	-	NA	
Anthracene	U .025	-	NA		U .029	-	NA	
Benzo(a)anthracene	U .025	-	NA		U .029	-	NA	
Benzo(a)pyrene	U .025	-	NA		U .029	-	NA	
Benzo(b)fluoranthene	U .025	-	NA		U .029	-	NA	
Benzo(g,h,i)perylene	U .025	-	NA		U .029	-	NA	
Benzo(k)fluoranthene	U .025	-	NA		U .029	-	NA	
Benzoic acid	U .12	-	NA		U .029	-	NA	
Benzyl alcohol	U .025	-	NA		J .079	-	NA	
bis(2-Chloroethoxy)methane	U .025	-	NA		U .029	-	NA	
bis(2-Chloroethyl)ether	U .025	-	NA		U .029	-	NA	
bis(2-Chloroisopropyl) ether	U .025	-	NA		U .029	-	NA	
bis(2-Ethylhexyl) phthalate	U .025	-	NA		U .029	-	NA	
Butyl benzyl phthalate	U .025	-	NA		U .029	-	NA	
Chrysene	U .025	-	NA		U .029	-	NA	
Di-n-butyl phthalate	U .025	-	NA		U .029	-	NA	
Di-n-octyl phthalate	U .025	-	NA		U .029	-	NA	
Dibenzo(a,h)anthracene	U .025	-	NA		U .029	-	NA	
Dibenzofuran	U .025	-	NA		J .008	-	NA	
Diethyl phthalate	U .025	-	NA		U .029	-	NA	
Dimethyl phthalate	U .025	-	NA		U .029	-	NA	
Fluoranthene	U .025	-	NA		U .029	-	NA	
Fluorene	U .025	-	NA		U .029	-	NA	
Hexachlorobenzene	U .025	-	NA		U .029	-	NA	
Hexachlorobutadiene	U .025	R	NA		U .029	-	NA	

a = lab qualifier
b = validated qualifier

1-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099876 08/16/91		2S1-SE-B 099960 08/18/91		2S1-SE-B 099962 08/18/91		2S1-SE-B 099976 08/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .025	-	NA		U .029	-	NA	
Hexachloroethane	U .025	-	NA		U .029	-	NA	
Indeno(1,2,3-cd)pyrene	U .025	-	NA		U .029	-	NA	
Isophorone	U .025	-	NA		U .029	-	NA	
N-Nitroso-di-n-propylamine	.06	-	NA		.15	-	NA	
N-Nitrosodiphenylamine	U .025	-	NA		U .029	-	NA	
Naphthalene	U .025	-	NA		U .029	-	NA	
Nitrobenzene	U .025	-	NA		U .029	-	NA	
Pentachlorophenol	U .12	-	NA		U .14	-	NA	
Phenanthrene	U .025	-	NA		U .029	-	NA	
Phenol	U .025	-	NA		U .029	-	NA	
Pyrene	U .025	-	NA		U .029	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	NA		U .005	-	NA		U .005	-
1,1,2-Trichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethane	NA		U .005	-	NA		U .005	-
1,1-Dichloroethene	NA		U .005	-	NA		U .005	-
1,2-Dichloroethane	NA		U .005	-	NA		U .005	-
1,2-Dichloroethylene	NA		U .005	-	NA		U .005	-
1,2-Dichloropropane	NA		U .005	-	NA		U .005	-
2-Butanone	NA		BJ .005	-	NA		BJ .005	JB
2-Hexanone	NA		U .01	-	NA		U .01	-
4-Methyl-2-pentanone	NA		J .001	-	NA		J .002	-
Acetone	NA		B .069	-	NA		B .17	JB
Benzene	NA		U .005	-	NA		U .005	-
Bromodichloromethane	NA		U .005	-	NA		U .005	-
Bromoform	NA		U .005	-	NA		U .005	-
Bromomethane	NA		U .01	-	NA		U .01	-
Carbon disulfide	NA		U .005	-	NA		U .005	-
Carbon Tetrachloride	NA		U .005	-	NA		U .005	-
Chlorobenzene	NA		U .005	-	NA		U .005	-
Chloroethane	NA		U .01	-	NA		U .01	-
Chloroform	NA		U .005	-	NA		U .005	-
Chloromethane	NA		U .01	-	NA		U .01	-
cis-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Dibromochloromethane	NA		U .005	-	NA		U .005	-
Ethylbenzene	NA		U .005	-	NA		U .005	-
Methylene chloride	NA		B .009	-	NA		B .021	JB
Styrene	NA		U .005	-	NA		U .005	-
Tetrachlorethene	NA		U .005	-	NA		U .005	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-A 099876 08/16/91		2S1-SE-B 099960 08/18/91		2S1-SE-B 099962 08/18/91		2S1-SE-B 099976 08/18/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		U .005	-	NA		U .005	-
Total xylenes	NA		U .005	-	NA		U .005	-
trans-1,3-Dichloropropene	NA		U .005	-	NA		U .005	-
Trichloroethene	NA		U .005	-	NA		U .005	-
Vinyl Acetate	NA		U .01	-	NA		U .01	-
Vinyl chloride	NA		U .01	-	NA		U .01	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099726 08/21/91		2S1-SE-C 099734 08/21/91	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
2-Methylnaphthalene	NA		U .02	-
2-Methylphenol	NA		U .02	-
2-Nitroaniline	NA		U .1	-
2-Nitrophenol	NA		U .02	-
3,3'-Dichlorobenzidine	NA		U .04	-
3-Nitroaniline	NA		U .1	-
4,6-Dinitro-2-methylphenol	NA		U .1	-
4-Bromophenyl phenyl ether	NA		U .02	-
4-Chloro-3-methylphenol	NA		U .02	-
4-Chloroaniline	NA		U .02	-
4-Chlorophenylphenyl ether	NA		U .02	-
4-Methylphenol	NA		U .02	-
4-Nitroaniline	NA		U .1	-
4-Nitrophenol	NA		U .1	-
Acenaphthene	NA		U .02	-
Acenaphthylene	NA		U .02	-
Anthracene	NA		U .02	-
Benzo(a)anthracene	NA		U .02	-
Benzo(a)pyrene	NA		U .02	-
Benzo(b)fluoranthene	NA		U .02	-
Benzo(g,h,i)perylene	NA		U .02	-
Benzo(k)fluoranthene	NA		U .02	-
Benzoic acid	NA		BJ .01	-
Benzyl alcohol	NA		U .02	-
bis(2-Chloroethoxy)methane	NA		U .02	-
bis(2-Chloroethyl)ether	NA		U .02	-
bis(2-Chloroisopropyl) ether	NA		U .02	-
bis(2-Ethylhexyl) phthalate	NA		U .02	-
Butyl benzyl phthalate	NA		U .02	-
Chrysene	NA		U .02	-
Di-n-butyl phthalate	NA		U .02	-
Di-n-octyl phthalate	NA		BJ .05	-
Dibenzo(a,h)anthracene	NA		U .02	-
Dibenzofuran	NA		U .02	-
Diethyl phthalate	NA		U .02	-
Dimethyl phthalate	NA		U .02	-
Fluoranthene	NA		U .02	-
Fluorene	NA		U .02	-
Hexachlorobenzene	NA		U .02	-
Hexachlorobutadiene	NA		U .02	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099726 08/21/91		2S1-SE-C 099734 08/21/91	
	a	b	a	b
PESTICIDES/PCB				
4,4'-DDD	NA		U .0001	-
4,4'-DDE	NA		U .0001	-
4,4'-DDT	NA		U .0001	-
Aldrin	NA		U .00005	-
alpha-BHC	NA		U .00005	-
alpha-Chlordane	NA		U .0005	-
Aroclor-1016	NA		U .0005	-
Aroclor-1221	NA		U .0005	-
Aroclor-1232	NA		U .0005	-
Aroclor-1242	NA		U .0005	-
Aroclor-1248	NA		U .0005	-
Aroclor-1254	NA		U .001	-
Aroclor-1260	NA		U .001	-
beta-BHC	NA		U .00005	-
delta-BHC	NA		U .00005	-
Dieldrin	NA		U .0001	-
Endosulfan II	NA		U .0001	-
Endosulfan sulfate	NA		U .0001	-
Endosulfan-I	NA		U .00005	-
Endrin	NA		U .0001	-
Endrin ketone	NA		U .0001	-
gamma-BHC (Lindane)	NA		U .00005	-
gamma-Chlordane	NA		U .0005	-
Heptachlor	NA		U .00005	-
Heptachlor epoxide	NA		U .00005	-
Methoxychlor	NA		U .0005	-
Toxaphene	NA		U .001	-
SEMI-VOLATILE ORGANICS				
1,2,4-Trichlorobenzene	NA		U .02	-
1,2-Dichlorobenzene	NA		U .02	-
1,3-Dichlorobenzene	NA		U .02	-
1,4-Dichlorobenzene	NA		U .02	-
2,4,5-Trichlorophenol	NA		U .1	-
2,4,6-Trichlorophenol	NA		U .02	-
2,4-Dichlorophenol	NA		U .02	-
2,4-Dimethylphenol	NA		U .02	-
2,4-Dinitrophenol	NA		U .1	-
2,4-Dinitrotoluene	NA		U .02	-
2,6-Dinitrotoluene	NA		U .02	-
2-Chloronaphthalene	NA		U .02	-
2-Chlorophenol	NA		U .02	-

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099726 08/21/91		2S1-SE-C 099734 08/21/91	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
Hexachlorocyclopentadiene	NA		U .02	-
Hexachloroethane	NA		U .02	-
Indeno(1,2,3-cd)pyrene	NA		U .02	-
Isophorone	NA		U .02	-
N-Nitroso-di-n-propylamine	NA		U .02	-
N-Nitrosodiphenylamine	NA		U .02	-
Naphthalene	NA		U .02	-
Nitrobenzene	NA		U .02	-
Pentachlorophenol	NA		U .1	-
Phenanthrene	NA		U .02	-
Phenol	NA		U .02	-
Pyrene	NA		U .02	-
VOLATILE ORGANICS				
1,1,1-Trichloroethane	U .005	-	NA	
1,1,2,2-Tetrachloroethane	U .005	-	NA	
1,1,2-Trichloroethane	U .005	-	NA	
1,1-Dichloroethane	U .005	-	NA	
1,1-Dichloroethene	U .005	UJ	NA	
1,2-Dichloroethane	U .005	-	NA	
1,2-Dichloroethylene	U .005	R	NA	
1,2-Dichloropropane	U .005	-	NA	
2-Butanone	J .001	J	NA	
2-Hexanone	U .01	-	NA	
4-Methyl-2-pentanone	U .01	-	NA	
Acetone	B .17	R	NA	
Benzene	U .005	UJ	NA	
Bromodichloromethane	U .005	-	NA	
Bromoform	U .005	-	NA	
Bromomethane	U .01	-	NA	
Carbon disulfide	U .005	-	NA	
Carbon Tetrachloride	U .005	R	NA	
Chlorobenzene	U .005	UJ	NA	
Chloroethane	U .01	-	NA	
Chloroform	U .005	R	NA	
Chloromethane	U .01	-	NA	
cis-1,3-Dichloropropene	U .005	-	NA	
Dibromochloromethane	U .005	-	NA	
Ethylbenzene	U .005	-	NA	
Methylene chloride	B .038	-	NA	
Styrene	U .005	-	NA	
Tetrachlorethene	U .005	R	NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 1 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-C 099726 08/21/91		2S1-SE-C 099734 08/21/91	
	a	b	a	b
VOLATILE ORGANICS				
Toluene	BJ .002	-	NA	
Total xylenes	U .005	-	NA	
trans-1,3-Dichloropropene	U .005	-	NA	
Trichloroethene	U .005	UJ	NA	
Vinyl Acetate	U .01	-	NA	
Vinyl chloride	U .01	R	NA	

a = lab qualifier
b = validated qualifier
4SL1TCH.PRN

113

--4048

OU4 1991/92 SILO 1 GEOTECHNICAL RESULTS

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100053
SPECIFIC GRAVITY:	3.03 (MEASURED)
MAXIMUM DRY DENSITY:	96.8 pcf
USCS SYMBOL:	ML
WATER CONTENT (%):	37.1
LIQUID LIMIT:	37.0
PLASTICITY INDEX:	6.0
OPTIMUM MOISTURE (%):	28.7

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	99.8
NO. 4	4.750	99.4
NO. 10	2.000	97.5
NO. 20	0.850	94.2
NO. 40	0.425	87.9
NO. 60	0.250	78.3
NO. 140	0.106	62.7
NO. 200	0.075	56.9

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0327	50.4
0.0241	45.9
0.0157	41.9
0.0094	36.8
0.0068	33.4
0.0050	26.6
0.0036	24.9
0.0025	20.4
0.0011	11.9

INDIVIDUAL PROCTOR POINTS

MOISTURE CONTENT	26.2%	27.8%	28.5%	29.8%	32.4
DRY DENSITY	93.6 pcf	95.2 pcf	96.6 pcf	95.0 pcf	91.7 pcf

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100054
SPECIFIC GRAVITY:	3.0752 (MEASURED)
MAXIMUM DRY DENSITY:	80.8 pcf
USCS SYMBOL:	ML
WATER CONTENT (%):	52.4
LIQUID CONTENT:	49.0
PLASTICITY INDEX	5.0
OPTIMUM MOISTURE (%):	41.2

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.9
NO. 10	2.000	99.0
NO. 20	0.850	95.7
NO. 40	0.425	87.8
NO. 60	0.250	79.0
NO. 140	0.106	70.9
NO. 200	0.075	68.3

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0283	67.0
0.0206	60.8
0.0136	56.3
0.0083	50.1
0.0059	44.5
0.0045	41.6
0.0033	34.3
0.0025	28.1
0.0010	16.3

INDIVIDUAL PROCTOR POINTS

MOISTURE CONTENT	37.8%	39.4%	39.7%	41.7%	43.6%
DRY DENSITY	78.0 pcf	79.5 pcf	79.9 pcf	80.7 pcf	79.5 pcf

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100055
SPECIFIC GRAVITY:	2.98 (MEASURED)
MAXIMUM DRY DENSITY:	77.1 pcf
USCS SYMBOL:	NON PLASTIC
WATER CONTENT (%):	59.8
LIQUID LIMIT:	51.0
PLASTICITY INDEX:	NON PLASTIC
OPTIMUM MOISTURE (%):	45.7

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	99.3
NO. 20	0.850	94.1
NO. 40	0.425	83.2
NO. 60	0.250	72.5
NO. 140	0.106	62.1
NO. 200	0.075	58.9

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0228	54.7
0.0149	51.3
0.0089	46.6
0.0065	42.0
0.0048	36.9
0.0035	31.7
0.0026	25.9
0.0011	15.5

INDIVIDUAL PROCTOR POINTS

MOISTURE CONTENT	42.5%	45.0%	45.2%	46.4%	46.9%	48.3
DRY DENSITY	74.3 pcf	76.4 pcf	76.3 pcf	76.7 pcf	75.7 pcf	74.0 pcf

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100090
SPECIFIC GRAVITY:	3.07 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	56.6
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	1.82
0.25	1.80
0.50	1.78
1.00	1.74
2.00	1.69
4.00	1.60
8.00	1.49
16.00	1.32
8.00	1.33
4.00	1.34
2.00	1.35
1.00	1.36
0.50	1.36
0.25	1.38
0.13	1.38

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100095
SPECIFIC GRAVITY:	3.25 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	82.2
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	2.76
0.25	2.73
0.50	2.68
1.00	2.63
2.00	2.52
4.00	2.38
8.00	2.18
16.00	1.93
8.00	1.94
4.00	1.96
2.00	1.97
1.00	1.99
0.50	2.00
0.25	2.02
0.13	2.03

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100096
SPECIFIC GRAVITY:	3.15 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	64.4
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	2.20
0.25	2.18
0.50	2.15
1.00	2.11
2.00	2.01
4.00	1.91
8.00	1.71
16.00	1.55
8.00	1.56
4.00	1.58
2.00	1.59
1.00	1.60
0.50	1.62
0.25	1.63
0.13	1.64

OU4 1990/91 SILO 1 GEOTECHNICAL RESULTS

SAMPLE NO.:	100097
SPECIFIC GRAVITY:	3.04 (MEASURED)
USCS SYMBOL:	NON PLASTIC
WATER CONTENT (%):	48.9
LIQUID LIMIT:	46.0
PLASTICITY INDEX:	NON PLASTIC

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.7
NO. 10	2.000	98.6
NO. 20	0.850	94.9
NO. 40	0.425	86.6
NO. 60	0.250	77.7
NO. 140	0.106	67.4
NO. 200	0.075	63.7

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0298	59.9
0.0220	55.4
0.0145	51.0
0.0087	47.0
0.0064	41.4
0.0047	35.8
0.0034	30.8
0.0026	24.6
0.0011	14.0

OU4 1991/92 SILO 1 CONTENT BORING LOGS

BORING/WELL LOGS LEGEND

-4948

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS PER SQUARE FT)
VERY SOFT	LESS THAN 0.25
SOFT	0.25 to 0.50
MEDIUM STIFF	0.50 to 1.0
STIFF	1.0 to 2.0
VERY STIFF	2.0 to 4.0
HARD	MORE THAN 4.0

DENSITY OF GRANULAR SOILS

DENSITY	STANDARD PENETRATION RESISTANCE
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS RECORDED FOR EACH 6-INCH INTERVAL THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

COBBLES	GRAVEL		SANDS			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

USCS CLASSIFICATION FOR SOILS

COARSE – GRAINED SOILS

CLEAN GRAVELS (LITTLE OR – NO FINES)	GW	WELL-GRADED GRAVELS GRAVEL-SAND MIXTURES LITTLE OR NO FINES
	GP	POORLY-GRADED GRAVELS GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	GC	CLAYEY GRAVELS GRAVEL-SAND-CLAY MIXTURES
CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY-GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
	SC	CLAYEY SANDS SAND-CLAY MIXTURES

FINE-GRADED/HIGHLY ORGANIC SOILS

SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

-4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 303317	PROJECT NAME: FERNALD K-65 RESAMPLE PROJECT		
BORING NUMBER: 2S1-SE-A,B,C	COORDINATES: K-65 SILO 1, S.E. MANWAY	DATE: 08/22/91	
GROUND ELEVATIONS:	GWL: Depth	Date/Time:	DATE STARTED: 08/15/91
ENGINEER/GEOLOGIST: D. JARVIS	Depth:	Date/Time:	DATE COMPLETED: 08/20/91
DRILLING METHODS: VIBRA CORE - 3 IN. ID TUBE			PAGE 1 OF 1

DEPTH	SAMPLE	DATE TIME	BLOWS ON SAMPLE	RECOVERY INCHES	DESCRIPTION	USGS SYMBOL	TSF	REMARKS
0"	ZONE A		N/A	56.0	0 - 42" Uniform in type, light brown color and damp Clay/Grit texture 42 - 56" Normal crust material, single grain in appearance, medium brown Recovery * 0" at cutting shoe end Area	sm/sc	N/A	35 - 70 mR/hr 1.75-4.5 Kg/cm 2 Penatrometer Readings Tot. Wt.=10,027.3 gm
84"	ZONE B		N/A	61.0	0 - 36" Uniform Clay/Grit consistancy, light brown 36 - 46" Uniform Clay/Grit, Light brown color 46 - 57" Uniform Clay/Grit, medium brown color Recovery * 0" at cutting shoe end Area	ml	N/A	30-80 mR/hr range 0.75-2.0 Kg/cm 2 Penatrometer Readings Tot. Wt.=10,684.6 gm Section 3 - 24-36" sent for core. High Rad, analysis at 80 mR/hr
168"	ZONE C		N/A	58.0	0 - 55" of uniform Clay/Grit material that is medium brown in color 3" cave in crust type material Recovery Area	ml	N/A	30-50 mR/hr rad range 0.5-3.0 Kg/cm 2 Penatrometer Readings Tot. Wt.=9,855.7 gm 2 each 6" sections saved for triaxle tests.
252"								

NOTES:

Drilling Contractor: IT Corp

Drilling Equipment: Vibra Core

Driller: Doug Moore, IT Corp.

Borehole logged from surface of material to 13 feet from lip of manway to surface of material.

Zone A boring interval completed on 08/15/91.

Zone B boring interval completed on 08/17/91.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 303317	PROJECT NAME: FERNALD K-65 RESAMPLE PROJECT		
BORING NUMBER: 2S1-NE-A,B,C	COORDINATES: K-65 SILO 1, N.E. MANWAY	DATE: 09/11/91	
GROUND ELEVATIONS:	GWL: Depth	Date/Time:	DATE STARTED: 08/22/91
ENGINEER/GEOLOGIST: D. JARVIS	Depth:	Date/Time:	DATE COMPLETED: 08/26/91
DRILLING METHODS: VIBRA CORE - 3 IN. ID TUBE			PAGE 1 OF 1

DEPTH 0"	SAMPLE	DATE TIME	BLOWS ON	SAMPLE	RECOVERY	DESCRIPTION	USGS	SYMBOL	TSF	REMARKS
	ZONE A		N/A		60.0	0 - 36" Light brown to dark brown/gray, Clay/Silt material - dry 36 - 60" Dry, light brown, Sandy/Grit Material Recovery Area * Cutting shoe at 0"	sc/ sm		N/A	15-35 mR/hr rad range 1.5-4.25 Kg/cm 2 Penatrometer Readings Tot. Wt.=10,656.8 gm
84"	ZONE B		N/A		69.0	Light brown to dark brown, Clay/Silt material, damp Recovery area indicated from material residue in Lexan tube	ml		N/A	Mechanical error with vibra core unit caused Lexan tube to empty into containment sleeve. No volatile samples recovered remain samples was recovered. 60 mR/hr Rad reading Tot. wt. 8,543.6 gm
180"	ZONE C		N/A		53.0	Light brown, Clay/Silt material, damp Recovery Area	ml		N/A	25-45 mR/hr rad range 0-1.25 Kg/cm 2 Penatrometer Readings Tot. Wt.=9,261.8 gm
276"										

NOTES:

Drilling Contractor:	IT Corp	Zone A boring interval completed on 08/22/91.
Drilling Equipment:	Vibra Core	Zone B boring interval completed on 08/24/91.
Driller:	Doug Moore, IT Corp.	Zone C boring interval completed on 08/26/91.

-4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 303317	PROJECT NAME: FERNALD K-65 RESAMPLE PROJECT		
BORING NUMBER: 2S1-NW-A,B,C	COORDINATES: K-65 SILO 1, N.W. MANWAY	DATE: 08-14/91	
GROUND ELEVATIONS:	GWL: Depth Date/Time:	DATE STARTED: 08/08/91	
ENGINEER/GEOLOGIST: D. JARVIS	Depth: Date/Time:	DATE COMPLETED: 08/13/91	
DRILLING METHODS: VIBRA CORE - 3 IN. ID TUBE		PAGE 1 OF 1	

DEPTH 0'	SAMPLE	DATE TIME	BLOWS ON	SAMPLE	RECOVERY	DESCRIPTION	USGS	SYMBOL	TSF	REMARKS
	ZONE A		N/A		21.8	No visual differences, material is a very tightly compacted grit that powders off when chiseled. Material is marbled colored between light brown to dark brown. Recovery Area 21.5 inches	gc		N/A	23-35 mR/hr rad range 2.5 Kg/cm 2 Penatrometer Readings Tot. Wt.=3,938.7 gm *This is crust material. 08/09/91
78'	ZONE B		N/A		37.4	No visual stratas, material is damp Clay type, with colors ranging from very light brown to medium brown Recovery Area 37.5 inches	ml		N/A	35-60 mR/hr Range Tot. wt.=6,881.8 gm Penatrometer Reading = 1.0 - 1.25 Kg/cm 2 60 mR/hr. Area sent as high rad. Sample for sample core 08/11/91
174'	ZONE C		N/A		37.4	No visual stratas, material is a damp, Clay type, light brown in color. Recovery Area 37 inches			N/A	35-120 mR/hr range Tot. wt.=6,312.1 gm Penatrometer Readings 0.75-1.25 Kg/cm 2 120 mR/hr area sent for special high rad analysis 08/14/91
270'										

NOTES:

Drilling Contractor: IT Corp

Drilling Equipment: Vibra Core

Driller: Doug Moore, IT Corp.

Borehole depth from point of penatration in silo crust material.

Zone A boring interval completed on 08/18/91.

Zone B boring interval completed on 08/10/91.

OU4 1991/92 SILO 2 RADIOLOGICAL RESULTS

OU4 1990/91 SILO 2 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S2-NE-A 099811 08/01/91				2S2-NE-B 099831 08/03/91				2S2-NE-C 099846 08/06/91				2S2-NE-C 099861 08/06/91			
	a			b	a			b	a			b	a			b
Actinium 227		4474	± 812	J		5649	± 989	J		10450	± 1655	J		9668	± 1631	J
Lead 210		58160	± 8122	J		74650	± 9088	J		127800	± 15490	J		133000	± 16110	J
Polonium 210		55300	± 29200	J		132000	± 36000	J		209000	± 44000	J		241000	± 54000	J
Protactinium 231	<	3832		J	<	4627		D	<	6981		J	<	7435		J
Radium 224	<	205		J	<	250		D	<	371		J	<	393		J
Radium 226		134900	± 18280	J		179500	± 22170	J		368200	± 45180	J		405500	± 49730	J
Radium 228	<	514		J	<	599		D	<	947		J	<	1008		J
Thorium 228		798	± 598	-	<	1100		D	<	1100		J		7360	± 1910	J
Thorium 230		20500	± 3900	-		35500	± 5600	-		74200	± 10600	J		99100	± 14300	J
Thorium 230 (GAMMA)		NA				NA				NA				NA		
Thorium 232	<	360		D	<	560		D		983	± 590	J	<	650		J
Total Thorium **	<	3200		D	<	5000		D		8870	± 5400	J	<	5900		J
Total Uranium **	<	4263		J		2469	± 304	-		3820	± 482	J		4109	± 499	J
Total Uranium (GAMMA) **		NA			<	4927		-	<	6661		Z	<	6969		Z
Uranium 234		671	± 89	J		1408	± 163	F		1429	± 176	J		1465	± 175	J
Uranium 235/236		73.8	± 18.5	J		80.9	± 17.3	E		130	± 30	J		172	± 31	J
Uranium 238		688	± 92	J		818	± 100	-		1265	± 158	J		1356	± 163	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

1283

-4948

OU4 1990/91 SILO 2 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S2-NW-C 099774 07/30/91				2S2-NW-C 099802 07/30/91				2S2-SE-B 099359 12/21/90				2S2-SE-C 099710 07/19/91			
	a			b	a			b	a			b	a			b
Actinium 227	7357	±	1244	J	5641	±	1007	J	7517	±	1777	-	8258	±	1339	J
Lead 210	179500	±	24860	J	125900	±	17480	J	194700	±	27060	J	129700	±	18000	J
Polonium 210	93400	±	22100	J	90600	±	18800	J	188000	±	36000	J	104000	±	27000	J
Protactinium 231	< 5815			DJ	< 4683			DJ	< 10100			J	< 5885			J
Radium 224	< 302			DJ	< 253			DJ	< 657			J	< 308			J
Radium 226	252100	±	33870	J	176900	±	23920	J	481000	±	64780	J	285400	±	38390	J
Radium 228	< 827			DJ	< 636			DJ	< 1468			J	< 837			J
Thorium 228	< 1400			D	622	±	447	-	< 807			D	< 8600			D
Thorium 230	25200	±	4200	-	37000	±	5400	-	90495	±	12648	-	43600	±	12200	-
Thorium 230 (GAMMA)	NA				NA				132800	±	37520	-	51450	±	19480	J
Thorium 232	< 570			D	985	±	491	-	< 699			D	< 2900			D
Total Thorium **	< 5200			D	8890	±	4430	-	< 6307			D	< 26200			D
Total Uranium **	< 5843			DJ	< 5063			DJ	5720	±	649	J	< 5905			J
Total Uranium (GAMMA) **	NA				NA				< 10332			J	NA			
Uranium 234	783	±	103	J	586	±	78.6	J	NA				841	±	115	J
Uranium 235/236	35.6	±	13.3	J	92	±	20.5	J	NA				93.3	±	24.2	-
Uranium 238	608	±	83	J	595	±	80	J	1925	±	218	J	810	±	111	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4SL2RAD.PRN

-4948

OU4 1991/92 SILO 2 CHEMICAL RESULTS

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099806 08/01/91		2S2-NE-A 099807 08/01/91		2S2-NE-A 099808 08/01/91		2S2-NE-A 099812 08/01/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		U 10	-
Chloride	NA		NA		NA		28	-
Fluoride	NA		NA		NA		U 10	-
Nitrate	NA		NA		NA		3500	-
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		19300	-
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099813 08/01/91		2S2-NE-A 099814 08/01/91		2S2-NE-A 099815 08/01/91		2S2-NE-A 099818 08/01/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		U .1	-	NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		8.4	-	207	-
Phosphorus	NA		1210	-	NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		176	-	NA		NA	
Total Organic Carbon	8353	-	NA		NA		NA	
Total Organic Nitrogen	NA		176	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-B 099826 08/03/91		2S2-NE-B 099827 08/03/91		2S2-NE-B 099828 08/03/91		2S2-NE-B 099832 08/03/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		U 15	-
Chloride	NA		NA		NA		59	-
Fluoride	NA		NA		NA		U 15	-
Nitrate	NA		NA		NA		8900	-
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		11800	-
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

133

14848

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-B 099833 08/03/91		2S2-NE-B 099834 08/03/91		2S2-NE-B 099837 08/03/91		2S2-NE-B 099839 08/05/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		U .1	-	NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		290	-	NA	
pH **	NA		NA		NA		7.79	-
Phosphorus	NA		1400	-	NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	22700	-	NA		NA		NA	
Total Organic Nitrogen	NA		289	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4948

134

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099841 08/06/91		2S2-NE-C 099842 08/06/91		2S2-NE-C 099843 08/06/91		2S2-NE-C 099847 08/06/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		U 12	-
Chloride	NA		NA		NA		53	-
Fluoride	NA		NA		NA		U 12	-
Nitrate	NA		NA		NA		8490	-
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		2590	-
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099848 08/06/91		2S2-NE-C 099849 08/06/91		2S2-NE-C 099850 08/06/91		2S2-NE-C 099853 08/06/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		U .1	-	NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		541	-
pH **	NA		NA		8.08	-	NA	
Phosphorus	NA		1246	-	NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		220	-	NA		NA	
Total Organic Carbon	24392	-	NA		NA		NA	
Total Organic Nitrogen	NA		220	-	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4048

136

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099856 08/06/91		2S2-NE-C 099857 08/06/91		2S2-NE-C 099858 08/06/91		2S2-NW-C 099769 07/30/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

137

4948

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099770 07/30/91		2S2-NW-C 099771 07/30/91		2S2-NW-C 099775 07/30/91		2S2-NW-C 099776 07/30/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		U 15	-	U 12	-
Chloride	NA		NA		85.5	-	73.7	-
Fluoride	NA		NA		U 15	-	U 12	-
Nitrate	NA		NA		3490	-	3350	R
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		8290	-	7420	-
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		148	-
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

-4048
138

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099777 07/30/91		2S2-NW-C 099778 07/30/91		2S2-NW-C 099781 07/30/91		2S2-NW-C 099797 07/30/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	R	NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		252	-	NA	
pH **	NA		7.95	-	NA		NA	
Phosphorus	1400	-	NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	219	-	NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	U .1	R	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

139

L

1-4048

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099798 07/30/91		2S2-NW-C 099799 07/30/91		2S2-SE-B 099355 12/21/90		2S2-SE-C 099704 07/19/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Bromide	NA		NA		NA		NA	
Chloride	NA		NA		NA		NA	
Fluoride	NA		NA		NA		NA	
Nitrate	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Sulfate	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

140

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099705 07/19/91		2S2-SE-C 099706 07/19/91		2S2-SE-C 099711 07/19/91		2S2-SE-C 099712 07/19/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		U .1	-
Bromide	NA		NA		U 13	-	NA	
Chloride	NA		NA		141	-	NA	
Fluoride	NA		NA		U 13	-	NA	
Nitrate	NA		NA		5110	-	NA	
Oil and Grease	NA		NA		NA		NA	
pH **	NA		NA		NA		NA	
Phosphorus	NA		NA		623	-	NA	
Sulfate	NA		NA		11240	-	NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		260.6	-

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

1741

4948

OU4 1990/91 SILO 2 GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099713 07/19/91		2S2-SE-C 099715 07/19/91	
	a	b	a	b
GENERAL CHEMISTRY				
Ammonia	NA		NA	
Bromide	NA		NA	
Chloride	NA		NA	
Fluoride	NA		NA	
Nitrate	NA		NA	
Oil and Grease	NA		NA	
pH **	NA		7.43	-
Phosphorus	NA		NA	
Sulfate	NA		NA	
Total Kjeldahl Nitrogen	NA		NA	
Total Organic Carbon	12204	J	NA	
Total Organic Nitrogen	NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units
4SL2CHGC.PRN

4948

142

4948

OU4 1991/92 SILO 2 HSL RESULTS

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099806 08/01/91		2S2-NE-A 099807 08/01/91		2S2-NE-A 099808 08/01/91		2S2-NE-A 099812 08/01/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	* 717	-	NA		NA		NA	
Antimony	N 26.2	J	NA		NA		NA	
Arsenic	1340	-	NA		NA		NA	
Barium	* 741	-	NA		NA		NA	
Beryllium	B .59	-	NA		NA		NA	
Boron	33.2	-	NA		NA		NA	
Cadmium	UN* .42	UJ	NA		NA		NA	
Calcium	*14400	-	NA		NA		NA	
Chromium	N* 41.5	J	NA		NA		NA	
Cobalt	996	-	NA		NA		NA	
Copper	656	-	NA		NA		NA	
Cyanide	NA		NA		* 4.5	-	NA	
Iron	* 9620	-	NA		NA		NA	
Lead	13300	-	NA		NA		NA	
Magnesium	2470	-	NA		NA		NA	
Manganese	* 167	-	NA		NA		NA	
Mercury	NA		1.1	-	NA		NA	
Molybdenum	148	-	NA		NA		NA	
Nickel	1220	-	NA		NA		NA	
Potassium	B 121	-	NA		NA		NA	
Selenium	49.6	-	NA		NA		NA	
Silicon	N 701	J	NA		NA		NA	
Silver	* 24.7	-	NA		NA		NA	
Sodium	1220	-	NA		NA		NA	
Thallium	U .41	-	NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	104	-	NA		NA		NA	
Zinc	N* 45.6	J	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

174

-4048

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099813 08/01/91		2S2-NE-A 099814 08/01/91		2S2-NE-A 099815 08/01/91		2S2-NE-A 099818 08/01/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4948

145

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-B 099826 08/03/91		2S2-NE-B 099827 08/03/91		2S2-NE-B 099828 08/03/91		2S2-NE-B 099832 08/03/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	2250	-	NA		NA		NA	
Antimony	N* 77.4	J	NA		NA		NA	
Arsenic	N* 1480	J	NA		NA		NA	
Barium	* 19900	J	NA		NA		NA	
Beryllium	2	-	NA		NA		NA	
Boron	81.2	-	NA		NA		NA	
Cadmium	N* 4.9	J	NA		NA		NA	
Calcium	29800	-	NA		NA		NA	
Chromium	N 83.1	J	NA		NA		NA	
Cobalt	2100	-	NA		NA		NA	
Copper	1240	-	NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	* 40000	J	NA		* 4.7	-	NA	
Lead	* 43400	-	NA		NA		NA	
Magnesium	6580	-	NA		NA		NA	
Manganese	385	-	NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	207	-	N 1.1	J	NA		NA	
Nickel	2600	-	NA		NA		NA	
Potassium	B 216	-	NA		NA		NA	
Selenium	135	-	NA		NA		NA	
Silicon	N* 1780	J	NA		NA		NA	
Silver	34.9	-	NA		NA		NA	
Sodium	4940	-	NA		NA		NA	
Thallium	UWN .49	UJ	NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	N* 399	J	NA		NA		NA	
Zinc	75.2	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-B 099833 08/03/91		2S2-NE-B 099834 08/03/91		2S2-NE-B 099837 08/03/91		2S2-NE-B 099839 08/05/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4948

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099841 08/06/91		2S2-NE-C 099842 08/06/91		2S2-NE-C 099843 08/06/91		2S2-NE-C 099847 08/06/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	363	-	NA		NA		NA	
Antimony	N* 14.4	J	NA		NA		NA	
Arsenic	147	J	NA		NA		NA	
Barium	* 6260	J	NA		NA		NA	
Beryllium	B .7	-	NA		NA		NA	
Boron	18.4	-	NA		NA		NA	
Cadmium	N* 3.7	J	NA		NA		NA	
Calcium	7790	-	NA		NA		NA	
Chromium	N 21.5	J	NA		NA		NA	
Cobalt	569	-	NA		NA		NA	
Copper	288	-	NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	* 4930	J	NA		* 2.4	-	NA	
Lead	*28600	-	NA		NA		NA	
Magnesium	B 805	-	NA		NA		NA	
Manganese	40.6	-	NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	177	-	N .4	J	NA		NA	
Nickel	934	-	NA		NA		NA	
Potassium	B 122	-	NA		NA		NA	
Selenium	92.7	-	NA		NA		NA	
Silicon	N* 507	J	NA		NA		NA	
Silver	11.1	-	NA		NA		NA	
Sodium	2400	-	NA		NA		NA	
Thallium	BWN 1.4	J	NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	N* 206	J	NA		NA		NA	
Zinc	21.7	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

148

4948

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099848 08/06/91		2S2-NE-C 099849 08/06/91		2S2-NE-C 099850 08/06/91		2S2-NE-C 099853 08/06/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

948

149

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099856 08/06/91		2S2-NE-C 099857 08/06/91		2S2-NE-C 099858 08/06/91		2S2-NW-C 099769 07/30/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	531	-	NA		NA		* 977	-
Antimony	N* 16.9	J	NA		NA		N 21.4	J
Arsenic	224	J	NA		NA		* 61.5	J
Barium	* 8350	J	NA		NA		* 8040	J
Beryllium	B 1	J	NA		NA		1.2	-
Boron	25.9	-	NA		NA		57.7	U
Cadmium	N* 3.1	J	NA		NA		N* 2	J
Calcium	3230	-	NA		NA		* 10800	-
Chromium	N 37.2	J	NA		NA		N* 35.1	J
Cobalt	940	-	NA		NA		813	-
Copper	469	-	NA		NA		301	-
Cyanide	NA		NA		* 1.9	-	NA	
Iron	* 6270	J	NA		NA		* 15300	J
Lead	*35900	-	NA		NA		32300	-
Magnesium	B 1110	-	NA		NA		3810	-
Manganese	59.3	-	NA		NA		* 96.2	-
Mercury	NA		N .18	J	NA		NA	
Molybdenum	479	-	NA		NA		449	-
Nickel	1500	-	NA		NA		1320	-
Potassium	B 144	-	NA		NA		B 209	-
Selenium	+ 140	J	NA		NA		+ 125	J
Silicon	N* 717	J	NA		NA		N 721	J
Silver	15.8	-	NA		NA		* 11.8	-
Sodium	4860	-	NA		NA		2840	-
Thallium	N 5.7	J	NA		NA		B .9	J
Tin	NA		NA		NA		NA	
Vanadium	N* 331	J	NA		NA		269	-
Zinc	47.6	-	NA		NA		N* 25.3	J

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

150

-4948

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099770 07/30/91		2S2-NW-C 099771 07/30/91		2S2-NW-C 099775 07/30/91		2S2-NW-C 099776 07/30/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		* 6.3	J	NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	.99	-	NA		NA		NA	
Molybdenum	NA		NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

1948

151

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099777 07/30/91		2S2-NW-C 099778 07/30/91		2S2-NW-C 099781 07/30/91		2S2-NW-C 099797 07/30/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		* 999	-
Antimony	NA		NA		NA		N 22.8	J
Arsenic	NA		NA		NA		* 58.6	J
Barium	NA		NA		NA		* 7590	J
Beryllium	NA		NA		NA		1.2	-
Boron	NA		NA		NA		58.7	U
Cadmium	NA		NA		NA		N* 2.2	J
Calcium	NA		NA		NA		* 12100	-
Chromium	NA		NA		NA		N* 44.3	J
Cobalt	NA		NA		NA		843	-
Copper	NA		NA		NA		312	-
Cyanide	NA		NA		NA		NA	
Iron	NA		NA		NA		* 15800	J
Lead	NA		NA		NA		299000	-
Magnesium	NA		NA		NA		4410	-
Manganese	NA		NA		NA		* 99.9	-
Mercury	NA		NA		NA		NA	
Molybdenum	NA		NA		NA		355	-
Nickel	NA		NA		NA		1450	-
Potassium	NA		NA		NA		B 207	-
Selenium	NA		NA		NA		S 131	-
Silicon	NA		NA		NA		N 758	J
Silver	NA		NA		NA		* 12.8	-
Sodium	NA		NA		NA		1590	-
Thallium	NA		NA		NA		B .56	J
Tin	NA		NA		NA		NA	
Vanadium	NA		NA		NA		217	-
Zinc	NA		NA		NA		N* 25.3	J

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

4048

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099798 07/30/91		2S2-NW-C 099799 07/30/91		2S2-SE-B 099355 12/21/90		2S2-SE-C 099704 07/19/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		* 1560	-	* 752	-
Antimony	NA		NA		N 26.4	UJ	N 18.2	J
Arsenic	NA		NA		100	-	* 73.8	J
Barium	NA		NA		15900	-	* 7630	-
Beryllium	NA		NA		B 1.3	-	B 1.3	-
Boron	NA		NA		66.8	U	53.5	-
Cadmium	NA		NA		* 11.7	-	N* 6.7	J
Calcium	NA		NA		* 64	-	* 20600	-
Chromium	NA		NA		.207	-	N* 73.3	J
Cobalt	NA		NA		1570	-	1030	-
Copper	NA		NA		568	-	332	-
Cyanide	NA		NA		* 3.9	J	NA	
Iron	NA		* 2.6	-	*20500	-	* 8710	-
Lead	NA		NA		75900	-	34100	-
Magnesium	NA		NA		3210	-	2660	-
Manganese	NA		NA		116	-	* 96.4	-
Mercury	1.4	-	NA		.47	J	NA	
Molybdenum	NA		NA		N* 311	J	198	-
Nickel	NA		NA		2640	-	1740	-
Potassium	NA		NA		B 653	-	B 252	-
Selenium	NA		NA		155	J	75.3	-
Silicon	NA		NA		861	-	N 764	J
Silver	NA		NA		26.6	-	* 16.5	-
Sodium	NA		NA		4340	-	2120	-
Thallium	NA		NA		U 3.3	-	B .89	-
Tin	NA		NA		NA		U 52.8	-
Vanadium	NA		NA		535	-	325	-
Zinc	NA		NA		39.8	-	N* 159	J

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

J-4948

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099705 07/19/91		2S2-SE-C 099706 07/19/91		2S2-SE-C 099711 07/19/91		2S2-SE-C 099712 07/19/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	NA		NA		NA		NA	
Barium	NA		NA		NA		NA	
Beryllium	NA		NA		NA		NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		NA		NA	
Calcium	NA		NA		NA		NA	
Chromium	NA		NA		NA		NA	
Cobalt	NA		NA		NA		NA	
Copper	NA		NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	NA		* 7.1	-	NA		NA	
Lead	NA		NA		NA		NA	
Magnesium	NA		NA		NA		NA	
Manganese	NA		NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	.76	-	NA		NA		NA	
Nickel	NA		NA		NA		NA	
Potassium	NA		NA		NA		NA	
Selenium	NA		NA		NA		NA	
Silicon	NA		NA		NA		NA	
Silver	NA		NA		NA		NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		NA		NA	
Tin	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099713 07/19/91		2S2-SE-C 099715 07/19/91	
	a	b	a	b
METALS				
Aluminum	NA		NA	
Antimony	NA		NA	
Arsenic	NA		NA	
Barium	NA		NA	
Beryllium	NA		NA	
Boron	NA		NA	
Cadmium	NA		NA	
Calcium	NA		NA	
Chromium	NA		NA	
Cobalt	NA		NA	
Copper	NA		NA	
Cyanide	NA		NA	
Iron	NA		NA	
Lead	NA		NA	
Magnesium	NA		NA	
Manganese	NA		NA	
Mercury	NA		NA	
Molybdenum	NA		NA	
Nickel	NA		NA	
Potassium	NA		NA	
Selenium	NA		NA	
Silicon	NA		NA	
Silver	NA		NA	
Sodium	NA		NA	
Thallium	NA		NA	
Tin	NA		NA	
Vanadium	NA		NA	
Zinc	NA		NA	

155

a = lab qualifier
b = validated qualifier
** = Results reported in Standard Units
4SL2CHM.PRN

4948

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099805 08/02/91		2S2-NE-A 099816 08/01/91		2S2-NE-B 099825 08/03/91		2S2-NE-B 099835 08/03/91	
	a	b	a	b	a	b	a	b
ORGANOPHOSPOROUS PESTICIDES								
Dimethoate	NA		NA		NA		NA	
Disulfoton	NA		NA		NA		NA	
Famphur	NA		NA		NA		NA	
Parathion, ethyl	NA		NA		NA		NA	
Parathion, methyl	NA		NA		NA		NA	
Phorate	NA		NA		NA		NA	
Sulfotepp	NA		NA		NA		NA	
Tetraethylpyrophosphate	NA		NA		NA		NA	
Thionazin	NA		NA		NA		NA	
PESTICIDES/PCB								
4,4'-DDD	NA		U 1.2	-	NA		U .160	UJ
4,4'-DDE	NA		U 1.2	-	NA		U .160	UJ
4,4'-DDT	NA		U 1.2	-	NA		U .160	UJ
Aldrin	NA		U .6	-	NA		U .078	UJ
alpha-BHC	NA		U .6	-	NA		U .078	UJ
alpha-Chlordane	NA		U 6	-	NA		U .78	UJ
Aroclor-1016	NA		U 6	-	NA		U .78	UJ
Aroclor-1221	NA		U 6	-	NA		U .78	UJ
Aroclor-1232	NA		U 6	-	NA		U .78	UJ
Aroclor-1242	NA		U 6	-	NA		U .78	UJ
Aroclor-1248	NA		U 6	-	NA		U .78	UJ
Aroclor-1254	NA		DX 15	J	NA		DXF 2.9	J
Aroclor-1260	NA		U 12	-	NA		U 1.6	UJ
beta-BHC	NA		U .6	-	NA		U .78	UJ
Chlorobenzilate	NA		NA		NA		NA	
delta-BHC	NA		U .6	-	NA		U .078	UJ
Dieldrin	NA		U 1.2	-	NA		U .078	UJ
Endosulfan II	NA		U 12	-	NA		U .160	UJ
Endosulfan sulfate	NA		U 12	-	NA		U .160	UJ
Endosulfan-I	NA		U .6	-	NA		U .160	UJ
Endrin	NA		U 1.2	-	NA		U .78	UJ
Endrin ketone	NA		U 1.2	-	NA		U .160	UJ
gamma-BHC (Lindane)	NA		U .6	-	NA		U .160	UJ
gamma-Chlordane	NA		U 6	-	NA		U .78	UJ
Heptachlor	NA		U .6	-	NA		U .78	UJ
Heptachlor epoxide	NA		U .6	-	NA		U .78	UJ
Isodrin	NA		NA		NA		NA	
Kepone	NA		NA		NA		NA	
Methoxychlor	NA		U 6	-	NA		U .78	UJ
Toxaphene	NA		U 12	-	NA		U .16	UJ
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .41	-	NA		U .53	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099805 08/02/91		2S2-NE-A 099816 08/01/91		2S2-NE-B 099825 08/03/91		2S2-NE-B 099835 08/03/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2-Dichlorobenzene	NA		U .41	-	NA		U .53	-
1,3-Dichlorobenzene	NA		U .41	-	NA		U .53	-
1,4-Dichlorobenzene	NA		U .41	-	NA		U .53	-
2,4,5-Trichlorophenol	NA		U 2	-	NA		U 2.6	-
2,4,6-Trichlorophenol	NA		U .41	-	NA		U .53	-
2,4-Dichlorophenol	NA		U .41	-	NA		U .53	-
2,4-Dimethylphenol	NA		U .41	-	NA		U .53	-
2,4-Dinitrophenol	NA		U 2	-	NA		U 2.6	UJ
2,4-Dinitrotoluene	NA		U .41	-	NA		U .53	-
2,6-Dinitrotoluene	NA		U .41	-	NA		U .53	-
2-Chloronaphthalene	NA		U .41	-	NA		U .53	-
2-Chlorophenol	NA		U .41	-	NA		U .53	-
2-Methylnaphthalene	NA		U .41	-	NA		U .53	-
2-Methylphenol	NA		U .41	-	NA		U .53	-
2-Nitroaniline	NA		U 2	-	NA		U 2.6	-
2-Nitrophenol	NA		U .41	-	NA		U .53	-
3,3'-Dichlorobenzidine	NA		U .83	-	NA		U 1.1	-
3-Nitroaniline	NA		U 2	-	NA		U 2.6	-
4,6-Dinitro-2-methylphenol	NA		U 2	-	NA		U 2.6	-
4-Bromophenyl phenyl ether	NA		U .41	-	NA		U .53	-
4-Chloro-3-methylphenol	NA		U .41	-	NA		U .53	-
4-Chloroaniline	NA		U .41	-	NA		U .53	-
4-Chlorophenylphenyl ether	NA		U .41	-	NA		U .53	-
4-Methylphenol	NA		U .41	-	NA		U .53	-
4-Nitroaniline	NA		U 2	-	NA		U 2.6	-
4-Nitrophenol	NA		U 2	-	NA		U 2.6	-
Acenaphthene	NA		U .41	-	NA		U .53	-
Acenaphthylene	NA		U .41	-	NA		U .53	-
Anthracene	NA		U .41	-	NA		U .53	-
Benzo(a)anthracene	NA		U .41	-	NA		U .53	-
Benzo(a)pyrene	NA		U .41	-	NA		U .53	-
Benzo(b)fluoranthene	NA		U .41	-	NA		U .53	-
Benzo(g,h,i)perylene	NA		U .41	-	NA		U .53	-
Benzo(k)fluoranthene	NA		U .41	-	NA		U .53	-
Benzoic acid	NA		U 2	-	NA		J .39	-
Benzyl alcohol	NA		U .41	-	NA		U .53	-
bis(2-Chloroethoxy)methane	NA		U .41	-	NA		U .53	-
bis(2-Chloroethyl)ether	NA		U .41	-	NA		U .53	-
bis(2-Chloroisopropyl) ether	NA		U .41	UJ	NA		U .53	UJ
bis(2-Ethylhexyl) phthalate	NA		J .43	-	NA		J .19	J

a = lab qualifier
b = validated qualifier

4048

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099805 08/02/91		2S2-NE-A 099816 08/01/91		2S2-NE-B 099825 08/03/91		2S2-NE-B 099835 08/03/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Butyl benzyl phthalate	NA		U .41	-	NA		U .53	-
Chrysene	NA		U .41	-	NA		U .53	-
Di-n-butyl phthalate	NA		U .41	UJ	NA		U .53	UJ
Di-n-octyl phthalate	NA		U .41	-	NA		U .53	-
Dibenzo(a,h)anthracene	NA		U .41	-	NA		U .53	-
Dibenzofuran	NA		U .41	-	NA		U .53	-
Diethyl phthalate	NA		U .41	-	NA		U .53	-
Dimethyl phthalate	NA		U .41	-	NA		U .53	-
Fluoranthene	NA		U .41	-	NA		U .53	-
Fluorene	NA		U .41	-	NA		U .53	-
Hexachlorobenzene	NA		U .41	-	NA		U .53	-
Hexachlorobutadiene	NA		U .41	-	NA		U .53	-
Hexachlorocyclopentadiene	NA		U .41	-	NA		U .53	-
Hexachloroethane	NA		U .41	-	NA		U .53	-
Indeno(1,2,3-cd)pyrene	NA		U .41	-	NA		U .53	-
Isophorone	NA		U .41	-	NA		U .53	-
N-Nitroso-di-n-propylamine	NA		U .41	-	NA		U .53	-
N-Nitrosodiphenylamine	NA		J .083	-	NA		J .26	J
Naphthalene	NA		U .41	R	NA		U .53	-
Nitrobenzene	NA		U .41	-	NA		U .53	-
O,O,O-Triethylphosphorothioate	NA		U .41	-	NA		U .53	-
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		U 2	-	NA		U 2.6	-
Phenol	NA		U .41	-	NA		U .53	-
Pyrene	NA		U .41	-	NA		U .53	-
Tributyl phosphate	NA		U .41	-	NA		U .53	-
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	NA		NA		NA		NA	
1,1,1-Trichloroethane	U .006	-	NA		U .008	-	NA	
1,1,2,2-Tetrachloroethane	U .006	-	NA		U .008	-	NA	
1,1,2-Trichloroethane	U .006	-	NA		U .008	-	NA	
1,1-Dichloroethane	U .006	-	NA		U .008	-	NA	
1,1-Dichloroethene	NA		NA		NA		NA	
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA	
1,2-Dichloroethane	U .006	-	NA		U .008	-	NA	
1,2-Dichloroethylene	U .006	-	NA		U .008	-	NA	
1,2-Dichloropropane	NA		NA		NA		NA	
1,4-Dioxane	BJ .01	J	NA		BJ .016	UJ	NA	
2-Butanone	NA		NA		NA		NA	
2-Chloro-1,3-butadiene								

a = lab qualifier
b = validated qualifier

F494

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099805 08/02/91		2S2-NE-A 099816 08/01/91		2S2-NE-B 099825 08/03/91		2S2-NE-B 099835 08/03/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
2-Hexanone	U .012	UJ	NA		U .016	UJ	NA	
3-Chloropropene	NA		NA		NA		NA	
4-Methyl-2-pentanone	BJ .01	UJ	NA		U .016	UJ	NA	
Acetone	B .033	J	NA		B .028	UJ	NA	
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	NA		NA		NA		NA	
Benzene	U .006	-	NA		U .008	-	NA	
Bromodichloromethane	U .006	-	NA		U .008	-	NA	
Bromoform	U .006	-	NA		U .008	-	NA	
Bromomethane	U .012	-	NA		U .016	-	NA	
Carbon disulfide	U .006	-	NA		U .008	-	NA	
Carbon Tetrachloride	U .006	-	NA		U .008	-	NA	
Chlorobenzene	U .006	-	NA		U .008	-	NA	
Chloroethane	U .012	-	NA		U .016	-	NA	
Chloroform	U .006	-	NA		U .008	-	NA	
Chloromethane	U .012	-	NA		U .016	-	NA	
cis-1,3-Dichloropropene	U .006	-	NA		U .008	-	NA	
Dibromochloromethane	U .006	-	NA		U .008	-	NA	
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		NA		NA	
Ethylbenzene	U .006	-	NA		U .008	-	NA	
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		NA		NA	
Methylene chloride	B .011	U	NA		B .015	-	NA	
Pyridine	NA		NA		NA		NA	
Styrene	U .006	-	NA		U .008	-	NA	
Tetrachlorethene	U .006	-	NA		U .008	-	NA	
Toluene	B .018	U	NA		B .01	-	NA	
Total xylenes	U .006	-	NA		J .003	J	NA	
trans-1,3-Dichloropropene	U .006	-	NA		U .008	-	NA	
trans-1,4-Dichloro-2-butene	NA		NA		NA		NA	
Trichloroethene	U .006	-	NA		U .008	-	NA	
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U .012	-	NA		U .016	-	NA	
Vinyl chloride	U .012	-	NA		U .016	-	NA	

a = lab qualifier
b = validated qualifier

4948

159

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099840 08/06/91		2S2-NE-C 099851 08/06/91		2S2-NE-C 099855 08/06/91		2S2-NE-C 099862 08/06/91	
	a	b	a	b	a	b	a	b
ORGANOPHOSPHOROUS PESTICIDES								
Dimethoate	NA		NA		NA		NA	
Disulfoton	NA		NA		NA		NA	
Famphur	NA		NA		NA		NA	
Parathion, ethyl	NA		NA		NA		NA	
Parathion, methyl	NA		NA		NA		NA	
Phorate	NA		NA		NA		NA	
Sulfotepp	NA		NA		NA		NA	
Tetraethylpyrophosphate	NA		NA		NA		NA	
Thionazin	NA		NA		NA		NA	
PESTICIDES/PCB								
4,4'-DDD	NA		U 2.2	UJ	NA		U .72	-
4,4'-DDE	NA		U 2.2	UJ	NA		U .72	-
4,4'-DDT	NA		U 2.2	UJ	NA		U .72	-
Aldrin	NA		U 1.1	UJ	NA		U .36	-
alpha-BHC	NA		U 1.1	UJ	NA		U .36	-
alpha-Chlordane	NA		U 11	UJ	NA		U 3.6	-
Aroclor-1016	NA		U 11	UJ	NA		U 3.6	-
Aroclor-1221	NA		U 11	UJ	NA		U 3.6	-
Aroclor-1232	NA		U 11	UJ	NA		U 3.6	-
Aroclor-1242	NA		U 11	UJ	NA		U 3.6	-
Aroclor-1248	NA		U 11	UJ	NA		U 3.6	-
Aroclor-1254	NA		DJX 2.1	J	NA		X 9.7	J
Aroclor-1260	NA		U 1.1	UJ	NA		U 7.2	-
beta-BHC	NA		U 1.1	UJ	NA		U .36	-
Chlorobenzilate	NA		NA		NA		NA	
delta-BHC	NA		U 1.1	UJ	NA		U .36	-
Dieldrin	NA		U 2.2	UJ	NA		U .72	-
Endosulfan II	NA		U 2.2	UJ	NA		U .72	-
Endosulfan sulfate	NA		U 2.2	UJ	NA		U .72	-
Endosulfan-I	NA		U 1.1	UJ	NA		U .36	-
Endrin	NA		U 2.2	UJ	NA		U .72	-
Endrin ketone	NA		U 2.2	UJ	NA		U .72	-
gamma-BHC (Lindane)	NA		U 1.1	UJ	NA		U .36	-
gamma-Chlordane	NA		U 11	UJ	NA		U 3.6	-
Heptachlor	NA		U 1.1	UJ	NA		U .36	-
Heptachlor epoxide	NA		U 1.1	UJ	NA		U .36	-
Isodrin	NA		U 1.1	UJ	NA		NA	
Kepone	NA		NA		NA		NA	
Methoxychlor	NA		U 11	UJ	NA		U 3.6	-
Toxaphene	NA		NA		NA		U 7.2	-
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .45	-	NA		U .49	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099840 08/06/91 a	b	2S2-NE-C 099851 08/06/91 a	b	2S2-NE-C 099855 08/06/91 a	b	2S2-NE-C 099862 08/06/91 a	b
SEMI-VOLATILE ORGANICS								
1,2-Dichlorobenzene	NA		U .45	-	NA		U .49	-
1,3-Dichlorobenzene	NA		U .45	-	NA		U .49	-
1,4-Dichlorobenzene	NA		U .45	-	NA		U .49	-
2,4,5-Trichlorophenol	NA		U 2.2	-	NA		U 2.4	-
2,4,6-Trichlorophenol	NA		U .45	-	NA		U .49	-
2,4-Dichlorophenol	NA		U .45	-	NA		U .49	-
2,4-Dimethylphenol	NA		U .45	-	NA		U .49	-
2,4-Dinitrophenol	NA		U 2.2	-	NA		U 2.4	-
2,4-Dinitrotoluene	NA		U .45	-	NA		U .49	-
2,6-Dinitrotoluene	NA		U .45	-	NA		U .49	-
2-Chloronaphthalene	NA		U .45	-	NA		U .49	-
2-Chlorophenol	NA		U .45	-	NA		U .49	-
2-Methylnaphthalene	NA		U .45	-	NA		U .49	-
2-Methylphenol	NA		U .45	-	NA		U .49	-
2-Nitroaniline	NA		U 2.2	-	NA		U 2.4	-
2-Nitrophenol	NA		U .45	-	NA		U .49	-
3,3'-Dichlorobenzidine	NA		U .91	UJ	NA		U .97	UJ
3-Nitroaniline	NA		U 2.2	-	NA		U 2.4	-
4,6-Dinitro-2-methylphenol	NA		U 2.2	-	NA		U 2.4	-
4-Bromophenyl phenyl ether	NA		U .45	-	NA		U .49	-
4-Chloro-3-methylphenol	NA		U .45	-	NA		U .49	-
4-Chloroaniline	NA		U .45	-	NA		U .49	-
4-Chlorophenylphenyl ether	NA		U .45	-	NA		U .49	-
4-Methylphenol	NA		U .45	-	NA		U .49	-
4-Nitroaniline	NA		U 2.2	-	NA		U 2.4	-
4-Nitrophenol	NA		U 2.2	-	NA		U 2.4	-
Acenaphthene	NA		U .45	-	NA		U .49	-
Acenaphthylene	NA		U .45	-	NA		U .49	-
Anthracene	NA		U .45	-	NA		U .49	-
Benzo(a)anthracene	NA		U .45	-	NA		U .49	-
Benzo(a)pyrene	NA		U .45	-	NA		U .49	-
Benzo(b)fluoranthene	NA		U .45	-	NA		U .49	-
Benzo(g,h,i)perylene	NA		U .45	-	NA		U .49	-
Benzo(k)fluoranthene	NA		U .45	-	NA		U .49	-
Benzoic acid	NA		BJ 2.2	UJ	NA		BJ 2.4	UJ
Benzyl alcohol	NA		U .45	-	NA		U .49	-
bis(2-Chloroethoxy)methane	NA		U .45	-	NA		U .49	-
bis(2-Chloroethyl)ether	NA		U .45	-	NA		U .49	-
bis(2-Chloroisopropyl) ether	NA		U .45	-	NA		U .49	-
bis(2-Ethylhexyl) phthalate	NA		J .26	J	NA		J .25	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099840 08/06/91		2S2-NE-C 099851 08/06/91		2S2-NE-C 099855 08/06/91		2S2-NE-C 099862 08/06/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Butyl benzyl phthalate	NA		U .45	-	NA		U .49	-
Chrysene	NA		U .45	-	NA		U .49	-
Di-n-butyl phthalate	NA		U .45	-	NA		U .49	-
Di-n-octyl phthalate	NA		U .45	-	NA		U .49	-
Dibenzo(a,h)anthracene	NA		U .45	-	NA		U .49	-
Dibenzofuran	NA		U .45	-	NA		U .49	-
Diethyl phthalate	NA		J .41	J	NA		U .49	-
Dimethyl phthalate	NA		U .45	-	NA		U .49	-
Fluoranthene	NA		U .45	-	NA		U .49	-
Fluorene	NA		U .45	-	NA		U .49	-
Hexachlorobenzene	NA		U .45	-	NA		U .49	-
Hexachlorobutadiene	NA		U .45	-	NA		U .49	-
Hexachlorocyclopentadiene	NA		U .45	-	NA		U .49	-
Hexachloroethane	NA		U .45	-	NA		U .49	-
Indeno(1,2,3-cd)pyrene	NA		U .45	-	NA		U .49	-
Isophorone	NA		U .45	-	NA		U .49	-
N-Nitroso-di-n-propylamine	NA		U .45	-	NA		U .49	-
N-Nitrosodiphenylamine	NA		J .098	J	NA		U .49	-
Naphthalene	NA		U .45	-	NA		U .49	-
Nitrobenzene	NA		U .45	-	NA		U .49	-
O,O,O-Triethylphosphorothioate	NA		U .45	-	NA		U .49	-
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		U 2.2	-	NA		U 2.4	-
Phenol	NA		U .45	-	NA		U .49	-
Pyrene	NA		U .45	-	NA		U .49	-
Tributyl phosphate	NA		E 38	-	NA		26	-
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	NA		NA		NA		NA	
1,1,1-Trichloroethane	U .007	-	NA		U .007	-	NA	
1,1,2,2-Tetrachloroethane	U .007	-	NA		U .007	-	NA	
1,1,2-Trichloroethane	U .007	-	NA		U .007	-	NA	
1,1-Dichloroethane	U .007	-	NA		U .007	-	NA	
1,1-Dichloroethene	NA		NA		NA		NA	
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	U .007	-	NA		U .007	-	NA	
1,2-Dichloroethane	U .007	-	NA		U .007	-	NA	
1,2-Dichloroethylene	U .007	-	NA		U .007	-	NA	
1,2-Dichloropropane	NA		NA		NA		NA	
1,4-Dioxane	BJ .014	U	NA		U .014	-	NA	
2-Butanone	NA		NA		NA		NA	
2-Chloro-1,3-butadiene								

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099840 08/06/91		2S2-NE-C 099851 08/06/91		2S2-NE-C 099855 08/06/91		2S2-NE-C 099862 08/06/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
2-Hexanone	BJ .014	U	NA		NA		NA	
3-Chloropropene	NA		NA		NA		NA	
4-Methyl-2-pentanone	U .014	-	NA		U .014	-	NA	
Acetone	BJ .012	U	NA		BJ .014	U	NA	
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	NA		NA		NA		NA	
Benzene	U .007	-	NA		U .007	-	NA	
Bromodichloromethane	U .007	-	NA		U .007	-	NA	
Bromoform	U .007	-	NA		U .007	-	NA	
Bromomethane	U .014	-	NA		U .014	-	NA	
Carbon disulfide	U .007	-	NA		U .007	-	NA	
Carbon Tetrachloride	U .007	-	NA		U .007	-	NA	
Chlorobenzene	U .007	-	NA		U .007	-	NA	
Chloroethane	U .014	-	NA		U .014	-	NA	
Chloroform	U .007	-	NA		U .007	-	NA	
Chloromethane	U .014	-	NA		U .014	-	NA	
cis-1,3-Dichloropropene	U .007	-	NA		U .007	-	NA	
Dibromochloromethane	U .007	-	NA		NA		NA	
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		U .007	-	NA	
Ethylbenzene	U .007	-	NA		NA		NA	
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		BJ .007	U	NA	
Methylene chloride	BJ .007	U	NA		NA		NA	
Pyridine	NA		NA		U .007	-	NA	
Styrene	U .007	-	NA		U .007	-	NA	
Tetrachlorethene	U .007	-	NA		BJ .007	U	NA	
Toluene	BJ .007	U	NA		U .007	-	NA	
Total xylenes	U .007	-	NA		U .007	-	NA	
trans-1,3-Dichloropropene	U .007	-	NA		NA		NA	
trans-1,4-Dichloro-2-butene	NA		NA		U .007	-	NA	
Trichloroethene	U .007	-	NA		NA		NA	
Trichlorofluoromethane	NA		NA		U .014	-	NA	
Vinyl Acetate	U .014	-	NA		U .014	-	NA	
Vinyl chloride	U .014	-	NA					

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099768 07/30/91 a	b	2S2-NW-C 099779 07/30/91 a	b	2S2-NW-C 099796 07/30/91 a	b	2S2-NW-C 099803 07/30/91 a	b
ORGANOPHOSPHOROUS PESTICIDES								
Dimethoate	NA		NA		NA		NA	
Disulfoton	NA		NA		NA		NA	
Famphur	NA		NA		NA		NA	
Parathion, ethyl	NA		NA		NA		NA	
Parathion, methyl	NA		NA		NA		NA	
Phorate	NA		NA		NA		NA	
Sulfotepp	NA		NA		NA		NA	
Tetraethylpyrophosphate	NA		NA		NA		NA	
Thionazin	NA		NA		NA		NA	
PESTICIDES/PCB								
4,4'-DDD	NA		U .45	-	NA		U .43	-
4,4'-DDE	NA		U .45	-	NA		U .43	-
4,4'-DDT	NA		U .45	-	NA		U .43	-
Aldrin	NA		U .22	-	NA		U .21	-
alpha-BHC	NA		U .22	-	NA		U .21	-
alpha-Chlordane	NA		U 2.2	-	NA		U 2.1	-
Aroclor-1016	NA		U 2.2	-	NA		U 2.1	-
Aroclor-1221	NA		U 2.2	-	NA		U 2.1	-
Aroclor-1232	NA		U 2.2	-	NA		U 2.1	-
Aroclor-1242	NA		U 2.2	-	NA		U 2.1	-
Aroclor-1248	NA		U 2.2	-	NA		U 2.1	-
Aroclor-1254	NA		XF 5.2	-	NA		DJX 3.8	J
Aroclor-1260	NA		U 4.5	-	NA		U 4.3	-
beta-BHC	NA		U .22	-	NA		U .21	-
Chlorobenzilate	NA		NA		NA		NA	
delta-BHC	NA		U .22	-	NA		U .21	-
Dieldrin	NA		U .45	-	NA		U .43	-
Endosulfan II	NA		U .45	-	NA		U .43	-
Endosulfan sulfate	NA		U .45	-	NA		U .43	-
Endosulfan-I	NA		U .22	-	NA		U .21	-
Endrin	NA		U .45	-	NA		U .43	-
Endrin ketone	NA		U .45	-	NA		U .43	-
gamma-BHC (Lindane)	NA		U .22	-	NA		U .21	-
gamma-Chlordane	NA		U 2.2	-	NA		U 2.1	-
Heptachlor	NA		U .022	-	NA		U 2.1	-
Heptachlor epoxide	NA		U 2.2	-	NA		U 2.1	-
Isodrin	NA		NA		NA		NA	
Kepone	NA		NA		NA		NA	
Methoxychlor	NA		U 2.2	-	NA		U 2.1	-
Toxaphene	NA		U 4.5	-	NA		U 4.3	-
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .45	-	NA		U .44	-

a = lab qualifier
b = validated qualifier

164

-4048

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099768 07/30/91		2S2-NW-C 099779 07/30/91		2S2-NW-C 099796 07/30/91		2S2-NW-C 099803 07/30/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2-Dichlorobenzene	NA		U .45	-	NA		U .44	-
1,3-Dichlorobenzene	NA		U .45	-	NA		U .44	-
1,4-Dichlorobenzene	NA		U .45	-	NA		U .44	-
2,4,5-Trichlorophenol	NA		U 2.2	-	NA		U 2.1	-
2,4,6-Trichlorophenol	NA		U .45	-	NA		U .44	-
2,4-Dichlorophenol	NA		U .45	-	NA		U .44	-
2,4-Dimethylphenol	NA		U .45	-	NA		U .44	-
2,4-Dinitrophenol	NA		U 2.2	-	NA		U 2.1	UJ
2,4-Dinitrotoluene	NA		U .45	-	NA		U .44	-
2,6-Dinitrotoluene	NA		U .45	-	NA		U .44	-
2-Chloronaphthalene	NA		U .45	-	NA		U .44	-
2-Chlorophenol	NA		U .45	-	NA		U .44	-
2-Methylnaphthalene	NA		U .45	-	NA		U .44	-
2-Methylphenol	NA		U .45	-	NA		U .44	-
2-Nitroaniline	NA		U 2.2	-	NA		U 2.1	-
2-Nitrophenol	NA		U .45	-	NA		U .44	-
3,3'-Dichlorobenzidine	NA		U .91	UJ	NA		U .87	UJ
3-Nitroaniline	NA		U 2.2	UJ	NA		U 2.1	UJ
4,6-Dinitro-2-methylphenol	NA		U 2.2	-	NA		U 2.1	UJ
4-Bromophenyl phenyl ether	NA		U .45	-	NA		U .44	-
4-Chloro-3-methylphenol	NA		U .45	-	NA		U .44	-
4-Chloroaniline	NA		U .45	-	NA		U .44	-
4-Chlorophenylphenyl ether	NA		U .45	-	NA		U .4	-
4-Methylphenol	NA		U .45	-	NA		U .44	-
4-Nitroaniline	NA		U 2.2	UJ	NA		U 2.1	UJ
4-Nitrophenol	NA		U 2.2	-	NA		U 2.1	UJ
Acenaphthene	NA		U .45	-	NA		U .44	-
Acenaphthylene	NA		U .45	-	NA		U .44	-
Anthracene	NA		U .45	-	NA		U .44	-
Benzo(a)anthracene	NA		U .45	-	NA		U .44	-
Benzo(a)pyrene	NA		U .45	-	NA		U .44	-
Benzo(b)fluoranthene	NA		U .45	-	NA		U .44	-
Benzo(g,h,i)perylene	NA		U .45	-	NA		U .44	-
Benzo(k)fluoranthene	NA		U .45	-	NA		U .44	-
Benzoic acid	NA		U 2.2	UJ	NA		U 2.1	UJ
Benzyl alcohol	NA		U .45	-	NA		U .44	-
bis(2-Chloroethoxy)methane	NA		U .45	-	NA		U .44	-
bis(2-Chloroethyl)ether	NA		U .45	-	NA		U .44	-
bis(2-Chloroisopropyl) ether	NA		U .45	UJ	NA		U .44	-
bis(2-Ethylhexyl) phthalate	NA		J .33	-	NA		.54	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099768 07/30/91 a	b	2S2-NW-C 099779 07/30/91 a	b	2S2-NW-C 099796 07/30/91 a	b	2S2-NW-C 099803 07/30/91 a	b
SEMI-VOLATILE ORGANICS								
Butyl benzyl phthalate	NA		U .45	-	NA		U .44	-
Chrysene	NA		U .45	-	NA		U .44	-
Di-n-butyl phthalate	NA		U .45	-	NA		U .44	-
Di-n-octyl phthalate	NA		U .45	-	NA		U .44	-
Dibenzo(a,h)anthracene	NA		U .45	-	NA		U .44	-
Dibenzofuran	NA		U .45	-	NA		U .44	-
Diethyl phthalate	NA		U .45	-	NA		U .44	-
Dimethyl phthalate	NA		U .45	-	NA		U .44	-
Fluoranthene	NA		J .064	-	NA		U .44	-
Fluorene	NA		U .45	-	NA		U .4	-
Hexachlorobenzene	NA		U .45	-	NA		U .44	-
Hexachlorobutadiene	NA		U .45	-	NA		U .44	-
Hexachlorocyclopentadiene	NA		U .45	-	NA		U .44	-
Hexachloroethane	NA		U .45	-	NA		U .44	UJ
Indeno(1,2,3-cd)pyrene	NA		U .45	-	NA		U .44	-
Isophorone	NA		U .45	-	NA		U .44	-
N-Nitroso-di-n-propylamine	NA		U .45	-	NA		U .44	-
N-Nitrosodiphenylamine	NA		U .45	-	NA		U .44	-
Naphthalene	NA		U .45	-	NA		U .44	-
Nitrobenzene	NA		U .45	UJ	NA		U .44	-
O,O,O-Triethylphosphorothioate	NA		NA		NA		NA	
Pentachlorophenol	NA		U 2.2	-	NA		U 2.1	-
Phenanthrene	NA		U .45	-	NA		U .44	-
Phenol	NA		U .45	-	NA		U .44	-
Pyrene	NA		J .047	-	NA		U .44	-
Tributyl phosphate	NA		BJ 7.5	N	NA		NA	-
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	NA		NA					
1,1,1-Trichloroethane	U .007	-	NA		U .007	-	NA	
1,1,2,2-Tetrachloroethane	U .007	-	NA		U .007	-	NA	
1,1,2-Trichloroethane	U .007	-	NA		U .007	-	NA	
1,1-Dichloroethane	U .007	-	NA		U .007	-	NA	
1,1-Dichloroethene	U .007	-	NA		U .007	-	NA	
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA	
1,2-Dichloroethane	U .007	-	NA		U .007	-	NA	
1,2-Dichloroethylene	U .007	-	NA		U .007	-	NA	
1,2-Dichloropropane	U .007	-	NA		U .007	-	NA	
1,4-Dioxane	NA		NA		NA		NA	
2-Butanone	BJ .009	UJ	NA		B .015	UJ	NA	
2-Chloro-1,3-butadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099768 07/30/91		2S2-NW-C 099779 07/30/91		2S2-NW-C 099796 07/30/91		2S2-NW-C 099803 07/30/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
2-Hexanone	U .014	-	NA		U .014	-	NA	
3-Chloropropene	NA		NA		NA		NA	
4-Methyl-2-pentanone	U .014	-	NA		U .014	-	NA	
Acetone	B .068	J	NA		B .072	J	NA	
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	NA		NA		NA		NA	
Benzene	U .007	-	NA		U .007	-	NA	
Bromodichloromethane	U .007	-	NA		U .007	-	NA	
Bromoform	U .007	-	NA		U .007	-	NA	
Bromomethane	U .014	-	NA		U .014	-	NA	
Carbon disulfide	U .007	-	NA		U .007	-	NA	
Carbon Tetrachloride	U .007	-	NA		U .007	-	NA	
Chlorobenzene	U .007	-	NA		U .007	-	NA	
Chloroethane	U .014	-	NA		U .014	-	NA	
Chloroform	U .007	-	NA		U .007	-	NA	
Chloromethane	U .014	UJ	NA		U .014	UJ	NA	
cis-1,3-Dichloropropene	U .007	-	NA		U .007	-	NA	
Dibromochloromethane	U .007	-	NA		U .007	-	NA	
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		NA		NA	
Ethylbenzene	U .007	-	NA		U .007	-	NA	
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		NA		NA	
Methylene chloride	B .014	U	NA		B .012	U	NA	
Pyridine	NA		NA		NA		NA	
Styrene	U .007	-	NA		U .007	-	NA	
Tetrachlorethene	U .007	-	NA		U .007	-	NA	
Toluene	BJ .005	U	NA		B .011	U	NA	
Total xylenes	U .007	-	NA		U .007	-	NA	
trans-1,3-Dichloropropene	U .007	-	NA		U .007	-	NA	
trans-1,4-Dichloro-2-butene	NA		NA		NA		NA	
Trichloroethene	U .007	-	NA		U .007	-	NA	
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U .014	-	NA		U .014	-	NA	
Vinyl chloride	U .014	-	NA		U .014	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-B 099359 12/21/90 a	b	2S2-SE-C 099701 07/19/91 a	b	2S2-SE-C 099702 07/19/91 a	b
ORGANOPHOSPHOROUS PESTICIDES						
Dimethoate	NA		NA		U .1	-
Disulfoton	NA		NA		U .1	-
Famphur	NA		NA		U .1	-
Parathion, ethyl	NA		NA		U .1	-
Parathion, methyl	NA		NA		U .1	-
Phorate	NA		NA		U .1	-
Sulfotepp	NA		NA		U .1	UJ
Tetraethylpyrophosphate	NA		NA		U .4	-
Thionazin	NA		NA		U .1	-
PESTICIDES/PCB						
4,4'-DDD	U .81	U	NA		U 1.1	-
4,4'-DDE	U .81	U	NA		U 1.1	-
4,4'-DDT	U .81	U	NA		U 1.1	-
Aldrin	U .4	U	NA		U .54	-
alpha-BHC	U .4	U	NA		U .54	-
alpha-Chlordane	U 4.0	U	NA		U 5.4	-
Aroclor-1016	U 4.0	U	NA		U 5.4	-
Aroclor-1221	U 4.0	U	NA		U 5.4	-
Aroclor-1232	U 4.0	U	NA		U 5.4	-
Aroclor-1242	U 4.0	U	NA		U 5.4	-
Aroclor-1248	U 4.0	U	NA		U 5.4	-
Aroclor-1254	R 16.0	R	NA		DX 14.0	-
Aroclor-1260	U 8.1	U	NA		U 11.0	-
beta-BHC	U .4	U	NA		U .54	-
Chlorobenzilate	NA		NA		U 1.1	-
delta-BHC	U .4	U	NA		U .54	-
Dieldrin	U .81	U	NA		U 1.1	-
Endosulfan II	U .81	U	NA		U 1.1	-
Endosulfan sulfate	U .81	U	NA		U 1.1	-
Endosulfan-I	U .4	U	NA		U .54	-
Endrin	U .81	U	NA		U 1.1	-
Endrin ketone	U .81	U	NA		U 1.1	-
gamma-BHC (Lindane)	U .4	U	NA		U .54	-
gamma-Chlordane	U 4.0	U	NA		U 5.4	-
Heptachlor	U .4	U	NA		U .54	-
Heptachlor epoxide	U .4	U	NA		U .54	-
Isodrin	NA		NA		U .54	-
Kepone	NA		NA		U 1.1	-
Methoxychlor	U 4.0	U	NA		U 5.4	-
Toxaphene	U 8.1	U	NA		U 11.0	-
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene	U .33	-	NA		NA	

a = lab qualifier
b = validated qualifier

139
4048

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-B 099359 12/21/90 a	b	2S2-SE-C 099701 07/19/91 a	b	2S2-SE-C 099702 07/19/91 a	b
SEMI-VOLATILE ORGANICS						
1,2-Dichlorobenzene	U .33	-	NA		NA	
1,3-Dichlorobenzene	U .33	-	NA		NA	
1,4-Dichlorobenzene	U .33	-	NA		NA	
2,4,5-Trichlorophenol	U 1.6	-	NA		NA	
2,4,6-Trichlorophenol	U .33	-	NA		NA	
2,4-Dichlorophenol	U .33	-	NA		NA	
2,4-Dimethylphenol	U .33	-	NA		NA	
2,4-Dinitrophenol	U 1.6	-	NA		NA	
2,4-Dinitrotoluene	U .33	-	NA		NA	
2,6-Dinitrotoluene	U .33	-	NA		NA	
2-Chloronaphthalene	U .33	-	NA		NA	
2-Chlorophenol	U .33	-	NA		NA	
2-Methylnaphthalene	U .33	-	NA		NA	
2-Methylphenol	U .33	-	NA		NA	
2-Nitroaniline	U 1.6	-	NA		NA	
2-Nitrophenol	U .33	-	NA		NA	
3,3'-Dichlorobenzidine	U .67	-	NA		NA	
3-Nitroaniline	U 1.6	-	NA		NA	
4,6-Dinitro-2-methylphenol	U 1.6	-	NA		NA	
4-Bromophenyl phenyl ether	U .33	-	NA		NA	
4-Chloro-3-methylphenol	U .33	-	NA		NA	
4-Chloroaniline	U .33	-	NA		NA	
4-Chlorophenylphenyl ether	U .33	-	NA		NA	
4-Methylphenol	U .33	-	NA		NA	
4-Nitroaniline	U 1.6	-	NA		NA	
4-Nitrophenol	U 1.6	UJ	NA		NA	
Acenaphthene	U .33	-	NA		NA	
Acenaphthylene	U .33	-	NA		NA	
Anthracene	U .33	-	NA		NA	
Benzo(a)anthracene	U .33	-	NA		NA	
Benzo(a)pyrene	U .33	-	NA		NA	
Benzo(b)fluoranthene	U .33	UJ	NA		NA	
Benzo(g,h,i)perylene	U .33	-	NA		NA	
Benzo(k)fluoranthene	U .33	-	NA		NA	
Benzoic acid	U 1.6	-	NA		NA	
Benzyl alcohol	U .33	-	NA		NA	
bis(2-Chloroethoxy)methane	U .33	-	NA		NA	
bis(2-Chloroethyl)ether	U .33	-	NA		NA	
bis(2-Chloroisopropyl) ether	U .33	UJ	NA		NA	
bis(2-Ethylhexyl) phthalate	B 1.9	-	NA		NA	

a = lab qualifier
b = validated qualifier

169

8048

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-B 099359 12/21/90 a	b	2S2-SE-C 099701 07/19/91 a	b	2S2-SE-C 099702 07/19/91 a	b
SEMI-VOLATILE ORGANICS						
Butyl benzyl phthalate	U .33	-	NA		NA	
Chrysene	U .33	-	NA		NA	
Di-n-butyl phthalate	U .33	-	NA		NA	
Di-n-octyl phthalate	U .33	-	NA		NA	
Dibenzo(a,h)anthracene	U .33	-	NA		NA	
Dibenzofuran	U .33	-	NA		NA	
Diethyl phthalate	U .33	-	NA		NA	
Dimethyl phthalate	U .33	-	NA		NA	
Fluoranthene	U .33	-	NA		NA	
Fluorene	U .33	-	NA		NA	
Hexachlorobenzene	U .33	-	NA		NA	
Hexachlorobutadiene	U .33	-	NA		NA	
Hexachlorocyclopentadiene	U .33	UJ	NA		NA	
Hexachloroethane	U .33	-	NA		NA	
Indeno(1,2,3-cd)pyrene	U .33	-	NA		NA	
Isophorone	U .33	-	NA		NA	
N-Nitroso-di-n-propylamine	U .33	-	NA		NA	
N-Nitrosodiphenylamine	U .33	-	NA		NA	
Naphthalene	U .33	-	NA		NA	
Nitrobenzene	U .33	-	NA		NA	
O,O,O-Triethylphosphorothioate	NA		NA		NA	
Pentachlorophenol	U 1.6	-	NA		NA	
Phenanthrene	U .33	-	NA		NA	
Phenol	U .33	-	NA		NA	
Pyrene	U .33	-	NA		NA	
Tributyl phosphate	73	J	NA		NA	
VOLATILE ORGANICS						
1,1,1,2-Tetrachloroethane	NA		U .00666	R	NA	
1,1,1-Trichloroethane	U .63	-	U .007	-	NA	
1,1,2,2-Tetrachloroethane	BJ .63	U	U .007	-	NA	
1,1,2-Trichloroethane	U .63	-	U .007	-	NA	
1,1-Dichloroethane	U .63	-	U .007	-	NA	
1,1-Dichloroethene	U .63	-	U .007	-	NA	
1,2,3-Trichloropropane	NA		U .00666	UJ	NA	
1,2-Dibromo-3-chloropropane	NA		U .0133	-	NA	
1,2-Dibromoethane	NA		U .00666	UJ	NA	
1,2-Dichloroethane	U .63	-	U .007	R	NA	
1,2-Dichloroethylene	U .63	-	U .007	J	NA	
1,2-Dichloropropane	U .63	-	U .007	-	NA	
1,4-Dioxane	NA		U 6.66	-	NA	
2-Butanone	U 1.3	R	U .013	J	NA	
2-Chloro-1,3-butadiene	NA		U .00666	UJ	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-B 099359 12/21/90 a	b	2S2-SE-C 099701 07/19/91 a	b	2S2-SE-C 099702 07/19/91 a	b
VOLATILE ORGANICS						
2-Hexanone	U 1.3	UJ	U .013	-	NA	
3-Chloropropene	NA		U .00666	-	NA	
4-Methyl-2-pentanone	U 1.3	-	BJ .013	U	NA	
Acetone	B 9.1	R	B .047	UJ	NA	
Acetonitrile	NA		U 1.33	R	NA	
Acrolein	NA		U .0133	-	NA	
Acrylonitrile	NA		U .0133	-	NA	
Benzene	U .63	-	U .007	-	NA	
Bromodichloromethane	U .63	-	U .007	-	NA	
Bromoform	U .63	-	U .007	-	NA	
Bromomethane	U 1.3	-	U .013	-	NA	
Carbon disulfide	U .63	-	U .007	-	NA	
Carbon Tetrachloride	J .17	J	U .007	-	NA	
Chlorobenzene	U .63	-	U .007	-	NA	
Chloroethane	U 1.3	-	U .013	-	NA	
Chloroform	U .63	-	U .007	-	NA	
Chloromethane	U 1.3	-	U .013	-	NA	
cis-1,3-Dichloropropene	U .63	-	U .007	-	NA	
Dibromochloromethane	U .63	-	U .007	-	NA	
Dibromomethane	NA		U .0133	-	NA	
Dichlorodifluoromethane	NA		U .266	R	NA	
Ethyl cyanide	NA		U .133	-	NA	
Ethyl methacrylate	NA		U .0133	-	NA	
Ethylbenzene	BJ .63	U	U .007	-	NA	
Iodomethane	NA		U .00666	-	NA	
Isobutyl alcohol	NA		U .0266	R	NA	
Methacrylonitrile	NA		U .0133	-	NA	
Methyl methacrylate	NA		U .0133	-	NA	
Methylene chloride	B .8	U	B .047	-	NA	
Pyridine	NA		U .0266	R	NA	
Styrene	BJ .63	U	U .007	-	NA	
Tetrachlorethene	J .14	J	U .007	-	NA	
Toluene	BJ .63	U	J .005	U	NA	
Total xylenes	BJ .63	U	U .007	R	NA	
trans-1,3-Dichloropropene	U .63	-	U .007	R	NA	
trans-1,4-Dichloro-2-butene	NA		U .133	R	NA	
Trichloroethene	U .63	-	U .007	-	NA	
Trichlorofluoromethane	NA		U .00666	UJ	NA	
Vinyl Acetate	U 1.3	-	U .013	-	NA	
Vinyl chloride	U 1.3	-	U .013	-	NA	

a = lab qualifier
b = validated qualifier
4SL2CHH.PRN

1948

171

OU4 1991/92 SILO 2 TCLP RESULTS

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099810 08/01/91 a	b	2S2-NE-B 099830 08/03/91 a	b	2S2-NE-C 099845 08/06/91 a	b	2S2-NE-C 099860 08/06/91 a	b
METALS								
Aluminum	2.75	-	1.62	J	.668	J	.462	-
Antimony	.113	-	.0897	J	.123	J	.107	R
Arsenic	.0823	-	S .0953	J	BW .0053	J	B .0029	-
Barium	.239	-	1.47	J	6.74	J	8.47	J
Beryllium	.0055	-	B .0047	J	B .0049	J	B .0032	-
Boron	1.5	-	.714	J	.3		.24	-
Cadmium	N .0104	J	N .0549	J	.0657	J	.0668	R
Calcium	975	-	666	J	305	J	163	-
Chromium	.132	-	.0992	J	.123	J	.0861	J
Cobalt	6.16	-	5.85	J	2.36	J	2.64	-
Copper	3.86	-	2.96	J	.854	J	.964	-
Iron	B .0837	J	B .0732	J	B .0744	J	B .0527	J
Lead	117	-	260	J	772	J	744	J
Magnesium	29.6	-	25.5	J	11.1	J	8.84	-
Manganese	N 1.62	J	N 1.24	J	.594	J	.628	-
Mercury	U .0002	-	U .0002	J	U .0002	J	U .0002	-
Molybdenum	.0338	-	.0448	J	.0993	J	.0947	-
Nickel	E 5.77	J	4.96	J	3.34	J	3.72	-
Potassium	3.73	-	5.2	J	B 3.28	J	B 2.64	-
Selenium	S .0605	J	S .0664	J	S .0331	J	.0722	-
Silicon	13.8	-	18.6	J	24.3	J	31.2	R
Silver	N .0992	J	.0824	J	.0779	J	.053	-
Thallium	U .002	J	B .003	J	.0148	J	.0288	-
Vanadium	.0601	-	B .0457	J	B .0485	J	B .0343	R
Zinc	EN .563	J	E .555	J	E .273	J	E .33	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099773 07/30/91		2S2-NW-C 099801 07/30/91		2S2-SE-B 099355 12/21/90		2S2-SE-C 099709 07/19/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	1.16	-	1.44	-	NA		.909	-
Antimony	.0865	J	.0851	J	NA		.0787	-
Arsenic	BWN .0031	J	BWN .003	J	.32	-	B .0048	-
Barium	.247	-	B .157	-	4.97	-	1.35	-
Beryllium	B .0047	-	B .0049	-	NA		B .0044	-
Boron	NA		NA		NA		NA	
Cadmium	.0228	-	.0237	-	.075	-	.0773	-
Calcium	332	-	361	-	NA		581	-
Chromium	.129	-	.138	-	.207	-	.116	-
Cobalt	1.37	-	1.58	-	NA		1.18	-
Copper	.43	-	.525	-	NA		.274	-
Iron	B .0827	-	B .0901	-	NA		B .0756	-
Lead	334	-	271	R	1072	-	314	-
Magnesium	7.39	-	9.24	-	NA		16.5	-
Manganese	.469	-	.469	-	NA		.409	-
Mercury	U .0002	J	U .0002	J	U .0002	-	U .0002	-
Molybdenum	.0485	-	.0428	-	NA		.041	-
Nickel	2.04	-	2.4	-	NA		2.13	-
Potassium	B 2.86	U	B 3.19	U	NA		5.31	-
Selenium	S .0453	-	S .0448	-	.568	-	N .0256	J
Silicon	12.1	-	12.7	-	NA		NA	
Silver	.0833	-	.089	-	.164	-	.094	-
Thallium	B .0027	-	B .0022	-	NA		B .0041	-
Vanadium	.0527	-	.0565	-	NA		NA	
Zinc	.141	-	.17	-	NA		.162	R

a = lab qualifier
b = validated qualifier

174

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099809 08/01/91		2S2-NE-A 099817 08/01/91		2S2-NE-B 099829 08/03/91		2S2-NE-B 099836 08/03/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .0001	R	NA		U .0001	-
4,4'-DDE	NA		U .0001	-	NA		U .0001	-
4,4'-DDT	NA		U .0001	-	NA		U .0001	-
Aldrin	NA		U .00005	-	NA		U .00005	-
alpha-BHC	NA		U .00005	R	NA		XF .00025	J
alpha-Chlordane	NA		U .0005	R	NA		U .0005	-
Aroclor-1016	NA		U .0005	R	NA		U .0005	-
Aroclor-1221	NA		U .0005	R	NA		U .0005	-
Aroclor-1232	NA		U .0005	R	NA		U .0005	-
Aroclor-1242	NA		U .0005	R	NA		U .0005	-
Aroclor-1248	NA		U .0005	R	NA		U .0005	-
Aroclor-1254	NA		U .001	R	NA		U .001	-
Aroclor-1260	NA		U .001	R	NA		U .001	-
beta-BHC	NA		F .00031	R	NA		XF .0005	J
delta-BHC	NA		U .00005	R	NA		U .00005	-
Dieldrin	NA		U .0001	-	NA		U .0001	-
Endosulfan II	NA		U .0001	R	NA		U .0001	-
Endosulfan sulfate	NA		U .0001	R	NA		U .0001	-
Endosulfan-I	NA		U .00005	R	NA		U .00005	-
Endrin	NA		U .0001	-	NA		U .0001	-
Endrin ketone	NA		U .0001	R	NA		U .0001	-
gamma-BHC (Lindane)	NA		U .00005	-	NA		U .00005	-
gamma-Chlordane	NA		U .0005	R	NA		U .0005	-
Heptachlor	NA		U .00005	-	NA		U .00005	-
Heptachlor epoxide	NA		U .00005	R	NA		U .00005	-
Methoxychlor	NA		U .0005	R	NA		U .0005	-
Toxaphene	NA		U .001	R	NA		U .001	-
SEMIVOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .02	-	NA		U .02	-
1,2-Dichlorobenzene	NA		U .02	-	NA		U .02	-
1,3-Dichlorobenzene	NA		U .02	-	NA		U .02	-
1,4-Dichlorobenzene	NA		U .02	-	NA		U .02	-
2,4,5-Trichlorophenol	NA		U .1	-	NA		U .1	-
2,4,6-Trichlorophenol	NA		U .02	-	NA		U .02	-
2,4-Dichlorophenol	NA		U .02	-	NA		U .02	-
2,4-Dimethylphenol	NA		U .02	-	NA		U .02	-
2,4-Dinitrophenol	NA		U .1	-	NA		U .1	-
2,4-Dinitrotoluene	NA		U .02	-	NA		U .02	-
2,6-Dinitrotoluene	NA		U .02	-	NA		U .02	-
2-Chloronaphthalene	NA		U .02	-	NA		U .02	-
2-Chlorophenol	NA		U .02	-	NA		U .02	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099809 08/01/91		2S2-NE-A 099817 08/01/91		2S2-NE-B 099829 08/03/91		2S2-NE-B 099836 08/03/91	
	a	b	a	b	a	b	a	b
SEMIVOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .02	-	NA		U .02	-
2-Methylphenol	NA		U .02	-	NA		U .02	-
2-Nitroaniline	NA		U .1	-	NA		U .1	-
2-Nitrophenol	NA		U .02	-	NA		U .02	-
3,3'-Dichlorobenzidine	NA		U .04	-	NA		U .04	-
3-Nitroaniline	NA		U .1	-	NA		U .1	-
4,6-Dinitro-2-methylphenol	NA		U .1	-	NA		U .1	-
4-Bromophenyl phenyl ether	NA		U .02	-	NA		U .02	-
4-Chloro-3-methylphenol	NA		U .02	-	NA		U .02	-
4-Chloroaniline	NA		U .02	-	NA		U .02	-
4-Chlorophenylphenyl ether	NA		U .02	-	NA		U .02	-
4-Methylphenol	NA		U .02	-	NA		U .02	-
4-Nitroaniline	NA		U .1	-	NA		U .1	-
4-Nitrophenol	NA		U .1	-	NA		U .1	-
Acenaphthene	NA		U .02	-	NA		U .02	-
Acenaphthylene	NA		U .02	-	NA		U .02	-
Anthracene	NA		U .02	-	NA		U .02	-
Benzo(a)anthracene	NA		U .02	-	NA		U .02	-
Benzo(a)pyrene	NA		U .02	-	NA		U .02	-
Benzo(b)fluoranthene	NA		U .02	-	NA		U .02	-
Benzo(g,h,i)perylene	NA		U .02	-	NA		U .02	-
Benzo(k)fluoranthene	NA		U .02	-	NA		U .02	-
Benzoic acid	NA		U .1	-	NA		U .1	-
Benzyl alcohol	NA		U .02	-	NA		U .02	-
bis(2-Chloroethoxy)methane	NA		U .02	-	NA		U .02	-
bis(2-Chloroethyl)ether	NA		U .02	-	NA		U .02	-
bis(2-Chloroisopropyl) ether	NA		U .02	-	NA		U .02	-
bis(2-Ethylhexyl) phthalate	NA		U .02	-	NA		U .02	-
Butyl benzyl phthalate	NA		U .02	-	NA		U .02	-
Chrysene	NA		U .02	-	NA		U .02	-
Di-n-butyl phthalate	NA		U .02	-	NA		U .02	-
Di-n-octyl phthalate	NA		U .02	-	NA		U .02	-
Dibenzo(a,h)anthracene	NA		U .02	-	NA		U .02	-
Dibenzofuran	NA		U .02	-	NA		U .02	-
Diethyl phthalate	NA		U .02	-	NA		U .02	-
Dimethyl phthalate	NA		U .02	-	NA		U .02	-
Fluoranthene	NA		U .02	-	NA		U .02	-
Fluorene	NA		U .02	-	NA		U .02	-
Hexachlorobenzene	NA		U .02	-	NA		U .02	-
Hexachlorobutadiene	NA		U .02	-	NA		U .02	-

a = lab qualifier
b = validated qualifier

-4948

116

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099809 08/01/91		2S2-NE-A 099817 08/01/91		2S2-NE-B 099829 08/03/91		2S2-NE-B 099836 08/03/91	
	a	b	a	b	a	b	a	b
SEMIVOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .02	-	NA		U .02	-
Hexachloroethane	NA		U .02	-	NA		U .02	-
Indeno(1,2,3-cd)pyrene	NA		U .02	-	NA		U .02	-
Isophorone	NA		U .02	-	NA		U .02	-
N-Nitroso-di-n-propylamine	NA		U .02	-	NA		U .02	-
N-Nitrosodiphenylamine	NA		U .02	-	NA		U .02	-
Naphthalene	NA		U .02	-	NA		U .02	-
Nitrobenzene	NA		U .02	-	NA		U .02	-
Pentachlorophenol	NA		U .1	-	NA		U .1	-
Phenanthrene	NA		U .02	-	NA		U .02	-
Phenol	NA		U .02	-	NA		U .02	-
Pyrene	NA		U .02	-	NA		U .02	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	NA		U .005	-	U .005	J
1,1-Dichloroethene	U .005	-	NA		U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	NA		U .005	R	U .005	-
1,2-Dichloroethylene	U .005	-	NA		U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	NA		U .005	-	U .005	-
2-Butanone	J .002	-	NA		J .002	-	U .01	-
2-Hexanone	U .01	-	NA		U .01	-	U .01	-
4-Methyl-2-pentanone	J .001	-	NA		U .01	-	U .01	-
Acetone	B .01	U	NA		B .027	U	BJ .01	U
Benzene	U .005	-	NA		U .005	-	U .005	J
Bromodichloromethane	U .005	-	NA		U .005	-	U .005	-
Bromoform	U .005	-	NA		U .005	-	U .005	-
Bromomethane	U .01	-	NA		U .01	-	U .01	-
Carbon disulfide	U .005	-	NA		J .004	-	U .005	-
Carbon Tetrachloride	U .005	R	NA		U .005	R	U .005	-
Chlorobenzene	U .005	-	NA		U .005	-	U .005	-
Chloroethane	U .01	-	NA		U .01	-	U .01	-
Chloroform	U .005	R	NA		U .005	R	U .005	-
Chloromethane	U .01	-	NA		U .01	-	U .01	-
cis-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Dibromochloromethane	U .005	-	NA		U .005	-	U .005	-
Ethylbenzene	U .005	-	NA		U .005	-	U .005	-
Methylene chloride	B .005	U	NA		B .013	U	U .005	-
Styrene	U .005	-	NA		U .005	-	U .005	-
Tetrachlorethene	U .005	-	NA		U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099809 08/01/91		2S2-NE-A 099817 08/01/91		2S2-NE-B 099829 08/03/91		2S2-NE-B 099836 08/03/91	
	a	b	a	b	a	b	a	b
VOLATILES ORGANICS								
Toluene	U .005	-	NA		U .003	-	BJ .003	U
Total xylenes	U .005	-	NA		U .005	-	U .005	-
trans-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Trichloroethene	U .005	-	NA		U .005	-	U .005	-
Vinyl Acetate	U .01	-	NA		U .01	-	U .01	-
Vinyl chloride	U .01	R	NA		U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

178

4948

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099844 08/06/91		2S2-NE-C 099852 08/06/91		2S2-NE-C 099859 08/06/91		2S2-NE-C 099863 08/06/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .0001	UJ	NA		U .0001	UJ
4,4'-DDE	NA		U .0001	UJ	NA		U .0001	UJ
4,4'-DDT	NA		U .0001	UJ	NA		U .0001	UJ
Aldrin	NA		U .00005	UJ	NA		U .00005	UJ
alpha-BHC	NA		U .00005	UJ	NA		U .00005	UJ
alpha-Chlordane	NA		U .0005	UJ	NA		U .0005	UJ
Aroclor-1016	NA		U .0005	UJ	NA		U .0005	UJ
Aroclor-1221	NA		U .0005	UJ	NA		U .0005	UJ
Aroclor-1232	NA		U .0005	UJ	NA		U .0005	UJ
Aroclor-1242	NA		U .0005	UJ	NA		U .0005	UJ
Aroclor-1248	NA		U .0005	UJ	NA		U .0005	UJ
Aroclor-1254	NA		U .001	UJ	NA		U .001	UJ
Aroclor-1260	NA		U .001	UJ	NA		U .001	UJ
beta-BHC	NA		U .00005	UJ	NA		U .00005	UJ
delta-BHC	NA		U .00005	UJ	NA		U .00005	UJ
Dieldrin	NA		U .0001	UJ	NA		U .0001	UJ
Endosulfan II	NA		U .0001	UJ	NA		U .0001	UJ
Endosulfan sulfate	NA		U .0001	UJ	NA		U .0001	UJ
Endosulfan-I	NA		U .00005	UJ	NA		U .00005	UJ
Endrin	NA		U .0001	UJ	NA		U .0001	UJ
Endrin ketone	NA		U .0001	UJ	NA		U .0001	UJ
gamma-BHC (Lindane)	NA		U .00005	UJ	NA		U .00005	UJ
gamma-Chlordane	NA		U .0005	UJ	NA		U .0005	UJ
Heptachlor	NA		U .00005	UJ	NA		U .00005	UJ
Heptachlor epoxide	NA		U .00005	UJ	NA		U .00005	UJ
Methoxychlor	NA		U .0005	UJ	NA		U .0005	UJ
Toxaphene	NA		U .001	UJ	NA		U .001	UJ
SEMIVOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .02	UJ	NA		U .02	UJ
1,2-Dichlorobenzene	NA		U .02	UJ	NA		U .02	UJ
1,3-Dichlorobenzene	NA		U .02	UJ	NA		U .02	UJ
1,4-Dichlorobenzene	NA		U .02	UJ	NA		U .02	UJ
2,4,5-Trichlorophenol	NA		U .1	R	NA		U .1	UJ
2,4,6-Trichlorophenol	NA		U .02	R	NA		U .02	UJ
2,4-Dichlorophenol	NA		U .02	R	NA		U .02	UJ
2,4-Dimethylphenol	NA		U .02	R	NA		U .02	UJ
2,4-Dinitrophenol	NA		U .1	R	NA		U .1	UJ
2,4-Dinitrotoluene	NA		U .02	UJ	NA		U .02	UJ
2,6-Dinitrotoluene	NA		U .02	UJ	NA		U .02	UJ
2-Chloronaphthalene	NA		U .02	UJ	NA		U .02	UJ
2-Chlorophenol	NA		U .02	R	NA		U .02	UJ

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099844 08/06/91		2S2-NE-C 099852 08/06/91		2S2-NE-C 099859 08/06/91		2S2-NE-C 099863 08/06/91	
	a	b	a	b	a	b	a	b
SEMIVOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .02	UJ	NA		U .02	UJ
2-Methylphenol	NA		U .02	R	NA		U .02	UJ
2-Nitroaniline	NA		U .1	UJ	NA		U .1	UJ
2-Nitrophenol	NA		U .02	UJ	NA		U .02	UJ
3,3'-Dichlorobenzidine	NA		U .04	UJ	NA		U .04	UJ
3-Nitroaniline	NA		U .1	UJ	NA		U .1	UJ
4,6-Dinitro-2-methylphenol	NA		U .1	R	NA		U .1	UJ
4-Bromophenyl phenyl ether	NA		U .02	UJ	NA		U .02	UJ
4-Chloro-3-methylphenol	NA		U .02	R	NA		U .02	UJ
4-Chloroaniline	NA		U .02	UJ	NA		U .02	UJ
4-Chlorophenylphenyl ether	NA		U .02	UJ	NA		U .02	UJ
4-Methylphenol	NA		U .02	R	NA		U .02	UJ
4-Nitroaniline	NA		U .1	UJ	NA		U .1	UJ
4-Nitrophenol	NA		U .1	UJ	NA		U .1	UJ
Acenaphthene	NA		U .02	UJ	NA		U .02	UJ
Acenaphthylene	NA		U .02	UJ	NA		U .02	UJ
Anthracene	NA		U .02	UJ	NA		U .02	UJ
Benzo(a)anthracene	NA		U .02	UJ	NA		U .02	UJ
Benzo(a)pyrene	NA		U .02	UJ	NA		U .02	UJ
Benzo(b)fluoranthene	NA		U .02	UJ	NA		U .02	UJ
Benzo(g,h,i)perylene	NA		U .02	UJ	NA		U .02	UJ
Benzo(k)fluoranthene	NA		U .02	UJ	NA		U .02	UJ
Benzoic acid	NA		BJ .1	UJ	NA		U .1	UJ
Benzyl alcohol	NA		U .02	UJ	NA		U .02	UJ
bis(2-Chloroethoxy)methane	NA		U .02	UJ	NA		U .02	UJ
bis(2-Chloroethyl)ether	NA		U .02	UJ	NA		U .02	UJ
bis(2-Chloroisopropyl) ether	NA		U .02	UJ	NA		U .02	UJ
bis(2-Ethylhexyl) phthalate	NA		.055	UJ	NA		J .01	UJ
Butyl benzyl phthalate	NA		U .02	UJ	NA		U .02	UJ
Chrysene	NA		U .02	UJ	NA		U .02	UJ
Di-n-butyl phthalate	NA		U .02	UJ	NA		U .02	UJ
Di-n-octyl phthalate	NA		U .02	UJ	NA		U .02	UJ
Dibenzo(a,h)anthracene	NA		U .02	UJ	NA		U .02	UJ
Dibenzofuran	NA		U .02	UJ	NA		U .02	UJ
Diethyl phthalate	NA		U .02	UJ	NA		U .02	UJ
Dimethyl phthalate	NA		U .02	UJ	NA		U .02	UJ
Fluoranthene	NA		U .02	UJ	NA		U .02	UJ
Fluorene	NA		U .02	UJ	NA		U .02	UJ
Hexachlorobenzene	NA		U .02	UJ	NA		U .02	UJ
Hexachlorobutadiene	NA		U .02	UJ	NA		U .02	UJ

a = lab qualifier
b = validated qualifier

948
180

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099844 08/06/91		2S2-NE-C 099852 08/06/91		2S2-NE-C 099859 08/06/91		2S2-NE-C 099863 08/06/91	
	a	b	a	b	a	b	a	b
SEMIVOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .02	UJ	NA		U .02	UJ
Hexachloroethane	NA		U .02	UJ	NA		U .02	UJ
Indeno(1,2,3-cd)pyrene	NA		U .02	UJ	NA		U .02	UJ
Isophorone	NA		U .02	UJ	NA		U .02	UJ
N-Nitroso-di-n-propylamine	NA		J .005	-	NA		U .02	UJ
N-Nitrosodiphenylamine	NA		U .02	UJ	NA		U .02	UJ
Naphthalene	NA		U .02	UJ	NA		U .02	UJ
Nitrobenzene	NA		U .02	UJ	NA		U .02	UJ
Pentachlorophenol	NA		J .018	J	NA		U .1	UJ
Phenanthrene	NA		U .02	UJ	NA		U .02	UJ
Phenol	NA		U .02	R	NA		U .02	UJ
Pyrene	NA		U .02	UJ	NA		U .02	UJ
Tributyl Phosphate	NA		NA		NA		J .66	N
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	-	NA	
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	-	NA	
1,1,2-Trichloroethane	U .005	-	NA		U .005	-	NA	
1,1-Dichloroethane	U .005	-	NA		U .005	-	NA	
1,1-Dichloroethene	U .005	-	NA		U .005	-	NA	
1,2-Dichloroethane	U .005	-	NA		U .005	-	NA	
1,2-Dichloroethylene	U .005	-	NA		U .005	-	NA	
1,2-Dichloropropane	U .005	-	NA		U .005	-	NA	
2-Butanone	BJ .01	U	NA		BJ .005	U	NA	
2-Hexanone	U .01	-	NA		U .01	-	NA	
4-Methyl-2-pentanone	U .01	-	NA		U .01	UJ	NA	
Acetone	BE .21	UJ	NA		B .2	UJ	NA	
Benzene	U .005	UJ	NA		U .005	UJ	NA	
Bromodichloromethane	U .005	-	NA		U .005	-	NA	
Bromoform	U .005	UJ	NA		U .005	UJ	NA	
Bromomethane	U .01	UJ	NA		U .01	UJ	NA	
Carbon disulfide	U .005	-	NA		U .005	-	NA	
Carbon Tetrachloride	U .005	-	NA		U .005	-	NA	
Chlorobenzene	U .005	UJ	NA		U .005	UJ	NA	
Chloroethane	U .01	-	NA		U .01	-	NA	
Chloroform	U .005	-	NA		U .005	-	NA	
Chloromethane	U .01	-	NA		U .01	-	NA	
cis-1,3-Dichloropropene	U .005	-	NA		U .005	-	NA	
Dibromochloromethane	U .005	-	NA		U .005	-	NA	
Ethylbenzene	U .005	UJ	NA		U .005	UJ	NA	
Methylene chloride	B .007	U	NA		B .009	U	NA	
Styrene	U .005	UJ	NA		U .005	UJ	NA	
Tetrachlorethene	U .005	-	NA		U .005	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-C 099844 08/06/91		2S2-NE-C 099852 08/06/91		2S2-NE-C 099859 08/06/91		2S2-NE-C 099863 08/06/91	
	a	b	a	b	a	b	a	b
VOLATILES ORGANICS								
Toluene	U .005	UJ	NA		U .005	UJ	NA	
Total xylenes	U .005	UJ	NA		U .005	UJ	NA	
trans-1,3-Dichloropropene	U .005	-	NA		U .005	-	NA	
Trichloroethene	U .005	-	NA		U .005	-	NA	
Vinyl Acetate	U .01	-	NA		U .01	-	NA	
Vinyl chloride	U .01	-	NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

182

4048

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099772 07/30/91		2S2-NW-C 099780 07/30/91		2S2-NW-C 099800 07/30/91		2S2-NW-C 099804 07/30/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .0001	-	NA		U .0001	-
4,4'-DDE	NA		U .0001	-	NA		U .0001	-
4,4'-DDT	NA		U .0001	-	NA		U .0001	-
Aldrin	NA		U .00005	-	NA		U .00005	-
alpha-BHC	NA		U .00005	-	NA		U .00005	-
alpha-Chlordane	NA		U .0005	-	NA		U .0005	-
Aroclor-1016	NA		U .0005	-	NA		U .0005	-
Aroclor-1221	NA		U .0005	-	NA		U .0005	-
Aroclor-1232	NA		U .0005	-	NA		U .0005	-
Aroclor-1242	NA		U .0005	-	NA		U .0005	-
Aroclor-1248	NA		U .0005	-	NA		U .0005	-
Aroclor-1254	NA		U .001	-	NA		U .001	-
Aroclor-1260	NA		U .001	-	NA		U .001	-
beta-BHC	NA		X .00018	-	NA		U .00005	-
delta-BHC	NA		U .00005	-	NA		U .00005	-
Dieldrin	NA		U .0001	-	NA		U .0001	-
Endosulfan II	NA		U .0001	-	NA		U .0001	-
Endosulfan sulfate	NA		U .0001	-	NA		U .0001	-
Endosulfan-I	NA		U .00005	-	NA		U .00005	-
Endrin	NA		U .0001	-	NA		U .0001	-
Endrin ketone	NA		U .0001	-	NA		U .0001	-
gamma-BHC (Lindane)	NA		U .00005	-	NA		U .00005	J
gamma-Chlordane	NA		U .0005	-	NA		U .0005	-
Heptachlor	NA		U .00005	-	NA		U .00005	J
Heptachlor epoxide	NA		U .00005	-	NA		U .00005	J
Methoxychlor	NA		U .0005	-	NA		U .0005	-
SEMIVOLATILE ORGANICS								
Toxaphene	NA		U .001	-	NA		U .001	-
1,2,4-Trichlorobenzene	NA		U .02	-	NA		U .02	-
1,2-Dichlorobenzene	NA		U .02	-	NA		U .02	-
1,3-Dichlorobenzene	NA		U .02	-	NA		U .02	-
1,4-Dichlorobenzene	NA		U .02	-	NA		U .02	-
2,4,5-Trichlorophenol	NA		U .1	-	NA		U .1	-
2,4,6-Trichlorophenol	NA		U .02	-	NA		U .02	-
2,4-Dichlorophenol	NA		U .02	-	NA		U .02	-
2,4-Dimethylphenol	NA		U .02	-	NA		U .02	-
2,4-Dinitrophenol	NA		U .1	-	NA		U .1	-
2,4-Dinitrotoluene	NA		U .02	-	NA		U .02	-
2,6-Dinitrotoluene	NA		U .02	-	NA		U .02	-
2-Chloronaphthalene	NA		U .02	-	NA		U .02	-
2-Chlorophenol	NA		U .02	-	NA		U .02	-

a = lab qualifier
b = validated qualifier

1-4048

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099772 07/30/91		2S2-NW-C 099780 07/30/91		2S2-NW-C 099800 07/30/91		2S2-NW-C 099804 07/30/91	
	a	b	a	b	a	b	a	b
SEMIVOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .02	-	NA		U .02	-
2-Methylphenol	NA		U .02	-	NA		U .02	-
2-Nitroaniline	NA		U .1	-	NA		U .1	-
2-Nitrophenol	NA		U .02	-	NA		U .02	-
3,3'-Dichlorobenzidine	NA		U .04	-	NA		U .04	-
3-Nitroaniline	NA		U .1	-	NA		U .1	-
4,6-Dinitro-2-methylphenol	NA		U .1	-	NA		U .1	-
4-Bromophenyl phenyl ether	NA		U .02	-	NA		U .02	-
4-Chloro-3-methylphenol	NA		U .02	-	NA		U .02	-
4-Chloroaniline	NA		U .02	-	NA		U .02	-
4-Chlorophenylphenyl ether	NA		U .02	-	NA		U .02	-
4-Methylphenol	NA		U .02	-	NA		U .02	-
4-Nitroaniline	NA		U .1	-	NA		U .1	-
4-Nitrophenol	NA		U .1	-	NA		U .1	-
Acenaphthene	NA		U .02	-	NA		U .02	-
Acenaphthylene	NA		U .02	-	NA		U .02	-
Anthracene	NA		U .02	-	NA		U .02	-
Benzo(a)anthracene	NA		U .02	-	NA		U .02	-
Benzo(a)pyrene	NA		U .02	-	NA		U .02	-
Benzo(b)fluoranthene	NA		U .02	-	NA		U .02	-
Benzo(g,h,i)perylene	NA		U .02	-	NA		U .02	-
Benzo(k)fluoranthene	NA		U .02	-	NA		U .02	-
Benzoic acid	NA		U .1	-	NA		U .1	
Benzyl alcohol	NA		U .02	-	NA		U .02	-
bis(2-Chloroethoxy)methane	NA		U .02	-	NA		U .02	-
bis(2-Chloroethyl)ether	NA		U .02	-	NA		U .02	-
bis(2-Chloroisopropyl) ether	NA		U .02	-	NA		U .02	-
bis(2-Ethylhexyl) phthalate	NA		U .02	-	NA		U .02	-
Butyl benzyl phthalate	NA		U .02	-	NA		U .02	-
Chrysene	NA		U .02	-	NA		U .02	-
Di-n-butyl phthalate	NA		U .02	-	NA		U .02	-
Di-n-octyl phthalate	NA		U .02	-	NA		U .02	-
Dibenzo(a,h)anthracene	NA		U .02	-	NA		U .02	-
Dibenzofuran	NA		U .02	-	NA		U .02	-
Diethyl phthalate	NA		U .02	-	NA		U .02	-
Dimethyl phthalate	NA		U .02	-	NA		U .02	-
Fluoranthene	NA		U .02	-	NA		U .02	-
Fluorene	NA		U .02	-	NA		U .02	-
Hexachlorobenzene	NA		U .02	-	NA		U .02	-
Hexachlorobutadiene	NA		U .02	-	NA		U .02	-

a = lab qualifier
b = validated qualifier

4948

184

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099772 07/30/91 a	b	2S2-NW-C 099780 07/30/91 a	b	2S2-NW-C 099800 07/30/91 a	b	2S2-NW-C 099804 07/30/91 a	b
SEMIVOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .02	-	NA		U .02	-
Hexachloroethane	NA		U .02	-	NA		U .02	-
Indeno(1,2,3-cd)pyrene	NA		U .02	-	NA		U .02	-
Isophorone	NA		U .02	-	NA		U .02	-
N-Nitroso-di-n-propylamine	NA		U .02	-	NA		U .02	-
N-Nitrosodiphenylamine	NA		U .02	-	NA		U .02	-
Naphthalene	NA		U .02	-	NA		U .02	-
Nitrobenzene	NA		U .02	-	NA		U .02	-
Pentachlorophenol	NA		U .1	-	NA		U .1	-
Phenanthrene	NA		U .02	-	NA		U .02	-
Phenol	NA		U .02	-	NA		U .02	-
Pyrene	NA		U .02	-	NA		U .02	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	-	NA	
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	-	NA	
1,1,2-Trichloroethane	U .005	-	NA		U .005	-	NA	
1,1-Dichloroethane	U .005	-	NA		U .005	-	NA	
1,1-Dichloroethene	U .005	-	NA		U .005	-	NA	
1,2-Dichloroethane	U .005	-	NA		U .005	R	NA	
1,2-Dichloroethylene	U .005	-	NA		U .005	-	NA	
1,2-Dichloropropane	U .005	-	NA		U .005	-	NA	
2-Butanone	J .002	J	NA		J .002	R	NA	
2-Hexanone	U .01	-	NA		U .01	-	NA	
4-Methyl-2-pentanone	U .01	-	NA		U .01	-	NA	
Acetone	B .074	U	NA		B .015	-	NA	
Benzene	U .005	-	NA		U .005	-	NA	
Bromodichloromethane	U .005	-	NA		U .005	-	NA	
Bromoform	U .005	-	NA		U .005	-	NA	
Bromomethane	U .01	-	NA		U .01	-	NA	
Carbon disulfide	U .005	-	NA		U .005	-	NA	
Carbon Tetrachloride	U .005	-	NA		U .005	R	NA	
Chlorobenzene	U .005	-	NA		U .005	-	NA	
Chloroethane	U .01	-	NA		U .01	-	NA	
Chloroform	U .005	-	NA		U .005	R	NA	
Chloromethane	U .01	-	NA		U .01	-	NA	
cis-1,3-Dichloropropene	U .005	-	NA		U .005	-	NA	
Dibromochloromethane	U .005	-	NA		U .005	-	NA	
Ethylbenzene	U .005	-	NA		U .005	-	NA	
Methylene chloride	B .014	U	NA		B .014	-	NA	
Styrene	U .005	-	NA		U .005	-	NA	
Tetrachlorethene	U .005	-	NA		U .005	R	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099772 07/30/91		2S2-NW-C 099780 07/30/91		2S2-NW-C 099800 07/30/91		2S2-NW-C 099804 07/30/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	U .005	-	NA		U .005	-	NA	
Total xylenes	U .005	-	NA		U .005	-	NA	
trans-1,3-Dichloropropene	U .005	-	NA		U .005	-	NA	
Trichloroethene	U .005	-	NA		U .005	-	NA	
Vinyl Acetate	U .01	-	NA		U .01	-	NA	
Vinyl chloride	U .01	-	NA		U .01	R	NA	

a = lab qualifier
b = validated qualifier

148

186

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099707 07/19/91 a	b	2S2-SE-C 099708 07/19/91 a	b
PESTICIDES/PCB				
4,4'-DDD	NA		U .0001	-
4,4'-DDE	NA		U .0001	-
4,4'-DDT	NA		U .0001	-
Aldrin	NA		U .00005	-
alpha-BHC	NA		U .00005	-
alpha-Chlordane	NA		U .0005	-
Aroclor-1016	NA		U .0005	-
Aroclor-1221	NA		U .0005	-
Aroclor-1232	NA		U .0005	-
Aroclor-1242	NA		U .0005	-
Aroclor-1248	NA		U .0005	-
Aroclor-1254	NA		U .001	-
Aroclor-1260	NA		U .001	-
beta-BHC	NA		XF .00056	-
delta-BHC	NA		U .00005	-
Dieldrin	NA		U .0001	-
Endosulfan II	NA		U .0001	-
Endosulfan sulfate	NA		U .0001	-
Endosulfan-I	NA		U .00005	-
Endrin	NA		U .0001	-
Endrin ketone	NA		U .0001	-
gamma-BHC (Lindane)	NA		U .00005	R
gamma-Chlordane	NA		U .0005	-
Heptachlor	NA		U .00005	R
Heptachlor epoxide	NA		U .00005	-
Methoxychlor	NA		U .0005	-
SEMIVOLATILE ORGANICS				
Toxaphene	NA		U .001	R
1,2,4-Trichlorobenzene	NA		U .02	-
1,2-Dichlorobenzene	NA		U .02	-
1,3-Dichlorobenzene	NA		U .02	-
1,4-Dichlorobenzene	NA		U .02	-
2,4,5-Trichlorophenol	NA		U .1	-
2,4,6-Trichlorophenol	NA		U .02	-
2,4-Dichlorophenol	NA		U .02	-
2,4-Dimethylphenol	NA		U .02	-
2,4-Dinitrophenol	NA		U .1	-
2,4-Dinitrotoluene	NA		U .02	-
2,6-Dinitrotoluene	NA		U .02	-
2-Chloronaphthalene	NA		U .02	-
2-Chlorophenol	NA		U .02	-

a = lab qualifier
b = validated qualifier

-4048

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099707 07/19/91 a	b	2S2-SE-C 099708 07/19/91 a	b
SEMIVOLATILE ORGANICS				
2-Methylnaphthalene	NA		U .02	-
2-Methylphenol	NA		U .02	-
2-Nitroaniline	NA		U .1	-
2-Nitrophenol	NA		U .02	-
3,3'-Dichlorobenzidine	NA		U .04	-
3-Nitroaniline	NA		U .1	-
4,6-Dinitro-2-methylphenol	NA		U .1	-
4-Bromophenyl phenyl ether	NA		U .02	-
4-Chloro-3-methylphenol	NA		U .02	-
4-Chloroaniline	NA		U .02	-
4-Chlorophenylphenyl ether	NA		U .02	-
4-Methylphenol	NA		U .02	-
4-Nitroaniline	NA		U .1	-
4-Nitrophenol	NA		U .1	-
Acenaphthene	NA		U .02	-
Acenaphthylene	NA		U .02	-
Anthracene	NA		U .02	-
Benzo(a)anthracene	NA		U .02	-
Benzo(a)pyrene	NA		U .02	-
Benzo(b)fluoranthene	NA		U .02	-
Benzo(g,h,i)perylene	NA		U .02	-
Benzo(k)fluoranthene	NA		U .02	-
Benzoic acid	NA		U .1	-
Benzyl alcohol	NA		U .02	-
bis(2-Chloroethoxy)methane	NA		U .02	-
bis(2-Chloroethyl)ether	NA		U .02	-
bis(2-Chloroisopropyl) ether	NA		U .02	-
bis(2-Ethylhexyl) phthalate	NA		U .02	-
Butyl benzyl phthalate	NA		U .02	-
Chrysene	NA		U .02	-
Di-n-butyl phthalate	NA		U .02	-
Di-n-octyl phthalate	NA		U .02	-
Dibenzo(a,h)anthracene	NA		U .02	-
Dibenzofuran	NA		U .02	-
Diethyl phthalate	NA		U .02	-
Dimethyl phthalate	NA		U .02	-
Fluoranthene	NA		U .02	-
Fluorene	NA		U .02	-
Hexachlorobenzene	NA		U .02	-
Hexachlorobutadiene	NA		U .02	-

a = lab qualifier
b = validated qualifier

-4048

188

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099707 07/19/91 a	b	2S2-SE-C 099708 07/19/91 a	b
SEMIVOLATILE ORGANICS				
Hexachlorocyclopentadiene	NA		U .02	-
Hexachloroethane	NA		U .02	-
Indeno(1,2,3-cd)pyrene	NA		U .02	-
Isophorone	NA		U .02	-
N-Nitroso-di-n-propylamine	NA		U .02	-
N-Nitrosodiphenylamine	NA		U .02	-
Naphthalene	NA		U .02	-
Nitrobenzene	NA		U .02	-
Pentachlorophenol	NA		U .02	-
Phenanthrene	NA		U .1	-
Phenol	NA		U .02	-
Pyrene	NA		U .02	-
VOLATILES ORGANICS				
1,1,1-Trichloroethane	U .02	-	NA	
1,1,2,2-Tetrachloroethane	U .02	-	NA	
1,1,2-Trichloroethane	U .02	-	NA	
1,1-Dichloroethane	U .02	-	NA	
1,1-Dichloroethene	U .02	-	NA	
1,2-Dichloroethane	U .02	-	NA	
1,2-Dichloroethylene	U .02	-	NA	
1,2-Dichloropropane	U .02	-	NA	
2-Butanone	U .04	-	NA	
2-Hexanone	U .04	-	NA	
4-Methyl-2-pentanone	U .04	-	NA	
Acetone	.092	-	NA	
Benzene	U .02	-	NA	
Bromodichloromethane	U .02	-	NA	
Bromoform	U .02	-	NA	
Bromomethane	U .04	-	NA	
Carbon disulfide	U .02	-	NA	
Carbon Tetrachloride	U .02	-	NA	
Chlorobenzene	U .02	-	NA	
Chloroethane	U .04	-	NA	
Chloroform	U .02	-	NA	
Chloromethane	U .04	-	NA	
cis-1,3-Dichloropropene	U .02	-	NA	
Dibromochloromethane	U .02	-	NA	
Ethylbenzene	U .02	-	NA	
Methylene chloride	B .046	-	NA	
Styrene	U .02	-	NA	
Tetrachlorethene	U .02	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099707 07/19/91 a	b	2S2-SE-C 099708 07/19/91 a	b
VOLATILE ORGANICS				
Toluene	U .02	-	NA	
Total xylenes	U .02	-	NA	
trans-1,3-Dichloropropene	U .02	-	NA	
Trichloroethene	U .02	-	NA	
Vinyl Acetate	U .04	-	NA	
Vinyl chloride	U .04	-	NA	

a = lab qualifier
b = validated qualifier

190

4948

-4948

OU4 1991/92 SILO 2 GEOTECHNICAL RESULTS

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100068
SPECIFIC GRAVITY:	3.03 (MEASURED)
MAXIMUM DRY DENSITY:	100.6 pcf
USCS SYMBOL:	NON PLASTIC
WATER CONTENT (%):	30.5
LIQUID LIMIT:	NON PLASTIC
PLASTICITY INDEX:	NON PLASTIC
OPTIMUM MOISTURE (%):	23.8

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.8
NO. 10	2.000	98.5
NO. 20	0.850	92.7
NO. 40	0.425	84.0
NO. 60	0.250	72.3
NO. 140	0.106	45.1
NO. 200	0.075	35.2

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0360	26.1
0.0266	22.2
0.0173	19.2
0.0103	16.0
0.0074	14.0
0.0053	11.3
0.0038	9.0
0.0028	7.4
0.0011	3.5

INDIVIDUAL PROCTOR POINTS

MOISTURE CONTENT	20.2%	20.9%	22.2%	25.1%	26.5%
DRY DENSITY	94.1 pcf	96.2 pcf	99.1 pcf	99.9 pcf	98.5 pcf

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100069
SPECIFIC GRAVITY:	2.9890 (MEASURED)
MAXIMUM DRY DENSITY:	79.0 pcf
USCS SYMBOL:	MH
WATER CONTENT (%):	55.5
LIQUID CONTENT:	58.0
PLASTICITY INDEX	9.0
OPTIMUM MOISTURE (%):	41.4

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	98.8
NO. 10	2.000	96.0
NO. 20	0.850	85.9
NO. 40	0.425	74.0
NO. 60	0.250	66.3
NO. 140	0.106	57.6
NO. 200	0.075	55.0

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0332	50.2
0.0236	49.7
0.0153	46.9
0.0091	43.5
0.0066	40.1
0.0048	35.6
0.0035	29.9
0.0026	25.4
0.0011	13.0

INDIVIDUAL PROCTOR POINTS

MOISTURE CONTENT	35.8%	38.6%	40.6%	42.5%	44.2%
DRY DENSITY	72.6 pcf	74.9 pcf	78.4 pcf	78.0 pcf	75.6 pcf

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100070
SPECIFIC GRAVITY:	2.99 (MEASURED)
MAXIMUM DRY DENSITY:	92.7 pcf
USCS SYMBOL:	ML
WATER CONTENT (%):	38.5
LIQUID LIMIT:	34.0
PLASTICITY INDEX:	4.0
OPTIMUM MOISTURE (%):	30.1

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.4
NO. 10	2.000	98.1
NO. 20	0.850	93.8
NO. 40	0.425	87.5
NO. 60	0.250	79.9
NO. 140	0.106	56.8
NO. 200	0.075	48.2

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0358	41.2
0.0263	36.0
0.0170	32.6
0.0100	29.2
0.0059	24.6
0.0050	22.3
0.0038	19.4
0.0027	15.4
0.0011	8.6

INDIVIDUAL PROCTOR POINTS

MOISTURE CONTENT	27.2%	29.4%	31.1%	32.6%
DRY DENSITY	87.8 pcf	92.3 pcf	91.9 pcf	89.2 pcf

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100091
SPECIFIC GRAVITY:	2.78 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	74.7
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	2.16
0.25	2.14
0.50	2.10
1.00	2.05
2.00	1.96
4.00	1.85
8.00	1.70
16.00	1.50
8.00	1.51
4.00	1.52
2.00	1.54
1.00	1.55
0.50	1.56
0.25	1.57
0.13	1.58

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100092
SPECIFIC GRAVITY:	3.02 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	59.8
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	1.90
0.25	1.87
0.50	1.85
1.00	1.80
2.00	1.74
4.00	1.69
8.00	1.53
16.00	1.37
8.00	1.38
4.00	1.39
2.00	1.40
1.00	1.41
0.50	1.41
0.25	1.43
0.13	1.43

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100093
SPECIFIC GRAVITY:	2.90 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	65.2
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	2.06
0.25	2.05
0.50	2.02
1.00	1.99
2.00	1.94
4.00	1.88
8.00	1.69
16.00	1.50
8.00	1.51
4.00	1.52
2.00	1.54
1.00	1.55
0.50	1.56
0.25	1.56
0.13	1.57

OU4 1990/91 SILO 2 GEOTECHNICAL RESULTS

SAMPLE NO.:	100094
SPECIFIC GRAVITY:	3.08 (MEASURED)
USCS SYMBOL:	NOT REQUESTED
WATER CONTENT (%):	57.0
LIQUID LIMIT:	NOT REQUESTED
PLASTICITY INDEX:	NOT REQUESTED

ONE DIMENSIONAL CONSOLIDATION RESULTS

PRESSURE (tsf)	VOID RATIO
0.13	2.04
0.25	2.02
0.50	1.97
1.00	1.93
2.00	1.84
4.00	1.73
8.00	1.60
16.00	1.45
8.00	1.46
4.00	1.47
2.00	1.48
1.00	1.50
0.50	1.50
0.25	1.52
0.13	1.52

OU4 1991/92 SILO 2 CONTENT BORING LOGS

BORING/WELL LOGS LEGEND

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS PER SQUARE FT)
VERY SOFT	LESS THAN 0.25
SOFT	0.25 to 0.50
MEDIUM STIFF	0.50 to 1.0
STIFF	1.0 to 2.0
VERY STIFF	2.0 to 4.0
HARD	MORE THAN 4.0

DENSITY OF GRANULAR SOILS

DENSITY	STANDARD PENETRATION RESISTANCE
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS RECORDED FOR EACH 6-INCH INTERVAL THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

COBBLES	GRAVEL		SANDS			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

USCS CLASSIFICATION FOR SOILS

COARSE – GRAINED SOILS

CLEAN GRAVELS (LITTLE OR – NO FINES)	GW	WELL-GRADED GRAVELS GRAVEL-SAND MIXTURES LITTLE OR NO FINES
	GP	POORLY-GRADED GRAVELS GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	GC	CLAYEY GRAVELS GRAVEL-SAND-CLAY MIXTURES
CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY-GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
	SC	CLAYEY SANDS SAND-CLAY MIXTURES

FINE-GRADED/HIGHLY ORGANIC SOILS

SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

-4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	303317	PROJECT NAME:	K-65 RESAMPLE PROJECT		
BORING NUMBER:	2S2-SE-A,B,C	COORDINATES:	K-65 SILO 2, S.E. Manway	DATE:	09/12/91
GROUND ELEVATIONS:		GWL: Depth	Date/Time:	DATE STARTED:	12/12/90
ENGINEER/GEOLOGIST:	D. JARVIS	Depth:	Date/Time:	DATE COMPLETED:	07/19/91
DRILLING METHODS:	WINK VIBRA CORE, 3 IN. ID TUBE			PAGE 1	OF 1

DEPTH	SAMPLE	DATE	TIME	BLOWS ON	SAMPLE	RECOVERY	INCHES	DESCRIPTION	USGS	SYMBOL	TSF	REMARKS
0"												
	Zone A			N/A		43.9		Damp, gritty Sand, tightly compacted to a Silty Clay type material, light brown except 8-15" a dark brown to black color	sm		N/A	Tot. Core wt.= 7,738 gm Rad reading 12-30 mR/hr Penatrometer= 0.8-2.0 Kg/cm 2
72"								Recovery area				
	Zone B			N/A		89.0		0-45" Damp, silty Clay 45-78" Wet, gritty Clay 78-89" Damp, silty Clay	ml ml ml		N/A	Tot. Core wt.= 14,685 gm Rad reading 12-44 mR/hr Penatrometer= 0.9-1.75 Kg/cm 2
161"								Recovery area				
	Zone C			N/A		46.0		Damp, silty Clay, light brown tended to be gritty in a few sopts.	ml		N/A	Tot. Core wt.= 7,838 gm Rad reading 12-20 mR/hr Penatrometer= 2.5 Kg/cm 2
253"								Recovery area				

NOTES:

Drilling Contractor: IT Corp

Drilling Equipment: Wink Vibra Core

Driller: Doug Moore, IT Corp.

Sampling started 12/12/90.

Shut down because of weather after 12/21/90, resumed and completed 7/14/91.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	303317	PROJECT NAME:	K-65 RESAMPLE PROJECT		
BORING NUMBER:	2S2-NW-A,B,C	COORDINATES:	K-65 SILO 2, N.W. Manway	DATE:	08/01/91
GROUND ELEVATIONS:		GWL: Depth	Date/Time:	DATE STARTED:	07/22/91
ENGINEER/GEOLOGIST:	D. JARVIS	Depth:	Date/Time:	DATE COMPLETED:	07/29/91
DRILLING METHODS:	VIBRA CORE			PAGE 1	OF 1

DEPTH 0"	SAMPLE	DATE TIME	BLOWS ON SAMPLE	RECOVERY INCHES	DESCRIPTION	USGS SYMBOL	TSF	REMARKS
66"	Zone A		N/A	0	Vibra Core apparently went down old WMCO hole. 0 - Recovery	N/A	N/A	See description.
150"	Zone B		N/A	0	0 - Recovery, Vibra Core still in old WMCO hole. Catcher in Lexan tube was destroyed by something, up to 12" of material had been in Lexan tube.	N/A	N/A	See description.
	Zone C		N/A	54.0	Damp Grit/Clay type material and compactable 54" Recovery area	sc	N/A	High Rad reading 25mR/hr. Subdivided into 3 sections.
234"								

NOTES:

Drilling Contractor: IT Corp

Drilling Equipment: Vibra Core

Driller: Doug Moore, IT Corp.

Zone A boring interval completed on 7/23/91

Zone B boring interval completed on 7/24/91

Zone C boring interval completed on 7/29/91

4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 303317	PROJECT NAME: FERNALD K-65 RESAMPLE PROJECT		
BORING NUMBER: 2S2-NE-A,B,C	COORDINATES: K-65 SILO 2, N.E. MANWAY	DATE: 08/07/91	
GROUND ELEVATIONS:	GWL: Depth	Date/Time:	DATE STARTED: 07/31/91
ENGINEER/GEOLOGIST: D. JARVIS	Depth:	Date/Time:	DATE COMPLETED: 08/06/91
DRILLING METHODS: WINK VIBRA CORE - 3 IN. ID TUBE			PAGE 1 OF 1

DEPTH	SAMPLE	DATE TIME	BLOWS ON SAMPLER	RECOVERY INCHES	DESCRIPTION	USGS	SYMBOL	TSF	REMARKS
0"									
	Zone A		N/A	12.0	Damp sandy grit-like material - typical of Silo 2 Crust material 12" Recovery	sm		N/A	Penatrometer = 1.6 Kg/cm 2 1992 gm 7 mR/hr
66"	Zone B		N/A	61.5	Very damp material ranging from medium brown to light brown in color. A Clay/Grit type texture. Rad range 25 mR/hr up to 34" from cutting shoe. Rest of 25" area at 35 mR/hr. Recovery Area	sc		N/A	5" Section 29" up from cutting shoe end, save for geotechnical Material to wet for Penatrometer tests.
162"	Zone C		N/A	64.0	Cutting shoe end is gray and black in color, material is damp, overall medium brown in color with Clay/Grit texture. Rad range 25 to 36 mR/hr Penatrometer reading range from 0 to 2.0 Kg/cm 2 Recovery Area	sc		N/A	36 mR/hr Section was used for high rad analysis for sample core
246"									

NOTES:

Drilling Contractor: IT Corp

Drilling Equipment: Wink Vibra Core

Driller: Doug Moore, IT Corp.

Depth from surface of crust material.

Zone A boring interval completed on 07/31/91

Zone B boring interval completed on 08/02/91

Zone C boring interval completed on 08/06/91

OU4 SILO 1, 2, AND 3 TCLP RADIOLOGICAL RESULTS

OU4 TCLP SILO 1 RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	Zone A 100050 11/12/92				Zone B 100051 11/12/92				Zone C 100052 11/12/92			
	a			b	a			b	a			b
Actinium 227		7302	± 1648	-		7343	± 2111	-		5014	± 1371	J
Gross Alpha		435000	± 44000	R		159000	± 17000	R		227000	± 54000	J
Gross Beta		1950000	± 200000	-		953000	± 96000	-		795000	± 102000	-
Lead 210		1670000	± 170000	-		997000	±103000	-		509000	± 54000	J
Polonium 210		208000	± 29100	-		134000	± 19900	-		71200	± 17100	-
Protactinium 231	<	2800		D	<	3100		D	<	2900		D
Radium 226		40150	± 6050	-		66370	± 9811	-		44080	± 6609	-
Radium 228		75.6	± 21.7	R		91.8	± 20.1	R	<	30		R
Thorium 228		14.9	± 5.3	-		40	± 14.6	-		49.8	± 16.4	J
Thorium 230		455	± 105	-		307	± 91	-		394	± 110	J
Thorium 232		5.65	± 2.72	-		6.53	± 3.86	-		8.42	± 4.34	-
Uranium 234		320	± 49	-		238	± 36	-		2480	± 460	-
Uranium 235/236		14.1	± 3.5	-		9.74	± 2.69	-		133	± 81	-
Uranium 238		332	± 51	-		246	± 37	-		2350	± 440	-

a = lab qualifier
b = Validation Qualifier

-4048

OU4 TCLP SILO 2 RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	Zone A 100065 11/12/92			Zone B 100066 11/12/92			Zone C 100067 11/12/92		
	a		b	a		b	a		b
Actinium 227	4258	± 1220	J	2620	± 620	-	3400	± 780	-
Gross Alpha	29400	± 3600	R	296000	± 30000	R	209000	± 22000	R
Gross Beta	51600	± 5400	J	1180000	±120000	-	1060000	± 110000	-
Lead 210	104000	±13400	-	220000	± 25000	-	119000	± 15000	-
Polonium 210	19900	± 9000	-	36200	± 7300	-	18100	± 4930	-
Protactinium 231	< 2000		D	< 3300		D	< 3300		D
Radium 226	24410	± 3773	-	81840	± 12060	-	79430	± 11700	-
Radium 228	< 30		R	11	± 2.1	-	19.7	± 3.7	-
Thorium 228	24.7	± 10	J	204	± 67	-	113	± 46	-
Thorium 230	72.8	± 24	J	110	± 42	-	293	± 84	-
Thorium 232	1.87	± 1.94	-	< 50		D	< 50		D
Uranium 234	417	± 67	-	2330	± 370	-	3860	± 640	-
Uranium 235/236	19.2	± 4.8	-	95.6	± 28.3	-	158	± 44	-
Uranium 238	421	± 68	-	2400	± 380	-	4000	± 670	-

a = lab qualifier
b = Validation Qualifier

-4948

206

OU4 TCLP SILO 3 RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by sample number and date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	100074 11/12/92			
	a			b
Actinium 227		5.54	± 1.94	-
Gross Alpha		3150	± 830	J
Gross Beta		670	± 340	J
Lead 210		87.1	± 9.2	J
Polonium 210		245	± 110	J
Protactinium 231	<	647		D
Radium 226		2455	± 558	-
Radium 228	<	110		D
Thorium 228		3.17	± 1.42	J
Thorium 230		10.4	± 2.8	J
Thorium 232	<	1		U
Uranium 234		92.2	± 13.8	-
Uranium 235/236		5.09	± 1.59	-
Uranium 238		86	± 13	-

a = lab qualifier
b = Validation Qualifier

-4948

OU4 1989 SILO 1 RADIOLOGICAL RESULTS

OU4 1989 SILO 1 CONTENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S1-NE-1A 100108 07/06/89				S1-NE-1B 100109 07/06/89				S1-NE-1C 100110 07/06/89				S1-NW-1 100111 07/25/89			
	a			b	a			b	a			b	a			b
Actinium 227	<	2270		D	<	3168		DJ	<	2952		DJ	<	2970		DJ
Lead 210		181100	± 22150	-		83110	± 10670	J		77460	± 9936	J		54350	± 7358	J
Protactinium 231	<	10532		D	<	14930		DJ	<	14100		DJ	<	13842		DJ
Radium 224		NA				NA				NA				NA		
Radium 226		108100	± 6195	J		192600	± 10900	J		166400	± 9443	J		163300	± 9277	J
Radium 228	<	1344		D	<	1890		DJ	<	1746		DJ	<	1737		DJ
Thorium 228	<	354		DJ	<	474		DJ	<	338		DJ	<	684		DJ
Thorium 230		21412	± 5881	J		39693	± 11998	J		30751	± 7978	J		43771	± 14870	J
Thorium 232	<	354		DJ	<	474		DJ	<	338		DJ		766	± 571	J
Total Uranium **		2753	± 462	J		1189	± 279	J		1831	± 344	J		2066	± 356	J
Uranium 234		815	± 138	J		326	± 80	J		622	± 113	J		897	± 140	J
Uranium 235/236	<	41		DJ	<	46		DJ	<	40		DJ		50	± 29	J
Uranium 238		920	± 151	J		398	± 90	J		610	± 111	J		687	± 115	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

-4948

OU4 1989 SILO 1 CONTENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S1-SE-1 100112 11/30/89			S1-SE-2 100113 11/30/89			S1-SW-1 100114 07/25/89		
	a		b	a		b	a		b
Actinium 227	< 2416		D	< 1938		D	< 3075		DJ
Lead 210	71920	± 9191	-	48980	± 6395	-	69480	± 9119	J
Protactinium 231	< 10919		D	< 9340		D	< 14380		DJ
Radium 224	NA			NA			NA		
Radium 226	116800	± 6684	J	89280	± 5131	J	181200	±10260	J
Radium 228	< 1361		D	< 1150		D	< 1742		DJ
Thorium 228	< 367		DJ	< 325		DJ	< 430		DJ
Thorium 230	10569	± 3137	J	20848	± 5355	J	40818	±12021	J
Thorium 232	< 367		DJ	< 325		DJ	< 430		DJ
Total Uranium **	1633	± 311	J	2280	± 424	J	1602	± 349	J
Uranium 234	663	± 115	J	814	± 144	J	594	± 120	J
Uranium 235/236	< 38		DJ	56	± 36	J	< 52		DJ
Uranium 238	545	± 101	J	758	± 137	J	532	± 112	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 1989 SILO 1
HSL RESULTS

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-NE-1A 100108 07/06/89		S1-NE-1B 100109 07/06/89		S1-NE-1C 100110 07/06/89		S1-NW-1 100111 07/25/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	1260	UJ	60.4	UJ	1380	UJ	450	J
Antimony	N 5.7	R	N 4.1	R	N 5.7	R	N 5.9	R
Arsenic	57	J	47.9	J	45.8	J	54.5	J
Barium	4340	J	1970	J	4140	J	5000	J
Beryllium	2.8	J	1.3	J	1.4	J	1.1	J
Cadmium	4.4	J	2.3	J	2.9	J	2.1	J
Calcium	* 5580	J	* 2320	J	* 2150	J	* 4130	J
Chromium	43.3	J	25.8	J	22.8	J	21	J
Cobalt	1260	J	404	J	1210	J	681	J
Copper	473	J	122	J	410	J	217	J
Cyanide	.52	J	1.4	J	1.4	J	2.9	J
Iron	24100	J	9090	J	7170	J	4340	J
Lead	35800	J	61400	J	85100	J	81300	J
Magnesium	2770	J	3270	J	3620	J	1900	J
Manganese	178	J	36.5	J	83.1	J	33.5	J
Mercury	2.8	J	.47	J	.72	J	.43	J
Molybdenum	NA		NA		NA		NA	
Nickel	1970	J	815	J	2580	J	1180	J
Potassium	158	J	347	J	424	J	350	J
Selenium	172	J	139	J	170	J	162	J
Silicon	NA		NA		NA		NA	
Silver	9.8	J	5	J	23.3	J	9.5	J
Sodium	360	J	5730	J	13100	J	7080	J
Thallium	.09	J	.38	J	.31	J	.49	J
Vanadium	E 240	J	E 111	J	E 110	J	E 105	J
Zinc	E 212	J	E 14.4	J	E 26.3	J	E 24.7	J

a = lab qualifier
b = validated qualifier

212

1948

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-SE-1 100112 11/30/89		S1-SE-2 100113 11/30/89		S1-SW-1 100114 07/25/89	
	a	b	a	b	a	b
METALS						
Aluminum	364	UJ	1430	UJ	733	UJ
Antimony	N 5.8	R	N 5.8	R	N 5.7	R
Arsenic	14.7	J	68.4	J	61	J
Barium	2720	J	2190	J	7860	J
Beryllium	.88	J	2.4	J	1.3	J
Cadmium	3	J	8	J	2.7	J
Calcium	* 3500	J	* 5700	J	* 5410	J
Chromium	165	J	111	J	42.6	J
Cobalt	349	J	814	J	657	J
Copper	126	J	307	J	209	J
Cyanide	.99	J	1.6	J	4.4	J
Iron	22600	J	75100	J	8370	J
Lead	38900	J	38800	J	76900	J
Magnesium	1500	J	6020	J	2830	J
Manganese	94.2	J	257	J	54	J
Mercury	.23	J	.6	J	.56	J
Molybdenum	NA		NA		NA	
Nickel	629	J	1350	J	1140	J
Potassium	173	J	293	J	492	J
Selenium	106	J	180	J	168	J
Silicon	NA		NA		NA	
Silver	6.3	J	13.1	J	9.8	J
Sodium	1640	J	2610	J	7010	J
Thallium	.24	J	.29	R	.52	J
Vanadium	E 72.2	J	E 140	J	E 106	J
Zinc	E 23.9	J	E 57.3	J	E 17.8	J

a = lab qualifier
b = validated qualifier

-4948

213

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-NE-1A 100108 07/06/89		S1-NE-1B 100109 07/06/89		S1-NE-1C 100110 07/06/89		S1-NW-1 100111 07/25/89	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
4,4'-DDE	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
4,4'-DDT	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
Aldrin	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
alpha-BHC	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
alpha-Chlordane	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Aroclor-1016	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Aroclor-1221	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Aroclor-1232	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Aroclor-1242	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Aroclor-1248	FC 3.7	J	U .89	UJ	U 1	UJ	DJC 1.7	J
Aroclor-1254	FC 8.7	J	JC 1.1	J	JC 1.3	J	DJC 3.9	J
Aroclor-1260	U 1.8	UJ	U 1.8	UJ	U 2.1	UJ	U 8.5	UJ
beta-BHC	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
delta-BHC	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
Dieldrin	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
Endosulfan II	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
Endosulfan sulfate	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
Endosulfan-I	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
Endrin	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
Endrin ketone	U .18	UJ	U .18	UJ	U .21	UJ	U .850	UJ
gamma-BHC (Lindane)	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
gamma-Chlordane	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Heptachlor	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
Heptachlor epoxide	U .091	UJ	U .089	UJ	U .1	UJ	U .420	UJ
Methoxychlor	U .91	UJ	U .89	UJ	U 1	UJ	U 4.2	UJ
Toxaphene	U 1.8	UJ	U 1.8	UJ	U 2.1	UJ	U 8.5	UJ
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .38	R	U .37	R	U .43	R	U .35	R
1,2-Dichlorobenzene	U .38	R	U .37	R	U .43	R	U .35	R
1,3-Dichlorobenzene	U .38	R	U .37	R	U .43	R	U .35	R
1,4-Dichlorobenzene	U .38	R	U .37	R	U .43	R	U .35	R
2,4,5-Trichlorophenol	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
2,4,6-Trichlorophenol	U .38	R	U .37	R	U .43	R	U .35	R
2,4-Dichlorophenol	U .38	R	U .37	R	U .43	R	U .35	R
2,4-Dimethylphenol	U .38	R	U .37	R	U .43	R	U .35	R
2,4-Dinitrophenol	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
2,4-Dinitrotoluene	U .38	R	U .37	R	U .43	R	U .53	R
2,6-Dinitrotoluene	U .38	R	U .37	R	U .43	R	U .35	R
2-Chloronaphthalene	U .38	R	U .37	R	U .43	R	U .35	R
2-Chlorophenol	U .38	R	U .37	R	U .43	R	U .35	R

a = lab qualifier
b = validated qualifier

214

-4048

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-NE-1A 100108 07/06/89		S1-NE-1B 1000109 07/06/89		S1-NE-1C 100110 07/06/89		S1-NW-1 100111 07/25/89	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .38	R	U .37	R	U .43	R	U .35	R
2-Methylphenol	U .38	R	U .37	R	U .43	R	U .35	R
2-Nitroaniline	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
2-Nitrophenol	U .38	R	U .37	R	U .43	R	U .35	R
3,3'-Dichlorobenzidine	U .75	R	U .73	R	U .85	R	U .7	R
3-Nitroaniline	U 1.8	UJ	U 1.8	UJ	U 2.1	UJ	U 1.7	UJ
4,6-Dinitro-2-methylphenol	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
4-Bromophenyl phenyl ether	U .38	R	U .37	R	U .43	R	U .35	R
4-Chloro-3-methylphenol	U .38	R	U .37	R	U .43	R	U .35	R
4-Chloroaniline	U .38	R	U .37	R	U .43	R	U .35	R
4-Chlorophenylphenyl ether	U .38	R	U .37	R	U .43	R	U .35	R
4-Methylphenol	U .38	R	U .37	R	U .43	R	U .35	R
4-Nitroaniline	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
4-Nitrophenol	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
Acenaphthene	U .38	R	U .37	R	U .43	R	U .35	R
Acenaphthylene	U .38	R	U .37	R	U .43	R	U .35	R
Anthracene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Benzo(a)anthracene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Benzo(a)pyrene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Benzo(b)fluoranthene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Benzo(g,h,i)perylene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Benzo(k)fluoranthene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Benzoic acid	U 1.8	R	J .075	R	U 2.1	R	J .53	R
Benzyl alcohol	U .38	R	U .37	R	U .43	R	U .35	R
bis(2-Chloroethoxy)methane	U .38	R	U .37	R	U .43	R	U .35	R
bis(2-Chloroethyl)ether	U .38	R	U .37	R	U .43	R	U .35	R
bis(2-Chloroisopropyl) ether	U .38	R	U .37	R	U .43	R	U .35	R
bis(2-Ethylhexyl) phthalate	J .22	R	J .093	R	J .21	R	.63	N
Butyl benzyl phthalate	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Chrysene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Di-n-butyl phthalate	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Di-n-octyl phthalate	U .38	UJ	U .37	UJ	U .43	UJ	.5	N
Dibenzo(a,h)anthracene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Dibenzofuran	U .38	R	U .37	R	U .43	R	U .35	R
Diethyl phthalate	U .38	R	U .37	R	U .43	R	U .35	R
Dimethyl phthalate	U .38	R	U .37	R	U .43	R	U .35	R
Fluoranthene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Fluorene	U .38	R	U .37	R	U .43	R	U .35	R
Hexachlorobenzene	U .38	R	U .37	R	U .43	R	U .35	R
Hexachlorobutadiene	U .38	R	U .37	R	U .43	R	U .35	R

a = lab qualifier
b = validated qualifier

4948

215

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-NE-1A 100108 07/06/89		S1-NE-1B 100109 107/06/89		S1-NE-1C 100110 07/06/89		S1-NW-1 100111 07/25/89	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .38	R	U .37	R	U .43	R	U .35	R
Hexachloroethane	U .38	R	U .37	R	U .43	R	U .35	R
Indeno(1,2,3-cd)pyrene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Isophorone	U .38	R	U .37	R	U .43	R	U .35	R
N-Nitroso-di-n-propylamine	U .38	R	U .37	R	U .43	R	U .35	R
N-Nitrosodiphenylamine	U .38	R	U .37	R	U .43	R	U .35	R
Naphthalene	U .38	R	U .37	R	U .43	R	U .35	R
Nitrobenzene	U .38	R	U .37	R	U .43	R	U .35	R
Pentachlorophenol	U 1.8	R	U 1.8	R	U 2.1	R	U 1.7	R
Phenanthrene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
Phenol	J .38	R	J .37	R	J .12	R	J .34	R
Pyrene	U .38	UJ	U .37	UJ	U .43	UJ	U .35	UJ
VOLATILES ORGANICS								
1,1,1-Trichloroethane	U .630	R	U .630	R	U .63	R	U .63	R
1,1,2,2-Tetrachloroethane	U .630	R	U .630	R	U .63	R	U .63	R
1,1,2-Trichloroethane	U .630	R	U .630	R	U .63	R	U .63	R
1,1-Dichloroethane	U .630	R	U .630	R	U .63	R	U .63	R
1,1-Dichloroethene	U .630	R	U .630	R	U .63	R	U .63	R
1,2-Dichloroethane	U .630	R	U .630	R	U .63	R	U .63	R
1,2-Dichloroethylene	U .630	R	U .630	R	U .63	R	U .63	R
1,2-Dichloropropane	U .630	R	U .630	R	U .63	R	U .63	R
2-Butanone	B10.0	R	B21.0	R	B10	R	B 7.1	R
2-Hexanone	U 1.30	R	U 1.30	R	U 1.3	R	U 1.3	R
4-Methyl-2-pentanone	U 1.30	R	U 1.30	R	U 1.3	R	J .95	R
Acetone	5.3	R	BJ .140	R	2.2	R	BJ 1.2	R
Benzene	U .630	R	U .630	R	U .63	R	U .63	R
Bromodichloromethane	U .630	R	U .630	R	U .63	R	U .63	R
Bromoform	U .630	R	U .630	R	U .63	R	U .63	R
Bromomethane	U 1.30	R	U 1.30	R	U 1.3	R	U 1.3	R
Carbon disulfide	U .630	R	U .630	R	U .63	R	U .63	R
Carbon Tetrachloride	U .630	R	U .630	R	U .63	R	U .63	R
Chlorobenzene	U .630	R	U 1.3	R	U .63	R	U .63	R
Chloroethane	U 1.30	R	U 1.3	R	U 1.3	R	U 1.3	R
Chloroform	BJ .5	R	B 1.5	R	BJ .49	R	B .66	R
Chloromethane	U 1.30	R	U 1.30	R	U 1.3	R	U 1.3	R
cis-1,3-Dichloropropene	U .630	R	U .630	R	U .63	R	U .63	R
Dibromochloromethane	U .630	R	NA		U .63	R	U .63	R
Ethylbenzene	U .630	R	U .630	R	U .63	R	U .63	R
Methylene chloride	B 2.10	R	B 1.2	R	B 1.2	R	B 3.4	R
Styrene	U .630	R	BJ .350	R	U .63	R	U .63	R
Tetrachlorethene	U .630	R	U .630	R	U .63	R	U .63	R

a = lab qualifier
b = validated qualifier

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-NE-1A 100108 07/06/89		S1-NE-1B 100109 07/06/89		S1-NE-1C 100110 07/06/89		S1-NEW-1 100111 07/25/89	
	a	b	a	b	a	b	a	b
VOLATILES ORGANICS								
Toluene	U .630	R	J .220	R	U .63	R	J .13	R
Total xylenes	U .630	R	U .630	R	U .63	R	U .63	R
trans-1,3-Dichloropropene	U .630	R	U .630	R	U .63	R	U .63	R
Trichloroethene	U .630	R	U .630	R	U .63	R	U .63	R
Trichlorofluoromethane	U .630	R	NA		NA		J13	R
Vinyl Acetate	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
Vinyl chloride	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R

a = lab qualifier
b = validated qualifier

4948

217

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-SE-1 100112 11/30/89		S1-SE-2 100113 11/30/89		S1-SW-1 100114 07/25/89	
	a	b	a	b	a	b
PESTICIDES/PCB						
4,4'-DDD	U .17	UJ	U 1.8	UJ	U .17	UJ
4,4'-DDE	U .17	UJ	U 1.8	UJ	U .17	UJ
4,4'-DDT	U .17	UJ	U 1.8	UJ	U .17	UJ
Aldrin	U .084	UJ	U .091	UJ	U .084	UJ
alpha-BHC	U .084	UJ	U .091	UJ	U .084	UJ
alpha-Chlordane	U .84	UJ	U 9.1	UJ	U .84	UJ
Aroclor-1016	U .84	UJ	U 9.1	UJ	U .84	UJ
Aroclor-1221	U .84	UJ	U 9.1	UJ	U .84	UJ
Aroclor-1232	U .84	UJ	U 9.1	UJ	U .84	UJ
Aroclor-1242	U .84	UJ	U 9.1	UJ	U .84	UJ
Aroclor-1248	FC 2.5	R	DC10.0	J	FC 2.4	R
Aroclor-1254	FC 3.5	R	DJC12.0	J	FC 5.6	R
Aroclor-1260	U 1.7	UJ	U18.0	UJ	U 1.7	UJ
beta-BHC	U .084	UJ	U .091	UJ	U .084	UJ
delta-BHC	U .084	UJ	U .091	UJ	U .084	UJ
Dieldrin	U .17	UJ	U 1.8	UJ	U .17	UJ
Endosulfan II	U .17	UJ	U 1.8	UJ	U .17	UJ
Endosulfan sulfate	U .17	UJ	U 1.8	UJ	U .17	UJ
Endosulfan-I	U .084	UJ	U .091	UJ	U .084	UJ
Endrin	U .17	UJ	U 1.8	UJ	U .17	UJ
Endrin ketone	U .17	UJ	U 1.8	UJ	U .17	UJ
gamma-BHC (Lindane)	U .084	UJ	U .091	UJ	U .084	UJ
gamma-Chlordane	U .84	UJ	U 9.1	UJ	U .84	UJ
Heptachlor	U .084	UJ	U .091	UJ	U .084	UJ
Heptachlor epoxide	U .084	UJ	U .091	UJ	U .084	UJ
Methoxychlor	U .84	UJ	U 9.1	UJ	U .84	UJ
Toxaphene	U 1.7	UJ	U18.0	UJ	U 1.7	UJ
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene	U .35	R	U .38	R	U .35	R
1,2-Dichlorobenzene	U .35	R	U .38	R	U .35	R
1,3-Dichlorobenzene	U .35	R	U .38	R	U .35	R
1,4-Dichlorobenzene	U .35	R	U .38	R	U .35	R
2,4,5-Trichlorophenol	U 1.7	R	U 1.8	R	U 1.7	R
2,4,6-Trichlorophenol	U .35	R	U .38	R	U .35	R
2,4-Dichlorophenol	U .35	R	U .38	R	U .35	R
2,4-Dimethylphenol	U .35	R	U .38	R	U .35	R
2,4-Dinitrophenol	U 1.7	R	U 1.8	R	U 1.7	R
2,4-Dinitrotoluene	U .35	R	U .38	R	U .35	R
2,6-Dinitrotoluene	U .35	R	U .38	R	U .35	R
2-Chloronaphthalene	U .35	R	U .38	R	U .35	R
2-Chlorophenol	U .35	R	U .38	R	U .35	R

a = lab qualifier
b = validated qualifier

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-SE-1 100112 11/30/89		S1-SE-2 100113 11/30/89		S1-SW-1 100114 07/25/89	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
2-Methylnaphthalene	U .35	R	U .38	R	U .35	R
2-Methylphenol	U .35	R	U .38	R	U .35	R
2-Nitroaniline	U 1.7	R	U 1.8	R	U 1.7	R
2-Nitrophenol	U .35	R	U .38	R	U .35	R
3,3'-Dichlorobenzidine	U .69	UJ	U .75	UJ	U .69	UJ
3-Nitroaniline	U 1.7	R	U 1.8	R	U 1.7	R
4,6-Dinitro-2-methylphenol	U 1.7	R	U 1.8	R	U 1.7	R
4-Bromophenyl phenyl ether	U .35	R	U .38	R	U .35	R
4-Chloro-3-methylphenol	U .35	R	U .38	R	U .35	R
4-Chloroaniline	U .35	R	U .38	R	U .35	R
4-Chlorophenylphenyl ether	U .35	R	U .38	R	U .35	R
4-Methylphenol	U .35	R	U .38	R	U .35	R
4-Nitroaniline	U 1.7	R	U 1.8	R	U 1.7	R
4-Nitrophenol	U 1.7	R	U 1.8	R	U 1.7	R
Acenaphthene	U .35	R	U .38	R	U .35	R
Acenaphthylene	U .35	R	U .38	R	U .35	R
Anthracene	U .35	UJ	U .38	UJ	U .35	UJ
Benzo(a)anthracene	U .35	UJ	U .38	UJ	U .35	UJ
Benzo(a)pyrene	U .35	UJ	U .38	UJ	U .35	UJ
Benzo(b)fluoranthene	U .35	UJ	U .38	UJ	U .35	UJ
Benzo(g,h,i)perylene	U .35	UJ	U .38	UJ	U .35	UJ
Benzo(k)fluoranthene	U .35	UJ	U .38	UJ	U .35	UJ
Benzoic acid	U 1.7	R	U 1.8	R	U 1.7	R
Benzyl alcohol	U .35	R	U .38	R	U .35	R
bis(2-Chloroethoxy)methane	U .35	R	U .38	R	U .35	R
bis(2-Chloroethyl)ether	U .35	R	U .38	R	U .35	R
bis(2-Chloroisopropyl) ether	U .35	R	U .38	R	U .35	R
bis(2-Ethylhexyl) phthalate	.8	J	6	J	.56	J
Butyl benzyl phthalate	U .35	UJ	U .38	UJ	U .35	UJ
Chrysene	U .35	UJ	U .38	UJ	U .35	UJ
Di-n-butyl phthalate	U .35	UJ	J .046	J	J .057	J
Di-n-octyl phthalate	U .35	UJ	.82	J	J .045	J
Dibenzo(a,h)anthracene	U .35	UJ	U .38	UJ	U .35	UJ
Dibenzofuran	U .35	R	U .38	R	U .35	R
Diethyl phthalate	U .35	R	U .38	R	U .35	R
Dimethyl phthalate	U .35	R	U .38	R	U .35	R
Fluoranthene	U .35	UJ	U .38	UJ	U .35	UJ
Fluorene	U .35	R	U .38	R	U .35	R
Hexachlorobenzene	U .35	R	U .38	R	U .35	R
Hexachlorobutadiene	U .35	R	U .38	R	U .35	R

a = lab qualifier
b = validated qualifier

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-SE-1 100112 11/30/89		S1-SE-2 100113 11/30/89		S1-SW-1 100114 07/25/89	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
Hexachlorocyclopentadiene	U .35	R	U .38	R	U .35	R
Hexachloroethane	U .35	R	U .38	R	U .35	R
Indeno(1,2,3-cd)pyrene	U .35	UJ	U .38	UJ	U .35	UJ
Isophorone	U .35	R	U .38	R	U .35	R
N-Nitroso-di-n-propylamine	U .35	R	U .38	R	U .35	R
N-Nitrosodiphenylamine	U .35	R	U .38	R	U .35	R
Naphthalene	U .35	R	U .38	R	U .35	R
Nitrobenzene	U .35	R	U .38	R	U .35	R
Pentachlorophenol	U 1.7	R	U 1.8	R	U 1.7	R
Phenanthrene	U .35	UJ	U .38	UJ	U .35	UJ
Phenol	U .35	R	U .38	R	U .35	R
Pyrene	U .35	UJ	U .38	UJ	U .35	UJ
VOLATILES ORGANICS						
1,1,1-Trichloroethane	U .63	R	U .630	R	U .63	R
1,1,2,2-Tetrachloroethane	U .63	R	U .630	R	U .63	R
1,1,2-Trichloroethane	U .63	R	U .630	R	U .63	R
1,1-Dichloroethane	U .63	R	U .630	R	U .63	R
1,1-Dichloroethene	U .63	R	U .630	R	U .63	R
1,2-Dichloroethane	U .63	R	U .630	R	U .63	R
1,2-Dichloroethylene	U .63	R	U .630	R	U .63	R
1,2-Dichloropropane	U .63	R	U .630	R	U .63	R
2-Butanone	B 9.2	R	B12.0	R	B 9.9	R
2-Hexanone	U 1.3	R	U13.0	R	U 1.3	R
4-Methyl-2-pentanone	1.4	R	U13.0	R	J .87	R
Acetone	B 1.7	R	B 2.60	R	B 1.6	R
Benzene	U .63	R	U .630	R	U .63	R
Bromodichloromethane	U .63	R	U .630	R	U .63	R
Bromoform	U .63	R	U .630	R	U .63	R
Bromomethane	U 1.3	R	U13.0	R	U 1.3	R
Carbon disulfide	U .63	R	U .630	R	U .63	R
Carbon Tetrachloride	U .63	R	U .630	R	U .63	R
Chlorobenzene	U .63	R	U .630	R	U .63	R
Chloroethane	U 1.3	R	U13.0	R	U 1.3	R
Chloroform	B .66	R	BJ .480	R	B .66	R
Chloromethane	U 1.3	R	U13.0	R	U 1.3	R
cis-1,3-Dichloropropene	U .63	R	U .630	R	U .63	R
Dibromochloromethane	U .63	R	U .630	R	U .63	R
Ethylbenzene	U .63	R	U .630	R	U .63	R
Methylene chloride	B 4.1	R	B .840	R	B 3.7	R
Styrene	U .63	R	U .630	R	U .63	R
Tetrachlorethene	U .63	R	U .630	R	U .63	R

a = lab qualifier
b = validated qualifier

0 4948

OU4 1989 SILO 1 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-SE-1 100112 11/30/89		S1-SE-2 100113 11/30/89		S1-SW-1 100114 07/25/89	
	a	b	a	b	a	b
VOLATILES ORGANICS						
Toluene	J .14	R	BJ .430	R	U .63	R
Total xylenes	U .63	R	U .630	R	U .63	R
trans-1,3-Dichloropropene	U .63	R	U .630	R	U .63	R
Trichloroethene	U .63	R	U .630	R	J .12	R
Trichlorofluoromethane	J .75	R	NA		NA	
Vinyl Acetate	U 1.3	R	U 1.3	R	U 1.3	R
Vinyl chloride	U 1.3	R	U13.0	R	U 1.3	R

a = lab qualifier
b = validated qualifier

4948

221

OU4 1989 SILO 1
EP TOXICITY RESULTS

OU4 1989 SILO 1 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-NE-1A MM3337 07/06/89		S1-NE-1B MM3336 07/06/89		S1-NE-1C MM3339 07/06/89		S1-NW-1 MM3343 07/25/89	
	a	b	a	b	a	b	a	b
METALS								
ARSENIC	.231		.276		.444		.321	
BARIUM	.864		4.44		14.5		3.48	
CADMIUM	.02		.009		.021		.019	
CHROMIUM	.309		.143		.334		.278	
LEAD	410		583		904		506	
MERCURY	< .0002		< .0002		< .0002		< .0002	
SELENIUM	.362		.399		.708		.488	
SILVER	.046		.044		.118		.092	

a = lab qualifier

223

-4048

OU4 1989 SILO 1 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S1-SE-1 MM3342 11/30/89		S1-SE-2 MM3338 11/30/89		S1-SW-1 MM3341 07/25/89	
	a	b	a	b	a	b
METALS						
ARSENIC	.484		< .05		.4	
BARIUM	3.34		.079		3.83	
CADMIUM	.1		< .002		.02	
CHROMIUM	.964		.02		.28	
LEAD	730		.159		794	
MERCURY	< .0002		< .0002		< .0002	
SELENIUM	.997		.217		.577	
SILVER	.121		< .01		.089	

a = lab qualifier

224

4948

OU4 1989 SILO 1 GEOTECHNICAL RESULTS

OU4 1989 SILO 1 GEOTECHNICAL RESULTS

MANWAY NO:	NE-1	LIQUID LIMIT:	55.2
VERTICAL SECTION:	A	PLASTIC LIMIT:	50.0
WATER CONTENT (%):	50.7	PLASTICITY INDEX:	5.2
SPECIFIC GRAVITY:	3.19 g/cc	USCS:	MH

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	95.1
NO. 20	0.850	93.2
NO. 40	0.425	92.6
NO. 60	0.250	91.6
NO. 140	0.106	80.1
NO. 200	0.075	72.7

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.047	49.3
2 min.	0.034	46.3
5 min.	0.022	40.1
15 min.	0.013	33.9
30 min.	0.008	27.8
60 min.	0.007	24.7
240 min.	0.003	21.6
1440 min.	0.001	15.4

-4948

OU4 1989 SILO 1 GEOTECHNICAL RESULTS

MANWAY NO:	NE-1	LIQUID LIMIT:	70.3
VERTICAL SECTION:	C	PLASTIC LIMIT:	66.6
WATER CONTENT (%):	71.5	PLASTICITY INDEX:	3.7
SPECIFIC GRAVITY:	2.74 g/cc	USCS:	MH

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	97.3
NO. 20	0.850	91.6
NO. 40	0.425	86.7
NO. 60	0.250	81.2
NO. 140	0.106	72.2
NO. 200	0.075	71.5

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.042	62.1
2 min.	0.031	58.5
5 min.	0.019	56.0
15 min.	0.011	53.6
30 min.	0.008	48.7
60 min.	0.006	46.3
240 min.	0.003	41.4
1440 min.	0.001	26.8

OU4 1989 SILO 1 GEOTECHNICAL RESULTS

MANWAY NO:	SE-2	LIQUID LIMIT:	NP
VERTICAL SECTION:	BT	PLASTIC LIMIT:	NP
WATER CONTENT (%):	31.9	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	3.37 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 38.0%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	96.7
NO. 20	0.850	95.1
NO. 40	0.425	92.4
NO. 60	0.250	83.6
NO. 140	0.106	49.3
NO. 200	0.075	43.9

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.051	28.5
2 min.	0.036	23.7
5 min.	0.023	19.0
15 min.	0.014	17.4
30 min.	0.010	15.8
60 min.	0.007	15.8
240 min.	0.003	14.2
1440 min.	0.001	12.7

OU4 1989 SILO 1 GEOTECHNICAL RESULTS

MANWAY NO:	SW-1/SE-1/NW-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	COMPOSITE	PLASTIC LIMIT:	NP
WATER CONTENT (%):	22.8	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.58 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 35.7%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	97.2
NO. 20	0.850	95.5
NO. 40	0.425	92.0
NO. 60	0.250	81.1
NO. 140	0.106	58.7
NO. 200	0.075	54.5

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.049	40.7
2 min.	0.035	37.6
5 min.	0.022	34.5
15 min.	0.013	31.3
30 min.	0.009	28.2
60 min.	0.007	26.6
240 min.	0.003	25.1
1440 min.	0.001	21.9

OU4 1989 SILO 2 RADIOLOGICAL RESULTS

OU4 1989 SILO 2 CONTENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S2-NE-1 100115 06/23/89				S2-NE-2 100116 06/23/89				S2-NW-1 100117 06/22/89				S2-NW-2 100118 06/22/89			
	a			b	a			b	a			b	a			b
Actinium 227		3473	± 664	J	<	26		D		2905	± 650	-		3508	± 711	-
Lead 210		150700	± 18190	-		87930	± 12140	J		145200	± 20120	-		399200	± 55180	-
Protactinium 231		4041	± 1819	J	<	119		D	<	3513		D	<	3765		D
Radium 224		NA				NA				NA				NA		
Radium 226		65520	± 3703	J		657	± 42	J		61780	± 3664	J		68310	± 4048	J
Radium 228	<	423		J	<	16		D	<	463		D	<	497		D
Thorium 228	<	866		-	<	395		-	<	662		-		638	± 424	D
Thorium 230		40124	± 17052	-		8365	± 2508	-		32784	± 10665	-		25391	± 8094	-
Thorium 232	<	866		-	<	395		-	<	662		-	<	475		-
Total Uranium **		2437	± 395	-		2620	± 444	-		3210	± 470	-		3717	± 533	-
Uranium 234		848	± 133	-		974	± 156	-		1107	± 158	-		1404	± 193	-
Uranium 235/236		36	± 26	-		47	± 32	-		74	± 31	-		70	± 31	-
Uranium 238		814	± 129	-		874	± 145	-		1069	± 153	-		1240	± 175	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

231

-4948

OU4 1989 SILO 2 CONTENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S2-SW-1 100119 06/23/89				S2-SW-2 100120 06/23/89			
	a			b	a			b
Actinium 227	<	2840		J	<	2241		J
Lead 210		141900	± 17530	-		77940	± 9920	-
Protactinium 231	<	12956		J	<	10663		J
Radium 224		NA				NA		
Radium 226		145300	± 8288	J		104900	± 6017	J
Radium 228	<	1578		J	<	1317		J
Thorium 228	<	437		-		411	± 308	D
Thorium 230		31825	± 8855	-		29716	± 8208	-
Thorium 232	<	437		-		851	± 432	D
Total Uranium **		1972	± 388	-		137	± 92	-
Uranium 234		859	± 151	-		121	± 42	-
Uranium 235/236	<	49		D	<	36		D
Uranium 238		661	± 126	-		46	± 28	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4WEMS2RD.PRN

-4948

OU4 1989 SILO 2
HSL RESULTS

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-NE-1 100115 06/23/89		S2-NE-2 100116 06/23/89		S2-NW-1 100117 06/22/89		S2-NW-2 100118 06/22/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	2570	UJ	1360	UJ	1250	UJ	1180	UJ
Antimony	N 5.5	R	N 5.5	R	N 4.8	R	N 4.1	R
Arsenic	1960	J	330	J	71.3	J	57.5	J
Barium	2460	J	89.2	J	1190	J	3090	J
Beryllium	2	J	.66	J	6	J	2.7	J
Cadmium	19.1	J	4.1	J	5.6	J	5	J
Calcium	* 41900	J	* 301000	J	* 10300	J	* 2430	J
Chromium	42.2	J	12.9	J	68.8	J	47.2	J
Cobalt	2430	J	6.2	J	648	J	543	J
Copper	1790	J	1.8	R	220	J	221	J
Cyanide	1.1	J	.55	R	4.5	J	.9	J
Iron	13500	J	4010	J	37800	J	26900	J
Lead	21600	J	153	J	15100	J	17600	J
Magnesium	7390	J	8740	J	4200	J	4220	J
Manganese	403	J	335	J	170	J	160	J
Mercury	1	J	2.3	J	1.7	J	.37	J
Molybdenum	NA		NA		NA		NA	
Nickel	2200	J	14.6	J	878	J	787	J
Potassium	207	J	37.8	J	271	J	192	J
Selenium	91.1	J	EN .32	R	117	J	95.9	J
Silicon	NA		NA		NA		NA	
Silver	22.8	J	1.8	R	9.1	J	12	J
Sodium	4070	J	588	J	912	J	226	J
Thallium	.61	J	.32	R	.33	J	.39	J
Vanadium	E 142	J	E 21.9	J	E 214	J	E 211	J
Zinc	E 154	J	E 11.2	J	E 31.6	J	E 70.8	J

a = lab qualifier
b = validated qualifier

234

8-4048

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-SW-1 100119 06/23/89		S2-SW-2 100120 06/23/89	
	a	b	a	b
METALS				
Aluminum	464	UJ	551	UJ
Antimony	N 7.2	R	N 6.4	R
Arsenic	81.4	J	64.5	J
Barium	8370	J	8000	J
Beryllium	1.6	J	2.1	J
Cadmium	3.6	J	3.4	J
Calcium	* 3610	J	* 8570	J
Chromium	24.3	J	34.1	J
Cobalt	692	J	602	J
Copper	263	J	249	J
Cyanide	2.5	J	1.6	J
Iron	8330	R	11400	J
Lead	28500	J	29800	J
Magnesium	1520	J	2060	J
Manganese	74.2	J	83.2	J
Mercury	.09	R	.34	J
Molybdenum	NA		NA	
Nickel	1070	J	897	J
Potassium	118	J	289	J
Selenium	118	J	105	J
Silicon	NA		NA	
Silver	7.4	J	10.1	J
Sodium	3100	J	857	J
Thallium	1.4	J	.82	J
Vanadium	E 151	J	E 193	J
Zinc	E 25.8	J	E 25.7	J

a = lab qualifier
b = validated qualifier

235

-4048

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-NE-1 100115 06/23/89		S2-NE-2 100116 06/23/89		S2-NW-1 100117 06/22/89		S2-NW-2 100118 06/22/89	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
4,4'-DDE	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
4,4'-DDT	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
Aldrin	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
alpha-BHC	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
alpha-Chlordane	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Aroclor-1016	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Aroclor-1221	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Aroclor-1232	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Aroclor-1242	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Aroclor-1248	U .81	UJ	U .41	UJ	FC 1.7	R	U .83	UJ
Aroclor-1254	FC 1.9	R	JC .42	J	FC 3	R	FJC 1.3	R
Aroclor-1260	U 1.6	UJ	JC .34	J	U 1.7	UJ	U 1.7	UJ
beta-BHC	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
delta-BHC	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
Dieldrin	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
Endosulfan II	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
Endosulfan sulfate	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
Endosulfan-I	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
Endrin	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
Endrin ketone	U .16	UJ	U .083	UJ	U .17	UJ	U .17	UJ
gamma-BHC (Lindane)	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
gamma-Chlordane	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Heptachlor	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
Heptachlor epoxide	U .081	UJ	U .041	UJ	U .086	UJ	U .083	UJ
Methoxychlor	U .81	UJ	U .41	UJ	U .85	UJ	U .83	UJ
Toxaphene	U 1.6	UJ	U .83	UJ	U 1.7	UJ	U 1.7	UJ
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .33	R	U .34	R	U .35	R	U .34	R
1,2-Dichlorobenzene	U .33	R	U .34	R	U .35	R	U .34	R
1,3-Dichlorobenzene	U .33	R	U .34	R	U .35	R	U .34	R
1,4-Dichlorobenzene	U .33	R	U .34	R	U .35	R	U .34	R
2,4,5-Trichlorophenol	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
2,4,6-Trichlorophenol	U .33	R	U .34	R	U .35	R	U .34	R
2,4-Dichlorophenol	U .33	R	U .34	R	U .35	R	U .34	R
2,4-Dimethylphenol	U .33	R	U .34	R	U .35	R	U .34	R
2,4-Dinitrophenol	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
2,4-Dinitrotoluene	U .33	R	U .34	R	U .35	R	U .34	R
2,6-Dinitrotoluene	U .33	R	U .34	R	U .35	R	U .34	R
2-Chloronaphthalene	U .33	R	U .34	R	U .35	R	U .34	R
2-Chlorophenol	U .33	R	U .34	R	U .35	R	U .34	R

a = lab qualifier
b = validated qualifier

236

-4048

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-NE-1 100115 06/23/89		S2-NE-2 100116 06/23/89		S2-NW-1 100117 06/22/89		S2-NW-2 100118 06/22/89	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .33	R	U .34	R	U .35	R	U .34	R
2-Methylphenol	U .33	R	U .34	R	U .35	R	U .34	R
2-Nitroaniline	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
2-Nitrophenol	U .33	R	U .34	R	U .35	R	U .34	R
3,3'-Dichlorobenzidine	U .67	UJ	U .68	UJ	U .71	UJ	U .69	UJ
3-Nitroaniline	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
4,6-Dinitro-2-methylphenol	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
4-Bromophenyl phenyl ether	U .33	R	U .34	R	U .35	R	U .34	R
4-Chloro-3-methylphenol	U .33	R	U .34	R	U .35	R	U .34	R
4-Chloroaniline	U .33	R	U .34	R	U .35	R	U .34	R
4-Chlorophenylphenyl ether	U .33	R	U .34	R	U .35	R	U .34	R
4-Methylphenol	U .33	R	U .34	R	U .35	R	U .34	R
4-Nitroaniline	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
4-Nitrophenol	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
Acenaphthene	U .33	R	U .34	R	U .35	R	U .34	R
Acenaphthylene	U .33	R	U .34	R	U .35	R	U .34	R
Anthracene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Benzo(a)anthracene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Benzo(a)pyrene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Benzo(b)fluoranthene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Benzo(g,h,i)perylene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Benzo(k)fluoranthene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Benzoic acid	U 1.6	R	U 1.6	R	U 1.7	R	J .076	J
Benzyl alcohol	U .33	R	U .34	R	U .35	R	U .34	R
bis(2-Chloroethoxy)methane	U .33	R	U .34	R	U .35	R	U .34	R
bis(2-Chloroethyl)ether	U .33	R	U .34	R	U .35	R	U .34	R
bis(2-Chloroisopropyl) ether	U .33	R	U .34	R	U .35	R	U .34	R
bis(2-Ethylhexyl) phthalate	.52	R	U .34	R	.56	R	U .34	R
Butyl benzyl phthalate	U .33	UJ	U .34	UJ	U .35	J	U .34	J
Chrysene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Di-n-butyl phthalate	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Di-n-octyl phthalate	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Dibenzo(a,h)anthracene	U .33	R	U .34	R	U .35	R	U .34	R
Dibenzofuran	U .33	R	U .34	R	U .35	R	U .34	R
Diethyl phthalate	U .33	R	U .34	R	U .35	R	U .34	R
Dimethyl phthalate	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Fluoranthene	U .33	R	U .34	R	U .35	R	U .34	R
Fluorene	U .33	R	U .34	R	U .35	R	U .34	R
Hexachlorobenzene	U .33	R	U .34	R	U .35	R	U .34	R
Hexachlorobutadiene	U .33	R	U .34	R	U .35	R	U .34	R

a = lab qualifier
b = validated qualifier

1948
237

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-NE-1 100115 06/23/89		S2-NE-2 100116 06/23/89		S2-NW-1 100117 06/22/89		S2-NW-2 100118 06/22/89	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .33	R	U .34	R	U .35	R	U .34	R
Hexachloroethane	U .33	R	U .34	R	U .35	R	U .34	R
Indeno(1,2,3-cd)pyrene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Isophorone	U .33	R	U .34	R	U .35	R	U .34	R
N-Nitroso-di-n-propylamine	U .33	R	U .34	R	U .35	R	U .34	R
N-Nitrosodiphenylamine	U .33	R	U .34	R	U .35	R	U .34	R
Naphthalene	U .33	R	U .34	R	U .35	R	U .34	R
Nitrobenzene	U .33	R	U .34	R	U .35	R	U .34	R
Pentachlorophenol	U 1.6	R	U 1.6	R	U 1.7	R	U 1.7	R
Phenanthrene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
Phenol	J .33	R	J .3	R	U .35	R	J .34	R
Pyrene	U .33	UJ	U .34	UJ	U .35	UJ	U .34	UJ
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1,2,2-Tetrachloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1,2-Trichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1-Dichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1-Dichloroethene	U .63	R	U .63	R	U .63	R	U .63	R
1,2-Dichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,2-Dichloroethylene	U .63	R	U .63	R	U .63	R	U .63	R
1,2-Dichloropropane	U .63	R	U .63	R	U .63	R	U .63	R
2-Butanone	B15	R	B 8.7	R	B 7.8	R	B15	R
2-Hexanone	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
4-Methyl-2-pentanone	U 1.3	R	U 1.3	R	2.7	R	U 1.3	R
Acetone	U 1.3	R	B 1.4	R	B 1.6	R	U 1.3	R
Benzene	U .63	R	U .63	R	U .63	R	U .63	R
Bromodichloromethane	U .63	R	U .63	R	U .63	R	U .63	R
Bromoform	U .63	R	U .63	R	U .63	R	U .63	R
Bromomethane	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
Carbon disulfide	U .63	R	U .63	R	U .63	R	U .63	R
Carbon Tetrachloride	U .63	R	U .63	R	U .63	R	U .63	R
Chlorobenzene	U .63	R	U .63	R	U .63	R	U .63	R
Chloroethane	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
Chloroform	B .91	R	B .72	R	B .67	R	B 1.3	R
Chloromethane	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
cis-1,3-Dichloropropene	U .63	R	U .63	R	U .63	R	U .63	R
Dibromochloromethane	U .63	R	U .63	R	U .63	R	U .63	R
Ethylbenzene	U .63	R	U .63	R	U .63	R	U .63	R
Methylene chloride	B 3.6	R	B 1.5	R	B 3.6	R	B 6.3	R
Styrene	U .63	R	U .63	R	U .63	R	U .63	R
Tetrachlorethene	U .63	R	U .63	R	U .63	R	U .63	R

a = lab qualifier
b = validated qualifier

238

1048

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-NE-1 100115 06/23/89		S2-NE-2 100116 06/23/89		S2-NW-1 100117 06/22/89		S2-NW-2 100118 06/22/89	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .2	R	J .25	R	J .13	R	J .24	R
Total xylenes	U .63	R	BJ .13	R	U .63	R	U .63	R
trans-1,3-Dichloropropene	U .63	R	U .63	R	U .63	R	U .63	R
Trichloroethene	U .63	R	U .63	R	U .63	R	U .63	R
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
Vinyl chloride	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R

a = lab qualifier
b = validated qualifier

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-SW-1 100119 06/23/89		S2-SW-2 100120 06/23/89	
	a	b	a	b
PESTICIDES/PCB				
4,4'-DDD	U .17	UJ	U .17	UJ
4,4'-DDE	U .17	UJ	U .17	UJ
4,4'-DDT	U .17	UJ	U .17	UJ
Aldrin	U .086	UJ	U .085	UJ
alpha-BHC	U .086	UJ	U .085	UJ
alpha-Chlordane	U .86	UJ	U .85	UJ
Aroclor-1016	U .86	UJ	U .85	UJ
Aroclor-1221	U .86	UJ	U .85	UJ
Aroclor-1232	U .86	UJ	U .85	UJ
Aroclor-1242	U .86	UJ	U .85	UJ
Aroclor-1248	U .86	UJ	U .85	UJ
Aroclor-1254	FC 3.3	R	FC 3.9	R
Aroclor-1260	U 1.7	UJ	U 1.7	UJ
beta-BHC	U .086	UJ	U .085	UJ
delta-BHC	U .086	UJ	U .085	UJ
Dieldrin	U .17	UJ	U .17	UJ
Endosulfan II	U .17	UJ	U .17	UJ
Endosulfan sulfate	U .17	UJ	U .17	UJ
Endosulfan-I	U .086	UJ	U .085	UJ
Endrin	U .17	UJ	U .17	UJ
Endrin ketone	U .17	UJ	U .17	UJ
gamma-BHC (Lindane)	U .086	UJ	U .085	UJ
gamma-Chlordane	U .86	UJ	U .85	UJ
Heptachlor	U .086	UJ	U .085	UJ
Heptachlor epoxide	U .086	UJ	U .085	UJ
Methoxychlor	U .86	UJ	U .85	UJ
Toxaphene	U 1.7	UJ	U 1.7	UJ
SEMI-VOLATILE ORGANICS				
1,2,4-Trichlorobenzene	U .36	R	U .35	R
1,2-Dichlorobenzene	U .36	R	U .35	R
1,3-Dichlorobenzene	U .36	R	U .35	R
1,4-Dichlorobenzene	U .36	R	U .35	R
2,4,5-Trichlorophenol	U 1.7	R	U 1.7	R
2,4,6-Trichlorophenol	U .36	R	U .35	R
2,4-Dichlorophenol	U .36	R	U .35	R
2,4-Dimethylphenol	U .36	R	U .35	R
2,4-Dinitrophenol	U 1.7	R	U 1.7	R
2,4-Dinitrotoluene	U .36	R	U .35	R
2,6-Dinitrotoluene	U .36	R	U .35	R
2-Chloronaphthalene	U .36	R	U .35	R
2-Chlorophenol	U .36	R	U .35	R

a = lab qualifier
b = validated qualifier

-4948

046

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-SW-1 100119 06/23/89		S2-SW-2 100120 06/23/89	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
2-Methylnaphthalene	U .36	R	U .35	R
2-Methylphenol	U .36	R	U .35	R
2-Nitroaniline	U 1.7	R	U 1.7	R
2-Nitrophenol	U .36	R	U .35	R
3,3'-Dichlorobenzidine	U .71	UJ	U .7	UJ
3-Nitroaniline	U 1.7	R	U 1.7	R
4,6-Dinitro-2-methylphenol	U 1.7	R	U 1.7	R
4-Bromophenyl phenyl ether	U .36	R	U .35	R
4-Chloro-3-methylphenol	U .36	R	U .35	R
4-Chloroaniline	U .36	R	U .35	R
4-Chlorophenylphenyl ether	U .36	R	U .35	R
4-Methylphenol	U .36	R	U .35	R
4-Nitroaniline	U 1.7	R	U 1.7	R
4-Nitrophenol	U 1.7	R	U 1.7	R
Acenaphthene	U .36	R	U .35	R
Acenaphthylene	U .36	R	U .35	R
Anthracene	U .36	UJ	U .35	UJ
Benzo(a)anthracene	U .36	UJ	U .35	UJ
Benzo(a)pyrene	U .36	UJ	U .35	UJ
Benzo(b)fluoranthene	U .36	UJ	U .35	UJ
Benzo(g,h,i)perylene	U .36	UJ	U .35	UJ
Benzo(k)fluoranthene	U .36	UJ	U .35	UJ
Benzoic acid	J .19	J	U 1.7	R
Benzyl alcohol	U .36	R	U .35	R
bis(2-Chloroethoxy)methane	U .36	R	U .35	R
bis(2-Chloroethyl)ether	U .36	R	U .35	R
bis(2-Chloroisopropyl) ether	U .36	R	U .35	R
bis(2-Ethylhexyl) phthalate	J .27	R	.52	J
Butyl benzyl phthalate	U .36	UJ	U .35	UJ
Chrysene	U .36	UJ	U .35	UJ
Di-n-butyl phthalate	U .36	UJ	U .35	UJ
Di-n-octyl phthalate	U .36	UJ	U .35	UJ
Dibenzo(a,h)anthracene	U .36	UJ	U .35	R
Dibenzofuran	U .36	R	U .35	R
Diethyl phthalate	U .36	R	U .35	R
Dimethyl phthalate	U .36	UJ	U .35	UJ
Fluoranthene	U .36	R	U .35	R
Fluorene	U .36	R	U .35	R
Hexachlorobenzene	U .36	R	U .35	R
Hexachlorobutadiene	U .36	R	U .35	R

a = lab qualifier
b = validated qualifier

-4948

241

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-SW-1 100119 06/23/89		S2-SW-2 100120 06/23/89	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
Hexachlorocyclopentadiene	U .36	R	U .35	R
Hexachloroethane	U .36	R	U .35	R
Indeno(1,2,3-cd)pyrene	U .36	UJ	U .35	UJ
Isophorone	U .36	R	U .35	R
N-Nitroso-di-n-propylamine	U .36	R	U .35	R
N-Nitrosodiphenylamine	U .36	R	U .35	R
Naphthalene	U .36	R	U .35	R
Nitrobenzene	U .36	R	U .35	R
Pentachlorophenol	U 1.7	R	U 1.7	R
Phenanthrene	U .36	UJ	U .35	UJ
Phenol	J .36	R	U .35	R
Pyrene	U .36	UJ	U .35	UJ
VOLATILE ORGANICS				
1,1,1-Trichloroethane	U .63	R	U .63	R
1,1,2,2-Tetrachloroethane	U .63	R	U .63	R
1,1,2-Trichloroethane	U .63	R	U .63	R
1,1-Dichloroethane	U .63	R	U .63	R
1,1-Dichloroethene	U .63	R	U .63	R
1,2-Dichloroethane	U .63	R	U .63	R
1,2-Dichloroethylene	U .63	R	U .63	R
1,2-Dichloropropane	U .63	R	U .63	R
2-Butanone	B 8.9	R	B11	R
2-Hexanone	U 1.3	R	U 1.3	R
4-Methyl-2-pentanone	U 1.3	R	U 1.3	R
Acetone	U 1.3	R	J 1.2	R
Benzene	U .63	R	U .63	R
Bromodichloromethane	U .63	R	U .63	R
Bromoform	U .63	R	U .63	R
Bromomethane	U 1.3	R	U 1.3	R
Carbon disulfide	U .63	R	U .63	R
Carbon Tetrachloride	U .63	R	U .63	R
Chlorobenzene	U .63	R	U .63	R
Chloroethane	U 1.3	R	U 1.3	R
Chloroform	B .7	R	B .82	R
Chloromethane	U 1.3	R	U 1.3	R
cis-1,3-Dichloropropene	U .63	R	U .63	R
Dibromochloromethane	U .63	R	U .63	R
Ethylbenzene	U .63	R	U .63	R
Methylene chloride	B 1.1	R	B 3.4	R
Styrene	J .2	R	U .63	R
Tetrachlorethene	U .63	R	U .63	R

a = lab qualifier
b = validated qualifier

4948

OU4 1989 SILO 2 CONTENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-SW-1 100119 06/23/89		S2-SW-2 100120 06/23/89	
	a	b	a	b
VOLATILE ORGANICS				
Toluene	J .13	R	J .2	R
Total xylenes	J .2	R	U .63	R
trans-1,3-Dichloropropene	U .63	R	U .63	R
Trichloroethene	U .63	R	U .63	R
Trichlorofluoromethane	NA		NA	
Vinyl Acetate	U 1.3	R	U 1.3	R
Vinyl chloride	U 1.3	R	U 1.3	R

a = lab qualifier
b = validated qualifier

243

4948

OU4 1989 SILO 2
EP TOXICITY RESULTS

OU4 1989 SILO 2 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-NE-1 MM3347 06/22/89		S2-NE-2 MM3345 06/22/89		S2-NW-1 MM3344 06/22/89		S2-NW-2 MM3348 06/23/89	
	a	b	a	b	a	b	a	b
METALS								
ARSENIC	.326		.326		.592		.163	
BARIUM	1.01		1		.095		.861	
CADMIUM	.041		.017		.278		.028	
CHROMIUM	< .01		< .01		1.02		.159	
LEAD	138		.155		101		371	
MERCURY	< .0002		< .0002		< .0002		< .0002	
SELENIUM	.345		.24		1.56		.247	
SILVER	< .01		< .01		.213		.051	

245

a = lab qualifier

-4048

OU4 1989 SILO 2 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S2-SW-1 MM3340 06/22/89		S2-SW-2 MM3346 06/22/89	
	a	b	a	b
METALS				
ARSENIC	.491		.433	
BARIUM	2.62		.936	
CADMIUM	.151		.097	
CHROMIUM	.497		.591	
LEAD	714		610	
MERCURY	< .0002		< .0002	
SELENIUM	1.08		.757	
SILVER	.099		.146	

a = lab qualifier

246

1948

OU4 1989 SILO 2 GEOTECHNICAL RESULTS

OU4 1989 SILO 2 GEOTECHNICAL RESULTS

MANWAY NO:	NW-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	A	PLASTIC LIMIT:	NP
WATER CONTENT (%):	25.9	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.87 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 47.6%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	93.2
NO. 20	0.850	88.1
NO. 40	0.425	83.0
NO. 60	0.250	74.9
NO. 140	0.106	45.7
NO. 200	0.075	39.8

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.050	31.0
2 min.	0.036	28.0
5 min.	0.023	25.1
15 min.	0.013	19.2
30 min.	0.010	16.2
60 min.	0.007	14.8
240 min.	0.003	11.8
1440 min.	0.001	8.9

OU4 1989 SILO 2 GEOTECHNICAL RESULTS

MANWAY NO:	SW-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	A	PLASTIC LIMIT:	NP
WATER CONTENT (%):	73.5	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	3.11 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 79.4%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	96.5
NO. 20	0.850	89.4
NO. 40	0.425	80.4
NO. 60	0.250	73.1
NO. 140	0.106	63.7
NO. 200	0.075	63.3

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.042	48.2
2 min.	0.030	47.2
5 min.	0.019	45.3
15 min.	0.011	42.5
30 min.	0.008	39.7
60 min.	0.006	36.8
240 min.	0.003	34.0
1440 min.	0.001	20.8

OU4 1989 SILO 2 GEOTECHNICAL RESULTS

MANWAY NO:	NE-2	LIQUID LIMIT:	NP
VERTICAL SECTION:	BT	PLASTIC LIMIT:	NP
WATER CONTENT (%):	21.8	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.59 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 40.9%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	86.3
NO. 20	0.850	80.5
NO. 40	0.425	69.6
NO. 60	0.250	62.2
NO. 140	0.106	53.1
NO. 200	0.075	51.9

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.050	36.1
2 min.	0.036	32.8
5 min.	0.023	26.3
15 min.	0.014	18.1
30 min.	0.010	11.5
60 min.	0.007	9.8
240 min.	0.003	8.2
1440 min.	0.001	4.9

-4948

OU4 1989 SILO 2 GEOTECHNICAL RESULTS

MANWAY NO:	SW-2/NW-2/NE-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	COMPOSITE	PLASTIC LIMIT:	NP
WATER CONTENT (%):	34.2	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.78 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 46.4%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	96.4
NO. 20	0.850	88.9
NO. 40	0.425	67.2
NO. 60	0.250	57.1
NO. 140	0.106	39.1
NO. 200	0.075	38.1

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.050	32.0
2 min.	0.036	30.5
5 min.	0.023	28.9
15 min.	0.013	25.9
30 min.	0.009	22.9
60 min.	0.007	19.8
240 min.	0.003	18.3
1440 min.	0.001	10.7

OU4 1989 SILO 3 RADIOLOGICAL RESULTS

OU4 1989 SILO 3 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S3-NEABC 100098 05/25/89						S3-NW-A 100103 05/25/89						S3-NW-B 100104 05/25/89						S3-NW-C 100105 05/25/89					
	a			b			a			b			a			b			a			b		
Actinium 227	566	±	74	-			706	±	89	-			421	±	53	R			412	±	54	R		
Lead 210	3674	±	520	-			1910	±	272	-			1084	±	133	-			2589	±	314	-		
Protactinium 231	431	±	122	J			889	±	129	J			458	±	84	J			< 137			JD		
Radium 224	313	±	33	-			335	±	34	-			370	±	45	-			106	±	14	-		
Radium 226	4451	±	261	-			1862	±	110	-			1518	±	88	-			3702	±	214	-		
Radium 228	415	±	31	-			441	±	32	-			325	±	23	-			< 20			D		
Thorium 228	949	±	555	-			859	±	637	-			< 429			D			996	±	523	-		
Thorium 230	65488	±	21564	-			41555	±	15997	-			53227	±	15986	-			63649	±	19413	-		
Thorium 232	672	±	466	-			< 719			D			< 429			D			755	±	450	-		
Total Uranium **	3854	±	544	-			4554	±	626	-			2740	±	364	-			1463	±	232	-		
Uranium 234	1600	±	229	J			1910	±	295	J			1317	±	189	J			1052	±	158	J		
Uranium 235/236	118	±	44	J			76	±	47	J			80	±	34	J			42	±	27	J		
Uranium 238	1878	±	262	CJ			1860	±	289	J			1243	±	180	J			994	±	152	J		

a = lab qualifiers
b = validated qualifiers
** = Results reported in ug/g

253

1-4948

OU4 1989 SILO 3 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S3-NW-C3 100106 05/25/89				S3-NWABC 100107 05/25/89				S3-SE-A 100097 05/25/89				S3-SE-B 100099 05/25/89			
	a			b	a			b	a			b	a			b
Actinium 227	443	±	57	-	773	±	96	-	523	±	66	-	416	±	53	-
Lead 210	3553	±	502	-	1942	±	236	-	2437	±	345	-	2221	±	268	-
Protactinium 231	564	±	73	J	931	±	139	J	521	±	88	J	401	±	83	J
Radium 224	137	±	17	-	449	±	54	-	453	±	40	-	451	±	41	-
Radium 226	4169	±	244	-	2240	±	131	-	2589	±	152	-	2192	±	291	-
Radium 228	117	±	20	-	360	±	40	-	525	±	36	-	559	±	38	-
Thorium 228	537	±	377	-	1339	±	655	-	907	±	515	-	< 754			D
Thorium 230	61190	±	18206	-	68759	±	23126	-	41911	±	13338	-	33881	±	13110	-
Thorium 232	672	±	417	-	869	±	505	-	1451	±	685	-	< 754			D
Total Uranium **	1114	±	192	-	4050	±	535	-	4040	±	549	-	4305	±	557	-
Uranium 234	1843	±	278	J	1643	±	230	J	1935	±	284	J	1618	±	242	J
Uranium 235/236	158	±	46	J	94	±	44	J	152	±	56	J	117	±	48	J
Uranium 238	1951	±	260	JC	1574	±	222	J	2043	±	297	JC	1649	±	246	J

a = lab qualifiers
b = validated qualifiers
** = Results reported in ug/g

-4948
254

OU4 1989 SILO 3 CONTENTS RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	S3-SE-B4 100101 05/25/89				S3-SE-C 100100 05/25/89				S3-SEABC 100102 05/25/89			
	a			b	a			b	a			b
Actinium 227	1363	±	182	-	234	±	29	-	534	±	68	-
Lead 210	6427	±	918	-	454	±	65	-	2493	±	354	-
Protactinium 231	< 547			J	266	±	38	J	556	±	111	J
Radium 224	213	±	32	-	64	±	7	-	295	±	32	-
Radium 226	6435	±	381	-	467	±	28	-	3073	±	180	-
Radium 228	< 77			D	82	±	6	-	392	±	29	-
Thorium 228	< 718			D	554	±	375	-	459	±	286	-
Thorium 230	71650	±	27375	-	21010	±	2823	-	40968	±	10732	-
Thorium 232	911	±	655	-	815	±	452	-	411	±	272	-
Total Uranium **	2595	±	600	-	738	±	108	-	3064	±	436	-
Uranium 234	1524	±	229	J	348	±	96	J	1467	±	216	J
Uranium 235/236	127	±	49	J	< 63			J	54	±	33	J
Uranium 238	1600	±	238	JC	320	±	92	J	1392	±	207	JC

a = lab qualifiers
b = validated qualifiers
** = Results reported in ug/g
4SL3RAD.PRN

255

F-4948

OU4 1989 SILO 3
HSL RESULTS

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-NEABC 100098 05/25/89		S3-NW-A 100103 05/25/89		S3-NW-B 100104 05/25/89		S3-NW-C 100105 05/25/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	17500	J	10800	J	20800	J	14800	J
Antimony	N 4	R	N 5.7	R	N 5.2	R	N 5.5	R
Arsenic	1980	J	532	J	1460	J	1420	J
Barium	185	J	118	J	319	J	142	J
Beryllium	26.4	J	10	J	25.2	J	31.2	J
Cadmium	52.7	J	21.5	J	45.5	J	69.8	J
Calcium	*25900	J	*21300	J	*39900	J	*26200	J
Chromium	221	J	170	J	335	J	560	J
Cobalt	1350	J	1.9	R	2190	J	2800	J
Copper	2280	J	1620	J	2140	J	2760	J
Cyanide	.46	R	.49	R	.54	R	.5	R
Iron	23800	J	28200	J	67600	J	45000	J
Lead	1750	J	1510	J	1130	J	1800	J
Magnesium	52800	J	44800	J	72400	J	71400	J
Manganese	2780	J	2700	J	5790	J	5940	J
Mercury	.08	R	.69	J	.1	R	.08	R
Nickel	1970	J	6170	J	3150	J	3040	J
Potassium	7340	J	3300	J	13600	J	3740	J
Selenium	101	J	349	J	192	J	204	J
Silver	16.1	J	14.9	J	20.2	J	13.3	J
Sodium	39000	J	22900	J	39500	J	51700	J
Thallium	E 3.1	R	7.2	J	11.9	J	5.5	J
Vanadium	E 3040	J	E 499	J	E 1270	J	E 2540	J
Zinc	E 306	J	E 301	J	E 563	J	E 672	J

a = lab qualifier
b = validated qualifier

257

-4948

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-NW-C3 100106 05/25/89		S3-NWABC 100107 05/25/89		S3-SE-A 100097 05/25/89		S3-SE-B 100099 05/25/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	13500	J	15300	J	21300	J	18000	J
Antimony	N 5.8	R	N 5.5	J	N 5.2	R	N 4.7	R
Arsenic	1010	J	1060	J	1380	J	2450	J
Barium	118	J	215	J	297	J	253	J
Beryllium	13.9	J	16.6	J	20.8	J	20.6	J
Cadmium	24.2	J	35.1	J	41.7	J	60.3	J
Calcium	*25600	J	*29900	J	*39500	J	*33100	J
Chromium	443	J	236	J	260	J	171	J
Cobalt	3520	J	2950	J	2580	J	1100	J
Copper	1640	J	2010	J	2020	J	2430	J
Cyanide	.52	R	.51	R	.55	R	.52	R
Iron	40000	J	37800	J	41700	J	26200	J
Lead	1960	J	1330	J	1700	J	1440	J
Magnesium	80900	J	58100	J	74400	J	62400	J
Manganese	5290	J	3970	J	5200	J	3610	J
Mercury	.1	R	.3	J	.1	R	.1	R
Nickel	3830	J	4230	J	3280	J	1200	R
Potassium	1300	J	6690	J	5310	J	3880	J
Selenium	186	J	254	J	159	J	108	J
Silver	9.5	J	17.4	J	23.8	J	21.5	J
Sodium	27000	J	30400	J	30100	J	43100	J
Thallium	4	J	13.7	J	10	J	37.6	J
Vanadium	E 418	J	E 1040	J	E 1180	J	E 2030	J
Zinc	E 449	J	E 397	J	E 497	J	E 361	J

a = lab qualifier
b = validated qualifier

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-SE-B4 100101 05/25/89		S3-SE-C 100100 05/25/89		S3-SEABC 100102 05/25/89	
	a	b	a	b	a	b
METALS						
Aluminum	23700	J	18000	J	15800	J
Antimony	N 5.9	R	N 5.7	R	N 4.7	R
Arsenic	6380	J	1610	J	2200	J
Barium	194	J	332	J	210	J
Beryllium	35.1	J	39.9	J	26.5	J
Cadmium	204	J	40.1	J	62.4	J
Calcium	*23300	J	*32600	J	*25800	J
Chromium	139	J	421	J	213	J
Cobalt	1870	J	1340	J	1340	J
Copper	7060	J	1610	J	2440	J
Cyanide	.53	R	.55	R	.53	R
Iron	13900	J	60400	J	31200	J
Lead	4430	J	646	J	1310	J
Magnesium	38200	J	44900	J	44100	J
Manganese	2420	J	6500	J	3980	J
Mercury	.3	J	.1	R	.1	R
Nickel	2280	J	1810	J	1760	J
Potassium	4520	J	22800	J	7360	J
Selenium	122	J	129	J	105	J
Silver	14.8	J	9.2	J	14.3	J
Sodium	38100	J	44100	J	31200	J
Thallium	73.9	J	6.5	J	35.8	J
Vanadium	E 4550	J	E 1420	J	E 2030	J
Zinc	E 387	J	E 637	J	E380	J

259

a = lab qualifier
b = validated qualifier

-4948

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-NW-A 100103 05/25/89		S3-NW-B 100104 05/25/89		S3-NW-C 100105 05/25/89		S3-NW-C3 100106 05/25/89	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
4,4'-DDE	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
4,4'-DDT	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
Aldrin	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
alpha-BHC	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
alpha-Chlordane	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Aroclor-1016	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Aroclor-1221	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Aroclor-1232	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Aroclor-1242	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Aroclor-1248	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Aroclor-1254	U .16	UJ	U .17	UJ	U .17	UJ	U .23	UJ
Aroclor-1260	U .16	UJ	U .17	UJ	U .17	UJ	U .23	UJ
beta-BHC	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
delta-BHC	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
Dieldrin	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
Endosulfan II	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
Endosulfan sulfate	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
Endosulfan-I	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
Endrin	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
Endrin ketone	U .016	UJ	U .017	UJ	U .017	UJ	U .023	UJ
gamma-BHC (Lindane)	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
gamma-Chlordane	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Heptachlor	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
Heptachlor epoxide	U .0082	UJ	U .0085	UJ	U .0086	UJ	U .012	UJ
Methoxychlor	U .082	UJ	U .085	UJ	U .086	UJ	U .12	UJ
Toxaphene	U .16	UJ	U .17	UJ	U .17	UJ	U .23	UJ
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .34	R	U .35	R	U .36	R	U .35	R
1,2-Dichlorobenzene	U .34	R	U .35	R	U .36	R	U .35	R
1,3-Dichlorobenzene	U .34	R	U .35	R	U .36	R	U .35	R
1,4-Dichlorobenzene	U .34	R	U .35	R	U .36	R	U .35	R
2,4,5-Trichlorophenol	U 1.6	R	U 1.7	R	U 1.7	R	U .34	R
2,4,6-Trichlorophenol	U .34	R	U .35	R	U .36	R	U .35	R
2,4-Dichlorophenol	U .34	R	U .35	R	U .36	R	U .35	R
2,4-Dimethylphenol	U .34	R	U .35	R	U .36	R	U .35	R
2,4-Dinitrophenol	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
2,4-Dinitrotoluene	U .34	R	U .35	R	U .36	R	U .35	R
2,6-Dinitrotoluene	U .34	R	U .35	R	U .36	R	U .35	R
2-Chloronaphthalene	U .34	R	U .35	R	U .36	R	U .35	R

a = lab qualifier
b = validated qualifier

0048

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-NW-A 100103 05/25/89		S3-NW-B 100104 05/25/89		S3-NW-C 100105 05/25/89		S3-NW-C3 100106 05/25/89	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Chlorophenol	U .34	R	U .35	R	U .36	R	U .35	R
2-Methylnaphthalene	U .34	R	U .35	R	U .36	R	U .35	R
2-Methylphenol	U .34	R	U .35	R	U .36	R	U .35	R
2-Nitroaniline	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
2-Nitrophenol	U .34	R	J .052	J	U .36	R	U .35	R
3,3'-Dichlorobenzidine	U .68	UJ	U .7	UJ	U .71	R	U .69	UJ
3-Nitroaniline	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
4,6-Dinitro-2-methylphenol	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
4-Bromophenyl phenyl ether	U .34	R	U .35	R	U .36	R	U .35	R
4-Chloro-3-methylphenol	U .34	R	U .35	R	U .36	R	U .35	R
4-Chloroaniline	U .34	R	U .35	R	U .36	R	U .35	R
4-Chlorophenylphenyl ether	U .34	R	U .35	R	U .36	R	U .35	R
4-Methylphenol	U .34	R	U .35	R	U .36	R	U .35	R
4-Nitroaniline	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
4-Nitrophenol	J .045	J	U 1.7	R	U 1.7	R	U 1.7	R
Acenaphthene	U .34	R	U .35	R	U .36	R	U .35	R
Acenaphthylene	U .34	R	U .35	R	U .36	R	U .35	R
Anthracene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Benzo(a)anthracene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Benzo(a)pyrene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Benzo(b)fluoranthene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Benzo(g,h,i)perylene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Benzo(k)fluoranthene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Benzoic acid	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
Benzyl alcohol	U .34	R	U .35	R	U .36	R	U .35	R
bis(2-Chloroethoxy)methane	U .34	R	U .35	R	U .36	R	U .35	R
bis(2-Chloroethyl)ether	U .34	R	U .35	R	U .36	R	U .35	R
bis(2-Chloroisopropyl) ether	U .34	R	U .35	R	U .36	R	U .35	R
bis(2-Ethylhexyl) phthalate	J .04	R	U .35	R	U .36	R	U .35	R
Butyl benzyl phthalate	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Chrysene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Di-n-butyl phthalate	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Di-n-octyl phthalate	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Dibenzo(a,h)anthracene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Dibenzofuran	U .34	R	U .35	R	U .36	R	U .35	R
Diethyl phthalate	U .34	R	U .35	R	U .36	R	U .35	R
Dimethyl phthalate	U .34	R	U .35	R	U .36	UJ	U .35	UJ
Fluoranthene	U .34	UJ	U .35	UJ	U .36	R	U .35	R
Fluorene	U .34	R	U .35	R				

a = lab qualifier
b = validated qualifier

2961

4948

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-NW-A 100103 05/25/89		S3-NW-B 100104 05/25/89		S3-NW-C 100105 05/25/89		S3-NW-C3 100106 05/25/89	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorobenzene	U .34	R	U .35	R	U .36	R	U .35	R
Hexachlorobutadiene	U .34	R	U .35	R	U .36	R	U .35	R
Hexachlorocyclopentadiene	U .34	R	U .35	R	U .36	R	U .35	R
Hexachloroethane	U .34	R	U .35	R	U .36	R	U .35	R
Indeno(1,2,3-cd)pyrene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Isophorone	U .34	R	U .35	R	U .36	R	U .35	R
N-Nitroso-di-n-propylamine	U .34	R	U .35	R	U .36	R	U .35	R
N-Nitrosodiphenylamine	U .34	R	U .35	R	U .36	R	U .35	R
Naphthalene	U .34	R	U .35	R	U .36	R	U .35	R
Nitrobenzene	U .34	R	U .35	R	U .36	R	U .35	R
Pentachlorophenol	U 1.6	R	U 1.7	R	U 1.7	R	U 1.7	R
Phenanthrene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
Phenol	J .054	R	J .055	R	U .36	R	U .35	R
Pyrene	U .34	UJ	U .35	UJ	U .36	UJ	U .35	UJ
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1,2,2-Tetrachloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1,2-Trichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1-Dichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,1-Dichloroethene	U .63	R	U .63	R	U .63	R	U .63	R
1,2-Dichloroethane	U .63	R	U .63	R	U .63	R	U .63	R
1,2-Dichloroethylene	U .63	R	U .63	R	U .63	R	U .63	R
1,2-Dichloropropane	U .63	R	U .63	R	U .63	R	U .63	R
2-Butanone	B13	R	B13	R	B16	R	B 9.7	R
2-Hexanone	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
4-Methyl-2-pentanone	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
Acetone	4.8	R	3.9	R	12	R	B 3.4	R
Benzene	U .63	R	U .63	R	U .63	R	U .63	R
Bromodichloromethane	U .63	R	U .63	R	U .63	R	U .63	R
Bromoform	U .63	R	U .63	R	U 1.3	R	U 1.3	R
Bromomethane	U 1.3	R	U 1.3	R	U .63	R	U .63	R
Carbon disulfide	U .63	R	U .63	R	U .63	R	U .63	R
Carbon Tetrachloride	U .63	R	U .63	R	U .63	R	U .63	R
Chlorobenzene	U .63	R	U 1.3	R	U 1.3	R	U 1.3	R
Chloroethane	U 1.3	R	B .68	R	BJ .56	R	B .81	R
Chloroform	B .68	R	J .14	R	U 1.3	R	U 1.3	R
Chloromethane	U 1.3	R	U .63	R	U .63	R	U .63	R
cis-1,3-Dichloropropene	U .63	R	U .63	R	U .63	R	U .63	R
Dibromochloromethane	U .63	R	U .63	R	U .63	R	U .63	R
Ethylbenzene	U .63	R	U .63	R	U .63	R	U .63	R

a = lab qualifier
b = validated qualifier

1948
262

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	S3-NW-A 100103 05/25/89		S3-NW-B 100104 05/25/89		S3-NW-C 100105 05/25/89		S3-NW-C3 100106 05/25/89	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Methylene chloride	B 1.8	R	B 1.2	R	B 1	R	B 1.6	R
Styrene	U .63	R	U .63	R	U .63	R	U .63	R
Tetrachlorethene	U .63	R	U .63	R	U .63	R	U .63	R
Toluene	J .21	R	6.4	R	B 3.4	R	BJ .18	R
Total xylenes	U .63	R	U .63	R	U .63	R	U .63	R
trans-1,3-Dichloropropene	U .63	R	U .63	R	U .63	R	U .63	R
Trichloroethene	U .63	R	U .63	R	U .63	R	U .63	R
Vinyl Acetate	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R
Vinyl chloride	U 1.3	R	U 1.3	R	U 1.3	R	U 1.3	R

a = lab qualifier
b = validated qualifier

263

F-4948

OU4 1989 SILO 3
EP TOXICITY RESULTS

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	#21 MM3325 05/25/89		#22 MM3326 05/25/89		#23 MM3327 05/25/89		#24 MM3328 05/25/89
	a	b	a	b	a	b	a
METALS							
ARSENIC	15.8		41.5		.018		2.3
BARIUM	.02		.045		.135		.074
CADMIUM	.247		.679		.17		6.32
CHROMIUM	2.57		1.79		8.51		.336
LEAD	.05		.258		< .04		.802
MERCURY	< .0002		< .0002		< .0002		< .0002
SELENIUM	2.24		1.46		1.2		1.18
SILVER	< .01		< .01		< .01		.032

a = lab qualifier

265

F-4948

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

-4948

Chemical Parameters	#25 MM3329 05/25/89		#26 MM3330 05/25/89		#27 MM3331 05/25/89		#28 MM3332 05/25/89	
	a	b	a	b	a	b	a	b
METALS								
ARSENIC	6.65		5.35		2.32		< .05	
BARIUM	.081		.033		.074		.155	
CADMIUM	.471		.321		.122		.116	
CHROMIUM	6.26		3.2		5.56		11.9	
LEAD	.073		1.01		< .04		< .04	
MERCURY	< .0002		.002		< .0002		< .0002	
SELENIUM	1.31		11.7		1.31		1.56	
SILVER	< .01		< .01		< .01		< .01	

a = lab qualifier

266

OU4 1989 SILO 3 HAZARDOUS SUBSTANCE LIST EP TOXICITY RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number and sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	#29 MM3333 05/25/89		#30 MM3334 05/25/89		#33 MM3335 05/25/89	
	a	b	a	b	a	b
METALS						
ARSENIC	< .05		6.1		24.2	
BARIUM	.156		.048		.064	
CADMIUM	.108		.205		.561	
CHROMIUM	7.69		4.73		3	
LEAD	< .04		.167		.192	
MERCURY	< .0002		.003		< .0002	
SELENIUM	.92		4.36		1.96	
SILVER	< .01		< .01		< .01	

a = lab qualifier

267

L-4948

OU4 1989 SILO 3 GEOTECHNICAL RESULTS

OU4 1989 SILO 3 GEOTECHNICAL RESULTS

MANWAY NO:	NW-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	A	PLASTIC LIMIT:	NP
WATER CONTENT (%):	7.4	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.35 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 66%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	99.7
NO. 40	0.425	97.7
NO. 60	0.250	96.0
NO. 140	0.106	93.5
NO. 200	0.075	93.2

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.045	92.4
2 min.	0.033	85.3
5 min.	0.022	67.5
15 min.	0.014	35.5
30 min.	0.010	35.5
60 min.	0.007	35.5
240 min.	0.004	35.5
1440 min.	0.001	35.5

OU4 1989 SILO 3 GEOTECHNICAL RESULTS

MANWAY NO:	NW-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	C	PLASTIC LIMIT:	NP
WATER CONTENT (%):	3.7	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.08 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 68.3%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	98.7
NO. 40	0.425	98.2
NO. 60	0.250	97.5
NO. 140	0.106	94.6
NO. 200	0.075	93.9

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.049	93.3
2 min.	0.036	86.4
5 min.	0.025	64.5
15 min.	0.015	50.2
30 min.	0.011	50.2
60 min.	0.008	50.2
240 min.	0.004	50.2
1440 min.	0.001	50.2

OU4 1989 SILO 3 GEOTECHNICAL RESULTS

MANWAY NO:	SE-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	A	PLASTIC LIMIT:	NP
WATER CONTENT (%):	10.2	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.58 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 77.7%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	97.4
NO. 40	0.425	92.6
NO. 60	0.250	90.8
NO. 140	0.106	90.0
NO. 200	0.075	90.0

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.043	87.2
2 min.	0.031	80.0
5 min.	0.020	72.7
15 min.	0.013	29.1
30 min.	0.010	25.4
60 min.	0.007	21.8
240 min.	0.003	21.8
1440 min.	0.001	21.8

OU4 1989 SILO 3 GEOTECHNICAL RESULTS

MANWAY NO:	SE-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	C	PLASTIC LIMIT:	NP
WATER CONTENT (%):	6.3	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.29 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 62.6%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	97.3
NO. 40	0.425	94.7
NO. 60	0.250	93.6
NO. 140	0.106	93.0
NO. 200	0.075	92.9

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.046	91.1
2 min.	0.033	86.0
5 min.	0.023	61.9
15 min.	0.014	37.8
30 min.	0.010	34.4
60 min.	0.007	34.4
240 min.	0.004	34.4
1440 min.	0.001	34.4

OU4 1989 SILO 3 GEOTECHNICAL RESULTS

MANWAY NO:	NE-1	LIQUID LIMIT:	NP
VERTICAL SECTION:	COMPOSITE	PLASTIC LIMIT:	NP
WATER CONTENT (%):	3.8	PLASTICITY INDEX:	NP
SPECIFIC GRAVITY:	2.75 g/cc	USCS:	NA

CONSISTENCY BREAK POINT (WATER CONTENT): 57.5%

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.000 in.	75.000	100.0
1.500 in.	37.500	100.0
0.750 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	95.1
NO. 40	0.425	91.1
NO. 60	0.250	89.0
NO. 140	0.106	88.0
NO. 200	0.075	87.8

HYDROMETER ANALYSIS

TIME	DIAMETER (mm)	PERCENT FINER (%)
1 min.	0.038	85.2
2 min.	0.028	79.1
5 min.	0.019	63.9
15 min.	0.012	39.5
30 min.	0.009	36.5
60 min.	0.006	36.5
240 min.	0.003	36.5
1440 min.	0.001	36.5

OU4 1989 SILO 3 BORING LOGS

BORING/WELL LOGS LEGEND

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS PER SQUARE FT)
VERY SOFT	LESS THAN 0.25
SOFT	0.25 to 0.50
MEDIUM STIFF	0.50 to 1.0
STIFF	1.0 to 2.0
VERY STIFF	2.0 to 4.0
HARD	MORE THAN 4.0

DENSITY OF GRANULAR SOILS

DENSITY	STANDARD PENETRATION RESISTANCE
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS RECORDED FOR EACH 6-INCH INTERVAL THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

COBBLES	GRAVEL		SANDS			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

USCS CLASSIFICATION FOR SOILS

COARSE – GRAINED SOILS

CLEAN GRAVELS (LITTLE OR – NO FINES)	GW	WELL-GRADED GRAVELS GRAVEL-SAND MIXTURES LITTLE OR NO FINES
	GP	POORLY-GRADED GRAVELS GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	GC	CLAYEY GRAVELS GRAVEL-SAND-CLAY MIXTURES
CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY-GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
	SC	CLAYEY SANDS SAND-CLAY MIXTURES

FINE-GRADED/HIGHLY ORGANIC SOILS

SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

-4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: SILO 3	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: NORTHEAST MANWAY	COORDINATES: NA		DATE: 05/24/89
GROUND ELEVATION: NA	GWL: Depth NA	Date/Time: NA	DATE STARTED: 05/24/89
ENGINEER/GEOLOGIST: WEMCO	Depth: NA	Date/Time: NA	DATE COMPLETED: 05/24/89
DRILLING METHODS: VIBRA CORE 4-IN. I.D. TUBE W/LEXAN INSERT			PAGE 1 OF 1

DEPTH (IN)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (%)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
	NA	NA	39		NA	NA	
132.0				TOTAL RECOVERY = 132.0 IN. MATERIAL IS LIGHT TO DARK IN COLOR WITH A LIGHT RED AREA IN THE MIDDLE OF THE SAMPLE CORE. MATERIAL APPEARED TO BE A DRY POWDER IN COLOR.			RAD READINGS GAMMA = 1.6 mR/Hr. B-G* = 2.5 mR/Hr.
				RECOVERY AREA			MATERIAL WAS DIVIDED INTO 13 10-IN. SECTIONS FOR SAMPLING
				BORING LENGTH = 336 INCHES.			

BOTTOM OF SILO 3 BORING AT 28.0 FT.

NOTES:

DRILLING CONTRACTOR: WEMCO

DRILLING EQUIPMENT: VIBRA CORE

DRILLER: NOT RECORDED

* B-G = BETA-GAMMA

INFORMATION DESCRIBED ABOVE WAS TRANSCRIBED FROM WEMCO FIELD ACTIVITY DAILY LOGS.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: SILO 3	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: NORTHWEST MANWAY	COORDINATES: NA		DATE: 05/25/89
GROUND ELEVATION: NA	GWL: Depth NA	Date/Time: NA	DATE STARTED: 05/25/89
ENGINEER/GEOLOGIST: WEMCO	Depth: NA	Date/Time: NA	DATE COMPLETED: 05/25/89
DRILLING METHODS: VIBRA CORE 4-IN. I.D. TUBE W/LEXAN INSERT			PAGE 1 OF 1

DEPTH (IN)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (%)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
	NA	NA	39		NA	NA	
132.0				TOTAL RECOVERY = 132.0 IN. MATERIAL IS REDDISH BROWN TO BROWN IN COLOR AND IS A LOOSE POWDER.			RAD READINGS GAMMA = 0.9 mR/Hr. B-G* = 3.9 mR/Hr.
				RECOVERY AREA			MATERIAL WAS DIVIDED INTO 13 10-IN. SECTIONS FOR SAMPLING
				BORING LENGTH = 336 INCHES.			

BOTTOM OF SILO 3 BORING AT 28.0 FT.

NOTES:

DRILLING CONTRACTOR: WEMCO

DRILLING EQUIPMENT: VIBRA CORE

DRILLER: NOT RECORDED

* B-G = BETA-GAMMA

INFORMATION DESCRIBED ABOVE WAS TRANSCRIBED FROM WEMCO FIELD ACTIVITY DAILY LOGS.

-4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: SILO 3	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: SOUTHEAST MANWAY	COORDINATES: NA		DATE: 05/25/89
GROUND ELEVATION: NA	GWL: Depth NA	Date/Time: NA	DATE STARTED: 05/25/89
ENGINEER/GEOLOGIST: WEMCO	Depth: NA	Date/Time: NA	DATE COMPLETED: 05/25/89
DRILLING METHODS: VIBRA CORE 4-IN. I.D. TUBE W/LEXAN INSERT			PAGE 1 OF 1

DEPTH (IN)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (%)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
110.5	NA	NA	33	TOTAL RECOVERY = 110.5 IN. TOP TWO-THIRDS OF SAMPLE CORE WAS REDDISH BROWN IN COLOR AND THE BOTTOM ONE THIRD OF THE SAMPLE CORE WAS DARK BROWN IN COLOR. RECOVERY AREA BORING LENGTH = 336 INCHES.	NA	NA	RAD READINGS B-G* = 2.0 mR/Hr. SAMPLE CORE WAS DIVIDED INTO 8.5-IN. SECTIONS FOR SAMPLING

BOTTOM OF SILO 3 BORING AT 28.0 FT.

NOTES:

DRILLING CONTRACTOR: WEMCO

DRILLING EQUIPMENT: VIBRA CORE

DRILLER: NOT RECORDED

* B-G = BETA-GAMMA

INFORMATION DESCRIBED ABOVE WAS TRANSCRIBED FROM WEMCO FIELD ACTIVITY DAILY LOGS.

OU4 DECANT TANK RADIOLOGICAL RESULTS

OU4 1991 DECANT TANK RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	099411 04/09/91				099412 04/12/91				099415 04/16/91				099416 06/19/91			
	a			b	a			b	a			b	a			b
Actinium 227		NA				NA				NA			< 91.1			-
Cesium 137	< 20			R	< 20			J	< 20			J		NA		
Lead 210		NA				NA				NA			8660		± 866	J
Neptunium 237	< 1			R	1.2		± .8	-	< 1			R		NA		
Plutonium 238	< 1			-	< 1			-	< 1			J		NA		
Plutonium 239/240	< 1			-	< 1			-	< 1			-		NA		
Polonium 210		NA				NA				NA			7080		± 930	-
Protactinium 231		NA				NA				NA			< 431			J
Radium 224		NA				NA				NA				NA		
Radium 224 (GAMMA)		NA				NA				NA			< 27			J
Radium 226	836		± 118	-	1120		± 158	-	797		± 113	-	1640		± 230	J
Radium 226 (GAMMA)		NA				NA				NA			973		± 81	R
Radium 228	< 3			-	4.81		± 1.11	-	< 3			J	8.8		± 1.56	J
Radium 228 (GAMMA)		NA				NA				NA			< 76			DJ
Ruthenium 106	< 150			R	< 150			J	< 150			J		NA		
Strontium 90	< 5			J	< 5			J	6.47		± 1.35	J		NA		
Technetium 99	< 30			J	< 30			-	43.8		± 20.7	-		NA		
Thorium 228	< 1			-		NA			2.72		± 1.53	-		NA		
Thorium 230	< 1			R		NA			197		± 27	-		NA		
Thorium 232	< 1			-		NA			< 1.8			D		NA		
Total Thorium **	< 7.1			D		NA			< 16			D		NA		
Total Uranium **	77400		± 11500	J	75000		±11400	J	70400		± 11000	J		NA		
Uranium 234		NA				NA				NA				NA		
Uranium 235	1310		± 170	-	1362		± 187	R	1074		± 111	J		NA		
Uranium 235/236		NA				NA				NA				NA		
Uranium 238	26000		± 2800	-	22490		± 4269	R	20390		± 2110	J		NA		

a = lab qualifier
b = validated qualifiers
* = Results reported in pei/g
** = Results reported in ug/l
*** = Results reported in mg/g

280

-49048

OU4 1991 DECANT TANK RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	a	099417 * 08/21/91 Sludge		b
Actinium 227		5783	± 603	J
Cesium 137		NA		
Lead 210		123200	±12330	J
Neptunium 237		NA		
Plutonium 238		NA		
Plutonium 239/240		NA		
Polonium 210		NA		
Protactinium 231	<	855		DJ
Radium 224	<	41		J
Radium 224 (GAMMA)		NA		
Radium 226		128500	± 6440	J
Radium 226 (GAMMA)		NA		
Radium 228	<	140		DJ
Radium 228 (GAMMA)		NA		
Ruthenium 106		NA		
Strontium 90		NA		
Technetium 99		NA		
Thorium 228		NA		
Thorium 230		52130	± 7582	J
Thorium 232		NA		
Total Thorium ***		NA		
Total Uranium ***	<	1255		DJ
Uranium 234		NA		
Uranium 235		NA		
Uranium 235/236		NA		
Uranium 238		NA		

a = lab qualifier
b = validated qualifiers
* = Results reported in pci/g
** = Results reported in ug/l
*** = Results reported in mg/g
4WMDCTRD.PRN

281

OU4 DECANT TANK CHEMICAL RESULTS

OU4 1991 DECANT TANK GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099411 04/09/91		099412 04/12/91		099414 04/16/91		099415 04/16/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMICAL								
Ammonia	NA		11.5	-	NA		27.4	-
Chloride	NA		103.4	-	NA		107	-
Fluoride	NA		22	-	NA		20	-
Nitrate	NA		884	-	NA		791.2	-
Phenols	NA		.02	-	NA		.01	-
Phosphorus	NA		3.03	-	NA		2.72	-
Sulfate	NA		9812.6	-	NA		5348	-
Sulfide	NA		NA		NA		NA	
Total Organic Carbon	NA		31.8	-	NA		50	-
Total Organic Halides	NA		.164	-	NA		.25	-
Total Organic Nitrogen	NA		24.55	-	NA		NA	

a = lab qualifier
b = validated qualifier

283

1-4948

OU4 1991 DECANT TANK GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099416 06/19/91		099417 08/21/91	
	a	b	a	b
GENERAL CHEMICAL				
Ammonia	U .1	R	NA	
Chloride	93.2	R	NA	
Fluoride	120	-	NA	
Nitrate	2280	-	NA	
Phenols	.03	-	NA	
Phosphorus	1.53	-	NA	
Sulfate	4605	-	NA	
Sulfide	U .5	-	NA	
Total Organic Carbon	52.1	-	NA	
Total Organic Halides	.261	-	NA	
Total Organic Nitrogen	.309	-	NA	

a = lab qualifier
b = validated qualifier

-4948

284

OU4 DECANT TANK HSL RESULTS

OU4 1991 DECANT TANK HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099411 04/09/91		099412 04/12/91		099414 04/16/91		099415 04/16/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	1.99	-	1.94	-	NA		1.43	-
Antimony	.26	-	.256	-	NA		.20	J
Arsenic	.662	-	.683	-	NA		.50	J
Barium	BN .0366	J	BN .0216	J	NA		BN .0218	-
Beryllium	.0099	-	.0098	-	NA		.0084	-
Cadmium	.012	-	.0143	-	NA		.0119	-
Calcium	BE 4.02	-	BE 3.52	J	NA		E 6.510	J
Chromium	.377	-	.404	-	NA		.31	-
Cobalt	.0708	-	.0743	-	NA		.066	-
Copper	.0994	-	.184	-	NA		.0878	-
Cyanide	NA		.318	-	NA		.429	-
Iron	.284	-	.309	-	NA		.272	-
Lead	+ .182	J	.138	-	NA		S .213	-
Magnesium	BE 3.26	-	BE 3.19	J	NA		BE 4.190	J
Manganese	.0286	-	.0516	-	NA		.293	-
Mercury	U .0002	-	U .0002	J	NA		U .0002	J
Molybdenum	E 7.42	J	E 7.74	J	NA		E 6.170	J
Nickel	.0652	-	.0779	-	NA		.065	-
Potassium	36.4	-	37.6	-	NA		28.3	-
Selenium	5.09	-	2.9	J	NA		5.55	J
Silicon	NA		91.8	-	NA		68.500	-
Silver	.21	-	.23	-	NA		.184	-
Sodium	5570	-	5950	-	NA		1900.000	-
Thallium	UW .002	-	UW .002	J	NA		UW .002	J
Vanadium	.241	-	.256	-	NA		.220	-
Zinc	.0806	-	.0309	J	NA		.0673	-

a = lab qualifier
b = validated qualifier

289

-4948

OU4 1991 DECANT TANK HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099416 06/19/91		099417 08/21/91	
	a	b	a	b
METALS				
Aluminum	* 1.83	J	NA	
Antimony	N .188	J	NA	
Arsenic	N .601	J	NA	
Barium	BN .0658	J	NA	
Beryllium	.0116	-	NA	
Cadmium	.0053	-	NA	
Calcium	B 4.87	J	NA	
Chromium	* .43	J	NA	
Cobalt	.0799	-	NA	
Copper	.12	-	NA	
Cyanide	.310572	-	NA	
Iron	* 1.04	J	NA	
Lead	N .602	J	NA	
Magnesium	B 3.49	J	NA	
Manganese	.0507	-	NA	
Mercury	U .0002	-	NA	
Molybdenum	* 6.26	J	NA	
Nickel	.129	-	NA	
Potassium	*40.1	-	NA	
Selenium	6.02	-	NA	
Silicon	*73.3	J	NA	
Silver	.159	-	NA	
Sodium	U .1	-	NA	
Thallium	UWN .002	R	NA	
Vanadium	* .233	J	NA	
Zinc	.486	-	NA	

a = lab qualifier
b = validated qualifier

-4948
-182

OU4 1991 DECANT TANK HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099412 04/12/91		099415 04/16/91		099416 06/19/91		099417 08/21/91 Sludge	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0002	-	U .0002	-	U .0001	-	NA	
4,4'-DDE	U .0002	-	U .0002	-	U .0001	-	NA	
4,4'-DDT	U .0002	-	U .0002	-	U .0001	-	NA	
Aldrin	U .0001	-	U .00001	-	U .00005	-	NA	
alpha-BHC	U .0001	-	U .00001	-	U .00005	-	NA	
alpha-Chlordane	U .001	-	U .001	-	U .0005	-	NA	
Aroclor-1016	U .001	-	U .001	-	U .0005	-	NA	
Aroclor-1221	U .001	-	U .001	-	U .0005	-	NA	
Aroclor-1232	U .001	-	U .001	-	U .0005	-	NA	
Aroclor-1242	XF .0011	-	DX .0012	-	U .0005	-	NA	
Aroclor-1248	U .001	-	U .001	-	U .0005	-	NA	
Aroclor-1254	U .002	-	U .002	-	U .001	-	NA	
Aroclor-1260	U .002	-	U .002	-	U .001	-	NA	
beta-BHC	U .0001	-	U .00001	-	U .00005	-	NA	
delta-BHC	U .0001	-	U .00001	-	U .00005	-	NA	
Dieldrin	U .0002	-	U .0001	R	U .0001	-	NA	
Endosulfan II	U .0002	-	U .0002	-	U .0001	-	NA	
Endosulfan sulfate	U .0002	-	U .0002	-	U .0001	-	NA	
Endosulfan-I	U .0001	-	U .00005	R	U .00005	-	NA	
Endrin	U .0002	-	U .0002	-	U .0001	-	NA	
Endrin ketone	U .0002	-	U .0002	-	U .0001	-	NA	
gamma-BHC (Lindane)	U .0001	-	U .00001	-	U .00005	-	NA	
gamma-Chlordane	U .001	-	U .001	-	U .0005	-	NA	
Heptachlor	U .0001	-	U .00001	-	U .00005	-	NA	
Heptachlor epoxide	U .0001	-	U .00001	-	U .00005	-	NA	
Methoxychlor	U .001	-	U .001	-	U .0005	-	NA	
Toxaphene	U .002	-	U .002	-	U .001	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .01	-	U .01	-	U .01	UJ	NA	
1,2-Dichlorobenzene	U .01	-	U .01	-	U .01	UJ	NA	
1,3-Dichlorobenzene	U .01	-	U .01	-	U .01	UJ	NA	
1,4-Dichlorobenzene	U .01	-	U .01	-	U .01	UJ	NA	
2,4,5-Trichlorophenol	U .05	R	U .05	R	U .05	R	NA	
2,4,6-Trichlorophenol	U .01	R	U .01	R	U .01	R	NA	
2,4-Dichlorophenol	U .01	R	U .01	R	U .01	R	NA	
2,4-Dimethylphenol	U .01	R	U .01	R	U .01	R	NA	
2,4-Dinitrophenol	U .05	R	U .05	R	J .005	J	NA	
2,4-Dinitrotoluene	U .01	-	U .01	-	U .01	UJ	NA	
2,6-Dinitrotoluene	U .01	-	U .01	-	J .002	J	NA	
2-Chloronaphthalene	U .01	-	U .01	-	U .01	UJ	NA	
2-Chlorophenol	U .01	R	U .01	R	U .01	R	NA	

a = lab qualifier
b = validated qualifier

OU4 1991 DECANT TANK HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099412 04/12/91		099415 04/16/91		099416 06/19/91		099417 08/21/91 Sludge	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .01	-	U .01	UJ	U .01	UJ	NA	
2-Methylphenol	U .01	R	U .01	R	U .01	R	NA	
2-Nitroaniline	U .05	UJ	U .05	UJ	U .05	UJ	NA	
2-Nitrophenol	U .01	R	U .01	R	.11	J	NA	
3,3'-Dichlorobenzidine	U .02	-	U .02	-	U .02	UJ	NA	
3-Nitroaniline	U .05	UJ	U .05	UJ	U .05	UJ	NA	
4,6-Dinitro-2-methylphenol	U .05	R	U .05	R	U .05	R	NA	
4-Bromophenyl phenyl ether	U .01	-	U .01	-	U .01	UJ	NA	
4-Chloro-3-methylphenol	U .01	R	U .01	R	U .01	R	NA	
4-Chloroaniline	U .01	UJ	U .01	UJ	U .01	UJ	NA	
4-Chlorophenylphenyl ether	U .01	-	U .01	-	U .01	UJ	NA	
4-Methylphenol	U .01	R	U .01	R	J .003	J	NA	
4-Nitroaniline	U .05	UJ	U .05	UJ	U .05	UJ	NA	
4-Nitrophenol	J .001	J	J .002	J	.074	UJ	NA	
Acenaphthene	U .01	-	U .01	-	U .01	UJ	NA	
Acenaphthylene	U .01	-	U .01	-	U .01	UJ	NA	
Anthracene	U .01	-	U .01	-	U .01	UJ	NA	
Benzo(a)anthracene	U .01	-	U .01	-	U .01	UJ	NA	
Benzo(a)pyrene	U .01	-	U .01	-	U .01	UJ	NA	
Benzo(b)fluoranthene	U .01	-	U .01	-	U .01	UJ	NA	
Benzo(g,h,i)perylene	U .01	-	U .01	-	U .01	UJ	NA	
Benzo(k)fluoranthene	U .01	-	U .01	-	U .01	UJ	NA	
Benzoic acid	J .001	J	J .003	R	J .002	J	NA	
Benzyl alcohol	U .01	UJ	U .01	UJ	U .01	UJ	NA	
bis(2-Chloroethoxy)methane	U .01	-	U .01	-	U .01	UJ	NA	
bis(2-Chloroethyl)ether	U .01	-	U .01	-	U .01	UJ	NA	
bis(2-Chloroisopropyl) ether	U .01	UJ	U .01	UJ	U .01	UJ	NA	
bis(2-Ethylhexyl) phthalate	U .01	-	U .01	-	J .002	J	NA	
Butyl benzyl phthalate	U .01	-	U .01	-	U .01	UJ	NA	
Chrysene	U .01	-	U .01	-	U .01	UJ	NA	
Di-n-butyl phthalate	U .01	-	U .01	-	U .01	UJ	NA	
Di-n-octyl phthalate	U .01	-	U .01	-	U .01	UJ	NA	
Dibenzo(a,h)anthracene	U .01	-	U .01	-	U .01	UJ	NA	
Dibenzofuran	U .01	UJ	U .01	UJ	U .01	UJ	NA	
Diethyl phthalate	U .01	-	U .01	-	U .01	UJ	NA	
Dimethyl phthalate	U .01	-	U .01	-	U .01	UJ	NA	
Fluoranthene	U .01	-	U .01	-	U .01	UJ	NA	
Fluorene	U .01	-	U .01	-	U .01	UJ	NA	
Hexachlorobenzene	U .01	-	U .01	-	U .01	UJ	NA	
Hexachlorobutadiene	U .01	-	U .01	-	U .01	UJ	NA	

a = lab qualifier
b = validated qualifier

OU4 1991 DECANT TANK HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099412 04/12/91		099415 04/16/91		099416 06/19/91		099417 08/21/91 Sludge	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .01	-	U .01	-	U .01	UJ	NA	
Hexachloroethane	U .01	-	U .01	-	U .01	UJ	NA	
Indeno(1,2,3-cd)pyrene	U .01	-	U .01	-	U .01	UJ	NA	
Isophorone	U .01	-	U .01	-	U .01	UJ	NA	
N-Nitroso-di-n-propylamine	U .01	-	U .01	-	U .01	UJ	NA	
N-Nitrosodiphenylamine	U .01	-	U .01	-	U .01	UJ	NA	
Naphthalene	U .01	-	U .01	-	U .01	UJ	NA	
Nitrobenzene	U .01	-	U .01	-	U .01	UJ	NA	
Pentachlorophenol	U .05	R	U .05	R	U .05	R	NA	
Phenanthrene	U .01	-	U .01	-	U .01	UJ	NA	
Phenol	U .01	R	U .01	R	J .006	J	NA	
Pyrene	U .01	-	U .01	-	U .01	UJ	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	-	U .005	-	U .005	-
2-Butanone	U .01	R	U .01	-	BJ .005	U	U .01	-
2-Hexanone	U .01	-	BJ .003	U	J .003	-	U .01	-
4-Methyl-2-pentanone	J .002	J	BJ .002	U	J .003	-	U .01	-
Acetone	BJ .01	UJ	B .01	U	B .022	U	U .01	-
Benzene	U .005	-	U .005	-	U .005	-	U .005	-
Bromodichloromethane	U .005	-	U .005	-	U .005	-	J .002	-
Bromoform	U .005	-	U .005	-	U .005	-	U .005	-
Bromomethane	U .01	-	U .01	-	U .01	-	U .01	-
Carbon disulfide	U .005	-	U .005	-	J .004	-	U .005	-
Carbon Tetrachloride	U .005	-	U .005	-	.008	-	U .005	-
Chlorobenzene	U .005	-	U .005	-	U .005	-	U .005	-
Chloroethane	U .01	-	U .01	-	U .01	-	U .01	-
Chloroform	U .005	-	J .001	-	.006	-	.016	-
Chloromethane	U .01	-	U .01	-	U .01	-	U .01	-
cis-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Ethylbenzene	U .005	-	U .005	-	J .001	-	U .005	-
Methylene chloride	B .012	UJ	B .009	U	U .005	-	U .005	-
Styrene	U .005	-	U .005	-	U .005	-	U .005	-
Tetrachlorethene	J .003	J	U .005	-	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

-4948

OU4 1991 DECANT TANK HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099412 04/12/91		099415 04/16/91		099416 06/19/91		099417 08/21/91 Sludge	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .003	J	B .006	U	.066	-	J .001	-
Total xylenes	U .005	-	U .005	-	.007	-	U .005	-
trans-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U .01	-	U .01	-	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

291

-4948

4948

OU4 1991/92 SILO 1 QA/QC RADIOLOGICAL RESULTS

OU4 1990/91 SILO 1 QA/QC RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S1-NE-B 099994 08/23/91			2S1-NW-B 099899 08/08/91			2S1-SE-B 099954 08/16/91		
	a		b	a		b	a		b
Actinium 227	< 1.1		J	< 1		J	< 1		J
Cesium 137	NA			< 20		R	NA		
Lead 210	< 1		J	1.31	± 1.08	J	< 1		J
Polonium 210	< 1		J	< 1		J	< 1		J
Protactinium 231	< 204		J	< 272		R	< 397		J
Radium 224	< 13		J	< 15		R	< 21		J
Radium 226	< 1		J	< 1		J	< 1		J
Radium 228	< 3		J	< 3		J	< 3		J
Ruthenium 106	NA			< 150		R	NA		
Thorium 228	2.85	± 1.17	J	< 1		J	1.32	± .4	J
Thorium 230	< 1.2		J	< 1		J	1.2	± .38	J
Thorium 232	< 1		J	< 1		J	< 1		J
Total Thorium **	< 6.8		DJ	< 1		J	< 2.5		J
Total Uranium **	NA			< 1.2		DJ	16.9	±2.5	J
Uranium 234	NA			< 1		J	4.49	± .7	J
Uranium 235/236	NA			< 1		J	< 1		J
Uranium 238	NA			< 1		J	5.66	± .83	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

293

-4948

OU4 1991/92 SILO 1 QA/QC HSL RESULTS

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 099991 08/23/91		2S1-NE-B 099992 08/23/91		2S1-NE-B 099993 08/23/91		2S1-NW-B 099896 08/08/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	U .06	-	NA		NA		U .06	-
Antimony	J .03	J	NA		NA		U .03	J
Arsenic	U .002	-	NA		NA		U .002	-
Barium	U .002	-	NA		NA		U .002	-
Beryllium	U .002	-	NA		NA		U .002	-
Boron	U .1	-	NA		NA		U .1	-
Cadmium	U .002	-	NA		NA		U .002	-
Calcium	U .31	U	NA		NA		B .0927	-
Chromium	U .01	-	NA		NA		U .01	-
Cobalt	U .01	-	NA		NA		U .01	-
Copper	.0652	U	NA		NA		U .01	-
Cyanide	NA		NA		U .002	-	NA	
Iron	B .0127	-	NA		NA		U .01	-
Lead	.003	-	NA		NA		.0042	J
Magnesium	U .05	-	NA		NA		U .05	-
Manganese	U .002	-	NA		NA		U .002	-
Mercury	NA		U .0002	J	NA		NA	
Molybdenum	U .01	-	NA		NA		U .01	-
Nickel	U .02	-	NA		NA		U .02	-
Potassium	U .1	-	NA		NA		U .1	-
Selenium	U .002	-	NA		NA		U .002	-
Silicon	.0564	-	NA		NA		.0649	-
Silver	J .01	-	NA		NA		U .01	J
Sodium	B .256	-	NA		NA		B .265	-
Thallium	U .002	-	NA		NA		UW .002	J
Vanadium	U .01	-	NA		NA		U .01	-
Zinc	U .0225	U	NA		NA		B .0156	-

a = lab qualifier
b = validated qualifier

2951

-4948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099897 08/08/91		2S1-NW-B 099898 08/08/91		2S1-SE-B 099951 08/16/91		2S1-SE-B 099952 08/16/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		U .06	-	NA	
Antimony	NA		NA		U .03	J	NA	
Arsenic	NA		NA		UW .002	-	NA	
Barium	NA		NA		U .002	-	NA	
Beryllium	NA		NA		U .002	-	NA	
Boron	NA		NA		U .1	-	NA	
Cadmium	NA		NA		U .002	-	NA	
Calcium	NA		NA		B .261	-	NA	
Chromium	NA		NA		U .01	-	NA	
Cobalt	NA		NA		U .01	-	NA	
Copper	NA		NA		.0378	-	NA	
Cyanide	NA		U .002	-	NA		NA	
Iron	NA		NA		B .0448	-	NA	
Lead	NA		NA		.0139	-	NA	
Magnesium	NA		NA		U .05	-	NA	
Manganese	NA		NA		U .002	-	NA	
Mercury	U .0002	J	NA		NA		U .0002	J
Molybdenum	NA		NA		U .01	-	NA	
Nickel	NA		NA		U .02	-	NA	
Potassium	NA		NA		U .1	-	NA	
Selenium	NA		NA		U .002	-	NA	
Silicon	NA		NA		.0998	-	NA	
Silver	NA		NA		U .01	J	NA	
Sodium	NA		NA		B .283	-	NA	
Thallium	NA		NA		U .002	-	NA	
Vanadium	NA		NA		U .01	-	NA	
Zinc	NA		NA		B .0139	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L);
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099751 08/23/91		2S1-NE-B 099989 08/23/91		2S1-NE-B 099990 08/23/91		2S1-NE-B 099995 08/23/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		U .01	-	NA	
1,2-Dichlorobenzene	NA		NA		U .01	-	NA	
1,3-Dichlorobenzene	NA		NA		U .01	-	NA	
1,4-Dichlorobenzene	NA		NA		U .01	-	NA	
2,4,5-Trichlorophenol	NA		NA		U .051	-	NA	
2,4,6-Trichlorophenol	NA		NA		U .01	-	NA	
2,4-Dichlorophenol	NA		NA		U .01	-	NA	
2,4-Dimethylphenol	NA		NA		U .01	-	NA	
2,4-Dinitrophenol	NA		NA		U .051	UJ	NA	
2,4-Dinitrotoluene	NA		NA		U .01	-	NA	
2,6-Dinitrotoluene	NA		NA		U .01	-	NA	
2-Chloronaphthalene	NA		NA		U .01	-	NA	
2-Chlorophenol	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099751 08/23/91		2S1-NE-B 099989 08/23/91		2S1-NE-B 099990 08/23/91		2S1-NE-B 099995 08/23/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		U .01	-	NA	
2-Methylphenol	NA		NA		U .01	UJ	NA	
2-Nitroaniline	NA		NA		U .051	-	NA	
2-Nitrophenol	NA		NA		U .01	-	NA	
3,3'-Dichlorobenzidine	NA		NA		U .02	-	NA	
3-Nitroaniline	NA		NA		U .051	-	NA	
4,6-Dinitro-2-methylphenol	NA		NA		U .051	UJ	NA	
4-Bromophenyl phenyl ether	NA		NA		U .01	-	NA	
4-Chloro-3-methylphenol	NA		NA		U .01	-	NA	
4-Chloroaniline	NA		NA		U .01	-	NA	
4-Chlorophenylphenyl ether	NA		NA		U .01	-	NA	
4-Methylphenol	NA		NA		U .01	UJ	NA	
4-Nitroaniline	NA		NA		U .051	UJ	NA	
4-Nitrophenol	NA		NA		U .051	-	NA	
Acenaphthene	NA		NA		U .01	-	NA	
Acenaphthylene	NA		NA		U .01	-	NA	
Anthracene	NA		NA		U .01	-	NA	
Benzo(a)anthracene	NA		NA		U .01	-	NA	
Benzo(a)pyrene	NA		NA		U .01	-	NA	
Benzo(b)fluoranthene	NA		NA		U .01	-	NA	
Benzo(g,h,i)perylene	NA		NA		U .01	-	NA	
Benzo(k)fluoranthene	NA		NA		U .01	-	NA	
Benzoic acid	NA		NA		U .01	-	NA	
Benzyl alcohol	NA		NA		UJ .051	-	NA	
bis(2-Chloroethoxy)methane	NA		NA		U .01	UJ	NA	
bis(2-Chloroethyl)ether	NA		NA		U .01	-	NA	
bis(2-Chloroisopropyl) ether	NA		NA		U .01	-	NA	
bis(2-Ethylhexyl) phthalate	NA		NA		U .01	UJ	NA	
Butyl benzyl phthalate	NA		NA		.11	J	NA	
Chrysene	NA		NA		U .01	-	NA	
Di-n-butyl phthalate	NA		NA		U .01	-	NA	
Di-n-octyl phthalate	NA		NA		U .01	-	NA	
Dibenzo(a,h)anthracene	NA		NA		U .01	-	NA	
Dibenzofuran	NA		NA		U .01	-	NA	
Diethyl phthalate	NA		NA		U .01	-	NA	
Dimethyl phthalate	NA		NA		U .01	-	NA	
Fluoranthene	NA		NA		U .01	-	NA	
Fluorene	NA		NA		U .01	UJ	NA	
Hexachlorobenzene	NA		NA		U .01	-	NA	
Hexachlorobutadiene	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

-4948

298

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099751 08/23/91		2S1-NE-B 099989 08/23/91		2S1-NE-B 099990 08/23/91		2S1-NE-B 099995 08/23/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		U .01	-	NA	
Hexachloroethane	NA		NA		U .01	UJ	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		U .01	-	NA	
Isophorone	NA		NA		U .01	UJ	NA	
N-Nitroso-di-n-propylamine	NA		NA		U .01	-	NA	
N-Nitrosodiphenylamine	NA		NA		U .01	-	NA	
Naphthalene	NA		NA		U .01	-	NA	
Nitrobenzene	NA		NA		U .01	UJ	NA	
Pentachlorophenol	NA		NA		U .005	-	NA	
Phenanthrene	NA		NA		U .01	-	NA	
Phenol	NA		NA		U .01	-	NA	
Pyrene	NA		NA		U .01	UJ	NA	
Tributyl Phosphate	NA		NA		U .01	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	NA		U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	UJ	NA		U .005	-
1,1-Dichloroethane	U .005	-	U .005	-	NA		U .005	-
1,1-Dichloroethene	U .005	-	U .005	-	NA		U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	NA		U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-	NA		U .005	-
1,2-Dichloropropane	U .005	-	U .005	-	NA		U .005	-
2-Butanone	U .01	UJ	BJ .001	J	NA		BJ .001	J
2-Hexanone	U .01	UJ	U .01	UJ	NA		U .01	UJ
4-Methyl-2-pentanone	U .01	UJ	U .01	UJ	NA		U .01	UJ
Acetone	J .003	J	BJ .006	-	NA		BJ .004	-
Benzene	U .005	UJ	UJ .005	-	NA		U .005	UJ
Bromodichloromethane	U .005	-	U .005	-	NA		U .005	-
Bromoform	U .005	-	U .005	-	NA		U .005	-
Bromomethane	U .01	-	U .01	-	NA		U .01	-
Carbon disulfide	U .005	-	U .005	-	NA		U .005	-
Carbon Tetrachloride	U .005	UJ	U .005	-	NA		U .005	-
Chlorobenzene	U .005	UJ	U .005	UJ	NA		U .005	UJ
Chloroethane	U .01	-	U .01	-	NA		U .01	-
Chloroform	U .005	-	U .005	-	NA		U .005	-
Chloromethane	U .01	-	U .01	UJ	NA		U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	-	NA		U .005	-
Dibromochloromethane	U .005	-	U .005	-	NA		U .005	-
Ethylbenzene	U .005	UJ	U .005	UJ	NA		U .005	UJ
Methylene chloride	BJ .002	J	B .009	J	NA		B .009	J
Styrene	U .005	UJ	U .005	UJ	NA		U .005	UJ
Tetrachlorethene	U .005	-	U .005	-	NA		U .005	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-A 099751 08/23/91		2S1-NE-B 099989 08/23/91		2S1-NE-B 099990 08/23/91		2S1-NE-B 099995 08/23/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .003	J	J .002	J	NA		U .005	UJ
Total xylenes	U .005	UJ	U .005	UJ	NA		U .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	-	NA		U .005	-
Trichloroethene	U .005	-	U .005	-	NA		U .005	-
Vinyl Acetate	U .01	-	U .01	-	NA		U .01	-
Vinyl chloride	U .01	-	U .01	-	NA		U .01	-

a = lab qualifier
b = validated qualifier

-4948

300

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 099996 08/23/91		2S1-NE-B 099997 08/23/91		2S1-NE-B 100012 08/28/91		2S1-NW-A 099893 08/09/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .0001	-	NA		NA	
4,4'-DDE	NA		U .0001	-	NA		NA	
4,4'-DDT	NA		U .0001	-	NA		NA	
Aldrin	NA		U .00005	-	NA		NA	
alpha-BHC	NA		U .00005	-	NA		NA	
alpha-Chlordane	NA		U .0005	-	NA		NA	
Aroclor-1016	NA		U .0005	-	NA		NA	
Aroclor-1221	NA		U .0005	-	NA		NA	
Aroclor-1232	NA		U .0005	-	NA		NA	
Aroclor-1242	NA		U .0005	-	NA		NA	
Aroclor-1248	NA		U .0005	-	NA		NA	
Aroclor-1254	NA		U .001	-	NA		NA	
Aroclor-1260	NA		U .001	-	NA		NA	
beta-BHC	NA		U .00005	-	NA		NA	
delta-BHC	NA		U .00005	-	NA		NA	
Dieldrin	NA		U .0001	-	NA		NA	
Endosulfan II	NA		U .0001	-	NA		NA	
Endosulfan sulfate	NA		U .0001	-	NA		NA	
Endosulfan-I	NA		U .00005	-	NA		NA	
Endrin	NA		U .0001	-	NA		NA	
Endrin ketone	NA		U .0001	-	NA		NA	
gamma-BHC (Lindane)	NA		U .00005	-	NA		NA	
gamma-Chlordane	NA		U .0005	-	NA		NA	
Heptachlor	NA		U .00005	-	NA		NA	
Heptachlor epoxide	NA		U .00005	-	NA		NA	
Methoxychlor	NA		U .0005	-	NA		NA	
Toxaphene	NA		U .001	-	NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 099996 08/23/91		2S1-NE-B 099997 08/23/91		2S1-NE-B 100012 08/28/91		2S1-NW-A 099893 08/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948

303

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 099996 08/23/91		2S1-NE-B 099997 08/23/91		2S1-NE-B 100012 08/28/91		2S1-NW-A 099893 08/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	R	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	R	U .005	-
1,1,2-Trichloroethane	U .005	-	NA		U .005	R	U .005	-
1,1-Dichloroethane	U .005	-	NA		U .005	R	U .005	-
1,1-Dichloroethene	U .005	-	NA		U .005	R	U .005	-
1,2-Dichloroethane	U .005	-	NA		U .005	R	U .005	-
1,2-Dichloroethylene	U .005	-	NA		U .005	R	U .005	-
1,2-Dichloropropane	U .005	-	NA		U .005	R	U .005	-
2-Butanone	BJ .001	J	NA		U .01	-	U .01	-
2-Hexanone	U .01	UJ	NA		U .01	R	U .01	-
4-Methyl-2-pentanone	U .01	UJ	NA		U .01	R	U .01	-
Acetone	BJ .005	-	NA		.014	R	BJ .008	J
Benzene	U .005	UJ	NA		U .005	UJ	U .005	-
Bromodichloromethane	U .005	-	NA		U .005	R	U .005	-
Bromoform	U .005	-	NA		U .005	R	U .005	UJ
Bromomethane	U .01	-	NA		U .01	R	U .01	UJ
Carbon disulfide	U .005	-	NA		U .005	UJ	U .005	-
Carbon Tetrachloride	U .005	-	NA		U .005	R	U .005	-
Chlorobenzene	U .005	UJ	NA		U .005	UJ	U .005	-
Chloroethane	U .01	-	NA		U .01	R	U .01	UJ
Chloroform	U .005	-	NA		J .004	R	U .005	-
Chloromethane	U .01	UJ	NA		U .01	UJ	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	NA		U .005	UJ	U .005	-
Dibromochloromethane	U .005	-	NA		U .005	R	U .005	-
Ethylbenzene	U .005	UJ	NA		U .005	UJ	U .005	-
Methylene chloride	B .009	J	NA		BJ .003	J	BJ .004	J
Styrene	U .005	UJ	NA		U .005	UJ	U .005	-
Tetrachlorethene	U .005	-	NA		U .005	R	U .005	-

a = lab qualifier
b = validated qualifier

303

4948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NE-B 099996 08/23/91		2S1-NE-B 099997 08/23/91		2S1-NE-B 100012 08/28/91		2S1-NW-A 099893 08/09/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .001	J	NA		J .003	UJ	B .005	-
Total xylenes	U .005	UJ	NA		U .005	UJ	U .005	-
trans-1,3-Dichloropropene	U .005	-	NA		U .005	UJ	U .005	-
Trichloroethene	U .005	-	NA		U .005	R	U .005	-
Vinyl Acetate	U .01	-	NA		U .01	R	U .01	-
Vinyl chloride	U .01	-	NA		U .01	R	U .01	-

a = lab qualifier
b = validated qualifier

304

-4048

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099894 08/08/91		2S1-NW-B 099895 08/08/91		2S1-NW-B 099900 08/08/91		2S1-NW-B 099901 08/08/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		U .01	UJ	NA		NA	
1,2-Dichlorobenzene	NA		U .01	UJ	NA		NA	
1,3-Dichlorobenzene	NA		U .01	UJ	NA		NA	
1,4-Dichlorobenzene	NA		U .01	UJ	NA		NA	
2,4,5-Trichlorophenol	NA		U .05	UJ	NA		NA	
2,4,6-Trichlorophenol	NA		U .01	UJ	NA		NA	
2,4-Dichlorophenol	NA		U .01	UJ	NA		NA	
2,4-Dimethylphenol	NA		U .01	UJ	NA		NA	
2,4-Dinitrophenol	NA		U .05	UJ	NA		NA	
2,4-Dinitrotoluene	NA		U .01	UJ	NA		NA	
2,6-Dinitrotoluene	NA		U .01	UJ	NA		NA	
2-Chloronaphthalene	NA		U .01	UJ	NA		NA	
2-Chlorophenol	NA		U .01	UJ	NA		NA	

a = lab qualifier
b = validated qualifier

4048

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099894 08/08/91		2S1-NW-B 099895 08/08/91		2S1-NW-B 099900 08/08/91		2S1-NW-B 099901 08/08/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .01	UJ	NA		NA	
2-Methylphenol	NA		U .01	UJ	NA		NA	
2-Nitroaniline	NA		U .05	UJ	NA		NA	
2-Nitrophenol	NA		U .01	UJ	NA		NA	
3,3'-Dichlorobenzidine	NA		U .02	UJ	NA		NA	
3-Nitroaniline	NA		U .05	UJ	NA		NA	
4,6-Dinitro-2-methylphenol	NA		U .05	UJ	NA		NA	
4-Bromophenyl phenyl ether	NA		U .01	UJ	NA		NA	
4-Chloro-3-methylphenol	NA		U .01	UJ	NA		NA	
4-Chloroaniline	NA		U .01	UJ	NA		NA	
4-Chlorophenylphenyl ether	NA		U .01	UJ	NA		NA	
4-Methylphenol	NA		U .01	UJ	NA		NA	
4-Nitroaniline	NA		U .05	UJ	NA		NA	
4-Nitrophenol	NA		U .05	UJ	NA		NA	
Acenaphthene	NA		U .01	UJ	NA		NA	
Acenaphthylene	NA		U .01	UJ	NA		NA	
Anthracene	NA		U .01	UJ	NA		NA	
Benzo(a)anthracene	NA		U .01	UJ	NA		NA	
Benzo(a)pyrene	NA		U .01	UJ	NA		NA	
Benzo(b)fluoranthene	NA		U .01	UJ	NA		NA	
Benzo(g,h,i)perylene	NA		U .01	UJ	NA		NA	
Benzo(k)fluoranthene	NA		U .01	UJ	NA		NA	
Benzoic acid	NA		U .05	UJ	NA		NA	
Benzyl alcohol	NA		U .01	UJ	NA		NA	
bis(2-Chloroethoxy)methane	NA		U .01	UJ	NA		NA	
bis(2-Chloroethyl)ether	NA		U .01	UJ	NA		NA	
bis(2-Chloroisopropyl) ether	NA		U .01	UJ	NA		NA	
bis(2-Ethylhexyl) phthalate	NA		J .005	J	NA		NA	
Butyl benzyl phthalate	NA		U .01	UJ	NA		NA	
Chrysene	NA		U .01	UJ	NA		NA	
Di-n-butyl phthalate	NA		U .01	UJ	NA		NA	
Di-n-octyl phthalate	NA		U .01	UJ	NA		NA	
Dibenzo(a,h)anthracene	NA		U .01	UJ	NA		NA	
Dibenzofuran	NA		U .01	UJ	NA		NA	
Diethyl phthalate	NA		U .01	UJ	NA		NA	
Dimethyl phthalate	NA		U .01	UJ	NA		NA	
Fluoranthene	NA		U .01	UJ	NA		NA	
Fluorene	NA		U .01	UJ	NA		NA	
Hexachlorobenzene	NA		U .01	UJ	NA		NA	
Hexachlorobutadiene	NA		U .01	UJ	NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099894 08/08/91		2S1-NW-B 099895 08/08/91		2S1-NW-B 099900 08/08/91		2S1-NW-B 099901 08/08/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .01	UJ	NA		NA	
Hexachloroethane	NA		U .01	UJ	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		U .01	UJ	NA		NA	
Isophorone	NA		U .01	UJ	NA		NA	
N-Nitroso-di-n-propylamine	NA		U .01	UJ	NA		NA	
N-Nitrosodiphenylamine	NA		U .01	UJ	NA		NA	
Naphthalene	NA		U .01	UJ	NA		NA	
Nitrobenzene	NA		U .01	UJ	NA		NA	
Pentachlorophenol	NA		U .05	UJ	NA		NA	
Phenanthrene	NA		U .01	UJ	NA		NA	
Phenol	NA		U .01	UJ	NA		NA	
Pyrene	NA		U .01	UJ	NA		NA	
Tributyl Phosphate	NA		UJ .01	UJ	NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	UJ	U .005	UJ
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	UJ	U .005	UJ
1,1,2-Trichloroethane	U .005	-	NA		U .005	UJ	U .005	UJ
1,1-Dichloroethane	U .005	-	NA		U .005	UJ	U .005	UJ
1,1-Dichloroethene	U .005	-	NA		U .005	UJ	U .005	UJ
1,2-Dichloroethane	U .005	-	NA		U .005	UJ	U .005	UJ
1,2-Dichloroethylene	U .005	-	NA		U .005	UJ	U .005	UJ
1,2-Dichloropropane	U .005	-	NA		U .005	UJ	U .005	UJ
2-Butanone	UJ .01	-	NA		U .005	UJ	U .005	UJ
2-Hexanone	J .01	-	NA		J .002	J	J .002	UJ
4-Methyl-2-pentanone	J .01	-	NA		J .01	UJ	J .01	UJ
Acetone	UJ .022	UJ	NA		J .01	UJ	J .01	UJ
Benzene	U .005	-	NA		J .015	UJ	J .009	UJ
Bromodichloromethane	U .005	-	NA		U .005	UJ	U .005	UJ
Bromoform	J .005	-	NA		U .005	UJ	U .005	UJ
Bromomethane	U .01	-	NA		J .005	UJ	J .005	UJ
Carbon disulfide	U .005	-	NA		U .01	UJ	U .01	UJ
Carbon Tetrachloride	U .005	-	NA		U .005	UJ	U .005	UJ
Chlorobenzene	U .005	-	NA		U .005	UJ	U .005	UJ
Chloroethane	U .01	-	NA		U .005	UJ	U .005	UJ
Chloroform	U .005	U	NA		U .01	UJ	U .01	UJ
Chloromethane	U .01	-	NA		.005	J	U .005	UJ
cis-1,3-Dichloropropene	U .005	-	NA		U .01	UJ	U .01	UJ
Dibromochloromethane	U .005	-	NA		U .005	UJ	U .005	UJ
Ethylbenzene	U .005	-	NA		U .005	UJ	U .005	UJ
Methylene chloride	U .005	-	NA		U .005	UJ	U .005	UJ
Styrene	U .005	-	NA		J .002	J	J .002	UJ
Tetrachlorethene	U .005	-	NA		U .005	UJ	U .005	UJ
					U .005	UJ	U .005	UJ

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099894 08/08/91		2S1-NW-B 099895 08/08/91		2S1-NW-B 099900 08/08/91		2S1-NW-B 099901 08/08/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	U .005	-	NA		J .003	UJ	J .005	UJ
Total xylenes	U .005	-	NA		U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	NA		U .005	UJ	U .005	UJ
Trichloroethene	U .005	-	NA		U .005	UJ	U .005	UJ
Vinyl Acetate	U .01	-	NA		U .01	UJ	U .01	UJ
Vinyl chloride	U .01	-	NA		U .01	UJ	U .01	UJ

a = lab qualifier
b = validated qualifier

-4948
308

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099902 08/08/91		2S1-NW-B 099917 08/12/91		2S1-NW-C 099947 08/15/91		2S1-SE-A 099878 08/17/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0001	-	NA		NA		NA	
4,4'-DDD	U .0001	-	NA		NA		NA	
4,4'-DDE	U .0001	-	NA		NA		NA	
4,4'-DDT	U .0001	-	NA		NA		NA	
Aldrin	U .00005	-	NA		NA		NA	
alpha-BHC	U .00005	-	NA		NA		NA	
alpha-Chlordane	U .0005	-	NA		NA		NA	
Aroclor-1016	U .0005	-	NA		NA		NA	
Aroclor-1221	U .0005	-	NA		NA		NA	
Aroclor-1232	U .0005	-	NA		NA		NA	
Aroclor-1242	U .0005	-	NA		NA		NA	
Aroclor-1248	U .0005	-	NA		NA		NA	
Aroclor-1254	U .001	-	NA		NA		NA	
Aroclor-1260	U .001	-	NA		NA		NA	
beta-BHC	U .00005	-	NA		NA		NA	
delta-BHC	U .00005	-	NA		NA		NA	
Dieldrin	U .0001	-	NA		NA		NA	
Endosulfan II	U .0001	-	NA		NA		NA	
Endosulfan sulfate	U .0001	-	NA		NA		NA	
Endosulfan-I	U .00005	-	NA		NA		NA	
Endrin	U .0001	-	NA		NA		NA	
Endrin ketone	U .0001	-	NA		NA		NA	
gamma-BHC (Lindane)	U .00005	-	NA		NA		NA	
gamma-Chlordane	U .0005	-	NA		NA		NA	
Heptachlor	U .00005	-	NA		NA		NA	
Heptachlor epoxide	U .00005	-	NA		NA		NA	
Methoxychlor	U .0005	-	NA		NA		NA	
Toxaphene	U .001	-	NA		NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

309

a = lab qualifier
b = validated qualifier

4048

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099902 08/08/91		2S1-NW-B 099917 08/12/91		2S1-NW-C 099947 08/15/91		2S1-SE-A 099878 08/17/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

310

1948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099902 08/08/91		2S1-NW-B 099917 08/12/91		2S1-NW-C 099947 08/15/91		2S1-SE-A 099878 08/17/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .005	-	U .005	UJ	U .005	U
1,1,2,2-Tetrachloroethane	NA		U .005	-	U .005	UJ	U .005	U
1,1,2-Trichloroethane	NA		U .005	-	U .005	UJ	U .005	U
1,1-Dichloroethane	NA		U .005	-	U .005	UJ	U .005	U
1,1-Dichloroethene	NA		U .005	-	U .005	UJ	U .005	U
1,2-Dichloroethane	NA		U .005	-	U .005	UJ	U .005	U
1,2-Dichloroethylene	NA		U .005	-	U .005	UJ	U .005	U
1,2-Dichloropropane	NA		U .005	-	U .005	UJ	U .005	U
2-Butanone	NA		U .01	-	U .01	UJ	J .001	J
2-Hexanone	NA		BJ .001	J	U .01	UJ	U .01	U
4-Methyl-2-pentanone	NA		U .01	UJ	U .01	UJ	U .01	U
Acetone	NA		BJ .007	J	.023	J	BJ .003	UJ
Benzene	NA		U .005	UJ	U .005	UJ	U .005	UJ
Bromodichloromethane	NA		U .005	-	U .005	UJ	U .005	U
Bromoform	NA		U .005	-	U .005	UJ	U .005	U
Bromomethane	NA		U .01	-	U .01	UJ	U .01	UJ
Carbon disulfide	NA		U .005	-	U .005	UJ	U .005	U
Carbon Tetrachloride	NA		U .005	-	U .005	UJ	U .005	U
Chlorobenzene	NA		U .005	UJ	U .005	UJ	U .005	UJ
Chloroethane	NA		U .01	-	U .01	UJ	U .01	U
Chloroform	NA		J .004	-	U .005	UJ	U .005	U
Chloromethane	NA		U .01	-	U .01	UJ	U .005	U
cis-1,3-Dichloropropene	NA		U .005	-	U .005	UJ	U .005	U
Dibromochloromethane	NA		U .005	-	U .005	UJ	U .005	U
Ethylbenzene	NA		U .005	UJ	U .005	UJ	U .005	UJ
Methylene chloride	NA		BJ .001	J	BJ .002	UJ	BJ .01	UJ
Styrene	NA		U .005	UJ	U .005	UJ	U .005	UJ
Tetrachlorethene	NA		U .005	-	U .005	UJ	U .005	U

a = lab qualifier
b = validated qualifier

1948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-NW-B 099902 08/08/91		2S1-NW-B 099917 08/12/91		2S1-NW-C 099947 08/15/91		2S1-SE-A 099878 08/17/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		BJ .002	J	BJ .002	UJ	J .002	J
Total xylenes	NA		U .005	UJ	U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	NA		U .005	-	U .005	UJ	U .005	-
Trichloroethene	NA		U .005	-	U .005	UJ	U .005	-
Vinyl Acetate	NA		U .01	-	U .01	UJ	U .01	-
Vinyl chloride	NA		U .01	-	U .01	UJ	U .01	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099949 08/16/91		2S1-SE-B 099950 08/16/91		2S1-SE-B 099955 08/16/91		2S1-SE-B 099956 08/16/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		U .01	-	NA		NA	
1,2-Dichlorobenzene	NA		U .01	-	NA		NA	
1,3-Dichlorobenzene	NA		U .01	-	NA		NA	
1,4-Dichlorobenzene	NA		U .01	-	NA		NA	
2,4,5-Trichlorophenol	NA		U .05	-	NA		NA	
2,4,6-Trichlorophenol	NA		U .01	-	NA		NA	
2,4-Dichlorophenol	NA		U .01	-	NA		NA	
2,4-Dimethylphenol	NA		U .01	-	NA		NA	
2,4-Dinitrophenol	NA		U .05	-	NA		NA	
2,4-Dinitrotoluene	NA		U .01	-	NA		NA	
2,6-Dinitrotoluene	NA		U .01	-	NA		NA	
2-Chloronaphthalene	NA		U .01	-	NA		NA	
2-Chlorophenol	NA		U .01	-	NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099949 08/16/91		2S1-SE-B 099950 08/16/91		2S1-SE-B 099955 08/16/91		2S1-SE-B 099956 08/16/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .01	-	NA		NA	
2-Methylphenol	NA		U .01	-	NA		NA	
2-Nitroaniline	NA		U .05	-	NA		NA	
2-Nitrophenol	NA		U .01	-	NA		NA	
3,3'-Dichlorobenzidine	NA		U .02	UJ	NA		NA	
3-Nitroaniline	NA		U .05	-	NA		NA	
4,6-Dinitro-2-methylphenol	NA		U .05	-	NA		NA	
4-Bromophenyl phenyl ether	NA		U .01	-	NA		NA	
4-Chloro-3-methylphenol	NA		U .01	-	NA		NA	
4-Chloroaniline	NA		U .01	-	NA		NA	
4-Chlorophenylphenyl ether	NA		U .01	-	NA		NA	
4-Methylphenol	NA		U .01	-	NA		NA	
4-Nitroaniline	NA		U .05	-	NA		NA	
4-Nitrophenol	NA		U .05	-	NA		NA	
Acenaphthene	NA		U .01	-	NA		NA	
Acenaphthylene	NA		U .01	-	NA		NA	
Anthracene	NA		U .01	-	NA		NA	
Benzo(a)anthracene	NA		U .01	-	NA		NA	
Benzo(a)pyrene	NA		U .01	-	NA		NA	
Benzo(b)fluoranthene	NA		U .01	-	NA		NA	
Benzo(g,h,i)perylene	NA		U .01	-	NA		NA	
Benzo(k)fluoranthene	NA		U .01	-	NA		NA	
Benzoic acid	NA		U .05	UJ	NA		NA	
Benzyl alcohol	NA		U .01	-	NA		NA	
bis(2-Chloroethoxy)methane	NA		U .01	-	NA		NA	
bis(2-Chloroethyl)ether	NA		U .01	-	NA		NA	
bis(2-Chloroisopropyl) ether	NA		U .01	-	NA		NA	
bis(2-Ethylhexyl) phthalate	NA		.04	-	NA		NA	
Butyl benzyl phthalate	NA		U .01	-	NA		NA	
Chrysene	NA		U .01	-	NA		NA	
Di-n-butyl phthalate	NA		U .01	-	NA		NA	
Di-n-octyl phthalate	NA		U .01	-	NA		NA	
Dibenzo(a,h)anthracene	NA		U .01	-	NA		NA	
Dibenzofuran	NA		U .01	-	NA		NA	
Diethyl phthalate	NA		U .01	-	NA		NA	
Dimethyl phthalate	NA		U .01	-	NA		NA	
Fluoranthene	NA		U .01	-	NA		NA	
Fluorene	NA		U .01	-	NA		NA	
Hexachlorobenzene	NA		U .01	-	NA		NA	
Hexachlorobutadiene	NA		U .01	-	NA		NA	

a = lab qualifier
b = validated qualifier

-4048

314

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099949 08/16/91		2S1-SE-B 099950 08/16/91		2S1-SE-B 099955 08/16/91		2S1-SE-B 099956 08/16/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .01	-	NA		NA	
Hexachloroethane	NA		U .01	-	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		U .01	-	NA		NA	
Isophorone	NA		U .01	-	NA		NA	
N-Nitroso-di-n-propylamine	NA		U .01	-	NA		NA	
N-Nitrosodiphenylamine	NA		U .01	-	NA		NA	
Naphthalene	NA		U .01	-	NA		NA	
Nitrobenzene	NA		U .01	-	NA		NA	
Pentachlorophenol	NA		U .05	-	NA		NA	
Phenanthrene	NA		U .01	-	NA		NA	
Phenol	NA		U .01	-	NA		NA	
Pyrene	NA		U .01	-	NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	UJ	NA		U .005	UJ	U .005	UJ
1,1,2,2-Tetrachloroethane	U .005	UJ	NA		U .005	UJ	U .005	-
1,1,2-Trichloroethane	U .005	UJ	NA		U .005	-	U .005	-
1,1-Dichloroethane	U .005	UJ	NA		U .005	-	U .005	-
1,1-Dichloroethene	U .005	UJ	NA		U .005	-	U .005	-
1,2-Dichloroethane	U .005	UJ	NA		U .005	UJ	U .005	UJ
1,2-Dichloroethylene	U .005	UJ	NA		U .005	-	U .005	-
1,2-Dichloropropane	U .005	UJ	NA		U .005	-	U .005	-
2-Butanone	J .01	UJ	NA		J .001	J	U .01	UJ
2-Hexanone	U .01	UJ	NA		U .01	-	U .01	-
4-Methyl-2-pentanone	U .01	UJ	NA		U .01	-	U .01	-
Acetone	.013	UJ	NA		.01	J	.01	-
Benzene	U .005	UJ	NA		U .005	UJ	U .005	UJ
Bromodichloromethane	U .005	UJ	NA		U .005	UJ	U .005	UJ
Bromoform	U .005	UJ	NA		U .005	-	U .005	-
Bromomethane	U .01	UJ	NA		U .01	UJ	U .01	-
Carbon disulfide	U .005	UJ	NA		U .005	-	U .005	-
Carbon Tetrachloride	U .005	UJ	NA		U .005	UJ	U .005	UJ
Chlorobenzene	U .005	UJ	NA		U .005	J	U .005	UJ
Chloroethane	U .01	UJ	NA		U .01	UJ	U .01	-
Chloroform	U .005	UJ	NA		U .005	-	U .005	-
Chloromethane	U .01	UJ	NA		U .01	UJ	U .01	-
cis-1,3-Dichloropropene	U .005	UJ	NA		U .005	UJ	U .005	UJ
Dibromochloromethane	U .005	UJ	NA		U .005	UJ	U .005	UJ
Ethylbenzene	U .005	UJ	NA		U .005	UJ	U .005	UJ
Methylene chloride	BJ .005	UJ	NA		BJ .004	J	B .012	-
Styrene	U .005	UJ	NA		U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	UJ	NA		U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

315

-4948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099949 08/16/91		2S1-SE-B 099950 08/16/91		2S1-SE-B 099955 08/16/91		2S1-SE-B 099956 08/16/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	B .005	UJ	NA		BJ .004	J	BJ .002	J
Total xylenes	U .005	UJ	NA		U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	UJ	NA		U .005	UJ	U .005	UJ
Trichloroethene	U .005	UJ	NA		U .005	-	U .005	-
Vinyl Acetate	U .01	UJ	NA		U .01	-	U .01	-
Vinyl chloride	U .01	UJ	NA		U .01	UJ	U .01	-

a = lab qualifier
b = validated qualifier

04948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099957 08/16/91		2S1-SE-B 099988 08/19/91		2S1-SE-C 099736 08/22/91	
	a	b	a	b	a	b
PESTICIDES/PCB						
4,4'-DDD	U .0001	UJ	NA		NA	
4,4'-DDE	U .0001	UJ	NA		NA	
4,4'-DDT	U .0001	UJ	NA		NA	
Aldrin	U .00005	UJ	NA		NA	
alpha-BHC	U .00005	UJ	NA		NA	
alpha-Chlordane	U .0005	UJ	NA		NA	
Aroclor-1016	U .0005	UJ	NA		NA	
Aroclor-1221	U .0005	UJ	NA		NA	
Aroclor-1232	U .0005	UJ	NA		NA	
Aroclor-1242	U .0005	UJ	NA		NA	
Aroclor-1248	U .0005	UJ	NA		NA	
Aroclor-1254	U .001	UJ	NA		NA	
Aroclor-1260	U .001	UJ	NA		NA	
beta-BHC	U .00005	UJ	NA		NA	
delta-BHC	U .00005	UJ	NA		NA	
Dieldrin	U .0001	UJ	NA		NA	
Endosulfan II	U .0001	UJ	NA		NA	
Endosulfan sulfate	U .0001	UJ	NA		NA	
Endosulfan-I	U .00005	UJ	NA		NA	
Endrin	U .0001	UJ	NA		NA	
Endrin ketone	U .0001	UJ	NA		NA	
gamma-BHC (Lindane)	U .00005	UJ	NA		NA	
gamma-Chlordane	U .0005	UJ	NA		NA	
Heptachlor	U .00005	UJ	NA		NA	
Heptachlor epoxide	U .00005	UJ	NA		NA	
Methoxychlor	U .0005	UJ	NA		NA	
Toxaphene	U .001	UJ	NA		NA	
SEMI-VOLATILES						
1,2,4-Trichlorobenzene	NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA	
2-Chlorophenol	NA		NA		NA	

a = lab qualifier
b = validated qualifier

317

-4948

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099957 08/16/91		2S1-SE-B 099988 08/19/91		2S1-SE-C 099736 08/22/91	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
2-Methylnaphthalene	NA		NA		NA	
2-Methylphenol	NA		NA		NA	
2-Nitroaniline	NA		NA		NA	
2-Nitrophenol	NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA	
3-Nitroaniline	NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA	
4-Chloroaniline	NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA	
4-Methylphenol	NA		NA		NA	
4-Nitroaniline	NA		NA		NA	
4-Nitrophenol	NA		NA		NA	
Acenaphthene	NA		NA		NA	
Acenaphthylene	NA		NA		NA	
Anthracene	NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA	
Benzoic acid	NA		NA		NA	
Benzyl alcohol	NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA	
Chrysene	NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA	
Dibenzofuran	NA		NA		NA	
Diethyl phthalate	NA		NA		NA	
Dimethyl phthalate	NA		NA		NA	
Fluoranthene	NA		NA		NA	
Fluorene	NA		NA		NA	
Hexachlorobenzene	NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099957 08/16/91		2S1-SE-B 099988 08/19/91		2S1-SE-C 099736 08/22/91	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
Hexachlorocyclopentadiene	NA		NA		NA	
Hexachloroethane	NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA	
Isophorone	NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA	
Naphthalene	NA		NA		NA	
Nitrobenzene	NA		NA		NA	
Pentachlorophenol	NA		NA		NA	
Phenanthrene	NA		NA		NA	
Phenol	NA		NA		NA	
Pyrene	NA		NA		NA	
VOLATILE ORGANICS						
1,1,1-Trichloroethane	NA		U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	NA		U .005	-	U .005	-
1,1,2-Trichloroethane	NA		U .005	-	U .005	-
1,1-Dichloroethane	NA		U .005	-	U .005	-
1,1-Dichloroethene	NA		U .005	-	U .005	-
1,2-Dichloroethane	NA		U .005	-	U .005	-
1,2-Dichloroethylene	NA		U .005	-	U .005	-
1,2-Dichloropropane	NA		U .005	-	U .005	-
2-Butanone	NA		U .01	-	J .001	J
2-Hexanone	NA		U .01	-	U .01	-
4-Methyl-2-pentanone	NA		U .01	-	U .01	-
Acetone	NA		B .012	UJ	BJ .003	J
Benzene	NA		U .005	-	U .005	-
Bromodichloromethane	NA		U .005	-	U .005	-
Bromoform	NA		U .005	-	U .005	UJ
Bromomethane	NA		U .01	-	U .01	-
Carbon disulfide	NA		U .005	-	U .005	-
Carbon Tetrachloride	NA		U .005	-	U .005	-
Chlorobenzene	NA		U .005	-	U .005	-
Chloroethane	NA		U .01	-	U .01	UJ
Chloroform	NA		U .005	-	U .005	-
Chloromethane	NA		U .01	-	U .01	-
cis-1,3-Dichloropropene	NA		U .005	-	U .005	-
Dibromochloromethane	NA		U .005	-	U .005	-
Ethylbenzene	NA		U .005	-	U .005	-
Methylene chloride	NA		U .005	-	U .005	UJ
Styrene	NA		U .005	-	U .005	-
Tetrachlorethene	NA		U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 1 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S1-SE-B 099957 08/16/91		2S1-SE-B 099988 08/19/91		2S1-SE-C 099736 08/22/91	
	a	b	a	b	a	b
VOLATILE ORGANICS						
Toluene	NA		J .004	-	J .001	J
Total xylenes	NA		U .005	-	U .005	-
trans-1,3-Dichloropropene	NA		U .005	-	U .005	-
Trichloroethene	NA		U .005	-	U .005	-
Vinyl Acetate	NA		U .01	-	U .01	-
Vinyl chloride	NA		U .01	-	U .01	UJ

a = lab qualifier
b = validated qualifier

320

L-4948

OU4 1991/92 SILO 2 QA/QC RADIOLOGICAL RESULTS

OU4 1990/91 SILO 2 QA/QC RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2S2-NE-A 099764 07/30/91			2S2-NW-C 099788 *** 07/30/91			2S2-SE-C 099693 07/18/91		
	a		b	a		b	a		b
Actinium 227	< 1.1		J	6210	± 1063	-	< 1		-
Lead 210	< 1		J	121700	± 16890	J	25	± 2.8	J
Polonium 210	1.44	± .84	R	57900	± 15400	R	8.87	± 2.17	R
Protactinium 231	< 295		DJ	< 4948		DJ	< 304		DJ
Radium 224	< 18		J	< 259		DJ	< 18		J
Radium 226	< 1		J	191600	± 25870	J	< 1		-
Radium 228	< 3		J	< 693		DJ	< 3		-
Thorium 228	5.7	± 2.1	J	< 1100		D	1.1	± .37	-
Thorium 230	< 1.1		J	160000	± 22000	-	< 1		-
Thorium 230 (GAMMA)	NA			43690	± 19160	J	NA		
Thorium 232	< 1		J	2140	± 950	-	< 1		-
Total Thorium **	< 4		J	19300	± 8600	-	< 2.6		-
Total Uranium **	NA			< 5032		DJ	1.03	± .67	-
Uranium 234	NA			852	± 114	-	< 1		-
Uranium 235/236	NA			98.5	± 24.6	E	< 1		-
Uranium 238	NA			857	± 115	-	< 1		-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l
*** = Results reported in pCi/g

322

4948

OU4 1991/92 SILO 2 QA/QC CHEMICAL RESULTS

OU4 1990/91 SILO 2 QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099761 07/30/91		2S2-NE-A 099762 07/30/91		2S2-NE-A 099763 07/30/91		2S2-NW-C 099783 07/30/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099784 07/30/91		2S2-NW-C 099785 07/30/91		2S2-NW-C 099787 * 07/30/91		2S2-NW-C 099790 07/30/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	NA		NA		NA		NA	
Oil and Grease	NA		NA		NA		NA	
Phosphorus	NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		149	-
Total Organic Nitrogen	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948

325

OU4 1990/91 SILO 2 QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099791 07/30/91		2S2-NW-C 099795 07/30/91		2S2-SE-C 099694 07/18/91		2S2-SE-C 099695 07/18/91	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	-	NA		NA		NA	
Oil and Grease	NA		6.8	-	NA		NA	
Phosphorus	1200	-	NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Nitrogen	U .1	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier

326

-4948

OU4 1990/91 SILO 2 QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099696 07/18/91 a	b
GENERAL CHEMISTRY		
Ammonia	NA	
Oil and Grease	NA	
Phosphorus	NA	
Total Organic Carbon	NA	
Total Organic Nitrogen	NA	

a = lab qualifier
b = validated qualifier

-4948

327

-4948

OU4 1991/92 SILO 2 QA/QC HSL RESULTS

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099761 07/30/91		2S2-NE-A 099762 07/30/91		2S2-NE-A 099763 07/30/91		2S2-NW-C 099783 07/30/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	U .06	-	NA		NA		* 822	-
Antimony	U .03	J	NA		NA		N 21.7	J
Arsenic	U .002	-	NA		NA		* 57	J
Barium	U .002	-	NA		NA		* 8400	J
Beryllium	U .002	-	NA		NA		1.2	-
Boron	U .1	-	NA		NA		50.3	U
Cadmium	U .002	-	NA		NA		N* 2.3	J
Calcium	B .149	-	NA		NA		* 13100	-
Chromium	U .01	-	NA		NA		N* 33.7	J
Cobalt	U .01	-	NA		NA		731	-
Copper	U .01	-	NA		NA		313	-
Cyanide	NA		NA		.0208	-	NA	
Iron	U .01	-	NA		NA		* 22100	J
Lead	U .002	-	NA		NA		307000	-
Magnesium	U .05	-	NA		NA		3000	-
Manganese	U .002	-	NA		NA		* 138	-
Mercury	NA		U .0002	J	NA		NA	
Molybdenum	U .01	-	NA		NA		449	-
Nickel	U .02	-	NA		NA		1190	-
Potassium	U .1	-	NA		NA		B 185	-
Selenium	U .002	-	NA		NA		S 135	-
Silicon	N* .0463	J	NA		NA		N 680	J
Silver	U .01	J	NA		NA		* 12.2	-
Sodium	B .27	-	NA		NA		3220	-
Thallium	U .002	-	NA		NA		B 1	-
Vanadium	U .01	-	NA		NA		286	-
Zinc	B .0122	-	NA		NA		N* 24.5	J

a = lab qualifier
b = validated qualifier

329

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099784 07/30/91		2S2-NW-C 099785 07/30/91		2S2-NW-C 099787 * 07/30/91		2S2-NW-C 099790 07/30/91	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		1.18	-	NA	
Antimony	NA		NA		.0812	J	NA	
Arsenic	NA		NA		BWN .003	J	NA	
Barium	NA		NA		.227	-	NA	
Beryllium	NA		NA		B .0046	-	NA	
Boron	NA		NA		NA		NA	
Cadmium	NA		NA		.0254	-	NA	
Calcium	NA		NA		325	-	NA	
Chromium	NA		NA		.126	-	NA	
Cobalt	NA		NA		1.38	-	NA	
Copper	NA		NA		.422	-	NA	
Cyanide	NA		*5.1	J	NA		NA	
Iron	NA		NA		B .0797	-	NA	
Lead	NA		NA		319	-	NA	
Magnesium	NA		NA		7.51	-	NA	
Manganese	NA		NA		.456	-	NA	
Mercury	1.1	-	NA		U .0002	J	NA	
Molybdenum	NA		NA		.0465	-	NA	
Nickel	NA		NA		2.03	-	NA	
Potassium	NA		NA		B 2.79	U	NA	
Selenium	NA		NA		+ .0434	J	NA	
Silicon	NA		NA		12.2	-	NA	
Silver	NA		NA		.0828	-	NA	
Sodium	NA		NA		NA		NA	
Thallium	NA		NA		B .0035	-	NA	
Vanadium	NA		NA		.0516	-	NA	
Zinc	NA		NA		.114	-	NA	

a = lab qualifier
b = validated qualifier

330

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099791 07/30/91		2S2-NW-C 099795 07/30/91		2S2-SE-C 099694 07/18/91			2S2-SE-C 099695 07/18/91		
	a	b	a	b	a		b	a		b
METALS										
Aluminum	NA		NA		U	.06	-		NA	
Antimony	NA		NA		U	.03	UJ		NA	
Arsenic	NA		NA		U	.002	-		NA	
Barium	NA		NA		U	.002	-		NA	
Beryllium	NA		NA		U	.002	-		NA	
Boron	NA		NA			NA			NA	
Cadmium	NA		NA		U	.002	-		NA	
Calcium	NA		NA		B	.178	-		NA	
Chromium	NA		NA		U	.01	-		NA	
Cobalt	NA		NA		U	.01	-		NA	
Copper	NA		NA		U	.01	-		NA	
Cyanide	NA		NA			NA			NA	
Iron	NA		NA		U	.01	-		NA	
Lead	NA		NA			.0048	-		NA	
Magnesium	NA		NA		U	.05	-		NA	
Manganese	NA		NA		U	.002	-		NA	
Mercury	NA		NA			NA		U	.0002	-
Molybdenum	NA		NA		U	.01	-		NA	
Nickel	NA		NA		U	.02	-		NA	
Potassium	NA		NA		U	.1	-		NA	
Selenium	NA		NA		U	.002	-		NA	
Silicon	NA		NA			NA			NA	
Silver	NA		NA		U	.01	J		NA	
Sodium	NA		NA		B	.423	-		NA	
Thallium	NA		NA		U	.002	-		NA	
Vanadium	NA		NA		U	.01	-		NA	
Zinc	NA		NA		B	.0091	-		NA	

331

a = lab qualifier
b = validated qualifier

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099696 07/18/91 a	b
METALS		
Aluminum	NA	
Antimony	NA	
Arsenic	NA	
Barium	NA	
Beryllium	NA	
Boron	NA	
Cadmium	NA	
Calcium	NA	
Chromium	NA	
Cobalt	NA	
Copper	NA	
Cyanide	U .002	-
Iron	NA	
Lead	NA	
Magnesium	NA	
Manganese	NA	
Mercury	NA	
Molybdenum	NA	
Nickel	NA	
Potassium	NA	
Selenium	NA	
Silicon	NA	
Silver	NA	
Sodium	NA	
Thallium	NA	
Vanadium	NA	
Zinc	NA	

a = lab qualifier
b = validated qualifier

332

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099759 07/30/91		2S2-NE-A 099760 07/30/91		2S2-NE-A 099765 07/30/91		2S2-NE-A 099766 07/30/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .01	-	NA		NA	
1,2-Dichlorobenzene	NA		U .01	-	NA		NA	
1,3-Dichlorobenzene	NA		U .01	-	NA		NA	
1,4-Dichlorobenzene	NA		U .01	-	NA		NA	
2,4,5-Trichlorophenol	NA		U .05	-	NA		NA	
2,4,6-Trichlorophenol	NA		U .01	-	NA		NA	
2,4-Dichlorophenol	NA		U .01	-	NA		NA	
2,4-Dimethylphenol	NA		U .01	-	NA		NA	
2,4-Dinitrophenol	NA		U .05	-	NA		NA	
2,4-Dinitrotoluene	NA		U .01	-	NA		NA	
2,6-Dinitrotoluene	NA		U .01	-	NA		NA	
2-Chloronaphthalene	NA		U .01	-	NA		NA	
2-Chlorophenol	NA		U .01	-	NA		NA	

a = lab qualifier
b = validated qualifier

333

-4048

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099759 07/30/91		2S2-NE-A 099760 07/30/91		2S2-NE-A 099765 07/30/91		2S2-NE-A 099766 07/30/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .01	-	NA		NA	
2-Methylphenol	NA		U .01	-	NA		NA	
2-Nitroaniline	NA		U .05	-	NA		NA	
2-Nitrophenol	NA		U .01	-	NA		NA	
3,3'-Dichlorobenzidine	NA		U .02	UJ	NA		NA	
3-Nitroaniline	NA		U .05	UJ	NA		NA	
4,6-Dinitro-2-methylphenol	NA		U .05	-	NA		NA	
4-Bromophenyl phenyl ether	NA		U .01	-	NA		NA	
4-Chloro-3-methylphenol	NA		U .01	-	NA		NA	
4-Chloroaniline	NA		U .01	-	NA		NA	
4-Chlorophenylphenyl ether	NA		U .01	-	NA		NA	
4-Methylphenol	NA		U .01	-	NA		NA	
4-Nitroaniline	NA		U .05	UJ	NA		NA	
4-Nitrophenol	NA		U .05	-	NA		NA	
Acenaphthene	NA		U .01	-	NA		NA	
Acenaphthylene	NA		U .01	-	NA		NA	
Anthracene	NA		U .01	-	NA		NA	
Benzo(a)anthracene	NA		U .01	-	NA		NA	
Benzo(a)pyrene	NA		U .01	-	NA		NA	
Benzo(b)fluoranthene	NA		U .01	-	NA		NA	
Benzo(g,h,i)perylene	NA		U .01	-	NA		NA	
Benzo(k)fluoranthene	NA		U .01	-	NA		NA	
Benzoic acid	NA		UJ .05	UJ	NA		NA	
Benzyl alcohol	NA		U .01	-	NA		NA	
bis(2-Chloroethoxy)methane	NA		U .01	-	NA		NA	
bis(2-Chloroethyl)ether	NA		U .01	-	NA		NA	
bis(2-Chloroisopropyl) ether	NA		U .01	-	NA		NA	
bis(2-Ethylhexyl) phthalate	NA		U .01	-	NA		NA	
Butyl benzyl phthalate	NA		U .01	-	NA		NA	
Chrysene	NA		U .01	-	NA		NA	
Di-n-butyl phthalate	NA		U .01	-	NA		NA	
Di-n-octyl phthalate	NA		U .01	-	NA		NA	
Dibenzo(a,h)anthracene	NA		U .01	-	NA		NA	
Dibenzofuran	NA		U .01	-	NA		NA	
Diethyl phthalate	NA		U .01	-	NA		NA	
Dimethyl phthalate	NA		U .01	-	NA		NA	
Fluoranthene	NA		U .01	-	NA		NA	
Fluorene	NA		U .01	-	NA		NA	
Hexachlorobenzene	NA		U .01	-	NA		NA	
Hexachlorobutadiene	NA		U .01	-	NA		NA	

a = lab qualifier
b = validated qualifier

4948
334

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099759 07/30/91		2S2-NE-A 099760 07/30/91		2S2-NE-A 099765 07/30/91		2S2-NE-A 099766 07/30/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .01	-	NA		NA	
Hexachloroethane	NA		UJ .01	UJ	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		U .01	-	NA		NA	
Isophorone	NA		U .01	-	NA		NA	
N-Nitroso-di-n-propylamine	NA		U .01	-	NA		NA	
N-Nitrosodiphenylamine	NA		U .01	-	NA		NA	
Naphthalene	NA		U .01	-	NA		NA	
Nitrobenzene	NA		U .01	-	NA		NA	
Pentachlorophenol	NA		U .05	-	NA		NA	
Phenanthrene	NA		U .01	-	NA		NA	
Phenol	NA		U .01	-	NA		NA	
Pyrene	NA		U .01	-	NA		NA	
Tributyl phosphate	NA		U .01	-	NA		NA	
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	NA		NA		NA		NA	
1,1,1-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	NA		U .005	-	U .005	-
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA	
1,2-Dichloroethane	U .005	-	NA		U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	NA		U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	NA		U .005	-	U .005	-
1,4-Dioxane	NA		NA		NA		NA	
2-Butanone	U .01	-	NA		U .01	-	U .01	-
2-Chloro-1,3-butadiene	NA		NA		NA		NA	
2-Hexanone	U .01	-	NA		U .01	-	U .01	-
3-Chloropropene	NA		NA		NA		NA	
4-Methyl-2-pentanone	U .01	-	NA		U .01	-	U .01	-
Acetone	BJ .01	U	NA		B .01	-	U .01	U
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	NA		NA		NA		NA	
Benzene	U .005	UJ	NA		U .005	UJ	UJ .005	UJ
Bromodichloromethane	U .005	-	NA		U .005	-	U .005	-
Bromoform	U .005	-	NA		.005	-	U .005	-
Bromomethane	U .01	-	NA		U .01	-	U .01	-
Carbon disulfide	U .005	-	NA		U .005	-	U .005	-
Carbon Tetrachloride	U .005	-	NA		U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099759 07/30/91		2S2-NE-A 099760 07/30/91		2S2-NE-A 099765 07/30/91		2S2-NE-A 099766 07/30/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Chlorobenzene	U .005	UJ	NA		U .005	UJ	U .005	UJ
Chloroethane	U .01	-	NA		U .01	-	U .01	-
Chloroform	J .005	U	NA		J .002	-	U .005	-
Chloromethane	U .01	-	NA		U .01	-	U .01	-
cis-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Dibromochloromethane	U .005	-	NA		U .005	-	U .005	-
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		NA		NA	
Ethylbenzene	U .005	UJ	NA		U .005	UJ	UJ .005	UJ
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		NA		NA	
Methylene chloride	BJ .005	U	NA		U .005	-	U .005	U
Pyridine	NA		NA		NA		NA	
Styrene	U .005	UJ	NA		U .005	UJ	UJ .005	UJ
Tetrachlorethene	U .005	-	NA		U .005	-	U .005	-
Toluene	BJ .002	UJ	NA		BJ .002	J	J .005	J
Total xylenes	U .005	UJ	NA		U .005	UJ	UJ .005	UJ
trans-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
trans-1,4-Dichloro-2-butene	NA		NA		NA		NA	
Trichloroethene	U .005	-	NA		U .005	-	U .005	-
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U .01	-	NA		U .01	-	U .01	-
Vinyl chloride	U .01	-	NA		U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099767 07/30/91		2S2-NE-A 099805 08/02/91		2S2-NE-C 099854 08/06/91		2S2-NW-C 099782 07/30/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0001	-	NA		NA		NA	
4,4'-DDE	U .0001	-	NA		NA		NA	
4,4'-DDT	U .0001	-	NA		NA		NA	
Aldrin	U .00005	-	NA		NA		NA	
alpha-BHC	U .00005	-	NA		NA		NA	
alpha-Chlordane	U .0005	-	NA		NA		NA	
Aroclor-1016	U .0005	-	NA		NA		NA	
Aroclor-1221	U .0005	-	NA		NA		NA	
Aroclor-1232	U .0005	-	NA		NA		NA	
Aroclor-1242	U .0005	-	NA		NA		NA	
Aroclor-1248	U .0005	-	NA		NA		NA	
Aroclor-1254	U .001	-	NA		NA		NA	
Aroclor-1260	U .001	-	NA		NA		NA	
beta-BHC	U .00005	-	NA		NA		NA	
delta-BHC	U .00005	-	NA		NA		NA	
Dieldrin	U .0001	-	NA		NA		NA	
Endosulfan II	U .0001	-	NA		NA		NA	
Endosulfan sulfate	U .0001	-	NA		NA		NA	
Endosulfan-I	U .00005	-	NA		NA		NA	
Endrin	U .0001	-	NA		NA		NA	
Endrin ketone	U .0001	-	NA		NA		NA	
gamma-BHC (Lindane)	U .00005	-	NA		NA		NA	
gamma-Chlordane	U .0005	-	NA		NA		NA	
Heptachlor	U .00005	-	NA		NA		NA	
Heptachlor epoxide	U .00005	-	NA		NA		NA	
Methoxychlor	U .0005	-	NA		NA		NA	
Toxaphene	U .001	-	NA		NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099767 07/30/91		2S2-NE-A 099805 08/02/91		2S2-NE-C 099854 08/06/91		2S2-NW-C 099782 07/30/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

338

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099767 07/30/91		2S2-NE-A 099805 08/02/91		2S2-NE-C 099854 08/06/91		2S2-NW-C 099782 07/30/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
Tributyl phosphate	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	NA		NA		NA		NA	
1,1,1-Trichloroethane	NA		U .006	-	U .005	-	U .007	-
1,1,2,2-Tetrachloroethane	NA		U .006	-	U .005	-	U .007	-
1,1,2-Trichloroethane	NA		U .006	-	U .005	-	U .007	-
1,1-Dichloroethane	NA		U .006	-	U .005	-	U .007	-
1,1-Dichloroethene	NA		U .006	-	U .005	-	U .007	-
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA	
1,2-Dichloroethane	NA		U .006	-	U .005	-	U .007	-
1,2-Dichloroethylene	NA		U .006	-	U .005	-	U .007	-
1,2-Dichloropropane	NA		U .006	-	U .005	-	U .007	-
1,4-Dioxane	NA		NA		NA		NA	
2-Butanone	NA		BJ .01	J	BJ .001	J	BJ .008	UJ
2-Chloro-1,3-butadiene	NA		NA		NA		NA	
2-Hexanone	NA		U .012	UJ	U .01	-	U .014	-
3-Chloropropene	NA		NA		NA		NA	
4-Methyl-2-pentanone	NA		BJ .01	UJ	U .01	-	U .014	-
Acetone	NA		B .033	J	BJ .004	J	B .065	J
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	NA		NA		NA		NA	
Benzene	NA		U .006	-	U .005	-	U .007	-
Bromodichloromethane	NA		U .006	-	U .005	-	U .007	-
Bromoform	NA		U .006	-	U .005	UJ	U .007	-
Bromomethane	NA		U .012	-	U .01	-	U .014	-
Carbon disulfide	NA		U .006	-	U .005	-	U .007	-
Carbon Tetrachloride	NA		U .006	-	U .005	-	U .007	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NE-A 099767 07/30/91		2S2-NE-A 099805 08/02/91		2S2-NE-C 099854 08/06/91		2S2-NW-C 099782 07/30/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Chlorobenzene	NA		U .006	-	U .005	-	U .007	-
Chloroethane	NA		U .012	-	U .01	-	U .014	-
Chloroform	NA		U .006	-	U .005	-	U .007	-
Chloromethane	NA		U .012	-	U .01	-	U .014	UJ
cis-1,3-Dichloropropene	NA		U .006	-	U .005	-	U .007	-
Dibromochloromethane	NA		U .006	-	U .005	-	U .007	-
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		NA		NA	
Ethylbenzene	NA		U .006	-	U .005	-	U .007	-
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		NA		NA	
Methylene chloride	NA		B .011	U	BJ .001	J	B .012	U
Pyridine	NA		NA		NA		NA	
Styrene	NA		U .006	-	U .005	-	U .007	-
Tetrachlorethene	NA		U .006	-	U .005	-	U .007	-
Toluene	NA		B .018	U	B .005	-	B .022	-
Total xylenes	NA		U .006	-	U .005	-	U .007	-
trans-1,3-Dichloropropene	NA		U .006	-	U .005	-	U .007	-
trans-1,4-Dichloro-2-butene	NA		NA		NA		NA	
Trichloroethene	NA		U .006	-	U .005	-	U .007	-
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	NA		U .012	-	U .01	-	U .014	-
Vinyl chloride	NA		U .012	-	U .01	-	U .014	-

a = lab qualifier
b = validated qualifier

340

4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099786 07/30/91		2S2-NW-C 099793 07/30/91		2S2-NW-C 099794 07/30/91		2S2-SE-C 099692 07/18/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .47	-	U .0001	-	NA	
4,4'-DDE	NA		U .47	-	U .0001	-	NA	
4,4'-DDT	NA		U .47	-	U .0001	-	NA	
Aldrin	NA		U .23	-	U .00005	-	NA	
alpha-BHC	NA		U .23	-	U .00005	-	NA	
alpha-Chlordane	NA		U 2.3	-	U .0005	-	NA	
Aroclor-1016	NA		U 2.3	-	U .0005	-	NA	
Aroclor-1221	NA		U 2.3	-	U .0005	-	NA	
Aroclor-1232	NA		U 2.3	-	U .0005	-	NA	
Aroclor-1242	NA		U 2.3	-	U .0005	-	NA	
Aroclor-1248	NA		U 2.3	-	U .0005	-	NA	
Aroclor-1254	NA		DX 7.7	-	U .001	-	NA	
Aroclor-1260	NA		U 4.7	-	U .001	-	NA	
beta-BHC	NA		U .23	-	U .00005	-	NA	
delta-BHC	NA		U .23	-	U .00005	-	NA	
Dieldrin	NA		U .47	-	U .0001	-	NA	
Endosulfan II	NA		U .47	-	U .0001	-	NA	
Endosulfan sulfate	NA		U .47	-	U .0001	-	NA	
Endosulfan-I	NA		U .23	-	U .00005	-	NA	
Endrin	NA		U .47	-	U .0001	-	NA	
Endrin ketone	NA		U .47	-	U .0001	-	NA	
gamma-BHC (Lindane)	NA		U .23	-	U .00005	-	NA	
gamma-Chlordane	NA		U 2.3	-	U .0005	-	NA	
Heptachlor	NA		U .23	-	U .00005	-	NA	
Heptachlor epoxide	NA		U .23	-	U .00005	-	NA	
Methoxychlor	NA		U 2.3	-	U .0005	-	NA	
Toxaphene	NA		U 4.7	-	U .001	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .48	-	U .02	-	NA	
1,2-Dichlorobenzene	NA		U .48	-	U .02	-	NA	
1,3-Dichlorobenzene	NA		U .48	-	U .02	-	NA	
1,4-Dichlorobenzene	NA		U .48	-	U .02	-	NA	
2,4,5-Trichlorophenol	NA		U 2.3	-	U .1	-	NA	
2,4,6-Trichlorophenol	NA		U .48	-	U .02	-	NA	
2,4-Dichlorophenol	NA		U .48	-	U .02	-	NA	
2,4-Dimethylphenol	NA		U .48	-	U .02	-	NA	
2,4-Dinitrophenol	NA		U 2.3	UJ	U .1	-	NA	
2,4-Dinitrotoluene	NA		U .48	-	U .02	-	NA	
2,6-Dinitrotoluene	NA		U .48	-	U .02	-	NA	
2-Chloronaphthalene	NA		U .48	-	U .02	-	NA	
2-Chlorophenol	NA		U .48	-	U .02	-	NA	

a = lab qualifier
b = validated qualifier

341
-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099786 07/30/91		2S2-NW-C 099793 07/30/91		2S2-NW-C 099794 07/30/91		2S2-SE-C 099692 07/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .48	-	U .02	-	NA	
2-Methylphenol	NA		U .48	-	U .02	-	NA	
2-Nitroaniline	NA		U 2.3	-	U .1	-	NA	
2-Nitrophenol	NA		U .48	-	U .02	-	NA	
3,3'-Dichlorobenzidine	NA		U .95	UJ	U .04	-	NA	
3-Nitroaniline	NA		U 2.3	UJ	U .1	-	NA	
4,6-Dinitro-2-methylphenol	NA		U 2.3	UJ	U .1	-	NA	
4-Bromophenyl phenyl ether	NA		U .48	-	U .02	-	NA	
4-Chloro-3-methylphenol	NA		U .48	-	U .02	-	NA	
4-Chloroaniline	NA		U .48	-	U .02	-	NA	
4-Chlorophenylphenyl ether	NA		U .48	-	U .02	-	NA	
4-Methylphenol	NA		U .48	-	U .02	-	NA	
4-Nitroaniline	NA		U 2.3	-	U .1	-	NA	
4-Nitrophenol	NA		U 2.3	UJ	U .1	-	NA	
Acenaphthene	NA		U .48	-	U .02	-	NA	
Acenaphthylene	NA		U .48	-	U .02	-	NA	
Anthracene	NA		U .48	-	U .02	-	NA	
Benzo(a)anthracene	NA		U .48	-	U .02	-	NA	
Benzo(a)pyrene	NA		U .48	-	U .02	-	NA	
Benzo(b)fluoranthene	NA		U .48	-	U .02	-	NA	
Benzo(g,h,i)perylene	NA		U .48	-	U .02	-	NA	
Benzo(k)fluoranthene	NA		U .48	-	U .02	-	NA	
Benzoic acid	NA		J .058	-	U .1	-	NA	
Benzyl alcohol	NA		U .48	-	U .02	-	NA	
bis(2-Chloroethoxy)methane	NA		U .48	-	U .02	-	NA	
bis(2-Chloroethyl)ether	NA		U .48	-	U .02	-	NA	
bis(2-Chloroisopropyl) ether	NA		U .48	-	U .02	-	NA	
bis(2-Ethylhexyl) phthalate	NA		J .28	-	J .006	-	NA	
Butyl benzyl phthalate	NA		U .48	-	U .02	-	NA	
Chrysene	NA		U .48	-	U .02	-	NA	
Di-n-butyl phthalate	NA		U .48	-	U .02	-	NA	
Di-n-octyl phthalate	NA		U .48	-	U .02	-	NA	
Dibenzo(a,h)anthracene	NA		U .48	-	U .02	-	NA	
Dibenzofuran	NA		U .48	-	U .02	-	NA	
Diethyl phthalate	NA		U .48	-	U .02	-	NA	
Dimethyl phthalate	NA		U .48	-	U .02	-	NA	
Fluoranthene	NA		J .053	-	U .02	-	NA	
Fluorene	NA		U .48	-	U .02	-	NA	
Hexachlorobenzene	NA		U .48	-	U .02	-	NA	
Hexachlorobutadiene	NA		U .48	-	U .02	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099786 07/30/91		2S2-NW-C 099793 07/30/91		2S2-NW-C 099794 07/30/91		2S2-SE-C 099692 07/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .48	-	U .02	-	NA	
Hexachloroethane	NA		U .48	UJ	U .02	-	NA	
Indeno(1,2,3-cd)pyrene	NA		U .48	-	U .02	-	NA	
Isophorone	NA		U .48	-	U .02	-	NA	
N-Nitroso-di-n-propylamine	NA		U .48	-	U .02	-	NA	
N-Nitrosodiphenylamine	NA		U .48	-	U .02	-	NA	
Naphthalene	NA		U .48	-	U .02	-	NA	
Nitrobenzene	NA		U .48	-	U .02	-	NA	
Pentachlorophenol	NA		U .48	-	U .02	-	NA	
Phenanthrene	NA		U 2.2	-	U .1	-	NA	
Phenol	NA		U .48	-	U .02	-	NA	
Pyrene	NA		U .48	-	U .02	-	NA	
Tributyl phosphate	NA		U .48	-	U .02	-	NA	
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	U .005	-	NA		NA		U .005	-
1,1,1-Trichloroethane	U .005	-	NA		NA		U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		NA		U .005	-
1,1,2-Trichloroethane	U .005	-	NA		NA		U .005	-
1,1-Dichloroethane	U .005	-	NA		NA		U .005	-
1,1-Dichloroethene	NA		NA		NA		NA	
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	U .005	-	NA		NA		U .005	-
1,2-Dichloroethane	U .005	-	NA		NA		U .005	-
1,2-Dichloroethylene	U .005	-	NA		NA		U .005	-
1,2-Dichloropropane	NA		NA		NA		NA	
1,4-Dioxane	J .01	-	NA		NA		NA	
2-Butanone	NA		NA		NA		U .01	U
2-Chloro-1,3-butadiene	U .A1	-	NA		NA		NA	
2-Hexanone	NA		NA		NA		U .01	-
3-Chloropropene	U .01	-	NA		NA		NA	
4-Methyl-2-pentanone	B .039	-	NA		NA		U .01	-
Acetone	NA		NA		NA		U .01	R
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	U .005	-	NA		NA		U .005	U
Benzene	U .005	-	NA		NA		U .005	-
Bromodichloromethane	U .005	-	NA		NA		U .005	-
Bromoform	U .01	-	NA		NA		U .01	-
Bromomethane	U .005	-	NA		NA		U .005	-
Carbon disulfide	U .005	-	NA		NA		U .005	-
Carbon Tetrachloride								

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-NW-C 099786 07/30/91		2S2-NW-C 099793 07/30/91		2S2-NW-C 099794 07/30/91		2S2-SE-C 099692 07/18/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Chlorobenzene	U .005	-	NA		NA		U .005	UJ
Chloroethane	U .01	-	NA		NA		U .01	-
Chloroform	U .005	R	NA		NA		U .005	-
Chloromethane	U .01	-	NA		NA		U .01	-
cis-1,3-Dichloropropene	U .005	-	NA		NA		U .005	-
Dibromochloromethane	U .005	-	NA		NA		U .005	-
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		NA		NA	
Ethylbenzene	U .005	-	NA		NA		U .005	UJ
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		NA		NA	
Methylene chloride	B .02	-	NA		NA		BJ .005	UJ
Pyridine	NA		NA		NA		NA	
Styrene	U .005	-	NA		NA		U .005	UJ
Tetrachlorethene	U .005	R	NA		NA		U .005	-
Toluene	U .005	-	NA		NA		U .005	UJ
Total xylenes	U .005	-	NA		NA		U .005	UJ
trans-1,3-Dichloropropene	U .005	-	NA		NA		U .005	UJ
trans-1,4-Dichloro-2-butene	NA		NA		NA		NA	
Trichloroethene	U .005	-	NA		NA		U .005	-
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U .01	-	NA		NA		U .01	-
Vinyl chloride	U .01	R	NA		NA		U .01	-

a = lab qualifier
b = validated qualifier

-4948
344

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099697 07/18/91		2S2-SE-C 099698 07/18/91		2S2-SE-C 099699 07/18/91		2S2-SE-C 099700 07/18/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		U .0001	-
4,4'-DDE	NA		NA		NA		U .0001	-
4,4'-DDT	NA		NA		NA		U .0001	-
Aldrin	NA		NA		NA		U .00005	-
alpha-BHC	NA		NA		NA		U .00005	-
alpha-Chlordane	NA		NA		NA		U .0005	-
Aroclor-1016	NA		NA		NA		U .0005	-
Aroclor-1221	NA		NA		NA		U .0005	-
Aroclor-1232	NA		NA		NA		U .0005	-
Aroclor-1242	NA		NA		NA		U .0005	-
Aroclor-1248	NA		NA		NA		U .0005	-
Aroclor-1254	NA		NA		NA		U .0005	-
Aroclor-1260	NA		NA		NA		U .0005	-
beta-BHC	NA		NA		NA		U .001	-
delta-BHC	NA		NA		NA		U .001	-
Dieldrin	NA		NA		NA		U .00005	-
Endosulfan II	NA		NA		NA		U .00005	-
Endosulfan sulfate	NA		NA		NA		U .0001	-
Endosulfan-I	NA		NA		NA		U .0001	-
Endrin	NA		NA		NA		U .0001	-
Endrin ketone	NA		NA		NA		U .00005	-
gamma-BHC (Lindane)	NA		NA		NA		U .0001	-
gamma-Chlordane	NA		NA		NA		U .0001	-
Heptachlor	NA		NA		NA		U .00005	-
Heptachlor epoxide	NA		NA		NA		U .0005	-
Methoxychlor	NA		NA		NA		U .00005	-
Toxaphene	NA		NA		NA		U .00005	-
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		U .03	-	NA	
1,2-Dichlorobenzene	NA		NA		U .03	-	NA	
1,3-Dichlorobenzene	NA		NA		U .03	-	NA	
1,4-Dichlorobenzene	NA		NA		U .03	-	NA	
2,4,5-Trichlorophenol	NA		NA		U .15	-	NA	
2,4,6-Trichlorophenol	NA		NA		U .03	-	NA	
2,4-Dichlorophenol	NA		NA		U .03	-	NA	
2,4-Dimethylphenol	NA		NA		UJ .15	-	NA	
2,4-Dinitrophenol	NA		NA		UJ .15	UJ	NA	
2,4-Dinitrotoluene	NA		NA		U .03	-	NA	
2,6-Dinitrotoluene	NA		NA		U .03	-	NA	
2-Chloronaphthalene	NA		NA		U .03	-	NA	
2-Chlorophenol	NA		NA		U .03	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099697 07/18/91		2S2-SE-C 099698 07/18/91		2S2-SE-C 099699 07/18/91		2S2-SE-C 099700 07/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		U .03	-	NA	
2-Methylphenol	NA		NA		U .03	-	NA	
2-Nitroaniline	NA		NA		U .15	-	NA	
2-Nitrophenol	NA		NA		U .03	-	NA	
3,3'-Dichlorobenzidine	NA		NA		UJ .06	UJ	NA	
3-Nitroaniline	NA		NA		UJ .15	UJ	NA	
4,6-Dinitro-2-methylphenol	NA		NA		UJ .15	UJ	NA	
4-Bromophenyl phenyl ether	NA		NA		U .03	-	NA	
4-Chloro-3-methylphenol	NA		NA		U .03	-	NA	
4-Chloroaniline	NA		NA		U .03	-	NA	
4-Chlorophenylphenyl ether	NA		NA		U .03	-	NA	
4-Methylphenol	NA		NA		U .03	-	NA	
4-Nitroaniline	NA		NA		U .03	-	NA	
4-Nitrophenol	NA		NA		UJ .15	UJ	NA	
Acenaphthene	NA		NA		U .15	-	NA	
Acenaphthylene	NA		NA		U .03	-	NA	
Anthracene	NA		NA		U .03	-	NA	
Benzo(a)anthracene	NA		NA		U .03	-	NA	
Benzo(a)pyrene	NA		NA		U .03	-	NA	
Benzo(b)fluoranthene	NA		NA		U .03	-	NA	
Benzo(g,h,i)perylene	NA		NA		U .03	-	NA	
Benzo(k)fluoranthene	NA		NA		UJ .03	UJ	NA	
Benzoic acid	NA		NA		U .03	-	NA	
Benzyl alcohol	NA		NA		U .15	UJ	NA	
bis(2-Chloroethoxy)methane	NA		NA		U .03	-	NA	
bis(2-Chloroethyl)ether	NA		NA		U .03	-	NA	
bis(2-Chloroisopropyl) ether	NA		NA		U .03	-	NA	
bis(2-Ethylhexyl) phthalate	NA		NA		U .03	-	NA	
Butyl benzyl phthalate	NA		NA		U .03	-	NA	
Chrysene	NA		NA		U .03	-	NA	
Di-n-butyl phthalate	NA		NA		U .03	-	NA	
Di-n-octyl phthalate	NA		NA		U .03	-	NA	
Dibenzo(a,h)anthracene	NA		NA		UJ .03	UJ	NA	
Dibenzofuran	NA		NA		U .03	UJ	NA	
Diethyl phthalate	NA		NA		U .03	-	NA	
Dimethyl phthalate	NA		NA		U .03	-	NA	
Fluoranthene	NA		NA		U .03	-	NA	
Fluorene	NA		NA		U .03	-	NA	
Hexachlorobenzene	NA		NA		U .03	-	NA	
Hexachlorobutadiene	NA		NA		U .03	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099697 07/18/91		2S2-SE-C 099698 07/18/91		2S2-SE-C 099699 07/18/91		2S2-SE-C 099700 07/18/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		U .03	-	NA	
Hexachloroethane	NA		NA		U .03	-	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		U .03	-	NA	
Isophorone	NA		NA		U .03	-	NA	
N-Nitroso-di-n-propylamine	NA		NA		U .03	-	NA	
N-Nitrosodiphenylamine	NA		NA		U .03	-	NA	
Naphthalene	NA		NA		U .03	-	NA	
Nitrobenzene	NA		NA		U .03	-	NA	
Pentachlorophenol	NA		NA		U .03	-	NA	
Phenanthrene	NA		NA		U .15	-	NA	
Phenol	NA		NA		U .03	-	NA	
Pyrene	NA		NA		U .03	-	NA	
Tributyl phosphate	NA		NA		U .03	-	NA	
VOLATILE ORGANICS								
1,1,1,2-Tetrachloroethane	U .005	-	U .005	-	NA		NA	
1,1,1-Trichloroethane	U .005	-	U .005	-	NA		NA	
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	NA		NA	
1,1,2-Trichloroethane	U .005	-	U .005	-	NA		NA	
1,1-Dichloroethane	U .005	-	U .005	-	NA		NA	
1,1-Dichloroethene	U .005	-	U .005	-	NA		NA	
1,2,3-Trichloropropane	NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA	
1,2-Dichloroethane	U .005	-	U .005	-	NA		NA	
1,2-Dichloroethylene	U .005	-	U .005	-	NA		NA	
1,2-Dichloropropane	U .005	-	U .005	-	NA		NA	
1,4-Dioxane	NA		NA		NA		NA	
2-Butanone	UJ .01	UJ	UJ .01	UJ	NA		NA	
2-Chloro-1,3-butadiene	NA		NA		NA		NA	
2-Hexanone	U .01	-	U .01	-	NA		NA	
3-Chloropropene	NA		NA		NA		NA	
4-Methyl-2-pentanone	U .01	-	U .01	-	NA		NA	
Acetone	R .002	R	R .001	R	NA		NA	
Acetonitrile	NA		NA		NA		NA	
Acrolein	NA		NA		NA		NA	
Acrylonitrile	NA		NA		NA		NA	
Benzene	UJ .005	UJ	U .005	-	NA		NA	
Bromodichloromethane	U .005	-	U .005	-	NA		NA	
Bromoform	U .005	-	U .005	-	NA		NA	
Bromomethane	U .01	-	U .01	-	NA		NA	
Carbon disulfide	U .005	-	U .005	-	NA		NA	
Carbon Tetrachloride	U .005	-	U .005	-	NA		NA	

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099697 07/18/91		2S2-SE-C 099698 07/18/91		2S2-SE-C 099699 07/18/91		2S2-SE-C 099700 07/18/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Chlorobenzene	U .005	UJ	U .005	-	NA		NA	
Chloroethane	U .01	-	U .01	-	NA		NA	
Chloroform	U .005	-	U .005	-	NA		NA	
Chloromethane	U .01	-	U .01	-	NA		NA	
cis-1,3-Dichloropropene	U .005	-	U .005	-	NA		NA	
Dibromochloromethane	U .005	-	U .005	-	NA		NA	
Dibromomethane	NA		NA		NA		NA	
Dichlorodifluoromethane	NA		NA		NA		NA	
Ethyl cyanide	NA		NA		NA		NA	
Ethyl methacrylate	NA		NA		NA		NA	
Ethylbenzene	UJ .005	UJ	U .005	-	NA		NA	
Iodomethane	NA		NA		NA		NA	
Isobutyl alcohol	NA		NA		NA		NA	
Methacrylonitrile	NA		NA		NA		NA	
Methyl methacrylate	NA		NA		NA		NA	
Methylene chloride	BJ .005	-	U .005	-	NA		NA	
Pyridine	NA		NA		NA		NA	
Styrene	UJ .005	UJ	U .005	-	NA		NA	
Tetrachlorethene	U .005	-	U .005	-	NA		NA	
Toluene	UJ .005	UJ	U .005	-	NA		NA	
Total xylenes	UJ .005	UJ	U .005	-	NA		NA	
trans-1,3-Dichloropropene	UJ .005	UJ	UJ .005	UJ	NA		NA	
trans-1,4-Dichloro-2-butene	NA		NA		NA		NA	
Trichloroethene	U .005	-	U .005	UJ	NA		NA	
Trichlorofluoromethane	NA		NA		NA		NA	
Vinyl Acetate	U .01	-	U .01	-	NA		NA	
Vinyl chloride	U .01	-	U .01	-	NA		NA	

a = lab qualifier
b = validated qualifier

347A

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099703 07/19/91 a	b
PESTICIDES/PCB		
4,4'-DDD	NA	
4,4'-DDE	NA	
4,4'-DDT	NA	
Aldrin	NA	
alpha-BHC	NA	
alpha-Chlordane	NA	
Aroclor-1016	NA	
Aroclor-1221	NA	
Aroclor-1232	NA	
Aroclor-1242	NA	
Aroclor-1248	NA	
Aroclor-1254	NA	
Aroclor-1260	NA	
beta-BHC	NA	
delta-BHC	NA	
Dieldrin	NA	
Endosulfan II	NA	
Endosulfan sulfate	NA	
Endosulfan-I	NA	
Endrin	NA	
Endrin ketone	NA	
gamma-BHC (Lindane)	NA	
gamma-Chlordane	NA	
Heptachlor	NA	
Heptachlor epoxide	NA	
Methoxychlor	NA	
Toxaphene	NA	
SEMI-VOLATILE ORGANICS		
1,2,4-Trichlorobenzene	NA	
1,2-Dichlorobenzene	NA	
1,3-Dichlorobenzene	NA	
1,4-Dichlorobenzene	NA	
2,4,5-Trichlorophenol	NA	
2,4,6-Trichlorophenol	NA	
2,4-Dichlorophenol	NA	
2,4-Dimethylphenol	NA	
2,4-Dinitrophenol	NA	
2,4-Dinitrotoluene	NA	
2,6-Dinitrotoluene	NA	
2-Chloronaphthalene	NA	
2-Chlorophenol	NA	

a = lab qualifier
b = validated qualifier

348

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099703 07/19/91 a	b
SEMI-VOLATILE ORGANICS		
2-Methylnaphthalene	NA	
2-Methylphenol	NA	
2-Nitroaniline	NA	
2-Nitrophenol	NA	
3,3'-Dichlorobenzidine	NA	
3-Nitroaniline	NA	
4,6-Dinitro-2-methylphenol	NA	
4-Bromophenyl phenyl ether	NA	
4-Chloro-3-methylphenol	NA	
4-Chloroaniline	NA	
4-Chlorophenylphenyl ether	NA	
4-Methylphenol	NA	
4-Nitroaniline	NA	
4-Nitrophenol	NA	
Acenaphthene	NA	
Acenaphthylene	NA	
Anthracene	NA	
Benzo(a)anthracene	NA	
Benzo(a)pyrene	NA	
Benzo(b)fluoranthene	NA	
Benzo(g,h,i)perylene	NA	
Benzo(k)fluoranthene	NA	
Benzoic acid	NA	
Benzyl alcohol	NA	
bis(2-Chloroethoxy)methane	NA	
bis(2-Chloroethyl)ether	NA	
bis(2-Chloroisopropyl) ether	NA	
bis(2-Ethylhexyl) phthalate	NA	
Butyl benzyl phthalate	NA	
Chrysene	NA	
Di-n-butyl phthalate	NA	
Di-n-octyl phthalate	NA	
Dibenzo(a,h)anthracene	NA	
Dibenzofuran	NA	
Diethyl phthalate	NA	
Dimethyl phthalate	NA	
Fluoranthene	NA	
Fluorene	NA	
Hexachlorobenzene	NA	
Hexachlorobutadiene	NA	

a = lab qualifier
b = validated qualifier

349

-4948

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099703 07/19/91 a	b
SEMI-VOLATILE ORGANICS		
Hexachlorocyclopentadiene	NA	
Hexachloroethane	NA	
Indeno(1,2,3-cd)pyrene	NA	
Isophorone	NA	
N-Nitroso-di-n-propylamine	NA	
N-Nitrosodiphenylamine	NA	
Naphthalene	NA	
Nitrobenzene	NA	
Pentachlorophenol	NA	
Phenanthrene	NA	
Phenol	NA	
Pyrene	NA	
Tributyl phosphate	NA	
VOLATILE ORGANICS		
1,1,1,2-Tetrachloroethane	U .005	R
1,1,1-Trichloroethane	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-
1,1,2-Trichloroethane	U .005	-
1,1-Dichloroethane	U .005	-
1,1-Dichloroethene	U .005	-
1,2,3-Trichloropropane	U .005	UJ
1,2-Dibromo-3-chloropropane	U .01	UJ
1,2-Dibromoethane	U .005	UJ
1,2-Dichloroethane	U .005	-
1,2-Dichloroethylene	U .005	R
1,2-Dichloropropane	U .005	-
1,4-Dioxane	J .0777	J
2-Butanone	U .01	UJ
2-Chloro-1,3-butadiene	U .005	UJ
2-Hexanone	U .01	-
3-Chloropropene	U .005	-
4-Methyl-2-pentanone	U .01	-
Acetone	U .017	J
Acetonitrile	U1	R
Acrolein	U .01	-
Acrylonitrile	U .01	-
Benzene	U .005	UJ
Bromodichloromethane	U .005	-
Bromoform	U .005	-
Bromomethane	U .01	-
Carbon disulfide	U .005	UJ
Carbon Tetrachloride	U .005	-

a = lab qualifier
b = validated qualifier

OU4 1990/91 SILO 2 QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2S2-SE-C 099703 07/19/91 a		b
VOLATILE ORGANICS			
Chlorobenzene	U	.005	-
Chloroethane	U	.01	-
Chloroform	U	.005	-
Chloromethane	U	.01	-
cis-1,3-Dichloropropene	U	.005	-
Dibromochloromethane	U	.005	-
Dibromomethane	U	.01	-
Dichlorodifluoromethane	U	.2	R
Ethyl cyanide	U	.1	-
Ethyl methacrylate	U	.01	-
Ethylbenzene	U	.005	-
Iodomethane	U	.005	-
Isobutyl alcohol	U	.02	R
Methacrylonitrile	U	.01	-
Methyl methacrylate	U	.01	-
Methylene chloride	J	.005	U
Pyridine		.0452	R
Styrene	U	.005	-
Tetrachlorethene	U	.005	-
Toluene	J	.003	J
Total xylenes	U	.005	R
trans-1,3-Dichloropropene	U	.005	R
trans-1,4-Dichloro-2-butene	U	.1	R
Trichloroethene	U	.005	-
Trichlorofluoromethane	U	.005	UJ
Vinyl Acetate	U	.01	-
Vinyl chloride	U	.01	-

a = lab qualifier
b = validated qualifier

351

-4948-

-4948

OU4 DECANT TANK QA/QC RADIOLOGICAL RESULTS

OU4 1991 DECANT TANK QA/QC RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	099410 04/09/91			099420 07/18/91		
	a		b	a		b
Actinium 227	NA			< 2.2		-
Cesium 137	< 20		R	NA		
Lead 210	NA			2650	± 270	J
Neptunium 237	< 1		R	NA		
Plutonium 238	< 1		-	NA		
Plutonium 239/240	< 1		-	NA		
Polonium 210	NA			2490	± 350	J
Protactinium 231	NA			< 506		DJ
Radium 224	NA			< 33		J
Radium 224 (GAMMA)	NA			NA		
Radium 226	< 1		R	481	± 68	J
Radium 226 (GAMMA)	NA			782	± 72	J
Radium 228	< 3		R	< 3		J
Radium 228 (GAMMA)	NA			< 57		DJ
Ruthenium 106	<150		R	NA		
Strontium 90	< 5		R	NA		
Technetium 99	< 30		J	NA		
Thorium 228	2.13	± .64	-	< 2.4		D
Thorium 230	< 1		-	16.5	± 4.3	-
Thorium 232	< 1		-	< 1		-
Total Thorium **	< 3.7		-	< 5.3		D
Total Uranium **	< 1		J	NA		
Uranium 234	1.14	± .31	J	NA		
Uranium 235	NA			NA		
Uranium 235/236	< 1		J	NA		
Uranium 238	< 1		J	NA		

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

353

1-4948

OU4 DECANT TANK QA/QC CHEMICAL RESULTS

OU4 1991 DECANT TANK QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099420 07/18/91 a	b
GENERAL CHEMICAL		
Ammonia	U .1	-
Chloride	13.8	-
Fluoride	14	-
Nitrate	30	-
Phenols	U .01	-
Phosphorus	.61	-
Sulfate	55.5	-
Sulfide	U .5	-
Total Organic Carbon	2.01	-
Total Organic Halides	NA	
Total Organic Nitrogen	1.12	-

a = lab qualifier
b = validated qualifier

355

-4948

OU4 DECANT TANK QA/QC HSL RESULTS

OU4 1991 DECANT TANK QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099410 04/09/91		099420 07/18/91	
	a	b	a	b
METALS				
Aluminum	U .06	-	.629	-
Antimony	U .03	-	BN .031	J
Arsenic	U .002	-	UN .002	J
Barium	UN .002	R	BN .0261	J
Beryllium	U .002	-	U .002	-
Cadmium	U .002	-	B .0021	J
Calcium	BE .137	-	16.5	-
Chromium	U .01	-	.128	-
Cobalt	U .01	-	B .0373	J
Copper	U .01	-	.0289	-
Cyanide	NA		NA	
Iron	U .01	-	3.47	-
Lead	U .002	-	N .202	J
Magnesium	UE .05	-	13.4	-
Manganese	U .002	-	.0467	-
Mercury	U .0002	-	U .0002	-
Molybdenum	UE .01	UJ	U .01	-
Nickel	U .02	-	.116	-
Potassium	U .1	-	B 3.4	J
Selenium	U .002	J	+N .0056	J
Silicon	NA		7.31	-
Silver	U .01	-	.0188	-
Sodium	B .575	U	11.9	-
Thallium	U .002	-	N .0024	UJ
Vanadium	U .01	-	B .0204	J
Zinc	B .0172	U	* .786	J

a = lab qualifier
b = validated qualifier

-4948

OU4 1991 DECANT TANK QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099420 07/18/91		099414 04/16/91	
	a	b	a	b
PESTICIDES/PCB				
4,4'-DDD	U .0002	-	NA	
4,4'-DDE	U .0002	-	NA	
4,4'-DDT	U .0002	-	NA	
Aldrin	U .0001	-	NA	
alpha-BHC	U .0001	-	NA	
alpha-Chlordane	U .001	-	NA	
Aroclor-1016	U .001	-	NA	
Aroclor-1221	U .001	-	NA	
Aroclor-1232	U .001	-	NA	
Aroclor-1242	U .001	-	NA	
Aroclor-1248	U .001	-	NA	
Aroclor-1254	U .002	-	NA	
Aroclor-1260	U .002	-	NA	
beta-BHC	U .0001	-	NA	
delta-BHC	U .0001	-	NA	
Dieldrin	U .0002	-	NA	
Endosulfan II	U .0002	-	NA	
Endosulfan sulfate	U .0002	-	NA	
Endosulfan-I	U .0001	-	NA	
Endrin	U .0002	-	NA	
Endrin ketone	U .0002	-	NA	
gamma-BHC (Lindane)	U .0001	-	NA	
gamma-Chlordane	U .001	-	NA	
Heptachlor	U .0001	-	NA	
Heptachlor epoxide	U .0001	-	NA	
Methoxychlor	U .001	-	NA	
Toxaphene	U .002	-	NA	
SEMI-VOLATILE ORGANICS				
1,2,4-Trichlorobenzene	U .01	-	NA	
1,2-Dichlorobenzene	U .01	-	NA	
1,3-Dichlorobenzene	U .01	-	NA	
1,4-Dichlorobenzene	.01	-	NA	
2,4,5-Trichlorophenol	.05	-	NA	
2,4,6-Trichlorophenol	.01	-	NA	
2,4-Dichlorophenol	U .01	-	NA	
2,4-Dimethylphenol	U .01	-	NA	
2,4-Dinitrophenol	U .05	J	NA	
2,4-Dinitrotoluene	.01	-	NA	
2,6-Dinitrotoluene	U .01	-	NA	
2-Chloronaphthalene	U .01	-	NA	
2-Chlorophenol	U .01	-	NA	

a = lab qualifier
b = validated qualifier

-4948

358

OU4 1991 DECANT TANK QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099420 07/18/91		099414 04/16/91	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
2-Methylnaphthalene	U .01	-	NA	
2-Methylphenol	.01	-	NA	
2-Nitroaniline	U .05	-	NA	
2-Nitrophenol	U .01	-	NA	
3,3'-Dichlorobenzidine	U .02	J	NA	
3-Nitroaniline	U .05	UJ	NA	
4,6-Dinitro-2-methylphenol	U .05	J	NA	
4-Bromophenyl phenyl ether	U .01	-	NA	
4-Chloro-3-methylphenol	U .01	-	NA	
4-Chloroaniline	U .01	-	NA	
4-Chlorophenylphenyl ether	U .01	-	NA	
4-Methylphenol	.01	-	NA	
4-Nitroaniline	U .05	R	NA	
4-Nitrophenol	U .05	-	NA	
Acenaphthene	U .01	-	NA	
Acenaphthylene	U .01	-	NA	
Anthracene	U .01	-	NA	
Benzo(a)anthracene	U .01	-	NA	
Benzo(a)pyrene	U .01	-	NA	
Benzo(b)fluoranthene	U .01	-	NA	
Benzo(g,h,i)perylene	U .01	-	NA	
Benzo(k)fluoranthene	U .01	-	NA	
Benzoic acid	U .05	J	NA	
Benzyl alcohol	U .01	-	NA	
bis(2-Chloroethoxy)methane	U .01	-	NA	
bis(2-Chloroethyl)ether	U .01	-	NA	
bis(2-Chloroisopropyl) ether	U .01	J	NA	
bis(2-Ethylhexyl) phthalate	U .01	-	NA	
Butyl benzyl phthalate	U .01	-	NA	
Chrysene	U .01	-	NA	
Di-n-butyl phthalate	U .01	-	NA	
Di-n-octyl phthalate	U .01	-	NA	
Dibenzo(a,h)anthracene	U .01	-	NA	
Dibenzofuran	U .01	-	NA	
Diethyl phthalate	U .01	-	NA	
Dimethyl phthalate	U .01	-	NA	
Fluoranthene	U .01	-	NA	
Fluorene	U .01	-	NA	
Hexachlorobenzene	.01	-	NA	
Hexachlorobutadiene	.01	-	NA	

a = lab qualifier
b = validated qualifier

OU4 1991 DECANT TANK QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099420 07/18/91		099414 04/16/91	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
Hexachlorocyclopentadiene	U .01	-	NA	
Hexachloroethane	.038	J	NA	
Indeno(1,2,3-cd)pyrene	U .01	-	NA	
Isophorone	U .01	-	NA	
N-Nitroso-di-n-propylamine	U .01	-	NA	
N-Nitrosodiphenylamine	U .01	-	NA	
Naphthalene	U .01	-	NA	
Nitrobenzene	.01	-	NA	
Pentachlorophenol	.05	-	NA	
Phenanthrene	U .01	-	NA	
Phenol	U .01	-	NA	
Pyrene	U .01	-	NA	
VOLATILE ORGANICS				
1,1,1-Trichloroethane	NA		BJ .004	J
1,1,2,2-Tetrachloroethane	NA		U .005	-
1,1,2-Trichloroethane	NA		U .005	-
1,1-Dichloroethane	NA		U .005	-
1,1-Dichloroethene	NA		U .005	-
1,2-Dichloroethane	NA		U .005	-
1,2-Dichloroethylene	NA		U .005	-
1,2-Dichloropropane	NA		U .005	-
2-Butanone	NA		U .01	-
2-Hexanone	NA		U .01	-
4-Methyl-2-pentanone	NA		U .01	-
Acetone	NA		BJ .007	J
Benzene	NA		U .005	-
Bromodichloromethane	NA		J .002	J
Bromoform	NA		U .005	-
Bromomethane	NA		U .01	-
Carbon disulfide	NA		U .005	-
Carbon Tetrachloride	NA		U .005	-
Chlorobenzene	NA		U .005	-
Chloroethane	NA		U .01	-
Chloroform	NA		.01	-
Chloromethane	NA		U .01	-
cis-1,3-Dichloropropene	NA		U .005	-
Dibromochloromethane	NA		U .005	-
Ethylbenzene	NA		BJ .001	J
Methylene chloride	NA		B .012	-
Styrene	NA		U .005	-
Tetrachlorethene	NA		U .005	-

a = lab qualifier
b = validated qualifier

-4948

OU4 1991 DECANT TANK QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	099420 07/18/91		099414 04/16/91	
	a	b	a	b
VOLATILE ORGANICS				
Toluene	NA		BJ .003	J
Total xylenes	NA		BJ .001	J
trans-1,3-Dichloropropene	NA		U .005	-
Trichloroethene	NA		U .005	-
Trichlorofluoromethane	NA		NA	
Vinyl Acetate	NA		U .01	-
Vinyl chloride	NA		U .01	-

a = lab qualifier
b = validated qualifier

311

-4048

OU4 RI/FS APPENDICES LISTING

APPENDIX B SOILS

B.1	OU4 BERM	RADIOLOGICAL HSL TCLP GEOTECHNICAL BORING LOGS
B.2	OU4 SLANT BORINGS	RADIOLOGICAL HSL TCLP GEOTECHNICAL BORING LOGS
B.3	SUBSURFACE SOILS	RADIOLOGICAL HSL BORING LOGS
B.4	SURFACE SOILS	RADIOLOGICAL HSL
B.5	CIS DATA	RADIOLOGICAL CHEMICAL
B.6	SEDIMENT DATA	RADIOLOGICAL HSL
B.7	QA/QC RESULTS	OU4 BERM OU4 SLANT BORING SUBSURFACE SOILS

APPENDIX B OU4 RI/FS SAMPLE NUMBER LIST

APPENDIX B RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
7407	SUBSURFACE SOIL	1029	13.5 – 15	10/27/87	RADIOLOGICAL
7493	SUBSURFACE SOIL	1029	NA	10/29/87	RINSATE
7504	SUBSURFACE SOIL	1032	15 – 16.5	10/30/87	RADIOLOGICAL
7511	SUBSURFACE SOIL	1032	NA	10/31/87	RINSATE
8854	SUBSURFACE SOIL	1033	1.5 – 3	04/08/88	RADIOLOGICAL
8188	SUBSURFACE SOIL	1072	0 – 1.5	03/06/88	RADIOLOGICAL
8213	SUBSURFACE SOIL	1072	NA	03/09/88	RINSATE
9036	SEDIMENT	W-5	0-3 in.	06/18/88	RADIOLOGICAL
9037	SEDIMENT	W-11	0-3 in.	06/18/88	RADIOLOGICAL
9038	SEDIMENT	W-10	0-3 in.	06/18/88	RADIOLOGICAL
9050	SEDIMENT	ASIT-010	0-3 in.	06/28/88	HSL/ RADIOLOGICAL
9101	SEDIMENT	W-5	0-3 in.	08/27/88	RADIOLOGICAL
9102	SEDIMENT	W-10	0-3 in.	08/27/88	RADIOLOGICAL
9103	SEDIMENT	W-11	0-3 in.	08/27/88	RADIOLOGICAL
9145	SEDIMENT	W-11	0-3 in.	01/12/89	FULL HSL
9146	SEDIMENT	W-5	0-3 in.	01/12/89	FULL HSL
9147	SEDIMENT	W-10	0-3 in.	01/12/89	FULL HSL
9149	SEDIMENT	W-5	0-3 in.	04/17/89	RADIOLOGICAL
9153	SEDIMENT	W-10	0-3 in.	04/17/89	RADIOLOGICAL
9155	SEDIMENT	W-11	0-3 in.	04/17/89	RADIOLOGICAL
55998	SUBSURFACE SOIL	1476	5	11/18/89	RADIOLOGICAL
55999	SUBSURFACE SOIL	1476	10	11/18/89	RADIOLOGICAL
56000	SUBSURFACE SOIL	1476	15	11/18/89	RADIOLOGICAL
56001	SUBSURFACE SOIL	1477	5	11/18/89	RADIOLOGICAL
56002	SUBSURFACE SOIL	1477	10	11/18/89	RADIOLOGICAL
56003	SUBSURFACE SOIL	1478	5	11/18/89	RADIOLOGICAL
56004	SUBSURFACE SOIL	1478	9.5	11/18/89	RADIOLOGICAL
56013	SUBSURFACE SOIL	1479	5	11/19/89	RADIOLOGICAL
56014	SUBSURFACE SOIL	1479	10	11/19/89	RADIOLOGICAL
56015	SUBSURFACE SOIL	1479	15	11/19/89	RADIOLOGICAL
56023	SUBSURFACE SOIL	1479	5	11/20/89	RADIOLOGICAL
56025	SUBSURFACE SOIL	1479	15	11/19/89	RADIOLOGICAL
56016	SUBSURFACE SOIL	1480	5	11/20/89	RADIOLOGICAL
56017	SUBSURFACE SOIL	1480	10	11/20/89	RADIOLOGICAL
56018	SUBSURFACE SOIL	1480	15	11/20/89	RADIOLOGICAL
56019	SUBSURFACE SOIL	1481	5	11/20/89	RADIOLOGICAL
56020	SUBSURFACE SOIL	1481	10	11/20/89	RADIOLOGICAL
56021	SUBSURFACE SOIL	1481	15	11/20/89	RADIOLOGICAL
56022	SUBSURFACE SOIL	1481	15	11/20/89	CHEMICAL
56029	SUBSURFACE SOIL	1481	5	11/20/89	RADIOLOGICAL
61100	SURFACE SOIL	WPA 15	0-0.5	04/25/91	HSL METALS & PEST/PCB
61105	SURFACE SOIL	WPA 15	1.5-2.0	04/25/91	HSL VOLATILE & SEMIVOLATILE ORGANICS
61121	SURFACE SOIL	WPA 18	0-0.5	04/27/91	HSL VOLATILES, METALS & PEST/PCB
61126	SURFACE SOIL	WPA 18	1.5-2.0	04/27/91	HSL SEMIVOLATILE ORGANICS
61128	SURFACE SOIL	WPA 19	0-0.5	04/27/91	HSL METALS & PEST/PCB
61133	SURFACE SOIL	WPA 19	1.5-2.0	04/27/91	HSL VOLATILE & SEMIVOLATILE ORGANICS
61135	SURFACE SOIL	WPA 20	0-0.5	04/26/91	HSL METALS & PEST/PCB
61140	SURFACE SOIL	WPA 20	1.5-2.0	04/26/91	HSL VOLATILE & SEMIVOLATILE ORGANICS
61142	SURFACE SOIL	WPA 21	0-0.5	04/26/91	HSL METALS & PEST/PCB
61147	SURFACE SOIL	WPA 21	1.5-2.0	04/26/91	HSL VOLATILE & SEMIVOLATILE ORGANICS
61150	SURFACE SOIL	WPA 22	0-0.5	04/21/91	HSL METALS & PEST/PCB

APPENDIX B RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
61156	SURFACE SOIL	WPA 22	1.5-2.0	04/21/91	FULL HSL
61163	SURFACE SOIL	WPA 24	0-0.5	04/27/91	HSL METALS & PEST/PCB
61240	SURFACE SOIL	WPA 35	0-0.5	04/25/91	HSL METALS & PEST/PCB
61245	SURFACE SOIL	WPA 35	1.5-2.0	04/25/91	HSL VOLATILE & SEMIVOLATILE ORGANICS
61254	SURFACE SOIL	WPA 37	0-0.5	04/23/91	HSL METALS & PEST/PCB
61258	SURFACE SOIL	WPA 37	1.5-2.0	04/23/91	HSL VOLATILE & SEMIVOLATILE ORGANICS
66956	SLANT BORING	1615	13.2 - 17.5	04/18/91	RADIOLOGICAL
66957	SLANT BORING	1615	17.5 - 20	04/18/91	FULL HSL
66958	SLANT BORING	1615	17.5 - 20	04/18/91	FULL TCLP
66959	SLANT BORING	1615	20 - 22.5	04/18/91	RADIOLOGICAL
66960	SLANT BORING	1615	20 - 22.5	04/18/91	PB-210
66961	SLANT BORING	1615	20.78 - 22.5	04/20/91	GEOTECHNICAL
66966	SLANT BORING	1615	37.5 - 40	04/20/91	FULL HSL
66967	SLANT BORING	1615	37.5 - 40	04/20/91	FULL TCLP
66968	SLANT BORING	1615	40 - 42.5	04/20/91	RADIOLOGICAL
66969	SLANT BORING	1615	40 - 42.5	04/20/91	PB-210
66970	SLANT BORING	1615	41.25 - 42.5	04/20/91	GEOTECHNICAL
66974	SLANT BORING	1615	17.1 - 17.5	04/24/91	RADIOLOGICAL
64030	SLANT BORING	1616	83 - 85.2	06/26/91	FULL HSL
64031	SLANT BORING	1616	83 - 85.2	06/26/91	FULL TCLP
64032	SLANT BORING	1616	88 - 89.25	06/26/91	RADIOLOGICAL
64034	SLANT BORING	1616	89.25 - 90.5	06/26/91	GEOTECHNICAL
64035	SLANT BORING	1616	NA	06/26/91	TRIP BLANK
64039	SLANT BORING	1616	103 - 104.4	06/28/91	FULL HSL & TBP
64040	SLANT BORING	1616	103 - 104.4	06/28/91	FULL TCLP
64041	SLANT BORING	1616	105.5 - 106.25	06/28/91	RADIOLOGICAL
64043	SLANT BORING	1616	106.25 - 108	06/28/91	GEOTECHNICAL
64044	SLANT BORING	1616	NA	06/28/91	TRIP BLANK
64046	SLANT BORING	1616	NA	06/27/91	RINSATE
64047	SLANT BORING	1616	NA	06/27/91	TRIP BLANK
64048	SLANT BORING	1616	NA	06/27/91	FIELD BLANK
64157	SLANT BORING	1616	3.92 - 4.42	10/10/91	RADIOLOGICAL
64001	SLANT BORING	1617	59.7 - 60	05/04/91	RADIOLOGICAL
64002	SLANT BORING	1617	59.7 - 60	05/04/91	PB-210
64010	SLANT BORING	1617	NA	06/10/91	TRIP BLANK
66981	SLANT BORING	1617	17.5 - 20.2	05/02/91	FULL HSL
66982	SLANT BORING	1617	17.5 - 20.2	05/02/91	FULL TCLP
66983	SLANT BORING	1617	17.5 - 20.2	05/02/91	RADIOLOGICAL
66984	SLANT BORING	1617	17.5 - 20.2	05/02/91	PB-210
66985	SLANT BORING	1617	21.5 - 22.5	05/02/91	GEOTECHNICAL
66990	SLANT BORING	1617	36.5 - 40.2	05/03/91	FULL HSL
66991	SLANT BORING	1617	36.5 - 40.2	05/03/91	FULL TCLP
66992	SLANT BORING	1617	36.5 - 40.2	05/03/91	RADIOLOGICAL
66994	SLANT BORING	1617	41.5 - 42.5	05/03/91	GEOTECHNICAL
66998	SLANT BORING	1617	58.5 - 59.7	05/04/91	FULL HSL
66999	SLANT BORING	1617	59.7 - 61	05/04/91	FULL TCLP
64102	SLANT BORING	1618	47.5 - 48.5	07/29/91	FULL HSL
64103	SLANT BORING	1618	47.5 - 48.5	07/29/91	FULL TCLP
64105	SLANT BORING	1618	50 - 51.25	07/30/91	RADIOLOGICAL
64107	SLANT BORING	1618	51.25 - 52.5	07/30/91	GEOTECHNICAL
64108	SLANT BORING	1618	NA	07/29/91	TRIP BLANK
64112	SLANT BORING	1618	67.5 - 70	07/30/91	FULL HSL
64114	SLANT BORING	1618	NA	07/30/91	FIELD BLANK
64115	SLANT BORING	1618	70 - 71.25	07/31/91	RADIOLOGICAL
64117	SLANT BORING	1618	71.25 - 72.5	07/31/91	GEOTECHNICAL
64118	SLANT BORING	1618	NA	07/30/91	TRIP BLANK
64123	SLANT BORING	1618	87.5 - 90	08/01/91	FULL HSL
64125	SLANT BORING	1618	90 - 91.25	08/01/91	RADIOLOGICAL
64127	SLANT BORING	1618	91.25 - 92.5	08/01/91	GEOTECHNICAL

APPENDIX B RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
64130	SLANT BORING	1618	NA	08/01/91	TRIP BLANK
64134	SLANT BORING	1618	105 – 107.5	08/02/91	FULL HSL
64136	SLANT BORING	1618	105 – 107.5	08/02/91	RADIOLOGICAL
64138	SLANT BORING	1618	108.75 – 110	08/02/91	GEOTECHNICAL
64139	SLANT BORING	1618	NA	08/01/91	FIELD BLANK
64140	SLANT BORING	1618	NA	08/02/91	TRIP BLANK
64146	SLANT BORING	1618	125 – 127.5	08/03/91	FULL HSL & TBP
64147	SLANT BORING	1618	125 – 127.5	08/03/91	FULL TCLP
64148	SLANT BORING	1618	127.5 – 128.75	08/03/91	RADIOLOGICAL
64150	SLANT BORING	1618	128.75 – 130	08/03/91	GEOTECHNICAL
64151	SLANT BORING	1618	NA	08/03/91	TRIP BLANK
64067	SLANT BORING	1619	52	07/20/91	FULL HSL
64068	SLANT BORING	1619	52	07/20/91	FULL TCLP
64069	SLANT BORING	1619	NA	07/20/91	TRIP BLANK
64071	SLANT BORING	1619	60	07/20/91	RADIOLOGICAL
64073	SLANT BORING	1619	61.25–62.5	07/20/91	GEOTECHNICAL
64079	SLANT BORING	1619	81.25 – 82.5		GEOTECHNICAL
64085	SLANT BORING	1619	103.75 – 105		GEOTECHNICAL
64088	SLANT BORING	1619	NA	07/25/91	RINSATE
64089	SLANT BORING	1619	NA	07/25/91	TRIP BLANK
99436	BERM	1620	10	04/02/92	RADIOLOGICAL
99461	BERM	1620	3 – 4	05/15/91	GEOTECHNICAL
99462	BERM	1620	4 – 5	05/15/91	RADIOLOGICAL & HSL
99468	BERM	1620	5	05/15/91	HSL SEMIVOLATILES & TBP
99469	BERM	1620	5	05/15/91	HSL METALS
99470	BERM	1620	5	05/15/91	HSL CYANIDE
99471	BERM	1620	5	05/15/91	RINSATE
99475	BERM	1620	5	05/15/91	HSL MERCURY
99482	BERM	1620	15	05/16/91	RADIOLOGICAL
99483	BERM	1620	16	05/16/91	HSL VOLATILE ORGANICS
99484	BERM	1620	16 – 17	05/16/91	GEOTECHNICAL
99487	BERM	1620	20	05/16/91	RADIOLOGICAL
99488	BERM	1620	16	05/16/91	HSL MERCURY
99489	BERM	1620	16	05/16/91	HSL SEMIVOLATILES & TBP
99490	BERM	1620	16	05/16/91	HSL METALS
99491	BERM	1620	16	05/16/91	HSL CYANIDE
99493	BERM	1620	16	05/16/91	TCLP VOLATILE ORGANICS
99495	BERM	1620	16	05/16/91	TCLP SEMIVOLATILE ORGANICS
99496	BERM	1620	16	05/16/91	TCLP METALS
99500	BERM	1620	23 – 24	05/17/91	RADIOLOGICAL
99501	BERM	1620	23 – 24	05/17/91	HSL VOLATILE ORGANICS
99501	BERM	1620	23 – 24	05/17/91	GEOTECHNICAL
99513	BERM	1620	21	05/17/91	HSL MERCURY
99514	BERM	1620	21	05/17/91	HSL METALS
99515	BERM	1620	21	05/17/91	HSL CYANIDE
99517	BERM	1620	21	05/17/91	HSL SEMIVOLATILES & TBP
99519	BERM	1621	NA	05/21/91	TRIP BLANK
99521	BERM	1621	NA	05/21/91	RINSATE
99522	BERM	1621	NA	05/21/91	RINSATE
99523	BERM	1621	NA	05/21/91	RINSATE
99524	BERM	1621	NA	05/21/91	RINSATE
99525	BERM	1621	NA	05/21/91	RINSATE
99526	BERM	1621	NA	05/21/91	RINSATE
99530	BERM	1621	3	05/21/91	GEOTECHNICAL
99532	BERM	1621	5	05/21/91	RADIOLOGICAL
99533	BERM	1621	5	05/21/91	HSL VOLATILE ORGANICS
99537	BERM	1621	9	05/21/91	RADIOLOGICAL
99540	BERM	1621	6	05/21/91	HSL MERCURY
99541	BERM	1621	6	05/21/91	HSL SEMIVOLATILES
99542	BERM	1621	6	05/21/91	HSL METALS

APPENDIX B RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
99543	BERM	1621	6	05/21/91	HSL CYANIDE
99548	BERM	1621	13.5	05/22/91	GEOTECHNICAL
99549	BERM	1621	14	05/22/91	RADIOLOGICAL
99550	BERM	1621	15	05/22/91	HSL VOLATILE ORGANICS
99550	BERM	1621	15	05/22/91	TCLP VOLATILE ORGANICS
99554	BERM	1621	20	05/22/91	RADIOLOGICAL
99557	BERM	1621	6	05/22/91	HSL CYANIDE
99558	BERM	1621	6	05/22/91	HSL SEMIVOLATILES & TBP
99559	BERM	1621	6	05/22/91	HSL METALS
99560	BERM	1621	6	05/22/91	HSL CYANIDE
99562	BERM	1621	6	05/22/91	TCLP SEMIVOLATILE ORGANICS
99563	BERM	1621	6	05/22/91	TCLP METALS
99564	BERM	1621	NA	05/22/91	TRIP BLANK
99565	BERM	1621	NA	05/22/91	TRIP BLANK
99571	BERM	1621	24	05/23/91	RADIOLOGICAL
99572	BERM	1621	25	05/23/91	HSL VOLATILE ORGANICS
99573	BERM	1621	26	05/23/91	GEOTECHNICAL
99576	BERM	1621	30	05/23/91	RADIOLOGICAL
99579	BERM	1621	6	05/23/91	HSL SEMIVOLATILES & TBP
99580	BERM	1621	6	05/23/91	HSL METALS
99581	BERM	1621	6	05/23/91	HSL CYANIDE
99583	BERM	1621	6	05/23/91	HSL MERCURY
99584	BERM	1621	NA	05/23/91	TRIP BLANK
99437	BERM	1622	10	04/02/92	RADIOLOGICAL
99587	BERM	1622	NA	05/29/91	TRIP BLANK
99588	BERM	1622	1	05/29/91	HSL VOLATILE ORGANICS
99590	BERM	1622	3	05/29/91	GEOTECHNICAL
99592	BERM	1622	5	05/29/91	RADIOLOGICAL
99593	BERM	1622	5	05/29/91	HSL SEMIVOLATILES
99594	BERM	1622	5	05/29/91	HSL MERCURY
99595	BERM	1622	5	05/29/91	HSL METALS
99596	BERM	1622	5	05/29/91	HSL CYANIDE
99600	BERM	1622	13	05/30/91	TCLP VOLATILE ORGANICS
99601	BERM	1622	15	05/30/91	RADIOLOGICAL
99602	BERM	1622	15	05/30/91	HSL VOLATILE ORGANICS
99603	BERM	1622	16	05/30/91	GEOTECHNICAL
99606	BERM	1622	20	05/30/91	RADIOLOGICAL
99607	BERM	1622	20	05/30/91	HSL MERCURY
99608	BERM	1622	20	05/30/91	HSL SEMIVOLATILES
99609	BERM	1622	20	05/30/91	HSL METALS
99610	BERM	1622	20	05/30/91	HSL CYANIDE
99611	BERM	1622	NA	05/30/91	TRIP BLANK
99612	BERM	1622	20	05/30/91	TCLP SEMIVOLATILE ORGANICS
99617	BERM	1622	24	05/30/91	GEOTECHNICAL
99618	BERM	1622	25	05/31/91	RADIOLOGICAL
99619	BERM	1622	25	05/31/91	HSL VOLATILE ORGANICS
99623	BERM	1622	30	05/31/91	RADIOLOGICAL
99624	BERM	1622	30	05/31/91	HSL MERCURY
99625	BERM	1622	30	05/31/91	HSL SEMIVOLATILES
99626	BERM	1622	30	05/31/91	HSL METALS
99627	BERM	1622	30	05/31/91	HSL CYANIDE
99628	BERM	1622	NA	05/31/91	TRIP BLANK
99438	BERM	1623	10	04/02/92	RADIOLOGICAL
99633	BERM	1623	5	06/03/91	RADIOLOGICAL
99634	BERM	1623	6	06/03/91	GEOTECHNICAL
99645	BERM	1623	NA	06/03/91	RINSATE
99646	BERM	1623	NA	06/04/91	RINSATE
99648	BERM	1623	NA	06/04/91	RINSATE
99653	BERM	1623	14	06/04/91	RADIOLOGICAL
99653	BERM	1623	14	06/04/91	GEOTECHNICAL
99654	BERM	1623	15	06/04/91	TCLP VOLATILE ORGANICS

APPENDIX B RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
99658	BERM	1623	20	06/04/91	RADIOLOGICAL
99659	BERM	1623	16	06/04/91	HSL MERCURY
99660	BERM	1623	16	06/04/91	HSL SEMIVOLATILES & TBP
99661	BERM	1623	16	06/04/91	HSL METALS
99662	BERM	1623	16	06/04/91	HSL CYANIDE
99663	BERM	1623	16	06/04/91	TCLP SEMIVOLATILES & METALS
99665	BERM	1623	NA	06/04/91	TRIP BLANK
99669	BERM	1623	24	06/05/91	HSL VOLATILE ORGANICS
99670	BERM	1623	25	06/05/91	RADIOLOGICAL
99671	BERM	1623	26	06/05/91	GEOTECHNICAL
99675	BERM	1623	30	06/05/91	RADIOLOGICAL
99676	BERM	1623	24	06/05/91	HSL SEMIVOLATILES
99677	BERM	1623	24	06/05/91	HSL METALS
99678	BERM	1623	24	06/05/91	HSL CYANIDE
99679	BERM	1623	NA	06/05/91	TRIP BLANK
99684	BERM	1790	5	06/17/91	HSL VOLATILE ORGANICS
99685	BERM	1790	5	06/17/91	HSL SEMIVOLATILES
99686	BERM	1790	5	06/17/91	HSL METALS
99687	BERM	1790	5	06/17/91	HSL CYANIDE
99688	BERM	1790	5	06/17/91	HSL MERCURY
99690	BERM	1790	NA	06/17/91	TRIP BLANK
32456	SUBSURFACE SOIL	2032	7.5 – 9	02/06/90	RADIOLOGICAL
32465	SUBSURFACE SOIL	2032	25 – 26.5	02/07/90	RADIOLOGICAL
32766	SUBSURFACE SOIL	2033	40 – 40.5	06/05/90	RADIOLOGICAL
32773	SUBSURFACE SOIL	2033	0	06/05/90	RADIOLOGICAL
33083	SUBSURFACE SOIL	3032	95 – 96.5	09/23/90	RADIOLOGICAL
33090	SUBSURFACE SOIL	3032	0	09/24/90	RADIOLOGICAL
8272	SUBSURFACE SOIL	3034	10.5 – 12	03/20/88	RADIOLOGICAL
8279	SUBSURFACE SOIL	3034	21 – 22.5	03/20/88	RADIOLOGICAL
8306	SUBSURFACE SOIL	3034	NA	03/28/88	RINSATE
5423	SURFACE SOIL	E1378300	N480100	09/15/88	RADIOLOGICAL--0-2 in.
5644	SURFACE SOIL	E1378340	N480260	06/19/88	RADIOLOGICAL--0-2 in.
5645	SURFACE SOIL	E1378340	N480260	06/19/88	RADIOLOGICAL--2-4 in.
5646	SURFACE SOIL	E1378340	N480260	06/19/88	RADIOLOGICAL--4-6 in.
5647	SURFACE SOIL	E1378350	N480540	06/19/88	RADIOLOGICAL--0-2 in.
5648	SURFACE SOIL	E1378350	N480540	06/19/88	RADIOLOGICAL--2-4 in.
5649	SURFACE SOIL	E1378350	N480540	06/19/88	RADIOLOGICAL--4-6 in.
5650	SURFACE SOIL	E1378400	N480700	06/19/88	RADIOLOGICAL--0-2 in.
5651	SURFACE SOIL	E1378400	N480700	06/19/88	RADIOLOGICAL--2-4 in.
5652	SURFACE SOIL	E1378400	N480700	06/19/88	RADIOLOGICAL--4-6 in.
5884	SURFACE SOIL	E1378500	N480250	10/09/88	RADIOLOGICAL--0-6 in.
5887	SURFACE SOIL	E1378750	N480245	10/09/88	RADIOLOGICAL--0-6 in.
02-PS-026	SURFACE SOIL	E1378523.10	N480730.71	1986/87	CIS-CHEMICAL--0-10 ft.
SD-40-011	SURFACE SOIL	E1378704.00	N480081.00	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SD-40-012	SURFACE SOIL	E1378614.00	N480081.00	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SD-40-013	SURFACE SOIL	E1378536.00	N480099.00	1986/87	CIS-RADIOLOGICAL--0-0.42 ft.
SD-40-013 D	SURFACE SOIL	E1378536.00	N480099.00	1986/87	CIS-RADIOLOGICAL--0-0.42 ft.
SD-40-014	SURFACE SOIL	E1378446.00	N480059.00	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SD-40-015	SURFACE SOIL	E1378369.00	N480023.00	1986/87	CIS-RADIOLOGICAL--0-0.42 ft.
SL-46-326	SURFACE SOIL	E1378423.13	N480733.44	1986/87	CIS-RADIOLOGICAL--0.16-0.5 ft.
SL-46-327	SURFACE SOIL	E1378623.06	N480727.97	1986/87	CIS-RADIOLOGICAL--0.16-0.5 ft.
SL-46-571	SURFACE SOIL	E1378446.76	N480682.78	1986/87	CIS-RADIOLOGICAL--0.50-1.00 ft.
SL-46-572	SURFACE SOIL	E1378446.76	N480682.78	1986/87	CIS-RADIOLOGICAL--0.50-1.00 ft.
SS-23-049	SURFACE SOIL	E1378739.73	N480458.68	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-050	SURFACE SOIL	E1378715.41	N480447.34	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-050 QC	SURFACE SOIL	E1378715.41	N480447.34	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.

APPENDIX B RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
SS-23-051	SURFACE SOIL	E1378695.81	N480461.88	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-052	SURFACE SOIL	E1378674.43	N480448.46	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-053	SURFACE SOIL	E1378635.42	N480448.53	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-053 D	SURFACE SOIL	E1378635.42	N480448.53	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-054	SURFACE SOIL	E1378717.55	N480525.31	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-055	SURFACE SOIL	E1378714.81	N480425.35	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-056	SURFACE SOIL	E1378712.08	N480325.39	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-056 D	SURFACE SOIL	E1378712.08	N480325.39	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-23-057	SURFACE SOIL	E1378709.34	N480225.42	1986/87	CIS-RADIOLOGICAL--0-0.5 ft.
SS-46-196	SURFACE SOIL	E1378531.30	N481030.60	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-196 D	SURFACE SOIL	E1378531.30	N481030.60	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-197	SURFACE SOIL	E1378631.27	N481027.86	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-198	SURFACE SOIL	E1378731.23	N481025.12	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-199	SURFACE SOIL	E1378428.61	N480933.37	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-200	SURFACE SOIL	E1378628.53	N480927.90	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-201	SURFACE SOIL	E1378728.49	N480925.16	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-202	SURFACE SOIL	E1378425.87	N480833.41	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-203	SURFACE SOIL	E1378525.83	N480830.67	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-204	SURFACE SOIL	E1378625.79	N480827.93	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-205	SURFACE SOIL	E1378725.76	N480825.20	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-206	SURFACE SOIL	E1378423.13	N480733.44	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-206 D	SURFACE SOIL	E1378423.13	N480733.44	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-207	SURFACE SOIL	E1378623.06	N480727.97	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-208	SURFACE SOIL	E1378623.06	N480727.97	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-208 QC	SURFACE SOIL	E1378623.06	N480727.97	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-209	SURFACE SOIL	E1378723.02	N480725.24	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-318	SURFACE SOIL	E1378623.74	N480752.96	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-319	SURFACE SOIL	E1378648.05	N480727.29	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-320	SURFACE SOIL	E1378471.75	N480682.09	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-320 D	SURFACE SOIL	E1378471.75	N480682.09	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-321	SURFACE SOIL	E1378449.49	N480782.74	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-322	SURFACE SOIL	E1378422.45	N480708.45	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-323	SURFACE SOIL	E1378474.48	N480782.06	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-324	SURFACE SOIL	E1378446.76	N480682.78	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-325	SURFACE SOIL	E1378423.82	N480758.43	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-566	SURFACE SOIL	E1378674.41	N480776.59	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-567	SURFACE SOIL	E1378574.44	N480779.32	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-568	SURFACE SOIL	E1378673.04	N480726.60	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.
SS-46-569	SURFACE SOIL	E1378624.43	N480777.95	1986/87	CIS-RADIOLOGICAL--0-0.16 ft.

FULL HSL = VOLATILE ORGANICS, SEMIVOLATILE ORGANICS, PEST./PCB, METALS
FULL TCLP = VOLATILE ORGANICS, SEMIVOLATILE ORGANICS, PEST./PCB, METALS

OU4 RI/FS DATA VALIDATION QUALIFIERS

CHEMICAL VALIDATION QUALIFIERS

"N" Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

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

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

"UJ" Not detected, quantitation limit may be inaccurate or imprecise.

"UB" Not detected, quantitation limit is probably higher.

"JB" Approximate data due to blank contamination.

"J" Analyte present. Reported value may not be accurate or precise.

"R" Results unusable. Analyte may or may not be present in the sample. Supporting data necessary to confirm result. Resampling and reanalysis would be necessary.

"-" Validated, but not qualified.

LABORATORY QUALIFIERS

Organic Qualifiers

"U" Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

"J" Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

"B" This flag issued when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the user to take appropriate action.

"F" Estimated value due to a confirmed compound which is off-scale in both columns.

"Z" No estimated value reported, or an elevated CRQL reported because matrix effects interfere with or obscure the compound on one or both columns. In either situation, the compound does not confirm as a positive identification.

"C" This flag applies to pesticide results where the identification has been confirmed by GC/MS.

"E" This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and reanalyzed. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms I. The Form I for the diluted shall have the "DL" suffix appended to the sample number.

"D" This flag identifies all compounds identified in analysis at a secondary dilution factor.

"A" This flag indicates that a TIC is a suspected aldol-condensation product.

"X" A flag that FORMASTER III CLP software automatically inserts to indicate that the data was entered manually.

"Y" Indistinguishable isomer in tentatively identified compounds.

"*" Values outside of contract required QC limits.

LABORATORY QUALIFIERS

Inorganic Qualifiers

Concentration Qualifiers (C)

"B" Reported value was obtained from a reading that was less than Contract Required Detection Limit (CRQL) but greater than or equal to the Instrument Detection Limit (IDL).

"U" Analyte was analyzed for but not detected.

Quality Qualifiers (Q)

"E" The reported value is estimated because of the presence of interference.

"N" Spiked sample recovery not within control limits.

"S" The reported value was determined by the Method of Standard Additions.

"W" Post-digestion spike for Furnace AA analysis is not out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

"*" Duplicate analysis not within control limits.

"M" Duplicate injection precision not met.

"G" Native analyte > 4 times spike added, therefore acceptance criteria do not apply.

"X" Detection limit is higher than normal due to sample matrix interferences.

"+" Correlation coefficient for the MSA is less than 0.955.

Radiological Laboratory Qualifiers

"<" The radionuclide was analyzed for but not detected. The CRDL or lower limit of detection (LLD), which ever is greater for the analysis, follows the qualifier. The LLD is based on the 95% confidence interval of false detection and false rejection determination.

RADIOLOGICAL DATA VALIDATION QUALIFIERS

"C" The total uranium analytical result (mass) does not agree within +/- 20% of the calculated uranium mass as determined by isotope specific analyses. This qualifier is not applied to analytical results which are less than ten (10) times the contract required quantitation limit (CRQL).

"D" The radionuclide was analyzed for but not detected. The reported SQL exceeds the CRQL and professional judgement must be exercised in the use of this data depending on the media that was sampled and the end use of the data (ie. risk assessment, nature and extent, etc.).

"E" The calculated U-235/U-238 mass ratio is outside of 0.2 - 1.3% enrichment and may indicate man's involvement in isotope depletion or enrichment. Professional judgement should be exercised in evaluating the likelihood of this occurrence. The U-235/U-238 ratio for soil in nature is 0.0072. This qualifier is not applied to analytical results which are less than ten (10) times the contract required CRQL.

"F" The calculated U-234/U-238 activity ratio is less than 0.4 or greater than 1.3 and may indicate man's involvement in isotope separation. Professional judgement should be exercised in evaluating the likelihood of this occurrence. The U-234 and U-238 isotopes are generally in equilibrium (or slightly depleted in U-234) in soil impacted groundwater. This qualifier is not applied to analytical results which are less than ten (10) times the contract required CRQL.

"M" The matrix spike per cent recovery is not within the control limits of 70-130%.

"J" The reported value should be considered an estimate based on laboratory quality control results or lack of QC documentation.

"R" Laboratory quality control results indicates that the data are unusable (analyte may or may not be present). Re-sampling and/or re-analysis is necessary for verification.

"-" The analysis meets all requirements of the indicated analytical support level (ASL).

OU4 BERM RADIOLOGICAL RESULTS

OU4 BERM RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1620 099436 04/02/92 10 ft.			1620 099462 05/15/91 4 - 5 ft.			1620 099482 05/16/91 14-15 ft.			1620 099487 05/16/91 19-20 ft.		
	a		b	a		b	a		b	a		b
Actinium 227	< .6		-	< .6		-	< .6		-	< .6		-
Cesium 137	NA			< .2		J	NA			NA		
Lead 210	.75	± .45	J	1.96	± .47	J	.98	± .36	J	1.19	± .4	J
Neptunium 237	NA			< .6		-	NA			NA		
Plutonium 238	NA			< .6		-	NA			NA		
Plutonium 239/240	NA			< .6		-	NA			NA		
Polonium 210	NA			4.02	± .87	J	1.77	± .6	R	2.6	± .8	J
Protactinium 231	< 2.3		J	< 1.4		J	< 1.8		J	< 1.8		J
Radium 224	.7	± .14	J	NA			.99	± .14	J	.85	± .13	J
Radium 226	1.2	± .16	J	3.67	± .28	J	1.28	± .14	J	1.52	± .15	J
Radium 228	.59	± .19	J	.8	± .21	J	.97	± .19	J	.91	± .19	J
Ruthenium 106	NA			< 1		J	NA			NA		
Strontium 90	NA			< .5		-	NA			NA		
Technetium 99	NA			< .9		J	NA			NA		
Thorium 228	.93	± .18	J	1.35	± .36	-	1.64	± .46	-	1.11	± .28	-
Thorium 230	1.45	± .25	J	4.01	± .79	-	1.83	± .49	-	1.61	± .36	-
Thorium 232	< .6		-	.87	± .28	-	.79	± .3	-	.7	± .21	-
Total Thorium **	NA			7.86	± 2.53	-	7.08	± 2.7	-	6.33	± 1.92	-
Total Uranium **	NA			11.1	± 3.1	J	12.4	± 2.8	J	10.8	± 2.6	J
Uranium 234	1.38	± .37	-	2.59	± .36	-	1.1	± .28	-	1.01	± .2	-
Uranium 235/236	< .6		-	< .6		-	< .6		-	< .6		-
Uranium 238	1.36	± .36	-	3.38	± .45	-	1.15	± .29	-	1.52	± .26	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

376

-4948

OU4 BERM RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1620 099500 05/17/91 23-24 ft.			1621 099532 05/21/91 4 - 5 ft.			1621 099537 05/21/91 9 - 10 ft.			1621 099549 05/22/91 14 - 15 ft.		
	a		b	a		b	a		b	a		b
Actinium 227	< .6		-	< .6		-	< .6		-	< .6		J
Cesium 137	NA			.23	± .07	-	< .2		J	< .2		J
Lead 210	1.37	± .43	J	4.45	± .72	-	1.26	± .42	J	.77	± .4	J
Neptunium 237	NA			< .6		-	< .6		J	< .6		-
Plutonium 238	NA			< .6		-	< .6		-	< .6		-
Plutonium 239/240	NA			< .6		-	< .6		-	< .6		-
Polonium 210	2.11	± .5	R	14.7	± 2.9	J	2.17	± .64	R	1.92	± .53	J
Protactinium 231	< 1.9		J	< 1.7		-	< 1.5		J	< 1.5		J
Radium 224	1.15	± .16	J	NA			NA			NA		
Radium 226	1.52	± .15	J	6.68	± .43	-	1.63	± .16	J	.96	± .12	J
Radium 228	1.15	± .21	J	.97	± .22	-	.94	± .21	J	.7	± .19	J
Ruthenium 106	NA			< 1		-	< 1		J	< 1		J
Strontium 90	NA			< .5		-	< .5		-	< .5		-
Technetium 99	NA			< .9		-	< .9		-	< .9		J
Thorium 228	1.18	± .34	-	1.12	± .27	-	1.54	± .33	-	1.45	± .33	J
Thorium 230	1.42	± .38	-	4.78	± .8	-	1.71	± .36	-	1.33	± .32	J
Thorium 232	.73	± .26	-	.86	± .23	-	1.03	± .26	-	1.06	± .28	J
Total Thorium **	6.55	± 2.31	-	7.73	± 2.1	-	9.27	± 2.32	-	9.59	± 2.48	J
Total Uranium **	11.9	± 2.8	J	12.4	± 3.4	-	3.69	± 2.71	J	5.35	± 2.56	J
Uranium 234	1.3	± .25	-	3.62	± .48	-	2.28	± .33	-	1.44	± .24	-
Uranium 235/236	< .6		-	< .6		-	< .6		-	< .6		-
Uranium 238	1.18	± .23	-	4.17	± .54	-	2.39	± .35	-	1.59	± .26	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 BERM RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1621 099554 05/22/91 19 - 20 ft.			1621 099571 05/23/91 24 - 25 ft.			1621 099576 05/23/91 30 ft.			1622 099437 04/02/92 10 ft.		
	a		b	a		b	a		b	a		b
Actinium 227	< .6		J	< .6		J	< .6		-	< .6		-
Cesium 137	< .2		J	< .2		J	< .2		J	NA		
Lead 210	.95	± .38	J	.792	± .395	J	8.69	± 1.15	J	1.13	± .4	J
Neptunium 237	< .6		-	< .6		J	< .6		-	NA		
Plutonium 238	< .6		-	< .6		-	< .6		-	NA		
Plutonium 239/240	< .6		-	< .6		-	< .6		-	NA		
Polonium 210	1.46	± .43	J	32.5	± 4.9	J	.75	± .28	R	NA		
Protactinium 231	< 1.5		J	< 1.6		J	2.2		J	< 1.8		J
Radium 224	NA			NA			NA			.94	± .13	J
Radium 226	.96	± .12	J	1.22	± .14	J	14.7	± .9	J	2.05	± .18	J
Radium 228	.96	± .2	J	1.14	± .22	J	.88	± .26	J	< .5		J
Ruthenium 106	< 1		J	< 1		J	< 1		J	NA		
Strontium 90	< .5		-	< .5		-	< .5		-	NA		
Technetium 99	< .9		J	< .9		J	< .9		J	NA		
Thorium 228	1.17	± .34	J	1.33	± .34	J	1.4	± .29	-	1.13	± .22	J
Thorium 230	1.28	± .36	J	1.32	± .34	J	2.79	± .48	-	1.96	± .32	J
Thorium 232	.89	± .29	J	.89	± .27	J	1.15	± .25	-	.94	± .2	-
Total Thorium **	8.07	± 2.65	J	8.03	± 2.43	J	10.3	± 2.3	-	NA		
Total Uranium **	3.92	± 2.32	J	4.02	± 2.48	J	9.03	± 4.15	J	NA		
Uranium 234	1.39	± .25	-	.99	± .18	-	2	± .32	-	1.67	± .42	-
Uranium 235/236	< .6		-	< .6		-	< .6		-	< .6		-
Uranium 238	1.12	± .22	-	1.1	± .2	-	2.31	± .36	-	1.71	± .43	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

378

-4048

OU4 BERM RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1622 099592 05/29/91 4 - 5 ft.				1622 099601 05/30/91 14 - 15 ft.				1622 099606 05/30/91 19 - 20 ft.				1622 099618 05/31/91 24 - 25 ft.			
	a			b	a			b	a			b	a			b
Actinium 227	<	.6		-	<	.6		J	<	.6		J	<	.6		J
Cesium 137		NA				NA				NA				NA		
Lead 210		1.39	±	.39 J		.62	±	.3 J		.69	±	.28 J		1.54	±	.45 J
Neptunium 237		NA				NA				NA				NA		
Plutonium 238		NA				NA				NA				NA		
Plutonium 239/240		NA				NA				NA				NA		
Polonium 210		2.22	±	.83 J		1.03	±	.53 J		1.44	±	.46 J		1.6	±	.49 J
Protactinium 231	<	1.7		R	<	1.3		J	<	1.3		J	<	1.9		J
Radium 224		1.2	±	1.53 R		.55	±	.09 J		.57	±	.09 J		1.09	±	.15 J
Radium 226		1.62	±	.16 R		.65	±	.09 J		.62	±	.09 J		1.12	±	.13 J
Radium 228		1.32	±	.2 R		.53	±	.14 J		.53	±	.15 J		1.11	±	.21 J
Ruthenium 106		NA				NA				NA				NA		
Strontium 90		NA				NA				NA				NA		
Technetium 99		NA				NA				NA				NA		
Thorium 228		1.49	±	.42 -		1.84	±	.65 -		1.58	±	.54 -		1.43	±	.38 -
Thorium 230		2.83	±	.65 -		.95	±	.45 -		.9	±	.39 -		1.01	±	.31 -
Thorium 232		1.45	±	.42 -	<	.6		-	<	.6		-		.92	±	.29 -
Total Thorium **		13.1	±	3.7 -	<	4		-		3.57	±	2.48 -		8.32	±	2.63 -
Total Uranium **		6.46	±	2.6 R		1.99	±	1.8 -		9.56	±	2.1 -		14.3	±	2.9 -
Uranium 234		1.34	±	.24 -		.81	±	.17 -		1.34	±	.24 -		1.11	±	.21 -
Uranium 235/236	<	.6		-	<	.6		-	<	.6		-	<	.6		-
Uranium 238		1.13	±	.22 -		.75	±	.16 -		1.29	±	.24 -		1.38	±	.24 -

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 BERM RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1622 099623 05/31/91 29 - 30 ft.			1623 099438 04/02/92 10 ft.			1623 099633 06/03/91 5 ft.			1623 099653 06/04/91 15 ft.		
	a		b	a		b	a		b	a		b
Actinium 227	< .6		J	< .6		-	< .6		J	< .6		J
Cesium 137	NA			NA			NA			NA		
Lead 210	417	± 42	J	.72	± .47	-	.98	± .39	J	.84	± .39	J
Neptunium 237	NA			NA			NA			NA		
Plutonium 238	NA			NA			NA			NA		
Plutonium 239/240	NA			NA			NA			NA		
Polonium 210	943	±175	J	NA			1.68	± .52	J	1.42	± .88	J
Protactinium 231	25.3	± 8.7	J	<2.2		-	< 1.7		J	< 1.7		J
Radium 224	1.68	± .7	J	.62	± .13	-	1.02	± .14	J	.75	± .12	J
Radium 226	876	± 51	J	1.03	± .14	-	1.04	± .13	J	.81	± .12	J
Radium 228	< 2.5		JD	< .5		-	.98	± .2	J	.69	± .18	J
Ruthenium 106	NA			NA			NA			NA		
Strontium 90	NA			NA			NA			NA		
Technetium 99	NA			NA			NA			NA		
Thorium 228	14.9	± 2.3	-	1.03	± .21	J	1.52	± .36	-	.93	± .37	J
Thorium 230	51.2	± 7.6	-	1.54	± .27	J	1.69	± .39	-	.74	± .33	J
Thorium 232	1.08	± .29	-	.64	± .15	-	.95	± .27	-	< .6		J
Total Thorium **	9.72	± 2.6	-	NA			8.53	± 2.42	-	5.17	± 2.68	J
Total Uranium **	186	± 34	-	NA			10.5	± 2.5	J	13.3	± 3.1	J
Uranium 234	24.2	± 3.4	J	.97	± .33	-	1.26	± .23	-	1.43	± .26	-
Uranium 235/236	1.31	± .43	J	< .6		-	< .6		-	< .6		-
Uranium 238	24.7	± 3.4	J	1.06	± .34	-	1.26	± .23	-	1.22	± .24	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

390

1-4048

OU4 BERM RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1623 099658 06/04/91 20 ft.			1623 099670 06/05/91 25 ft.			1623 099675 06/05/91 30 ft.		
	a		b	a		b	a		b
Actinium 227	< .6		J	< .6		J	< .6		J
Cesium 137	NA			NA			NA		
Lead 210	1.16	± .43	J	.89	± .32	J	1.31	± .41	J
Neptunium 237	NA			NA			NA		
Plutonium 238	NA			NA			NA		
Plutonium 239/240	NA			NA			NA		
Polonium 210	1.2	± .59	J	1.43	± .43	J	1.58	± .41	J
Protactinium 231	< 1.9		J	< 1.4		J	< 1.6		J
Radium 224	1.21	± .16	J	.83	± .12	J	1.17	± .16	J
Radium 226	1.27	± .14	J	.91	± .1	J	1.11	± .13	J
Radium 228	1.24	± .23	J	.79	± .16	J	.92	± .19	J
Ruthenium 106	NA			NA			NA		
Strontium 90	NA			NA			NA		
Technetium 99	NA			NA			NA		
Thorium 228	1.76	± .38	J	1.22	± .42	-	1.34	± .35	-
Thorium 230	1.47	± .34	J	1.58	± .49	-	1.46	± .37	-
Thorium 232	1.16	± .29	J	.9	± .36	-	.82	± .26	-
Total Thorium **	10.5	± 2.6	J	8.14	± 3.21	-	7.43	± 2.33	-
Total Uranium **	10.8	± 2.8	J	8.42	± 2.12	J	9.95	± 2.64	J
Uranium 234	1.09	± .21	-	1.26	± .23	-	2.23	± .37	-
Uranium 235/236	< .6		-	< .6		-	< .6		-
Uranium 238	1.13	± .22	-	1.54	± .27	-	2.68	± .42	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

-4948

OU4 BERM
HSL RESULTS

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099469 05/15/91 5 ft		1620 099470 05/15/91 5 ft		1620 099475 05/15/91 5 ft		1620 099488 05/16/91 16 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	12100	-	NA		NA		NA	
Antimony	N 24.9	-	NA		NA		NA	
Arsenic	N 8	-	NA		NA		NA	
Barium	89.4	-	NA		NA		NA	
Beryllium	B .85	-	NA		NA		NA	
Cadmium	4.2	-	NA		NA		NA	
Calcium	*39600	-	NA		NA		NA	
Chromium	20	-	NA		NA		NA	
Cobalt	13.3	-	NA		NA		NA	
Copper	23.8	-	NA		NA		NA	
Cyanide	NA		NA		NA		NA	
Iron	25400	-	U .12	-	NA		NA	
Lead	11.8	-	NA		NA		NA	
Magnesium	*13900	-	NA		NA		NA	
Manganese	519	-	NA		NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	* 3.2	-	NA		NA		NA	
Nickel	32.4	-	NA		U .12	-	U .12	J
Potassium	B 1080	-	NA		NA		NA	
Selenium	U .48	-	NA		NA		NA	
Silver	7.2	-	NA		NA		NA	
Sodium	B 79.8	-	NA		NA		NA	
Thallium	U .48	-	NA		NA		NA	
Vanadium	28.4	-	NA		NA		NA	
Zinc	59.6	-	NA		NA		NA	
			NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099490 05/16/91 16 ft		1620 099491 05/16/91 16 ft		1620 099513 05/17/91 21 ft		1620 099514 05/17/91 21 ft	
	a	b	a	b	a	b	a	b
Metals								
Aluminum	9070	-	NA		NA		10500	-
Antimony	N 27.4	J	NA		NA		N 22.9	J
Arsenic	N 7.5	J	NA		NA		N 7.9	J
Barium	62.7	-	NA		NA		97.3	-
Beryllium	B .84	J	NA		NA		B 1.1	J
Cadmium	5.4	-	NA		NA		4.1	-
Calcium	*86700	J	NA		NA		*37900	J
Chromium	16.6	-	NA		NA		18.5	-
Cobalt	B 12	J	NA		NA		14.9	-
Copper	27	-	NA		NA		23.9	-
Cyanide	NA		1.6	-	NA		NA	
Iron	23100	-	NA		NA		27500	-
Lead	11	-	NA		NA		10.6	-
Magnesium	*22100	-	NA		NA		*12700	-
Manganese	597	-	NA		NA		880	-
Mercury	NA		NA		U .11	J	NA	
Molybdenum	* 4.6	-	NA		NA		* 3.3	-
Nickel	30.6	-	NA		NA		33.7	-
Potassium	B 950	J	NA		NA		B 712	J
Selenium	UW .48	J	NA		NA		UW .49	J
Silver	8.2	-	NA		NA		7	-
Sodium	B 138	J	NA		NA		B 82.9	J
Thallium	BW .97	UJ	NA		NA		B+ .63	UJ
Vanadium	25.1	-	NA		NA		27.5	-
Zinc	58.8	-	NA		NA		53.9	-

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099515 05/17/91 21 ft		1621 099540 05/21/91 6 ft		1621 099542 05/21/91 6 ft		1621 099543 05/21/91 6 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum					9890	-		
Antimony	NA		NA		N 27.1	J	NA	
Arsenic	NA		NA		N 6.1	J	NA	
Barium	NA		NA		75	-	NA	
Beryllium	NA		NA		B .78	-	NA	
Cadmium	NA		NA		4.3	-	NA	
Calcium	NA		NA		* 44900	J	NA	
Chromium	NA		NA		18.7	-	NA	
Cobalt	NA		NA		12.3	-	NA	
Copper	NA		NA		20.4	-	NA	
Cyanide	U .12	-	NA		NA		NA	
Iron	NA		NA		19900	-	B .15	-
Lead	NA		NA		12.2	-	NA	
Magnesium	NA		NA		* 15500	-	NA	
Manganese	NA		NA		489	-	NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		U .12	UJ	* 3.6	-	NA	
Nickel	NA		NA		28.1	-	NA	
Potassium	NA		NA		B 917	-	NA	
Selenium	NA		NA		U .48	-	NA	
Silver	NA		NA		7.5	-	NA	
Sodium	NA		NA		B 81.9	U	NA	
Thallium	NA		NA		UW .48	UJ	NA	
Vanadium	NA		NA		25.6	-	NA	
Zinc	NA		NA		61	-	NA	

a = lab qualifier
b = validated qualifier

385

-4948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1621 099557 05/22/91 6 ft		1621 099559 05/22/91 6 ft		1621 099560 05/22/91 6 ft		1621 099580 05/23/91 6 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		4990	-	NA		11800	-
Antimony	NA		N 26.3	J	NA		N 27.6	J
Arsenic	NA		N 4.5	J	NA		N 7.3	-
Barium	NA		B 41.9	-	NA		95.1	-
Beryllium	NA		B .65	-	NA		B 1.1	J
Cadmium	NA		5.8	-	NA		4.6	-
Calcium	NA		*92800	J	NA		*49000	J
Chromium	NA		12.1	-	NA		20.6	-
Cobalt	NA		B 9.8	-	NA		13.9	-
Copper	NA		19.5	-	NA		23.7	-
Cyanide	NA		NA		B .26	-	NA	
Iron	NA		13600	-	NA		24700	-
Lead	NA		8.3	-	NA		13.6	-
Magnesium	NA		*28500	-	NA		*16200	-
Manganese	NA		324	-	NA		525	-
Mercury	U .11	-	NA		NA		NA	
Molybdenum	NA		* 3.8	-	NA		* 3.5	-
Nickel	NA		26	-	NA		29.7	-
Potassium	NA		B 590	-	NA		B 926	J
Selenium	NA		UW .44	J	NA		U .48	-
Silver	NA		7.7	-	NA		8	-
Sodium	NA		B 98.7	-	NA		B 91.3	J
Thallium	NA		BW .88	UJ	NA		BW 1.1	UJ
Vanadium	NA		17.4	-	NA		28.2	-
Zinc	NA		33.1	-	NA		58	-

a = lab qualifier
b = validated qualifier

4048

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1621 099581 05/23/91 6 ft		1621 099583 05/23/91 6 ft		1622 099594 05/29/91 5 ft		1622 099595 05/29/91 5 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		10100	-
Antimony	NA		NA		NA		N 19.1	J
Arsenic	NA		NA		NA		SN 5.6	-
Barium	NA		NA		NA		69.6	-
Beryllium	NA		NA		NA		B .67	-
Cadmium	NA		NA		NA		2.6	-
Calcium	NA		NA		NA		*30000	J
Chromium	NA		NA		NA		16.4	-
Cobalt	NA		NA		NA		B 11.3	-
Copper	NA		NA		NA		19.3	-
Cyanide	B .13	-	NA		NA		NA	
Iron	NA		NA		NA		20900	J
Lead	NA		NA		NA		11.9	-
Magnesium	NA		NA		NA		* 6390	-
Manganese	NA		NA		NA		395	-
Mercury	NA		U .12	-	U .12	-	NA	
Molybdenum	NA		NA		NA		* 2.4	-
Nickel	NA		NA		NA		21.7	-
Potassium	NA		NA		NA		B 711	-
Selenium	NA		NA		NA		UW .48	J
Silver	NA		NA		NA		5.8	-
Sodium	NA		NA		NA		B 77.7	-
Thallium	NA		NA		NA		BW .71	J
Vanadium	NA		NA		NA		24.6	-
Zinc	NA		NA		NA		48.6	-

a = lab qualifier
b = validated qualifier

381

-4948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099596 05/29/91 20 ft		1622 099607 05/30/91 20 ft		1622 099609 05/30/91 20 ft		1622 099610 05/30/91 20 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		4530	-	NA	
Antimony	NA		NA		U 32.9	R	NA	
Arsenic	NA		NA		4.1	-	NA	
Barium	NA		NA		B 30.5	J	NA	
Beryllium	NA		NA		U 2.2	-	NA	
Cadmium	NA		NA		7.5	J	NA	
Calcium	NA		NA		161000	-	NA	
Chromium	NA		NA		20.8	-	NA	
Cobalt	NA		NA		U 11	-	NA	
Copper	NA		NA		B 20.5	J	NA	
Cyanide	B .12	-	NA		NA		1.2	-
Iron	NA		NA		11200	-	NA	
Lead	NA		NA		6.1	J	NA	
Magnesium	NA		NA		* 40700	-	NA	
Manganese	NA		NA		330	-	NA	
Mercury	NA		U .11	-	NA		NA	
Molybdenum	NA		NA		U 11	-	NA	
Nickel	NA		NA		B 31.7	J	NA	
Potassium	NA		NA		B 993	J	NA	
Selenium	NA		NA		U .44	UJ	NA	
Silver	NA		NA		19.2	-	NA	
Sodium	NA		NA		B 237	J	NA	
Thallium	NA		NA		U .44	UJ	NA	
Vanadium	NA		NA		B 21.8	J	NA	
Zinc	NA		NA		30.7	-	NA	

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099624 05/31/91 30 ft		1622 099626 05/31/91 30 ft		1622 099627 05/31/91 30 ft		1623 099659 06/04/91 16 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		10500	-	NA		NA	
Antimony	NA		N 18.6	J	NA		NA	
Arsenic	NA		N 8.3	J	NA		NA	
Barium	NA		86.4	-	NA		NA	
Beryllium	NA		B .81	-	NA		NA	
Cadmium	NA		2.5	-	NA		NA	
Calcium	NA		*11600	J	NA		NA	
Chromium	NA		15.7	-	NA		NA	
Cobalt	NA		12.6	-	NA		NA	
Copper	NA		19.5	-	NA		NA	
Cyanide	NA		NA		U .12	-	NA	
Iron	NA		25800	-	NA		NA	
Lead	NA		12.2	-	NA		NA	
Magnesium	NA		* 5070	-	NA		NA	
Manganese	NA		228	-	NA		NA	
Mercury	U .12	-	NA		NA		U .11	J
Molybdenum	NA		* 2.9	-	NA		NA	
Nickel	NA		22.2	-	NA		NA	
Potassium	NA		B 546	-	NA		NA	
Selenium	NA		UW .48	J	NA		NA	
Silver	NA		3.6	-	NA		NA	
Sodium	NA		B 47.8	-	NA		NA	
Thallium	NA		U .48	-	NA		NA	
Vanadium	NA		27.7	-	NA		NA	
Zinc	NA		47.1	-	NA		NA	

a = lab qualifier
b = validated qualifier

389
040048

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1623 099661 06/04/91 16 ft		1623 099662 06/04/91 16 ft		1623 099676 06/05/91 24 ft		1623 099677 06/05/91 24 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	10800	-	NA		NA		9860	-
Antimony	N 14.6	J	NA		NA		N 18	J
Arsenic	5	-	NA		NA		3.6	-
Barium	72.2	-	NA		NA		65.5	-
Beryllium	B .86	-	NA		NA		B .82	-
Cadmium	4.3	-	NA		NA		4.4	J
Calcium	59200	-	NA		NA		64800	-
Chromium	17.5	-	NA		NA		17.1	-
Cobalt	B 10.8	-	NA		NA		B 10.5	J
Copper	22.1	-	NA		NA		22.2	-
Cyanide	NA		U .12	-	NA		NA	
Iron	20800	-	NA		NA		20900	-
Lead	N 13.8	J	NA		NA		SN 8.9	J
Magnesium	*22900	-	NA		NA		*20700	-
Manganese	547	-	NA		NA		627	-
Mercury	NA		NA		U .12	J	NA	
Molybdenum	U 2.4	-	NA		NA		3.3	J
Nickel	28.6	-	NA		NA		26.5	-
Potassium	B 981	-	NA		NA		B 1180	J
Selenium	U .48	-	NA		NA		UW .48	UJ
Silver	5.8	-	NA		NA		6.2	-
Sodium	B 83.2	-	NA		NA		B 113	J
Thallium	UW .48	-	NA		NA		UW .48	UJ
Vanadium	26	-	NA		NA		26.4	-
Zinc	52.4	-	NA		NA		49.3	-

a = lab qualifier
b = validated qualifier

-4948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1623 099678 06/05/91 24 ft		1790 099686 06/17/91 5 ft		1790 099687 06/17/91 5 ft		1790 099688 06/17/91 5 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		9040	-	NA		NA	
Antimony	NA		N 20.6	J	NA		NA	
Arsenic	NA		S 5	-	NA		NA	
Barium	NA		47.1	-	NA		NA	
Beryllium	NA		B .81	-	NA		NA	
Cadmium	NA		3.2	-	NA		NA	
Calcium	NA		95600	-	NA		NA	
Chromium	NA		28.4	-	NA		NA	
Cobalt	NA		B 11	-	NA		NA	
Copper	NA		20.7	-	NA		NA	
Cyanide	U .12	-	NA		U .11	R	NA	
Iron	NA		18600	-	NA		NA	
Lead	NA		N 9	J	NA		NA	
Magnesium	NA		*23900	-	NA		NA	
Manganese	NA		411	-	NA		NA	
Mercury	NA		NA		NA		NA	
Molybdenum	NA		13.3	-	NA		U .1	J
Nickel	NA		24.2	-	NA		NA	
Potassium	NA		1230	-	NA		NA	
Selenium	NA		U .45	J	NA		NA	
Silver	NA		14.4	-	NA		NA	
Sodium	NA		B 197	-	NA		NA	
Thallium	NA		UW .45	J	NA		NA	
Vanadium	NA		27.5	-	NA		NA	
Zinc	NA		44.2	-	NA		NA	

a = lab qualifier
b = validated qualifier

391

1948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099462 05/15/91 5 ft		1620 099468 05/15/91 5 ft		1620 099483 05/16/91 16 ft		1620 099489 05/16/91 16 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .4	-	NA		U .41	-
1,2-Dichlorobenzene	NA		U .4	-	NA		U .41	-
1,3-Dichlorobenzene	NA		U .4	-	NA		U .41	-
1,4-Dichlorobenzene	NA		U .4	-	NA		U .41	-
2,4,5-Trichlorophenol	NA		U 1.9	-	NA		U 2	-
2,4,6-Trichlorophenol	NA		U .4	-	NA		U .41	-
2,4-Dichlorophenol	NA		U .4	-	NA		U .41	-
2,4-Dimethylphenol	NA		U .4	-	NA		U .41	-
2,4-Dinitrophenol	NA		U 1.9	-	NA		U 2	UJ
2,4-Dinitrotoluene	NA		U .4	-	NA		U .41	-
2,6-Dinitrotoluene	NA		U .4	-	NA		U .41	-
2-Chloronaphthalene	NA		U .4	-	NA		U .41	-
2-Chlorophenol	NA		U .4	-	NA		U .41	-
2-Methylnaphthalene	NA		U .4	-	NA		U .41	-
2-Methylphenol	NA		U .4	-	NA		U .41	-
2-Nitroaniline	NA		U 1.9	-	NA		U 2	-
2-Nitrophenol	NA		U .4	-	NA		U .41	-
3,3'-Dichlorobenzidine	NA		U .8	-	NA		U .83	-
3-Nitroaniline	NA		U 1.9	-	NA		U 2	-
4,6-Dinitro-2-methylphenol	NA		U 1.9	-	NA		U 2	-
4-Bromophenyl phenyl ether	NA		U .4	-	NA		U .41	-
4-Chloro-3-methylphenol	NA		U .4	-	NA		U .41	-
4-Chloroaniline	NA		U .4	-	NA		U .41	-
4-Chlorophenylphenyl ether	NA		U .4	-	NA		U .41	-
4-Methylphenol	NA		U .4	-	NA		U .41	-
4-Nitroaniline	NA		U 1.9	-	NA		U 2	-
4-Nitrophenol	NA		U 1.9	-	NA		U 2	-
Acenaphthene	NA		U .4	-	NA		U .41	-
Acenaphthylene	NA		U .4	-	NA		U .41	-
Anthracene	NA		U .4	-	NA		U .41	-
Benzo(a)anthracene	NA		U .4	-	NA		U .41	-
Benzo(a)pyrene	NA		U .4	-	NA		U .41	-
Benzo(b)fluoranthene	NA		U .4	-	NA		U .41	-
Benzo(g,h,i)perylene	NA		U .4	-	NA		U .41	-
Benzo(k)fluoranthene	NA		U .4	-	NA		U .41	-
Benzoic acid	NA		U 1.9	-	NA		U 2	UJ
Benzyl alcohol	NA		U .4	-	NA		U .41	-
bis(2-Chloroethoxy)methane	NA		U .4	-	NA		U .41	-
bis(2-Chloroethyl)ether	NA		U .4	-	NA		U .41	-
bis(2-Chloroisopropyl) ether	NA		U .4	-	NA		U .41	-

a = lab qualifier
b = validated qualifier

4048
392

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099462 05/15/91 5 ft		1620 099468 05/15/91 5 ft		1620 099483 05/16/91 15 ft		1620 099489 05/16/91 16 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
bis(2-Ethylhexyl) phthalate	NA		U .4	-	NA		J .11	J
Butyl benzyl phthalate	NA		U .4	-	NA		U .41	-
Chrysene	NA		U .4	-	NA		U .41	-
Di-n-butyl phthalate	NA		J .048	-	NA		U .41	-
Di-n-octyl phthalate	NA		U .4	-	NA		J .052	J
Dibenzo(a,h)anthracene	NA		U .4	-	NA		U .41	-
Dibenzofuran	NA		U .4	-	NA		U .41	-
Diethyl phthalate	NA		U .4	-	NA		U .41	-
Dimethyl phthalate	NA		U .4	-	NA		U .41	-
Fluoranthene	NA		U .4	-	NA		U .41	-
Fluorene	NA		U .4	-	NA		U .41	-
Hexachlorobenzene	NA		U .4	-	NA		U .41	-
Hexachlorobutadiene	NA		U .4	UJ	NA		U .41	-
Hexachlorocyclopentadiene	NA		U .4	UJ	NA		U .41	UJ
Hexachloroethane	NA		U .4	-	NA		U .41	-
Indeno(1,2,3-cd)pyrene	NA		U .4	-	NA		U .41	-
Isophorone	NA		U .4	-	NA		U .41	-
N-Nitroso-di-n-propylamine	NA		U .4	-	NA		U .41	-
N-Nitrosodiphenylamine	NA		U .4	-	NA		U .41	-
Naphthalene	NA		U .4	-	NA		U .41	-
Nitrobenzene	NA		U .4	-	NA		U .41	-
Pentachlorophenol	NA		U 1.9	-	NA		U 2	-
Phenanthrene	NA		U .4	-	NA		U .41	-
Phenol	NA		U .4	-	NA		BJ .41	-
Pyrene	NA		U .4	-	NA		U .41	-
Tributyl Phosphate	NA		U .4	-	NA		U .41	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	-	NA		U .006	UJ	NA	
1,1,2,2-Tetrachloroethane	U .006	-	NA		U .006	UJ	NA	
1,1,2-Trichloroethane	U .006	-	NA		U .006	UJ	NA	
1,1-Dichloroethane	U .006	-	NA		U .006	UJ	NA	
1,1-Dichloroethene	U .006	-	NA		U .006	UJ	NA	
1,2-Dichloroethane	U .006	-	NA		U .006	UJ	NA	
1,2-Dichloroethylene	U .006	-	NA		U .006	UJ	NA	
1,2-Dichloropropane	U .006	-	NA		U .006	UJ	NA	
2-Butanone	U .012	UJ	NA		J .004	J	NA	
2-Hexanone	U .012	-	NA		U .012	UJ	NA	
4-Methyl-2-pentanone	U .012	-	NA		U .012	UJ	NA	
Acetone	B .016	U	NA		BJ .011	UJ	NA	
Benzene	U .006	-	NA		U .006	UJ	NA	
Bromodichloromethane	U .006	-	NA		U .006	UJ	NA	
Bromoform	U .006	-	NA		U .006	UJ	NA	

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099462 05/15/91 5 ft		1620 099468 05/15/91 5 ft		1620 099483 05/16/91 16 ft		1620 099489 05/16/91 16 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Bromomethane	U .012	-	NA		U .012	UJ	NA	
Carbon disulfide	U .006	-	NA		U .006	UJ	NA	
Carbon Tetrachloride	U .006	-	NA		U .006	UJ	NA	
Chlorobenzene	U .006	-	NA		U .006	UJ	NA	
Chloroethane	U .012	-	NA		U .012	UJ	NA	
Chloroform	U .006	-	NA		U .006	UJ	NA	
Chloromethane	U .012	-	NA		U .012	UJ	NA	
cis-1,3-Dichloropropene	U .006	-	NA		U .006	UJ	NA	
Dibromochloromethane	U .006	-	NA		U .006	UJ	NA	
Ethylbenzene	U .006	-	NA		U .006	UJ	NA	
Methylene chloride	B .022	U	NA		BJ .005	U	NA	
Styrene	U .006	-	NA		U .006	UJ	NA	
Tetrachlorethene	U .006	-	NA		U .006	UJ	NA	
Toluene	J .003	-	NA		J .001	J	NA	
Total xylenes	U .006	-	NA		U .006	UJ	NA	
trans-1,3-Dichloropropene	U .006	-	NA		U .006	UJ	NA	
Trichloroethene	U .006	-	NA		U .006	UJ	NA	
Vinyl Acetate	U .012	-	NA		U .012	UJ	NA	
Vinyl chloride	U .012	-	NA		U .012	UJ	NA	

a = lab qualifier
b = validated qualifier

1948

394

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099501 05/17/91 23 ft		1620 099517 05/17/91 21 ft		1621 099533 05/21/91 5 ft		1621 099541 05/21/91 6 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .41	-	NA		U .41	-
1,2-Dichlorobenzene	NA		U .41	-	NA		U .41	-
1,3-Dichlorobenzene	NA		U .41	-	NA		U .41	-
1,4-Dichlorobenzene	NA		U .41	-	NA		U .41	-
2,4,5-Trichlorophenol	NA		U 2	-	NA		U 2	-
2,4,6-Trichlorophenol	NA		U .41	-	NA		U .41	-
2,4-Dichlorophenol	NA		U .41	-	NA		U .41	-
2,4-Dimethylphenol	NA		U .41	-	NA		U .41	-
2,4-Dinitrophenol	NA		U 2	UJ	NA		U 2	UJ
2,4-Dinitrotoluene	NA		U .41	-	NA		U .41	-
2,6-Dinitrotoluene	NA		U .41	-	NA		U .41	-
2-Chloronaphthalene	NA		U .41	-	NA		U .41	-
2-Chlorophenol	NA		U .41	-	NA		U .41	-
2-Methylnaphthalene	NA		U .41	-	NA		U .41	-
2-Methylphenol	NA		U .41	-	NA		U .41	-
2-Nitroaniline	NA		U 2	-	NA		U 2	-
2-Nitrophenol	NA		U .41	-	NA		U .41	-
3,3'-Dichlorobenzidine	NA		U .82	-	NA		U .81	-
3-Nitroaniline	NA		U 2	-	NA		U 2	-
4,6-Dinitro-2-methylphenol	NA		U 2	-	NA		U 2	-
4-Bromophenyl phenyl ether	NA		U .41	-	NA		U .41	-
4-Chloro-3-methylphenol	NA		U .41	-	NA		U .41	-
4-Chloroaniline	NA		U .41	-	NA		U .41	-
4-Chlorophenylphenyl ether	NA		U .41	-	NA		U .41	-
4-Methylphenol	NA		U .41	-	NA		U .41	-
4-Nitroaniline	NA		U 2	-	NA		U 2	-
4-Nitrophenol	NA		U 2	-	NA		U 2	-
Acenaphthene	NA		U .41	-	NA		U .41	-
Acenaphthylene	NA		U .41	-	NA		U .41	-
Anthracene	NA		U .41	-	NA		U .41	-
Benzo(a)anthracene	NA		U .41	-	NA		U .41	-
Benzo(a)pyrene	NA		U .41	-	NA		U .41	-
Benzo(b)fluoranthene	NA		U .41	-	NA		U .41	-
Benzo(g,h,i)perylene	NA		U .41	-	NA		U .41	-
Benzo(k)fluoranthene	NA		U .41	-	NA		U .41	-
Benzoic acid	NA		U 2	UJ	NA		U 2	UJ
Benzyl alcohol	NA		U .41	-	NA		U .41	-
bis(2-Chloroethoxy)methane	NA		U .41	-	NA		U .41	-
bis(2-Chloroethyl)ether	NA		U .41	-	NA		U .41	-
bis(2-Chloroisopropyl) ether	NA		U .41	-	NA		U .41	-

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099501 05/17/91 23 ft		1620 099517 05/17/91 21 ft		1621 099533 05/21/91 5 ft		1621 099541 05/21/91 6 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
bis(2-Ethylhexyl) phthalate	NA		U .41	-	NA		U .41	-
Butyl benzyl phthalate	NA		U .41	-	NA		U .41	-
Chrysene	NA		U .41	-	NA		U .41	-
Di-n-butyl phthalate	NA		U .41	-	NA		U .41	-
Di-n-octyl phthalate	NA		U .41	-	NA		J .053	-
Dibenzo(a,h)anthracene	NA		U .41	-	NA		U .41	-
Dibenzofuran	NA		U .41	-	NA		U .41	-
Diethyl phthalate	NA		U .41	-	NA		U .41	-
Dimethyl phthalate	NA		U .41	-	NA		U .41	-
Fluoranthene	NA		U .41	-	NA		U .41	-
Fluorene	NA		U .41	-	NA		U .41	-
Hexachlorobenzene	NA		U .41	-	NA		U .41	-
Hexachlorobutadiene	NA		U .41	-	NA		U .41	-
Hexachlorocyclopentadiene	NA		U .41	UJ	NA		U .41	UJ
Hexachloroethane	NA		U .41	-	NA		U .41	-
Indeno(1,2,3-cd)pyrene	NA		U .41	-	NA		U .41	-
Isophorone	NA		U .41	-	NA		U .41	-
N-Nitroso-di-n-propylamine	NA		U .41	-	NA		U .41	-
N-Nitrosodiphenylamine	NA		U .41	-	NA		U .41	-
Naphthalene	NA		U .41	-	NA		U .41	-
Nitrobenzene	NA		U .41	-	NA		U .41	-
Pentachlorophenol	NA		U .41	-	NA		U 2	-
Phenanthrene	NA		U .41	-	NA		U .41	-
Phenol	NA		U .41	-	NA		BJ .33	U
Pyrene	NA		U .41	-	NA		U .41	-
Tributyl Phosphate	NA		U .41	-	NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	UJ	NA		U .006	-	NA	
1,1,2,2-Tetrachloroethane	U .006	UJ	NA		U .006	-	NA	
1,1,2-Trichloroethane	U .006	UJ	NA		U .006	-	NA	
1,1-Dichloroethane	U .006	UJ	NA		U .006	-	NA	
1,1-Dichloroethene	U .006	UJ	NA		U .006	-	NA	
1,2-Dichloroethane	U .006	UJ	NA		U .006	UJ	NA	
1,2-Dichloroethylene	U .006	UJ	NA		U .006	-	NA	
1,2-Dichloropropane	U .006	UJ	NA		U .006	-	NA	
2-Butanone	U .012	UJ	NA		J .011	J	NA	
2-Hexanone	U .012	UJ	NA		U .012	-	NA	
4-Methyl-2-pentanone	J .004	J	NA		U .012	-	NA	
Acetone	B .027	UJ	NA		B .064	J	NA	
Benzene	U .006	UJ	NA		U .006	-	NA	
Bromodichloromethane	U .006	UJ	NA		U .006	-	NA	
Bromoform	U .006	UJ	NA		U .006	-	NA	

a = lab qualifier
b = validated qualifier

396

4948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099501 05/17/91 23 ft		1620 099517 05/17/91 21 ft		1621 099533 05/21/91 5 ft		1621 099541 05/21/91 6 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Bromomethane	U .012	UJ	NA		U .012	UJ	NA	
Carbon disulfide	U .006	UJ	NA		U .006	UJ	NA	
Carbon Tetrachloride	U .006	UJ	NA		U .006	-	NA	
Chlorobenzene	U .006	UJ	NA		U .006	-	NA	
Chloroethane	U .012	UJ	NA		U .012	-	NA	
Chloroform	U .006	UJ	NA		U .006	-	NA	
Chloromethane	U .012	UJ	NA		U .012	-	NA	
cis-1,3-Dichloropropene	U .006	UJ	NA		U .006	-	NA	
Dibromochloromethane	U .006	UJ	NA		U .006	-	NA	
Ethylbenzene	U .006	UJ	NA		U .006	-	NA	
Methylene chloride	BJ .005	U	NA		B .007	UJ	NA	
Styrene	U .006	UJ	NA		U .006	-	NA	
Tetrachlorethene	U .006	UJ	NA		U .006	-	NA	
Toluene	U .006	UJ	NA		.2	-	NA	
Total xylenes	U .006	UJ	NA		.069	-	NA	
trans-1,3-Dichloropropene	U .006	UJ	NA		U .006	-	NA	
Trichloroethene	U .006	UJ	NA		U .006	-	NA	
Vinyl Acetate	U .012	UJ	NA		U .012	-	NA	
Vinyl chloride	U .012	UJ	NA		U .012	-	NA	

a = lab qualifier
b = validated qualifier

397

-4048

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1621 099550 05/22/91 16 ft		1621 099558 05/22/91 6 ft		1621 099572 05/23/91 25 ft		1621 099579 05/23/91 6 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .41	-	NA		U .37	-
1,2-Dichlorobenzene	NA		U .41	-	NA		U .37	-
1,3-Dichlorobenzene	NA		U .41	-	NA		U .37	-
1,4-Dichlorobenzene	NA		U .41	-	NA		U .37	-
2,4,5-Trichlorophenol	NA		U 2	-	NA		U 1.8	-
2,4,6-Trichlorophenol	NA		U .41	-	NA		U .37	-
2,4-Dichlorophenol	NA		U .41	-	NA		U .37	-
2,4-Dimethylphenol	NA		U .41	-	NA		U .37	-
2,4-Dinitrophenol	NA		U 2	-	NA		U 1.8	-
2,4-Dinitrotoluene	NA		U .41	-	NA		U .37	-
2,6-Dinitrotoluene	NA		U .41	-	NA		U .37	-
2-Chloronaphthalene	NA		U .41	-	NA		U .37	-
2-Chlorophenol	NA		U .41	-	NA		U .37	-
2-Methylnaphthalene	NA		U .41	-	NA		U .37	-
2-Methylphenol	NA		U .41	-	NA		U .37	-
2-Nitroaniline	NA		U 2	-	NA		U 1.8	-
2-Nitrophenol	NA		U .41	-	NA		U .37	-
3,3'-Dichlorobenzidine	NA		U .82	-	NA		U .75	-
3-Nitroaniline	NA		U 2	-	NA		U 1.8	-
4,6-Dinitro-2-methylphenol	NA		U 2	-	NA		U 1.8	-
4-Bromophenyl phenyl ether	NA		U .41	-	NA		U .37	-
4-Chloro-3-methylphenol	NA		U .41	-	NA		U .37	-
4-Chloroaniline	NA		U .41	-	NA		U .37	-
4-Chlorophenylphenyl ether	NA		U .41	-	NA		U .37	-
4-Methylphenol	NA		U .41	-	NA		U .37	-
4-Nitroaniline	NA		U 2	-	NA		U 1.8	-
4-Nitrophenol	NA		U 2	-	NA		U 1.8	-
Acenaphthene	NA		U .41	-	NA		U .37	-
Acenaphthylene	NA		U .41	-	NA		U .37	-
Anthracene	NA		U .41	-	NA		U .37	-
Benzo(a)anthracene	NA		U .41	-	NA		U .37	-
Benzo(a)pyrene	NA		U .41	-	NA		U .37	-
Benzo(b)fluoranthene	NA		U .41	-	NA		U .37	-
Benzo(g,h,i)perylene	NA		U .41	-	NA		U .37	-
Benzo(k)fluoranthene	NA		U .41	-	NA		U .37	-
Benzoic acid	NA		U 2	-	NA		U 1.8	-
Benzyl alcohol	NA		U .41	-	NA		U .37	-
bis(2-Chloroethoxy)methane	NA		U .41	-	NA		U .37	-
bis(2-Chloroethyl)ether	NA		U .41	-	NA		U .37	-
bis(2-Chloroisopropyl) ether	NA		U .41	-	NA		U .37	-

a = lab qualifier
b = validated qualifier

398

-4048

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1621 099550 05/22/91 15 ft		1621 099558 05/22/91 6 ft		1621 099572 05/23/91 25 ft		1621 099579 05/23/91 6 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
bis(2-Ethylhexyl) phthalate	NA		U .41	-	NA		U .37	-
Butyl benzyl phthalate	NA		U .41	-	NA		U .37	-
Chrysene	NA		U .41	-	NA		U .37	-
Di-n-butyl phthalate	NA		J .054	J	NA		U .37	-
Di-n-octyl phthalate	NA		U .41	-	NA		U .37	UJ
Dibenzo(a,h)anthracene	NA		U .41	-	NA		U .37	-
Dibenzofuran	NA		U .41	-	NA		U .37	-
Diethyl phthalate	NA		U .41	-	NA		U .37	-
Dimethyl phthalate	NA		U .41	-	NA		U .37	-
Fluoranthene	NA		U .41	-	NA		U .37	-
Fluorene	NA		U .41	-	NA		U .37	-
Hexachlorobenzene	NA		U .41	-	NA		U .37	-
Hexachlorobutadiene	NA		U .41	-	NA		U .37	-
Hexachlorocyclopentadiene	NA		U .41	UJ	NA		U .37	UJ
Hexachloroethane	NA		U .41	-	NA		U .37	-
Indeno(1,2,3-cd)pyrene	NA		U .41	-	NA		U .37	-
Isophorone	NA		U .41	-	NA		U .37	-
N-Nitroso-di-n-propylamine	NA		U .41	-	NA		U .37	-
N-Nitrosodiphenylamine	NA		U .41	-	NA		U .37	-
Naphthalene	NA		U .41	-	NA		U .37	-
Nitrobenzene	NA		U .41	-	NA		U .37	-
Pentachlorophenol	NA		U 2	-	NA		U 1.8	-
Phenanthrene	NA		U .41	-	NA		U .37	-
Phenol	NA		U .41	-	NA		U .37	-
Pyrene	NA		U .41	-	NA		U .37	-
Tributyl Phosphate	NA		U .41	UJ	NA		U .37	UJ
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	-	NA		U .006	-	NA	
1,1,2,2-Tetrachloroethane	U .006	-	NA		U .006	-	NA	
1,1,2-Trichloroethane	U .006	-	NA		U .006	-	NA	
1,1-Dichloroethane	U .006	-	NA		U .006	-	NA	
1,1-Dichloroethene	U .006	-	NA		U .006	-	NA	
1,2-Dichloroethane	U .006	-	NA		U .006	-	NA	
1,2-Dichloroethylene	U .006	-	NA		U .006	-	NA	
1,2-Dichloropropane	U .006	-	NA		U .006	-	NA	
2-Butanone	J .006	J	NA		J .01	J	NA	
2-Hexanone	U .012	-	NA		U .013	-	NA	
4-Methyl-2-pentanone	U .012	-	NA		U .013	-	NA	
Acetone	.012	-	NA		.023	-	NA	
Benzene	U .006	-	NA		U .006	-	NA	
Bromodichloromethane	U .006	-	NA		U .006	-	NA	
Bromoform	U .006	-	NA		U .006	-	NA	

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1621 099550 05/22/91 15 ft		1621 099558 05/22/91 6 ft		1621 099572 05/23/91 25 ft		1621 099579 05/23/91 6 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Bromomethane	U .012	-	NA		U .013	-	NA	
Carbon disulfide	U .006	-	NA		U .006	-	NA	
Carbon Tetrachloride	U .006	-	NA		U .006	-	NA	
Chlorobenzene	U .006	-	NA		U .006	-	NA	
Chloroethane	U .012	-	NA		U .013	-	NA	
Chloroform	U .006	-	NA		U .006	-	NA	
Chloromethane	U .012	-	NA		U .013	-	NA	
cis-1,3-Dichloropropene	U .006	-	NA		U .006	-	NA	
Dibromochloromethane	U .006	-	NA		U .006	-	NA	
Ethylbenzene	U .006	-	NA		U .006	-	NA	
Methylene chloride	J .004	J	NA		J .004	J	NA	
Styrene	U .006	-	NA		U .006	-	NA	
Tetrachlorethene	U .006	-	NA		U .006	-	NA	
Toluene	J .006	-	NA		J .006	-	NA	
Total xylenes	U .006	-	NA		U .006	-	NA	
trans-1,3-Dichloropropene	U .006	-	NA		U .006	-	NA	
Trichloroethene	U .006	-	NA		U .006	-	NA	
Vinyl Acetate	U .012	-	NA		U .013	-	NA	
Vinyl chloride	U .012	-	NA		U .013	-	NA	

a = lab qualifier
b = validated qualifier

4948
400

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099588 05/29/91 1 ft		1622 099593 05/29/91 5 ft		1622 099602 05/30/91 15 ft		1622 099608 05/30/91 20 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .41	-	NA		U .39	-
1,2-Dichlorobenzene	NA		U .41	-	NA		U .39	-
1,3-Dichlorobenzene	NA		U .41	-	NA		U .39	-
1,4-Dichlorobenzene	NA		U .41	-	NA		U .39	-
2,4,5-Trichlorophenol	NA		U 2	-	NA		U 1.9	-
2,4,6-Trichlorophenol	NA		U .41	-	NA		U .39	-
2,4-Dichlorophenol	NA		U .41	-	NA		U .39	-
2,4-Dimethylphenol	NA		U .41	-	NA		U .39	-
2,4-Dinitrophenol	NA		U 2	UJ	NA		U 1.9	UJ
2,4-Dinitrotoluene	NA		U .41	-	NA		U .39	-
2,6-Dinitrotoluene	NA		U .41	-	NA		U .39	-
2-Chloronaphthalene	NA		U .41	-	NA		U .39	-
2-Chlorophenol	NA		U .41	-	NA		U .39	-
2-Methylnaphthalene	NA		U .41	-	NA		U .39	-
2-Methylphenol	NA		U .41	-	NA		U .39	-
2-Nitroaniline	NA		U 2	-	NA		U 1.9	-
2-Nitrophenol	NA		U .41	-	NA		U .39	-
3,3'-Dichlorobenzidine	NA		U .82	-	NA		U .77	-
3-Nitroaniline	NA		U 2	-	NA		U 1.9	UJ
4,6-Dinitro-2-methylphenol	NA		U 2	UJ	NA		U 1.9	UJ
4-Bromophenyl phenyl ether	NA		U .41	-	NA		U .39	-
4-Chloro-3-methylphenol	NA		U .41	-	NA		U .39	-
4-Chloroaniline	NA		U .41	-	NA		U .39	-
4-Chlorophenylphenyl ether	NA		U .41	-	NA		U .39	-
4-Methylphenol	NA		U .41	-	NA		U .39	-
4-Nitroaniline	NA		U 2	-	NA		U 1.9	-
4-Nitrophenol	NA		U 2	-	NA		U 1.9	-
Acenaphthene	NA		U .41	-	NA		U .39	-
Acenaphthylene	NA		U .41	-	NA		U .39	-
Anthracene	NA		U .41	-	NA		U .39	-
Benzo(a)anthracene	NA		U .41	-	NA		U .39	-
Benzo(a)pyrene	NA		U .41	-	NA		U .39	-
Benzo(b)fluoranthene	NA		U .41	-	NA		U .39	-
Benzo(g,h,i)perylene	NA		U .41	-	NA		U .39	-
Benzo(k)fluoranthene	NA		U .41	-	NA		U .39	-
Benzoic acid	NA		U 2	UJ	NA		U 1.9	UJ
Benzyl alcohol	NA		U .41	-	NA		U .39	-
bis(2-Chloroethoxy)methane	NA		U .41	-	NA		U .39	-
bis(2-Chloroethyl)ether	NA		U .41	-	NA		U .39	-
bis(2-Chloroisopropyl) ether	NA		U .41	-	NA		U .39	-

a = lab qualifier
b = validated qualifier

-4948
401

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099588 05/29/91 1 ft		1622 099593 05/29/91 5 ft		1622 099602 05/30/91 15 ft		1622 099608 05/30/91 20 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
bis(2-Ethylhexyl) phthalate	NA		U .41	-	NA		U .39	-
Butyl benzyl phthalate	NA		U .41	-	NA		U .39	-
Chrysene	NA		U .41	-	NA		U .39	-
Di-n-butyl phthalate	NA		U .41	-	NA		U .39	-
Di-n-octyl phthalate	NA		U .41	-	NA		J .097	J
Dibenzo(a,h)anthracene	NA		U .41	-	NA		U .39	-
Dibenzofuran	NA		U .41	-	NA		U .39	-
Diethyl phthalate	NA		U .41	-	NA		U .39	-
Dimethyl phthalate	NA		U .41	-	NA		U .39	-
Fluoranthene	NA		U .41	-	NA		U .39	-
Fluorene	NA		U .41	-	NA		U .39	-
Hexachlorobenzene	NA		U .41	-	NA		U .39	-
Hexachlorobutadiene	NA		U .41	-	NA		U .39	-
Hexachlorocyclopentadiene	NA		U .41	-	NA		U .39	-
Hexachloroethane	NA		U .41	-	NA		U .39	-
Indeno(1,2,3-cd)pyrene	NA		U .41	-	NA		U .39	-
Isophorone	NA		U .41	-	NA		U .39	-
N-Nitroso-di-n-propylamine	NA		U .41	-	NA		U .39	-
N-Nitrosodiphenylamine	NA		U .41	-	NA		U .39	-
Naphthalene	NA		U .41	-	NA		U .39	-
Nitrobenzene	NA		U .41	-	NA		U .39	-
Pentachlorophenol	NA		U 2	-	NA		U 1.9	-
Phenanthrene	NA		U .41	-	NA		U .39	-
Phenol	NA		BJ .11	J	NA		BJ .39	U
Pyrene	NA		U .41	-	NA		U .39	-
Tributyl Phosphate	NA		NA		NA		U .39	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	-	NA		U .006	-	NA	
1,1,2,2-Tetrachloroethane	U .006	-	NA		U .006	-	NA	
1,1,2-Trichloroethane	U .006	-	NA		U .006	-	NA	
1,1-Dichloroethane	U .006	-	NA		U .006	UJ	NA	
1,1-Dichloroethene	U .006	-	NA		U .006	-	NA	
1,2-Dichloroethane	U .006	-	NA		U .006	-	NA	
1,2-Dichloroethylene	U .006	-	NA		U .006	-	NA	
1,2-Dichloropropane	U .006	-	NA		U .006	-	NA	
2-Butanone	U .012	-	NA		U .012	UJ	NA	
2-Hexanone	U .012	UJ	NA		BJ .012	UJ	NA	
4-Methyl-2-pentanone	U .012	-	NA		U .012	-	NA	
Acetone	U .012	UJ	NA		B .012	UJ	NA	
Benzene	U .006	-	NA		U .006	-	NA	
Bromodichloromethane	U .006	-	NA		U .006	-	NA	
Bromoform	U .006	-	NA		U .006	-	NA	

a = lab qualifier
b = validated qualifier

402

-4948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099588 05/29/91 1 ft		1622 099593 05/29/91 5 ft		1622 099602 05/30/91 15 ft		1622 099608 05/30/91 20 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Bromomethane	U .012	-	NA		U .012	-	NA	
Carbon disulfide	U .006	-	NA		U .006	-	NA	
Carbon Tetrachloride	U .006	-	NA		U .006	-	NA	
Chlorobenzene	U .006	-	NA		U .006	-	NA	
Chloroethane	U .012	-	NA		U .012	-	NA	
Chloroform	U .006	-	NA		U .006	-	NA	
Chloromethane	U .012	-	NA		U .012	-	NA	
cis-1,3-Dichloropropene	U .006	-	NA		U .006	-	NA	
Dibromochloromethane	U .006	-	NA		U .006	-	NA	
Ethylbenzene	U .006	-	NA		U .006	-	NA	
Methylene chloride	BJ .006	UJ	NA		BJ .006	U	NA	
Styrene	U .006	-	NA		U .006	-	NA	
Tetrachlorethene	U .006	-	NA		U .006	-	NA	
Toluene	J .002	-	NA		.006	-	NA	
Total xylenes	U .006	-	NA		U .006	-	NA	
trans-1,3-Dichloropropene	U .006	-	NA		U .006	-	NA	
Trichloroethene	U .006	-	NA		U .006	-	NA	
Vinyl Acetate	U .012	-	NA		U .012	-	NA	
Vinyl chloride	U .012	-	NA		U .012	-	NA	

a = lab qualifier
b = validated qualifier

403

-4948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099619 05/31/91 25 ft		1622 099625 05/31/91 30 ft		1623 099660 06/04/91 16 ft		1623 099669 06/05/91 24 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .4	-	U .4	-	NA	
1,2-Dichlorobenzene	NA		U .4	-	U .4	-	NA	
1,3-Dichlorobenzene	NA		U .4	-	U .4	-	NA	
1,4-Dichlorobenzene	NA		U .4	-	U .4	-	NA	
2,4,5-Trichlorophenol	NA		U 2	-	U 1.9	-	NA	
2,4,6-Trichlorophenol	NA		U .4	-	U .4	-	NA	
2,4-Dichlorophenol	NA		U .4	-	U .4	-	NA	
2,4-Dimethylphenol	NA		U .4	-	U .4	-	NA	
2,4-Dinitrophenol	NA		U 2	UJ	U 1.9	UJ	NA	
2,4-Dinitrotoluene	NA		U .4	-	U .4	UJ	NA	
2,6-Dinitrotoluene	NA		U .4	-	U .4	-	NA	
2-Chloronaphthalene	NA		U .4	-	U .4	-	NA	
2-Chlorophenol	NA		U .4	-	U .4	-	NA	
2-Methylnaphthalene	NA		U .4	-	U .4	-	NA	
2-Methylphenol	NA		U .4	-	U .4	-	NA	
2-Nitroaniline	NA		U 2	-	U 1.9	-	NA	
2-Nitrophenol	NA		U .4	-	U .4	-	NA	
3,3'-Dichlorobenzidine	NA		U .81	-	U .8	-	NA	
3-Nitroaniline	NA		U 2	UJ	U 1.9	-	NA	
4,6-Dinitro-2-methylphenol	NA		U 2	UJ	U 1.9	UJ	NA	
4-Bromophenyl phenyl ether	NA		U .4	-	U .4	-	NA	
4-Chloro-3-methylphenol	NA		U .4	-	U .4	-	NA	
4-Chloroaniline	NA		U .4	-	U .4	-	NA	
4-Chlorophenylphenyl ether	NA		U .4	-	U .4	-	NA	
4-Methylphenol	NA		U .4	-	U .4	-	NA	
4-Nitroaniline	NA		U 2	-	U 1.9	UJ	NA	
4-Nitrophenol	NA		U 2	-	U 1.9	-	NA	
Acenaphthene	NA		U .4	-	U .4	-	NA	
Acenaphthylene	NA		U .4	-	U .4	-	NA	
Anthracene	NA		U .4	-	U .4	-	NA	
Benzo(a)anthracene	NA		U .4	-	U .4	-	NA	
Benzo(a)pyrene	NA		U .4	-	U .4	-	NA	
Benzo(b)fluoranthene	NA		U .4	-	U .4	-	NA	
Benzo(g,h,i)perylene	NA		U .4	-	U .4	-	NA	
Benzo(k)fluoranthene	NA		U .4	-	U .4	-	NA	
Benzoic acid	NA		U 2	UJ	U 1.9	UJ	NA	
Benzyl alcohol	NA		U .4	-	U .4	-	NA	
bis(2-Chloroethoxy)methane	NA		U .4	-	U .4	-	NA	
bis(2-Chloroethyl)ether	NA		U .4	-	U .4	-	NA	
bis(2-Chloroisopropyl) ether	NA		U .4	-	U .4	-	NA	

a = lab qualifier
b = validated qualifier

4948
404

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099619 05/31/91 25 ft		1622 099625 05/31/91 30 ft		1623 099660 06/04/91 16 ft		1623 099669 06/05/91 24 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
bis(2-Ethylhexyl) phthalate	NA		U .4	-	J .043	J	NA	
Butyl benzyl phthalate	NA		U .4	-	U .4	-	NA	
Chrysene	NA		U .4	-	U .4	-	NA	
Di-n-butyl phthalate	NA		U .4	-	U .4	-	NA	
Di-n-octyl phthalate	NA		J .082	J	J .044	J	NA	
Dibenzo(a,h)anthracene	NA		U .4	-	U .4	-	NA	
Dibenzofuran	NA		U .4	-	U .4	-	NA	
Diethyl phthalate	NA		J .12	J	U .4	-	NA	
Dimethyl phthalate	NA		U .4	-	U .4	-	NA	
Fluoranthene	NA		U .4	-	U .4	-	NA	
Fluorene	NA		U .4	-	U .4	-	NA	
Hexachlorobenzene	NA		U .4	-	U .4	-	NA	
Hexachlorobutadiene	NA		U .4	-	U .4	-	NA	
Hexachlorocyclopentadiene	NA		U .4	-	U .4	-	NA	
Hexachloroethane	NA		U .4	-	U .4	-	NA	
Indeno(1,2,3-cd)pyrene	NA		U .4	-	U .4	-	NA	
Isophorone	NA		U .4	-	U .4	-	NA	
N-Nitroso-di-n-propylamine	NA		U .4	-	U .4	-	NA	
N-Nitrosodiphenylamine	NA		U .4	-	U .4	-	NA	
Naphthalene	NA		U .4	-	U .4	-	NA	
Nitrobenzene	NA		U .4	-	U .4	-	NA	
Pentachlorophenol	NA		U 2	-	U 1.9	-	NA	
Phenanthrene	NA		U .4	-	U .4	-	NA	
Phenol	NA		BJ .4	-	U .4	-	NA	
Pyrene	NA		U .4	-	U .4	-	NA	
Tributyl Phosphate	NA		U .4	-	U .4	UJ	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	-	NA		NA		U .006	-
1,1,2,2-Tetrachloroethane	U .006	-	NA		NA		U .006	-
1,1,2-Trichloroethane	U .006	-	NA		NA		U .006	-
1,1-Dichloroethane	U .006	-	NA		NA		U .006	-
1,1-Dichloroethene	U .006	-	NA		NA		U .006	-
1,2-Dichloroethane	U .006	UJ	NA		NA		U .006	UJ
1,2-Dichloroethylene	U .006	-	NA		NA		U .006	-
1,2-Dichloropropane	U .006	-	NA		NA		U .006	-
2-Butanone	U .012	UJ	NA		NA		U .012	UJ
2-Hexanone	U .012	UJ	NA		NA		U .012	-
4-Methyl-2-pentanone	U .012	-	NA		NA		U .012	-
Acetone	B .025	UJ	NA		NA		B .019	UJ
Benzene	U .006	UJ	NA		NA		U .006	-
Bromodichloromethane	U .006	-	NA		NA		U .006	-
Bromoform	U .006	-	NA		NA		U .006	-

a = lab qualifier
b = validated qualifier

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099619 05/31/91 25 ft		1622 099625 05/31/91 30 ft		1623 099660 06/04/91 16 ft		1623 099669 06/05/91 24 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Bromomethane	U .012	-	NA		NA		U .012	-
Carbon disulfide	U .006	-	NA		NA		U .006	-
Carbon Tetrachloride	U .006	-	NA		NA		U .006	-
Chlorobenzene	U .006	UJ	NA		NA		U .006	-
Chloroethane	U .012	-	NA		NA		U .012	-
Chloroform	U .006	-	NA		NA		U .006	-
Chloromethane	U .012	-	NA		NA		U .012	UJ
cis-1,3-Dichloropropene	U .006	-	NA		NA		U .006	-
Dibromochloromethane	U .006	-	NA		NA		U .006	-
Ethylbenzene	U .006	UJ	NA		NA		U .006	-
Methylene chloride	BJ .006	U	NA		NA		BJ .005	U
Styrene	U .006	UJ	NA		NA		U .006	-
Tetrachlorethene	U .006	-	NA		NA		J .004	-
Toluene	J .004	J	NA		NA		.014	-
Total xylenes	U .006	UJ	NA		NA		U .006	-
trans-1,3-Dichloropropene	U .006	-	NA		NA		U .006	-
Trichloroethene	U .006	-	NA		NA		U .006	-
Vinyl Acetate	U .012	-	NA		NA		U .012	-
Vinyl chloride	U .012	-	NA		NA		U .012	-

a = lab qualifier
b = validated qualifier

1948

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1623 099676 06/05/91 24 ft		1790 099684 06/17/91 5 ft		1790 099685 06/17/91 5 ft	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene	U .41	-	NA		U .38	-
1,2-Dichlorobenzene	U .41	-	NA		U .38	-
1,3-Dichlorobenzene	U .41	-	NA		U .38	-
1,4-Dichlorobenzene	U .41	-	NA		U .38	-
2,4,5-Trichlorophenol	U 2	-	NA		U 1.9	-
2,4,6-Trichlorophenol	U .41	-	NA		U .38	-
2,4-Dichlorophenol	U .41	-	NA		U .38	-
2,4-Dimethylphenol	U .41	-	NA		U .38	-
2,4-Dinitrophenol	U 2	UJ	NA		U 1.9	-
2,4-Dinitrotoluene	U .41	-	NA		U .38	-
2,6-Dinitrotoluene	U .41	-	NA		U .38	-
2-Chloronaphthalene	U .41	-	NA		U .38	-
2-Chlorophenol	U .41	-	NA		U .38	-
2-Methylnaphthalene	U .41	-	NA		U .38	-
2-Methylphenol	U .41	-	NA		U .38	-
2-Nitroaniline	U 2	-	NA		U .38	-
2-Nitrophenol	U .41	-	NA		U 1.9	-
3,3'-Dichlorobenzidine	U .82	UJ	NA		U .38	-
3-Nitroaniline	U 2	-	NA		U .76	-
4,6-Dinitro-2-methylphenol	U 2	UJ	NA		U 1.9	UJ
4-Bromophenyl phenyl ether	U .41	-	NA		U 1.9	-
4-Chloro-3-methylphenol	U .41	-	NA		U .38	-
4-Chloroaniline	U .41	-	NA		U .38	-
4-Chlorophenylphenyl ether	U .41	-	NA		U .38	-
4-Methylphenol	U .41	-	NA		U .38	-
4-Nitroaniline	U 2	UJ	NA		U .38	-
4-Nitrophenol	U 2	-	NA		U 1.9	-
Acenaphthene	U .41	-	NA		U 1.9	-
Acenaphthylene	U .41	-	NA		U .38	-
Anthracene	U .41	-	NA		U .38	-
Benzo(a)anthracene	U .41	-	NA		U .38	-
Benzo(a)pyrene	U .41	-	NA		U .38	-
Benzo(b)fluoranthene	U .41	-	NA		U .38	-
Benzo(g,h,i)perylene	U .41	-	NA		U .38	-
Benzo(k)fluoranthene	U .41	-	NA		U .38	-
Benzoic acid	U 2	UJ	NA		U .38	-
Benzyl alcohol	U .41	-	NA		U 1.9	-
bis(2-Chloroethoxy)methane	U .41	-	NA		U .38	-
bis(2-Chloroethyl)ether	U .41	-	NA		U .38	-
bis(2-Chloroisopropyl) ether	U .41	-	NA		U .38	-

a = lab qualifier
b = validated qualifier

-4948
401

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1623 099676 06/05/91 24 ft a	b	1790 099684 06/17/91 5 ft a	b	1790 099685 06/17/91 5 ft a	b
SEMI-VOLATILE ORGANICS						
bis(2-Ethylhexyl) phthalate	1	-	NA		U .38	UJ
Butyl benzyl phthalate	U .41	-	NA		U .38	UJ
Chrysene	U .41	-	NA		U .38	-
Di-n-butyl phthalate	U .41	-	NA		U .38	-
Di-n-octyl phthalate	U .41	-	NA		U .38	-
Dibenzo(a,h)anthracene	U .41	-	NA		U .38	-
Dibenzofuran	U .41	-	NA		U .38	-
Diethyl phthalate	U .41	-	NA		U .38	-
Dimethyl phthalate	U .41	-	NA		U .38	-
Fluoranthene	U .41	-	NA		U .38	-
Fluorene	U .41	-	NA		U .38	-
Hexachlorobenzene	U .41	-	NA		U .38	-
Hexachlorobutadiene	U .41	-	NA		U .38	-
Hexachlorocyclopentadiene	U .41	-	NA		U .38	-
Hexachloroethane	U .41	-	NA		U .38	-
Indeno(1,2,3-cd)pyrene	U .41	-	NA		U .38	-
Isophorone	U .41	-	NA		U .38	-
N-Nitroso-di-n-propylamine	U .41	-	NA		U .38	-
N-Nitrosodiphenylamine	U .41	-	NA		U .38	-
Naphthalene	U .41	-	NA		U .38	-
Nitrobenzene	U .41	-	NA		U .38	-
Pentachlorophenol	U 2	-	NA		U .38	-
Phenanthrene	U .41	-	NA		U .38	-
Phenol	U .41	-	NA		U 1.9	-
Pyrene	U .41	-	NA		U .38	-
Tributyl Phosphate	U .41	UJ	NA		U .38	-
VOLATILE ORGANICS						
1,1,1-Trichloroethane	NA		U .006	-	NA	
1,1,2,2-Tetrachloroethane	NA		U .006	-	NA	
1,1,2-Trichloroethane	NA		U .006	-	NA	
1,1-Dichloroethane	NA		U .006	-	NA	
1,1-Dichloroethene	NA		U .006	-	NA	
1,2-Dichloroethane	NA		U .006	-	NA	
1,2-Dichloroethylene	NA		U .006	-	NA	
1,2-Dichloropropane	NA		U .006	-	NA	
2-Butanone	NA		J .011	R	NA	
2-Hexanone	NA		U .011	-	NA	
4-Methyl-2-pentanone	NA		U .011	-	NA	
Acetone	NA		.05	UJ	NA	
Benzene	NA		U .006	-	NA	
Bromodichloromethane	NA		U .006	-	NA	
Bromoform	NA		U .006	-	NA	

a = lab qualifier
b = validated qualifier

948

408

OU4 BERM HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1623 099676 06/05/91 24 ft		1790 099684 06/17/91 5 ft		1790 099685 06/17/91 5 ft	
	a	b	a	b	a	b
VOLATILE ORGANICS						
Bromomethane	NA		U .011	UJ	NA	
Carbon disulfide	NA		U .006	UJ	NA	
Carbon Tetrachloride	NA		U .006	-	NA	
Chlorobenzene	NA		U .006	-	NA	
Chloroethane	NA		U .011	-	NA	
Chloroform	NA		U .006	-	NA	
Chloromethane	NA		U .011	-	NA	
cis-1,3-Dichloropropene	NA		U .006	-	NA	
Dibromochloromethane	NA		U .006	-	NA	
Ethylbenzene	NA		U .006	-	NA	
Methylene chloride	NA		BJ .006	UJ	NA	
Styrene	NA		U .006	-	NA	
Tetrachlorethene	NA		BJ .006	U	NA	
Toluene	NA		.021	-	NA	
Total xylenes	NA		U .006	-	NA	
trans-1,3-Dichloropropene	NA		U .006	-	NA	
Trichloroethene	NA		U .006	-	NA	
Vinyl Acetate	NA		U .011	-	NA	
Vinyl chloride	NA		U .011	-	NA	

4BRMCHH.PRN

a = lab qualifier
b = validated qualifier

409

--4048

OU4 BERM
TCLP RESULTS

OU4 BERM TCLP RESULTS
RI/FS DATA
Results in milligrams per liters (MG/L).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099496 05/16/91 16 FT.		1621 099563 05/22/91 6 FT.		1622 099612 05/30/91 20 FT.		1623 099663 06/04/91 16 FT.	
	a	b	a	b	a	b	a	b
METALS								
Arsenic	U .25	U	U .25	UJ	U .25	-	U 2.5	-
Barium	1.57	-	.705	J	1.18	-	1.215	-
Cadmium	11.4	-	U .01	UJ	U .01	-	U .01	-
Chromium	81.8	-	.0776	J	.087	-	.0509	-
Lead	U .2	-	U .2	UJ	U .2	-	U .2	-
Mercury	U .0002	-	U .0002	UJ	U .0002	-	U .0002	-
Selenium	U .4	U	U .4	UJ	U .4	-	U .4	-
Silver	112	-	.1069	UJ	.122	-	.0992	-

a = lab qualifier
b = validated qualifier

OU4 BERM TCLP LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099493 05/16/91 16 ft		1620 099495 05/16/91 16 ft		1621 099550 05/22/91 15 ft		1621 099562 05/22/91 6 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,4-Dichlorobenzene	NA		U .02	J	NA		U .02	J
2,4,5-Trichlorophenol	NA		U .1	J	NA		U .1	J
2,4,6-Trichlorophenol	NA		U .02	J	NA		U .02	J
2,4-Dinitrotoluene	NA		U .02	J	NA		U .02	J
2-Methylphenol	NA		U .02	J	NA		U .02	J
3-Methylphenol	NA		U .02	J	NA		U .02	J
4-Methylphenol	NA		U .02	J	NA		U .02	J
Hexachlorobenzene	NA		U .02	J	NA		U .02	J
Hexachlorobutadiene	NA		U .02	J	NA		U .02	J
Hexachloroethane	NA		U .02	J	NA		U .02	J
Nitrobenzene	NA		U .02	J	NA		U .02	J
Pentachlorophenol	NA		U .1	J	NA		J .005	J
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		NA		NA		NA	
1,1,2,2-Tetrachloroethane	NA		NA		NA		NA	
1,1,2-Trichloroethane	NA		NA		NA		NA	
1,1-Dichloroethane	NA		NA		U .005	-	NA	
1,1-Dichloroethene	U .005	-	NA		NA		NA	
1,2-Dichloroethane	U .005	-	NA		U .005	-	NA	
1,2-Dichloroethylene	NA		NA		NA		NA	
1,2-Dichloropropane	NA		NA		NA		NA	
2-Butanone	U .01	UJ	NA		U .01	-	NA	
2-Hexanone	NA		NA		NA		NA	
4-Methyl-2-pentanone	NA		NA		NA		NA	
Acetone	NA		NA		NA		NA	
Benzene	U .005	-	NA		U .005	-	NA	
Bromodichloromethane	NA		NA		NA		NA	
Bromoform	NA		NA		NA		NA	
Bromomethane	NA		NA		NA		NA	
Carbon disulfide	NA		NA		U .005	-	NA	
Carbon Tetrachloride	U .005	-	NA		NA		NA	
Chlorobenzene	U .005	-	NA		U .005	-	NA	
Chloroethane	NA		NA		NA		NA	
Chloroform	U .005	-	NA		U .005	-	NA	
Chloromethane	NA		NA		NA		NA	
cis-1,3-Dichloropropene	NA		NA		NA		NA	
Dibromochloromethane	NA		NA		NA		NA	
Ethylbenzene	NA		NA		NA		NA	
Methylene chloride	NA		NA		NA		NA	
Pyridine	NA		U .02	J	NA		U .02	J
Styrene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 BERM TCLP LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1620 099493 05/16/91 16 ft		1620 099495 05/16/91 16 ft		1621 099550 05/22/91 15 ft		1621 099562 05/22/91 6 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Tetrachlorethene	J .002	-	NA		U .005	-	NA	
Toluene	NA		NA		NA		NA	
Total xylenes	NA		NA		NA		NA	
trans-1,3-Dichloropropene	NA		NA		NA		NA	
Trichloroethene	U .005	-	NA		U .005	-	NA	
Vinyl Acetate	NA		NA		NA		NA	
Vinyl chloride	U .01	-	NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

413
-4948

OU4 BERM TCLP LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099600 05/30/91 14 ft		1622 099612 05/30/91 20 ft		1623 099654 06/04/91 16 ft		1623 099663 06/04/91 16 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
1,4-Dichlorobenzene	NA		U .02	-	NA		U .01	-
2,4,5-Trichlorophenol	NA		U .1	-	NA		U .05	-
2,4,6-Trichlorophenol	NA		U .02	-	NA		U .01	-
2,4-Dinitrotoluene	NA		U .02	-	NA		U .01	-
2-Methylphenol	NA		U .02	-	NA		U .01	-
3-Methylphenol	NA		U .02	-	NA		U .01	-
4-Methylphenol	NA		U .02	-	NA		U .01	-
Hexachlorobenzene	NA		U .02	-	NA		U .01	-
Hexachlorobutadiene	NA		U .02	-	NA		U .01	-
Hexachloroethane	NA		U .02	-	NA		U .01	-
Nitrobenzene	NA		U .02	-	NA		U .01	-
Pentachlorophenol	NA		J .006	-	NA		U .05	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		NA		NA		NA	
1,1,2,2-Tetrachloroethane	NA		NA		NA		NA	
1,1,2-Trichloroethane	NA		NA		NA		NA	
1,1-Dichloroethane	NA		NA		NA		NA	
1,1-Dichloroethene	U .005	-	NA		U .005	-	NA	
1,2-Dichloroethane	U .005	-	NA		U .005	-	NA	
1,2-Dichloroethylene	NA		NA		NA		NA	
1,2-Dichloropropane	NA		NA		NA		NA	
2-Butanone	J .006	-	NA		U .01	-	NA	
2-Hexanone	NA		NA		NA		NA	
4-Methyl-2-pentanone	NA		NA		NA		NA	
Acetone	NA		NA		NA		NA	
Benzene	U .005	-	NA		U .005	-	NA	
Bromodichloromethane	NA		NA		NA		NA	
Bromoform	NA		NA		NA		NA	
Bromomethane	NA		NA		NA		NA	
Carbon disulfide	NA		NA		NA		NA	
Carbon Tetrachloride	U .005	-	NA		U .005	-	NA	
Chlorobenzene	U .005	-	NA		U .005	-	NA	
Chloroethane	NA		NA		NA		NA	
Chloroform	U .005	-	NA		U .005	-	NA	
Chloromethane	NA		NA		NA		NA	
cis-1,3-Dichloropropene	NA		NA		NA		NA	
Dibromochloromethane	NA		NA		NA		NA	
Ethylbenzene	NA		NA		NA		NA	
Methylene chloride	NA		NA		NA		NA	
Pyridine	NA		U .02	-	NA		U .01	-
Styrene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948
414

OU4 BERM TCLP LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1622 099600 05/30/91 14 ft		1622 099612 05/30/91 20 ft		1623 099654 06/04/91 16 ft		1623 099663 06/04/91 16 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Tetrachlorethene	U .005	-	NA		U .005	-	NA	
Toluene	NA		NA		NA		NA	
Total xylenes	NA		NA		NA		NA	
trans-1,3-Dichloropropene	NA		NA		NA		NA	
Trichloroethene	U .005	-	NA		U .005	-	NA	
Vinyl Acetate	NA		NA		NA		NA	
Vinyl chloride	U .01	-	NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

415

-4948

OU4 BERM GEOTECHNICAL RESULTS

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99461
SPECIFIC GRAVITY:	2.69 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	22.4
LIQUID LIMIT:	32.0
PLASTICITY INDEX:	14.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, BROWN MOTTLED TAN, REDDISH BROWN AND GRAY.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	99.8
NO. 4	4.750	99.3
NO. 10	2.000	97.6
NO. 20	0.850	95.5
NO. 40	0.425	93.4
NO. 60	0.250	90.4
NO. 140	0.106	84.1
NO. 200	0.075	81.8

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0332	67.1
0.0243	62.6
0.0164	53.7
0.0101	42.5
0.0074	36.9
0.0053	31.3
0.0039	26.8
0.0028	22.4
0.0012	15.7

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99484
SPECIFIC GRAVITY:	2.73 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	22.3
LIQUID LIMIT:	29.0
PLASTICITY INDEX:	15.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	98.2
NO. 10	2.000	93.3
NO. 20	0.850	86.7
NO. 40	0.425	80.7
NO. 60	0.250	74.9
NO. 140	0.106	66.8
NO. 200	0.075	64.4

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0505	56.8
0.0374	50.5
0.0269	48.4
0.0177	42.1
0.0107	34.7
0.0077	31.6
0.0056	26.3
0.0039	23.1
0.0028	20.0
0.0012	15.8

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99501
SPECIFIC GRAVITY:	2.68 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	22.5
LIQUID LIMIT:	37.0
PLASTICITY INDEX:	19.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	99.8
NO. 4	4.750	99.2
NO. 10	2.000	98.2
NO. 20	0.850	97.2
NO. 40	0.425	95.5
NO. 60	0.250	93.2
NO. 140	0.106	88.4
NO. 200	0.075	86.6

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0321	73.6
0.0238	67.9
0.0146	60.0
0.0098	49.8
0.0072	44.2
0.0052	37.4
0.0038	32.8
0.0027	28.3
0.0012	21.5

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99530
SPECIFIC GRAVITY:	2.69 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	24.1
LIQUID LIMIT:	31.0
PLASTICITY INDEX:	12.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TAN, MOTTLED GREY AND BLACK, WITH ORGANIC MATERIAL.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	98.8
NO. 10	2.000	95.6
NO. 20	0.850	92.6
NO. 40	0.425	89.6
NO. 60	0.250	86.4
NO. 140	0.106	80.6
NO. 200	0.075	78.5

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0332	64.8
0.0248	58.3
0.0164	51.9
0.0101	41.1
0.0074	34.6
0.0054	29.2
0.0039	23.8
0.0028	19.4
0.0012	13.0

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99548
SPECIFIC GRAVITY:	2.74 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	18.0
LIQUID LIMIT:	23.0
PLASTICITY INDEX:	9.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	99.3
NO. 4	4.750	97.9
NO. 10	2.000	95.2
NO. 20	0.850	90.4
NO. 40	0.425	86.8
NO. 60	0.250	83.1
NO. 140	0.106	75.3
NO. 200	0.075	72.2

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0376	56.1
0.0273	51.2
0.0178	45.1
0.0108	36.6
0.0080	29.3
0.0058	24.4
0.0040	19.5
0.0028	17.1
0.0012	14.6

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99548 (DUPLICATE)
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	18.6
LIQUID LIMIT:	24.0
PLASTICITY INDEX:	10.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.3
NO. 10	2.000	97.0
NO. 20	0.850	93.3
NO. 40	0.425	90.1
NO. 60	0.250	86.3
NO. 140	0.106	78.0
NO. 200	0.075	74.8

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0354	59.7
0.0262	52.8
0.0174	44.7
0.0103	36.7
0.0076	29.8
0.0055	25.2
0.0039	20.7
0.0028	17.2
0.0012	13.8

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99573
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	22.0
LIQUID LIMIT:	34.0
PLASTICITY INDEX:	17.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, REDDISH BROWN, MOTTLED GREY AND GREENISH TAN, WITH LITTLE ORGANIC DEBRIS.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.5
NO. 10	2.000	98.2
NO. 20	0.850	95.5
NO. 40	0.425	91.2
NO. 60	0.250	85.9
NO. 140	0.106	79.5
NO. 200	0.075	77.6

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0323	64.0
0.0236	59.8
0.0155	55.5
0.0095	45.9
0.0071	38.4
0.0051	34.2
0.0037	29.9
0.0027	25.6
0.0012	19.2

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99590
SPECIFIC GRAVITY:	2.69 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	24.8
LIQUID LIMIT:	33.0
PLASTICITY INDEX:	16.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	98.9
NO. 10	2.000	97.4
NO. 20	0.850	95.5
NO. 40	0.425	93.7
NO. 60	0.250	91.4
NO. 140	0.106	86.4
NO. 200	0.075	84.6

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0321	72.7
0.0240	66.1
0.0162	56.1
0.0101	45.1
0.0074	39.6
0.0053	35.2
0.0039	28.6
0.0028	24.2
0.0012	17.6

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99603
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	SC
WATER CONTENT (%):	12.1
LIQUID LIMIT:	22.0
PLASTICITY INDEX:	9.0
USCS GROUP NAME:	CLAYEY SAND WITH GRAVEL, TAN, MOTTLED GREY, SAND AND GRAVEL WITH FEW CLAY POCKETS.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	96.3
0.375 in.	9.500	91.2
NO. 4	4.750	83.3
NO. 10	2.000	73.6
NO. 20	0.850	62.3
NO. 40	0.425	55.4
NO. 60	0.250	49.6
NO. 140	0.106	41.8
NO. 200	0.075	39.6

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0384	30.0
0.0276	27.6
0.0180	24.3
0.0106	21.1
0.0077	17.8
0.0055	16.2
0.0039	13.0
0.0028	10.5
0.0012	6.5

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99617
SPECIFIC GRAVITY:	2.72 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	23.4
LIQUID LIMIT:	33.0
PLASTICITY INDEX:	19.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.9
NO. 10	2.000	99.2
NO. 20	0.850	98.0
NO. 40	0.425	96.7
NO. 60	0.250	94.7
NO. 140	0.106	84.3
NO. 200	0.075	79.7

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0360	60.1
0.0265	54.4
0.0171	51.0
0.0102	40.8
0.0076	36.3
0.0053	31.8
0.0038	29.5
0.0027	26.1
0.0011	21.6

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99634
SPECIFIC GRAVITY:	2.78 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	16.8
LIQUID LIMIT:	30.0
PLASTICITY INDEX:	15.0
USCS GROUP NAME:	SANDY LEAN CLAY, TAN, WITH FEW LIMESTONE FRAGMENTS.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	95.6
0.375 in.	9.500	92.3
NO. 4	4.750	88.1
NO. 10	2.000	83.7
NO. 20	0.850	77.9
NO. 40	0.425	73.2
NO. 60	0.250	68.6
NO. 140	0.106	61.4
NO. 200	0.075	59.1

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0366	48.2
0.0264	45.0
0.0170	40.8
0.0102	33.5
0.0074	30.4
0.0053	27.2
0.0038	23.0
0.0028	17.8
0.0011	15.7

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99653
SPECIFIC GRAVITY:	2.68 (MEASURED)
USCS SYMBOL:	OL
WATER CONTENT (%):	26.8
LIQUID LIMIT:	34.0
PLASTICITY INDEX:	14.0
USCS GROUP NAME:	ORGANIC CLAY WITH SAND, GREY WITH THIN HORIZONTAL ORGANIC LENSES.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.4
NO. 10	2.000	97.6
NO. 20	0.850	95.3
NO. 40	0.425	92.2
NO. 60	0.250	87.9
NO. 140	0.106	79.5
NO. 200	0.075	76.7

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0344	59.0
0.0252	54.8
0.0168	47.4
0.0103	37.9
0.0074	33.7
0.0054	28.5
0.0039	24.2
0.0028	20.0
0.0012	12.6

OU4 BERM GEOTECHNICAL RESULTS

SAMPLE NO.:	99671
SPECIFIC GRAVITY:	2.71 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	22.1
LIQUID LIMIT:	30.0
PLASTICITY INDEX:	15.0
USCS GROUP NAME:	LEAN CLAY WITH SAND, TANNISH BROWN, MOTTLED REDDISH TAN.

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	99.9
NO. 10	2.000	99.2
NO. 20	0.850	98.2
NO. 40	0.425	96.7
NO. 60	0.250	94.3
NO. 140	0.106	82.9
NO. 200	0.075	77.8

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0364	59.4
0.0267	53.7
0.0092	38.8
0.0077	35.4
0.0053	30.8
0.0038	27.4
0.0027	22.9
0.0012	18.3

OU4 BERM BORING LOGS

BORING/WELL LOGS LEGEND

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS PER SQUARE FT)
VERY SOFT	LESS THAN 0.25
SOFT	0.25 to 0.50
MEDIUM STIFF	0.50 to 1.0
STIFF	1.0 to 2.0
VERY STIFF	2.0 to 4.0
HARD	MORE THAN 4.0

DENSITY OF GRANULAR SOILS

DENSITY	STANDARD PENETRATION RESISTANCE
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2–INCH O.D. SPLIT BARREL SAMPLER 12 INCHES USING A 140–POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS RECORDED FOR EACH 6–INCH INTERVAL THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

COBBLES	GRAVEL		SANDS			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

USCS CLASSIFICATION FOR SOILS

COARSE – GRAINED SOILS

CLEAN GRAVELS (LITTLE OR – NO FINES)	GW	WELL–GRADED GRAVELS GRAVEL–SAND MIXTURES LITTLE OR NO FINES
	GP	POORLY–GRADED GRAVELS GRAVEL–SAND MIXTURES, LITTLE OR NO FINES
GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES
	GC	CLAYEY GRAVELS GRAVEL–SAND–CLAY MIXTURES
CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL–GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY–GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND–SILT MIXTURES
	SC	CLAYEY SANDS SAND–CLAY MIXTURES

FINE–GRADED/HIGHLY ORGANIC SOILS

SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1620	COORDINATES:	NORTH 480,402.83 EAST 1,378,440.71	DATE:	05/15/91
GROUND ELEVATION:	602.0	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/15/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/15/91
DRILLING METHODS:	VERTICAL BORING			PAGE 1 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1	99458 05/15/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/3) SOFT SANDY CLAY WITH TRACE GRAVEL, MOIST, HIGH PLASTICITY.	CL	.4	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
2	99459 05/15/91	NA	NA	YELLOWISH BROWN (10YR, 5/4) TO OLIVE (5y, 5/3) VERY SOFT CLAY WITH DARK GRAY (2.5Y, 4/1) STREAKS, SOME SAND, TRACE FINE GRAVEL AND WOOD FRAGMENTS, MOIST, HIGH PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
3	99460 05/15/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) SOFT SANDY CLAY AND TRACE FINE GRAVEL, MOIST, HIGH PLASTICITY.	CL	.3	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
4	99461 05/15/91 1030	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF SANDY CLAY WITH TRACE FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
5	99468 99469 99470 99475 99462 05/15/91 1230	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF SANDY CLAY WITH TRACE BLACK ORGANICS AND GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
6	99463 05/15/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF SANDY CLAY,MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
6.5	99464 05/15/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY,MOIST, MEDIUM PLASTICITY. DARK BROWN (10YR, 3/3) STIFF CLAYEY SILT, ORGANIC RICH (ROOT FRAGMENTS, WILD ONIONS), MOIST, NON PLASTIC.	CL OL	1.5 1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
11	99478 05/15/91	NA	NA	OLIVE (5Y, 5/4) SOFT SANDY CLAY WITH A LITTLE GRAVEL, MOIST, LOW PLASTICITY.	CL	.3	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
12	99479 05/15/91	NA	NA	OLIVE (5Y, 5/3) SOFT CLAY WITH A LITTLE YELLOWISH BROWN (10YR, 5/6) MOTTLING AND TRACE SAND, MOIST, MEDIUM PLASTICITY.	CL	.3	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
13	99480 05/15/91	NA	NA	OLIVE (5Y, 5/3) VERY SOFT SANDY CLAY WITH A LITTLE GRAVEL, MOIST, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
14	99481 05/15/91	NA	NA	OLIVE (5Y, 5/2) VERY SOFT SANDY CLAY WITH TRACE LIGHT OLIVE BROWN (2.5Y, 5/4) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
15	99482 05/16/91 1400	NA	NA	OLIVE (5Y, 5/3) VERY SOFT SANDY CLAY WITH TRACE LIGHT OLIVE BROWN (2.5Y, 5/4) MOTTLING, TRACE GRAVEL, MOIST, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

NOTES:
SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1620	COORDINATES:	NORTH 480,402.83 EAST 1,378,440.71	DATE:	05/15/91
GROUND ELEVATION:	602.0	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/15/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/15/91
DRILLING METHODS:	VERTICAL BORING			PAGE 2 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
16	99488 99489 99490 99491 99493 99494 99495 99496 99497 99498 99483 05/16/91 1400	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/5) VERY SOFT SANDY CLAY WITH TRACE GRAVEL, MOIST, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
17	99484 05/16/91 1400	NA	NA	OLIVE GRAY (5Y, 5/2) TO LIGHT OLIVE BROWN (2.5Y, 5/4) VERY SOFT SANDY CLAY WITH A LITTLE GRAVEL, MOIST, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
18	99485 05/16/91	NA	NA	OLIVE (5Y, 5/4) SOFT SANDY CLAY WITH GRAVEL AND TRACE ORGANIC MATTER, TRACE DARK GRAY (5Y, 4/1) MOTTLING, MOIST, LOW PLASTICITY.	CL	.3	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
19	99486 05/16/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) SOFT SANDY CLAY WITH GRAVEL, TRACE ORGANIC MATTER, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
20	99487 05/16/91 1400	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF CLAY WITH TRACE SAND, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
21	99513 99514 99515 99517 99503 05/16/91	NA	NA	OLIVE (5Y, 5/3) VERY SOFT CLAY WITH TRACE SAND AND GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
22	99502 05/16/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH GRAYISH GREEN MOTTLING, TRACE SAND, GRAVEL, AND WOOD FRAGMENTS, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
23	99501 05/17/91 1400	NA	NA	OLIVE (5Y, 5/3) SOFT CLAY WITH A LITTLE GRAYISH GREEN MOTTLING, TRACE SAND AND FINE GRAVEL, TRACE ROOT STEMS OR WOOD FRAGMENTS, MOIST, MEDIUM PLASTICITY.	CL	.4	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
24	99500 05/17/91 1400	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH TRACE SAND, FOSSILS AND WOOD FRAGMENTS, MOIST, LOW PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

BOTOTM OF LOCATION 1620 AT 24.0 FT.

NOTES:

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1623	COORDINATES:	NORTH 480,515.10 EAST 1,378,532.07	DATE:	06/04/91
GROUND ELEVATION:	602.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	06/04/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	06/04/91
DRILLING METHODS:	VERTICAL BORING			PAGE 1 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
5	99633 06/04/91 1300	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM DENSE GRAVEL, SAND AND CLAY, MOIST.	GC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
6	99632 99634 * 99635 99636 99637 99638 99639 99640 99641 99642 99632 06/04/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) HARD SILTY CLAY WITH SAND AND GRAVEL, DAMP, NO PLASTICITY.	CL	>4	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
7	99631 06/04/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) SOFT CLAY WITH A LITTLE SAND, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
8	99630 06/04/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/6) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
9	99629 06/04/91	NA	NA	OLIVE BROWN (2.5Y, 4/3) STIFF CLAYEY SILT WITH ORGANIC MATTER, MOIST, GRADING INTO LIGHT OLIVE BROWN (2.5Y, 5/6) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	ML	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
11	99649 06/04/91	NA	NA	OLIVE (5Y, 5/3) MEDIUM DENSE CLAYEY FINE SAND WITH GRAVEL, TRACE VERY DARK GRAY (2.5Y, 3/0) MOTTLING, MOIST.	SC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
12	99650 06/04/91	NA	NA	OLIVE (5Y, 5/3) MEDIUM DENSE CLAYEY FINE SAND WITH GRAVEL, TRACE VERY DARK GRAY (2.5Y, 3/0) MOTTLING, MOIST.	SC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
13	99651 06/04/91	NA	NA	OLIVE (5Y, 5/3) MEDIUM DENSE CLAYEY FINE SAND WITH GRAVEL, MOIST.	SC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
14	99653 * 99652 06/04/91	NA	NA	OLIVE GRAY (5Y, 5/2) VERY SOFT SANDY CLAY WITH A LITTLE VERY DARK GRAY (2.5Y, 3.0) MOTTLING AND TRACE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
15	99654 06/04/91 1000	NA	NA	OLIVE (5Y, 5/4) MEDIUM STIFF CLAY WITH SOME SAND AND TRACE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

NOTES:

* GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1623	COORDINATES:	NORTH 480,515.10 EAST 1,378,532.07	DATE:	06/04/91
GROUND ELEVATION:	602.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	06/04/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	06/04/91
DRILLING METHODS:	VERTICAL BORING			PAGE 2 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
16	99638 99639 99640 99641 99642 99655 06/04/91	NA	NA	OLIVE (5Y, 5/3) MEDIUM STIFF CLAY WITH SOME SAND AND TRACE GRAVEL, TRACE ORGANIC MATTER, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
18	99656 06/04/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH TRACE SAND AND GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
19	99657 06/04/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY, MOIST, LOW PLASTICITY.	CL	1.4	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
20	99658 06/04/91 1000	NA	NA	OLIVE (5Y, 5.3) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
24	99669 06/05/91 0930	NA	NA	OLIVE (5Y, 5/3) SOFT CLAY WITH A LITTLE SAND, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
25	99670 06/05/91 0930	NA	NA	OLIVE (5Y, 5/4) SOFT CLAY WITH A LITTLE SAND, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
30	99675 06/05/91 0930	NA	NA	OLIVE (5Y, 5/4) CLAY WITH TRACE SAND AND GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

BOTTOM OF LOCATION 1623 AT 30.0 FT.

NOTES:

• GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1622	COORDINATES:	NORTH 480,401.61 EAST 1,378,528.95	DATE:	05/30/91
GROUND ELEVATION:	602.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/30/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/31/91
DRILLING METHODS:	VERTICAL BORING			PAGE 1 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1	99588 05/29/91 1800			DARK GRAYISH BROWN (2.5Y, 4/2) MEDIUM STIFF CLAYEY SILT WITH GRASS AND ROOT FRAGMENTS, TRACE GRAVEL, MOIST.	ML	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
2	99589 05/29/91			LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
3	99590 * 05/29/91 1800			LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
4	99591 05/29/91			LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	1.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
5	99593 99594 99595 99596 99592 05/29/91 1800			LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH A LITTLE GRAYISH GREEN MOTTLING.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
11	99597 05/30/91			LIGHT OLIVE BROWN (2.5Y, 5/4) VERY SOFT SANDY CLAY WITH ROOT FRAGMENTS, WET, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
12	99598 05/30/91			LIGHT OLIVE BROWN (2.5Y, 5/4) VERY SOFT SANDY CLAY WITH A LITTLE GRAY (2.5Y, 5/1) MOTTLING, WET, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm HNu=0.0 ppm
13	99599 05/30/91			LIGHT OLIVE GRAY (5Y, 5/2) SOFT SANDY CLAY WITH TRACE GRAVEL, MOIST, LOW PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
14	99600 05/30/91 1232			OLIVE (5Y, 5/3) SOFT SANDY CLAY WITH TRACE DARK GRAY (2.5Y, 4/1) MOTTLING, MOIST, LOW PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
15	99601 05/30/91 1232			OLIVE (5Y, 5/3) MEDIUM DENSE GRAVEL, SAND AND CLAY MIXTURE, MOIST.	GC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
16	99602 05/30/91 1232			OLIVE (5Y, 5/3) MEDIUM DENSE GRAVEL, SAND AND CLAY MIXTURE, MOIST.	GC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
17	99603 05/30/91 1230			LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM DENSE GRAVEL, SAND AND CLAY MIXTURE WITH TRACE FOSSILS.	GC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

NOTES:

* GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1822	COORDINATES:	NORTH 480,401.61 EAST 1,378,528.95	DATE:	05/30/91
GROUND ELEVATION:	602.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/30/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/31/91
DRILLING METHODS:	VERTICAL BORING			PAGE 2 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
18	99604 05/30/91			LIGHT OLIVE BROWN (2.5Y, 5/4) SOFT SANDY CLAY WITH A LITTLE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
19	99605 05/30/91			OLIVE (5Y, 5/3) GRAVEL, SAND AND CLAY MIXTURE, MOIST, MEDIUM DENSE.	GC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
20	99606 99607 99608 99609 99610 99612 99613 05/30/91 1232			OLIVE (5Y, 5/3) MEDIUM DENSE GRAVEL, SAND AND CLAY MIXTURE, MOIST, MEDIUM DENSE.	GC	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
21	99614 05/30/91			LIGHT OLIVE BROWN (2.5Y, 5/3) SOFT SANDY CLAY WITH TRACE VERY FINE GRAVEL AND YELLOW PLASTIC FRAGMENTS, MOIST, LOW PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
22	99615 05/30/91			LIGHT OLIVE BROWN (2.5Y, 5/3) VERY SOFT SANDY CLAY WITH TRACE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
23	99616 05/30/91			LIGHT OLIVE BROWN (2.5Y, 5/3) SOFT SANDY CLAY WITH TRACE FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.4	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
24	99617 * 05/31/91 1050			LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF SANDY CLAY WITH SOME GRAY (2.5Y, 5/1) MOTTLING, TRACE VERY FINE GRAVEL AND BOTH YELLOW AND TRANSPARENT PLASTIC FRAGMENTS, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
25	99618 05/31/91 1050			LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF CLAY WITH SOME GRAY (2.5Y, 5/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
26	99619 05/31/91 1050			OLIVE (5Y, 5/4) TO OLIVE GRAY (5Y, 5/2) MEDIUM STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
27	99620 05/31/91			LIGHT OLIVE GRAY (5Y, 6/2) MEDIUM STIFF SILTY CLAY, MOIST, LOW PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

NOTES:

* GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1622	COORDINATES:	NORTH 480,401.61 EAST 1,378,528.95	DATE:	05/29/91
GROUND ELEVATION:	602.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/29/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/31/91
DRILLING METHODS:	VERTICAL BORING			PAGE 3 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
28	99621 05/31/91			LIGHT OLIVE GRAY (5Y, 6/2) MEDIUM STIFF SILTY CLAY WITH TRACE SAND AND VERY FINE GRAVEL, MOIST, LOW PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
29	99622 05/31/91			OLIVE GRAY (5Y, 4/2) MEDIUM STIFF CLAY WITH ORGANIC MATTER (I.E. GREEN PLANT AND ROOT STEMS) AND TRACE SAND AND VERY FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

BOTTOM OF LOCATION 1622 AT 29.0 FT.

NOTES:

*GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1821	COORDINATES:	NORTH 480,517.80 EAST 1,378,442.96	DATE:	05/22/91
GROUND ELEVATION:	601.9	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/22/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/22/91
DRILLING METHODS:	VERTICAL BORING			PAGE 1 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1	99528 05/22/91	NA	NA	OLIVE GRAY (5Y, 5/2) STIFF SANDY CLAY WITH GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
2	99529 05/22/91	NA	NA	OLIVE GRAY (5Y, 5/2) MEDIUM STIFF SANDY CLAY WITH A LITTLE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
3	99530 * 05/22/91 1030	NA	NA	OLIVE GRAY (5Y, 4/2) VERY SOFT CLAY WITH A LITTLE FINE SAND AND TRACE GRAVEL, MOIST, LOW PLASTICITY, TRACE ORGANIC MATTER.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
4	99531 05/22/91	NA	NA	OLIVE GRAY (5Y, 4/2) VERY SOFT CLAY WITH TRACE FINE SAND, MOIST, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
5	99532 99533 99540 99541 00542 99543 99557 99558 99559 99560 99562 99563 99579 99583 99580 99581 05/22/91 1730	NA	NA	OLIVE (5Y, 5/4) MEDIUM STIFF CLAY WITH A LITTLE SAND AND TRACE FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
6	99533 05/22/91 1730	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF CLAY WITH SOME SAND SAND AND TRACE LIGHT GRAY (5Y, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
7	99534 05/22/91	NA	NA	OLIVE (5Y, 5/4)SOFT CLAY WITH A LITTLE SAND AND TRACE GRAVEL, TRACE LIGHT GRAY (2.5Y, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
8	99535 05/22/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH TRACE SAND AND GRAVEL, TRACE ORGANIC MATTER, MOIST, LOW PLASTICITY.	CL	1.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
9	99536 05/22/91	NA	NA	OLIVE GRAY (5Y, 5/2) STIFF CLAY WITH SAND AND GRAVEL, TRACE ORGANIC MATTER, MOIST, MEDIUM PLASTICITY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

NOTES:

* GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1821	COORDINATES:	NORTH 480,517.80 EAST 1,378,442.96	DATE:	05/22/91
GROUND ELEVATION:	601.9	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/22/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/22/91
DRILLING METHODS:	VERTICAL BORING			PAGE 2 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
10	99537 05/22/91 1730	NA	NA	YELLOWISH BROWN (10YR, 5/4) CLAY WITH TRACE SAND, GRAVEL AND ORGANIC MATTER, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
11	99545 05/22/91	NA	NA	OLIVE (5Y, 5/3) VERY SOFT SANDY CLAY WITH TRACE GRAVEL, MOIST, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
12	99546 05/22/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH A LITTLE SAND, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
13	99547 05/22/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH TRACE SAND AND FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
14	99548 * 05/22/91 1500	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH TRACE SAND AND FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
15	99549 05/22/91 1530	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF CLAY WITH TRACE SAND AND FINE GRAVEL, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
16	99550 05/22/91 1530	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH SOME BLACK ORGANIC MATTER, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
17	99551 05/22/91	NA	NA	OLIVE (5Y, 5/3) MEDIUM STIFF CLAY WITH TRACE LIGHT GRAY (5Y, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
18	99552 05/22/91	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY WITH TRACE ORGANIC MATTER, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
19	99553 05/22/91	NA	NA	OLIVE (5Y, 5/3) VERY STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
20	99554 05/22/91 1530	NA	NA	OLIVE (5Y, 5/3) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
21	99567 05/22/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/3) VERY SOFT CLAY WITH LITTLE SAND, WET, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
22	99568 05/22/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/3) VERY SOFT CLAY WITH SOME SAND AND TRACE FOSSILS, WET, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

NOTES:

* GEOTECHNICAL SAMPLE

SAMPLES COMPARED TO MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1621	COORDINATES:	NORTH 480,517.80 EAST 1,378,442.96	DATE:	05/22/91
GROUND ELEVATION:	601.9	GWL: Depth NA	Date/Time: NA	DATE STARTED:	05/22/91
ENGINEER/GEOLOGIST:	KEN MARION	Depth: NA	Date/Time: NA	DATE COMPLETED:	05/22/91
DRILLING METHODS:	VERTICAL BORING			PAGE 3 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
23	99569 05/22/91	NA	NA	OLIVE (5Y, 5/3) VERY SOFT SANDY CLAY, WET, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
24	99570 05/22/91	NA	NA	OLIVE (5Y, 5/3) VERY SOFT SANDY CLAY, WET, LOW PLASTICITY.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
25	99571 05/22/91 1424	NA	NA	OLIVE (5Y, 5/3) VERY SOFT SANDY CLAY WITH A LITTLE GRAVEL, WET, LOW PLASTICITY, TRACE ORGANIC MATTER.	CL	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
26	99572 05/22/91 1424	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM STIFF CLAY WITH LIGHT GRAY (5Y, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
27	99573 05/22/91 1420	NA	NA	OLIVE (5Y, 5/3) TO VERY STIFF CLAY WITH TRACE SAND AND FINE GRAVEL, MOIST, MEDIUM PLASTICITY, TRACE ORGANICS.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
28	99574 05/22/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) TO LIGHT OLIVE BROWN (2.5Y, 5/6) STIFF CLAY WITH LIGHT GRAY (5Y, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY WITH A LITTLE SAND AND TRACE GRAVEL, TRACE ORGANIC.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm
29	99575 05/22/91	NA	NA	LIGHT OLIVE BROWN (2.5Y, 5/4) TO LIGHT OLIVE BROWN (2.5Y, 5/6) STIFF CLAY WITH LIGHT GRAY (5Y, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY WITH A LITTLE SAND AND TRACE GRAVEL, TRACE ORGANIC.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 0 cpm

BOTTOM OF LOCATION 1621 AT 29.0 FT.

NOTES:

SAMPLES COMPARED TO MUNSELL COLOR CHART.

OU4 SLANT BORING RADIOLOGICAL RESULTS

OU4 SLANT BORING RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1615 066956 04/10/91 13.2-17.5 FT.			1615 066959 04/18/91 20.0-22.5 FT.			1615 066960 04/18/91 20.0-22.5 FT.			1615 066968 04/20/91 40-42.5 FT.		
	a		b	a		b	a		b	a		b
Actinium 227	9.66	± 1.78	-	NA			NA			NA		
Cesium 137	NA			< .2		J	NA			< .2		J
Lead 210	101	± 10	J	NA			1.75	± .5	J	NA		
Neptunium 237	NA			< .6		J	NA			< .6		J
Plutonium 238	NA			< .6		J	NA			< .6		J
Plutonium 239/240	NA			< .6		J	NA			< .6		J
Polonium 210	86.5	± 13.2	J	NA			NA			NA		
Protactinium 231	< 9.4		J	NA			NA			NA		
Radium 224	1.71	± .43	J	NA			NA			NA		
Radium 224 (GAMMA)	NA			NA			NA			NA		
Radium 226	206	± 11	J	1.74	± .18	J	NA			.976	± .1	J
Radium 226 (GAMMA)	NA			NA			NA			NA		
Radium 228	< 1.5		DJ	1.22	± .24	J	NA			.803	± .129	J
Radium 228 (GAMMA)	NA			NA			NA			NA		
Ruthenium 106	NA			< 1		J	NA			< 1		J
Strontium 90	NA			< .5		J	NA			.816	± .26	-
Technetium 99	NA			< .9		J	NA			< .9		J
Thorium 228	2.06	± .5	J	1.91	± .632	J	NA			1.21	± .346	J
Thorium 230	53.7	± 8.7	J	2.59	± .755	J	NA			1.3	± .362	J
Thorium 232	1.5	± .4	J	.954	± .447	J	NA			.846	± .282	J
Total Thorium **	13.6	± 3.6	J	8.61	±4.03	J	NA			7.64	± 2.55	J
Total Uranium **	63.7	± 17.3	J	< 4.2		J	NA			3.27	± 1.76	J
Uranium 234	10.6	± 1.3	J	1.48	± .321	J	NA			.875	± .19	J
Uranium 235/236	< .6		J	< .6		J	NA			< .6		J
Uranium 238	11.8	± 1.4	J	1.46	± .318	J	NA			.854	± .187	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 SLANT BORING RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1615 066969 04/20/91 40-42.5 FT.		1615 066974 04/24/91 17.1-17.5 FT.		1616 064032 06/26/91 88 - 89.25 FT.		1616 064041 06/28/91 105.5 - 106.2 FT.	
	a	b	a	b	a	b	a	b
Actinium 227	NA		8.6 ± 1.6	J	< .6	-	< .3	J
Cesium 137	NA		NA		NA		NA	
Lead 210	< .6	J	97.9 ± 10.2	-	.56 ± .46	J	.46 ± .31	J
Neptunium 237	NA		NA		NA		NA	
Plutonium 238	NA		NA		NA		NA	
Plutonium 239/240	NA		NA		NA		NA	
Polonium 210	NA		62.6 ± 10	-	1.74 ± .63	J	1.23 ± .48	J
Protactinium 231	NA		< 8.7	J	< 1.7	J	< 1.1	J
Radium 224	NA		1.48 ± .42	-	NA		.67 ± .11	J
Radium 224 (GAMMA)	NA		NA		.83 ± .15	J	NA	
Radium 226	NA		176 ± 9	J	NA		.66 ± .1	J
Radium 226 (GAMMA)	NA		NA		.79 ± .13	J	NA	
Radium 228	NA		< 1.4	DJ	NA		.58 ± .16	J
Radium 228 (GAMMA)	NA		NA		.74 ± .21	J	NA	
Ruthenium 106	NA		NA		NA		NA	
Strontium 90	NA		NA		NA		NA	
Technetium 99	NA		NA		NA		NA	
Thorium 228	NA		NA		1.28 ± .43	-	1.47 ± .3	J
Thorium 230	NA		NA		.8 ± .34	-	.93 ± .23	J
Thorium 232	NA		NA		.73 ± .32	-	< .6	J
Total Thorium **	NA		NA		6.6 ± 2.91	-	4.87 ± 1.48	J
Total Uranium **	NA		< 15	DJ	< 4.5	J	< 3.2	DJ
Uranium 234	NA		9.68 ± 1.2	R	.8 ± .17	J	1.3 ± .23	J
Uranium 235/236	NA		.853 ± .196	R	< .6	J	< .6	J
Uranium 238	NA		10.5 ± 1.3	R	.76 ± .16	J	.87 ± .18	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

-4048
444

OU4 SLANT BORING RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1616 064157 10/10/91 3.92 - 4.42 FT.		1617 064001 05/04/91 59.7 - 61.0 FT.		1617 064002 05/04/91 59.7 - 61.0 FT.		1617 066983 05/02/91 17.5 - 20.2 FT.	
	a	b	a	b	a	b	a	b
Actinium 227	< .6	R	NA		NA		NA	
Cesium 137	NA		< .2	J	NA		< .2	J
Lead 210	34 ± 3.8	J	NA		< .3	J	NA	
Neptunium 237	NA		< .6	J	NA		< .6	J
Plutonium 238	NA		< .6	J	NA		< .6	J
Plutonium 239/240	NA		< .6	J	NA		< .6	J
Polonium 210	20.9 ± 3.9	J	NA		NA		NA	
Protactinium 231	< 7.2	J	NA		NA		NA	
Radium 224	1.33 ± .35	J	NA		NA		NA	
Radium 224 (GAMMA)	NA		NA		NA		NA	
Radium 226	137 ± 7	J	.613 ± .09	J	NA		1.31 ± .12	J
Radium 226 (GAMMA)	NA		NA		NA		NA	
Radium 228	< 1.3	DJ	.485 ± .137	J	NA		1.24 ± .16	J
Radium 228 (GAMMA)	NA		NA		NA		NA	
Ruthenium 106	NA		< 1	J	NA		< 1	J
Strontium 90	NA		< .5	-	NA		< .5	-
Technetium 99	NA		< .9	-	NA		< .9	J
Thorium 228	1.72 ± .39	R	.768 ± .248	J	NA		1.35 ± .371	J
Thorium 230	11.4 ± 1.8	R	.882 ± .266	J	NA		1.05 ± .319	J
Thorium 232	1.33 ± .32	R	< .6	-	NA		.894 ± .291	J
Total Thorium **	12 ± 2.9	R	3.34 ± 1.6	-	NA		8.07 ± 2.63	J
Total Uranium **	26.6 ±11.9	J	15.8 ± 2.8	J	NA		4.77 ± 1.85	J
Uranium 234	4.17 ± .59	R	5.6 ± .798	J	NA		1.12 ± .235	J
Uranium 235/236	< .6	R	< .6	J	NA		< .6	J
Uranium 238	4.91 ± .67	R	5.64 ± .802	-	NA		1.31 ± .259	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

445

4948

OU4 SLANT BORING RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1617 066984 05/02/91 17.5 - 20.2 FT.		1617 066992 05/03/91 36.5 - 40.2 FT.		1618 064105 07/30/91 50 - 51.25 FT.		1618 064115 07/31/91 70 - 71.25 FT.	
	a	b	a	b	a	b	a	b
Actinium 227	NA		< .26	J	< .6	-	< .6	J
Cesium 137	NA		NA		NA		NA	
Lead 210	.547	± .394 J	1.03	± .41 -	1.06	± .5 J	.73	± .47 J
Neptunium 237	NA		NA		NA		NA	
Plutonium 238	NA		NA		NA		NA	
Plutonium 239/240	NA		NA		NA		NA	
Polonium 210	NA		1.27	± .57 J	2.06	± .86 J	2.37	± 1.32 -
Protactinium 231	NA		< 1.5	J	< 2.1	J	< 1.6	J
Radium 224	NA		.91	± .13 -	1.26	± .18 J	.98	± .16 J
Radium 224 (GAMMA)	NA		NA		NA		NA	
Radium 226	NA		.97	± .11 -	1.29	± .16 J	.75	± .13 J
Radium 226 (GAMMA)	NA		NA		NA		NA	
Radium 228	NA		.89	± .17 -	1.2	± .25 J	.94	± .22 J
Radium 228 (GAMMA)	NA		NA		NA		NA	
Ruthenium 106	NA		NA		NA		NA	
Strontium 90	NA		NA		NA		NA	
Technetium 99	NA		NA		NA		NA	
Thorium 228	NA		1.22	± .35 J	1.1	± .4 -	1.49	± .48 J
Thorium 230	NA		1.3	± .36 J	1.76	± .53 -	1.27	± .44 J
Thorium 232	NA		.71	± .26 J	1.31	± .45 -	.76	± .33 J
Total Thorium **	NA		6.42	± 2.34 J	11.8	± .4 -	6.81	± 3.01 J
Total Uranium **	NA		54.2	± 6.4 -	4.76	± 3.12 J	10.3	± 3.3 J
Uranium 234	NA		19.3	± 2.4 -	.97	± .19 -	3.59	± .48 -
Uranium 235/236	NA		1.37	± .31 -	< .6	-	< .6	-
Uranium 238	NA		18.8	± 2.3 -	1.09	± .2 -	3.75	± .5 -

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

-4948
446

OU4 SLANT BORING RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1618 064125 08/01/91 90 - 91.25 FT.			1618 064136 08/02/91 105 - 107.5 FT.			1618 064148 08/03/91 127.5 - 128.7 FT.			1619 064071 07/20/91 60 - 61.25 FT.		
	a		b	a		b	a		b	a		b
Actinium 227		.56	± .27 J		1.33	± .42 J	<	.6	-	<	.6	J
Cesium 137		NA			NA			NA			NA	
Lead 210	<	6.9	J		.63	± .57 J		.52	± .36 J		.71	± .43 J
Neptunium 237		NA			NA			NA			NA	
Plutonium 238		NA			NA			NA			NA	
Plutonium 239/240		NA			NA			NA			NA	
Polonium 210		1.26	± .89 -		.938	± .699 -		1.23	± .91 J		1.15	± .4 J
Protactinium 231	<	1.8	J	<	1.8	J	<	1.2	-	<	1.6	J
Radium 224		.97	± .15 J		.91	± .14 J		.77	± .12 -		.91	± .15 J
Radium 224 (GAMMA)		NA			NA			NA			NA	
Radium 226		.97	± .13 J		.9	± .13 J		.95	± .12 -		.88	± .13 J
Radium 226 (GAMMA)		NA			NA			NA			NA	
Radium 228		.84	± .18 J		.71	± .19 J		.7	± .17 J		.77	± .22 J
Radium 228 (GAMMA)		NA			NA			NA			NA	
Ruthenium 106		NA			NA			NA			NA	
Strontium 90		NA			NA			NA			NA	
Technetium 99		NA			NA			NA			NA	
Thorium 228		1.68	± .48 J		1.3	± .43 J		1.78	± .57 -		1.33	± .45 -
Thorium 230		1.82	± .51 J		1.78	± .5 J		1.18	± .45 -		1.04	± .39 -
Thorium 232		1.34	± .41 J	<	1	J		.62	± .33 -		1	± .38 -
Total Thorium **		12.1	± 3.7 J		7.22	± 2.83 J		5.58	± 2.97 -		8.98	± 3.46 -
Total Uranium **		79.4	± 9.1 J		110	± 12 J		10.7	± 2.8 -	<	4.5	D
Uranium 234		34.6	± 4.5 -		35.9	± 4.6 -		3.58	± .48 -		.89	± .18 -
Uranium 235/236		3.17	± .74 -		2.92	± .7 C	<	.6	-	<	.6	-
Uranium 238		33.5	± 4.4 -		53.4	± 6.6 C		3.84	± .51 -		1.12	± .21 -

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4SLNRAD.PRN

441

-4048

OU4 SLANT BORING HSL RESULTS

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066957 04/18/91 17.5-20.0 ft		1615 066966 04/20/91 37.5-40 ft		1616 064030 06/26/91 83-85.2 ft		1616 064039 06/28/91 103-104.4 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	14300	-	8030	-	6600	-	5840	-
Antimony	N 24.6	J	N 32.5	J	N 21.2	J	N 22.1	J
Arsenic	N 7.8	J	N 6.6	J	SN 3.9	J	S 3.2	-
Barium	142	-	58.7	-	B 34.6	-	47.6	-
Beryllium	B .88	-	B .9	J	B .77	-	B .73	-
Boron	NA		NA		NA		NA	
Cadmium	3.1	-	6.5	-	3.7	J	N 4.3	J
Calcium	4750	-	103000	-	*144000	J	135000	-
Chromium	19.8	-	17.5	-	* 29	-	33.3	-
Cobalt	13.7	-	B 12	J	B 10.1	J	B 9.6	-
Copper	22.2	-	21.1	-	24.5	-	19.9	-
Cyanide	B .39	-	U .12	-	U .11	-	.282	-
Iron	30400	-	19800	-	* 15400	-	13800	-
Lead	N 16.2	J	N 16.1	J	N 8.9	J	* 6.5	-
Magnesium	3950	-	27900	-	23700	-	24800	-
Manganese	746	-	376	-	N* 463	J	415	-
Mercury	U .12	J	.12	-	U .11	J	U .11	UJ
Molybdenum	3.6	-	5.1	-	11.1	J	10.6	J
Nickel	39.3	-	30.9	-	21.3	-	23.2	-
Potassium	B 892	-	B 1010	J	1400	-	B 1090	-
Selenium	U .49	-	UW .49	UJ	UWN .45	-	UW .45	UJ
Silicon	NA		NA		NA		NA	
Silver	U* 2.5	-	* 10.2	-	17.6	-	17.1	J
Sodium	B 79.4	-	B 540	J	B 182	-	B 243	-
Thallium	U .49	J	U .49	-	UW .45	-	U .45	-
Vanadium	32	-	22.1	-	23.3	-	22.5	J
Zinc	E 64.9	-	E 47.9	-	34.2	-	43.3	-

a = lab qualifier
b = validated qualifier

449

4948

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066981 05/02/91 17.5-20.2 ft		1617 066990 05/03/91 36.5-40.2 ft		1617 066998 05/04/91 58.5-59.7 ft		1618 064102 07/29/91 47.5-48.5 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	15700	-	6000	-	4430	-	14100	-
Antimony	N 20.4	J	N 25.9	J	N 24.2	J	UN 7.2	UJ
Arsenic	8.2	-	4.3	-	5.9	-	S 12.1	-
Barium	66.3	-	B 34.5	-	B 36.6	-	N* 93.8	J
Beryllium	U .49	-	B .76	-	B .66	-	B .89	-
Boron	NA		NA		NA		U* 24	J
Cadmium	2	J	4.3	-	5.5	J	U .48	-
Calcium	2310	-	100000	-	125000	-	* 2600	J
Chromium	* 16.6	-	26	-	* 8.6	-	N* 19.3	J
Cobalt	B 11.1	J	B 8.3	-	B 8.4	-	15.1	-
Copper	14.9	-	17.9	-	18.1	-	* 23.3	-
Cyanide	U .12	-	U .002008	-	B .18	-	U .12	J
Iron	27100	J	14100	J	14800	J	* 32200	J
Lead	N* 18	J	N 8.2	J	+N* 7.8	J	* 16.2	-
Magnesium	2510	-	33300	-	24100	-	* 3780	-
Manganese	* 428	J	* 342	J	* 300	J	* 684	J
Mercury	U .12	J	U .12	J	U .1	J	U* .12	-
Molybdenum	U 2.4	-	13.1	-	8	-	* 14.7	-
Nickel	18.6	-	21.6	-	23.7	J	N* 29.7	J
Potassium	B 877	-	B 823	-	B 838	-	B 901	-
Selenium	UN .48	J	U .48	-	N .44	J	U .48	-
Silicon	NA		NA		NA		N* 514	J
Silver	U 2.4	J	15.1	-	6.6	J	U 2.4	-
Sodium	B 32.3	-	B 241	-	B 379	-	B 112	-
Thallium	BN .49	J	UN .48	J	N .44	J	U .48	-
Vanadium	32.5	-	24.1	-	14.4	J	29.3	-
Zinc	54.6	-	33.5	-	39.3	-	66.7	-

a = lab qualifier
b = validated qualifier

450

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064112 07/30/91 67.5-70 ft		1618 064123 08/01/91 87.5-90 ft		1618 064134 08/02/91 105-107.5 ft		1618 064146 08/03/91 125-127.5 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	7120	-	9330	-	10000	-	8800	-
Antimony	UN 7.7	J	UN 7.1	J	UN 7.2	J	UN 7.4	UJ
Arsenic	5.3	-	5.2	-	3	-	3.5	-
Barium	N* 53.5	J	N* 66.9	J	N* 75.7	J	BN* 49	J
Beryllium	U .51	-	B .66	-	B .63	-	B .65	-
Boron	NA		NA		NA		NA	
Cadmium	3.2	-	2.2	-	1.6	-	3	-
Calcium	* 86700	J	* 81700	J	* 71400	J	* 91900	J
Chromium	N* 22.1	J	N* 24.9	J	N* 25.2	J	N* 24.9	J
Cobalt	B 4.8	-	B 10.3	-	12	-	B 9	-
Copper	* 17.7	-	* 22.2	-	* 22.4	-	* 21.4	-
Cyanide	5	-	3	-	3	-	U .12	-
Iron	* 17600	J	* 23400	J	* 29800	J	* 18500	J
Lead	* 12	-	S* 9.3	-	S* 10.5	-	S* 8.9	-
Magnesium	* 37800	-	* 27300	-	* 23700	-	* 33200	J
Manganese	* 235	J	* 462	J	* 399	J	* 377	J
Mercury	U* .13	J	U* .11	J	U* .11	J	* .12	-
Molybdenum	* 10.5	-	* 20.2	-	* 29.9	-	* 9.7	-
Nickel	N* 17.8	J	N* 28.6	J	N* 29	J	N* 24.2	J
Potassium	B 830	-	1450	-	1560	-	1890	-
Selenium	U .51	-	16.1	-	U .49	-	BW .56	J
Silicon	NA		NA		NA		NA	
Silver	11	-	10.8	-	9.6	-	11.6	-
Sodium	B 413	-	2730	-	2280	-	B 688	-
Thallium	U .51	-	U .48	-	U .49	-	U .49	-
Vanadium	24.1	-	27.4	-	27.1	-	26.5	-
Zinc	39.4	-	53.4	-	61	-	50	-

a = lab qualifier
b = validated qualifier

-4948

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilograms (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1619 064067 07/20/91 57.5-60 ft a		b
METALS			
Aluminum		7930	-
Antimony	N	26.5	J
Arsenic		4.5	-
Barium		65.7	-
Beryllium	B	.82	-
Boron		NA	
Cadmium	N	4.1	J
Calcium		96000	-
Chromium		28.5	-
Cobalt		15.3	-
Copper		23.5	-
Cyanide	U	.12	-
Iron		21000	-
Lead	*	8.4	-
Magnesium		31900	-
Manganese		590	-
Mercury	U	.12	J
Molybdenum		13.1	-
Nickel		30.6	-
Potassium	B	1000	-
Selenium	U	.46	-
Silicon		NA	
Silver		15.2	-
Sodium	B	151	-
Thallium	U	.46	-
Vanadium		27.9	-
Zinc		47.9	-

a = lab qualifier
b = validated qualifier

4948
432

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066957 04/18/91 17.5-20.0 ft.		1615 066966 04/20/91 37.5-40 ft.		1616 064030 06/26/91 83 - 85.2 ft.		1616 064039 06/28/91 103 - 104.4 ft.	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .02	-	U .02	-	U .018	-	U .019	UJ
4,4'-DDE	U .02	-	U .02	-	U .018	-	U .019	UJ
4,4'-DDT	U .02	-	U .02	-	U .018	-	U .019	UJ
Aldrin	U .01	-	U .01	-	U .0092	-	U .0093	UJ
alpha-BHC	U .01	-	U .01	-	U .0092	-	U .0093	UJ
alpha-Chlordane	U .1	-	U .1	-	U .092	-	U .093	UJ
Aroclor-1016	U .1	-	U .1	-	U .092	-	U .093	UJ
Aroclor-1221	U .1	-	U .1	-	U .092	-	U .093	UJ
Aroclor-1232	U .1	-	U .1	-	U .092	-	U .093	UJ
Aroclor-1242	U .1	-	U .1	-	U .092	-	U .093	UJ
Aroclor-1248	U .1	-	U .1	-	U .092	-	U .093	UJ
Aroclor-1254	U .2	-	U .2	-	U .18	-	U .19	UJ
Aroclor-1260	U .2	-	U .2	-	U .18	-	U .19	UJ
beta-BHC	U .01	-	U .01	-	U .0092	-	U .0093	UJ
delta-BHC	U .01	-	U .01	-	U .0092	-	U .0093	UJ
Dieldrin	U .02	-	U .02	-	U .018	-	U .019	UJ
Endosulfan II	U .02	-	U .02	-	U .018	-	U .019	UJ
Endosulfan sulfate	U .02	-	U .02	-	U .018	-	U .019	UJ
Endosulfan-I	U .01	-	U .01	-	U .0092	-	U .0093	UJ
Endrin	U .02	-	U .02	-	U .018	-	U .019	UJ
Endrin ketone	U .02	-	U .02	-	U .018	-	U .019	UJ
gamma-BHC (Lindane)	U .01	-	U .01	-	U .0092	-	U .0093	UJ
gamma-Chlordane	U .1	-	U .1	-	U .092	-	U .093	UJ
Heptachlor	U .01	-	U .01	-	U .0092	-	U .0093	UJ
Heptachlor epoxide	U .01	-	U .01	-	U .0092	-	U .0093	UJ
Methoxychlor	U .1	-	U .1	-	U .092	-	U .093	UJ
Toxaphene	U .2	-	U .2	-	U .18	-	U .19	UJ
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
1,2-Dichlorobenzene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
1,3-Dichlorobenzene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
1,4-Dichlorobenzene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2,4,5-Trichlorophenol	U 2	-	U 2	UJ	U 1.8	-	U 1.9	UJ
2,4,6-Trichlorophenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2,4-Dichlorophenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2,4-Dimethylphenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2,4-Dinitrophenol	U 2	-	U 2	UJ	U 1.8	UJ	U 1.9	UJ
2,4-Dinitrotoluene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2,6-Dinitrotoluene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2-Chloronaphthalene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2-Chlorophenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ

a = lab qualifier
b = validated qualifier

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066957 04/18/91 17.5-20.0 ft.		1615 066966 04/20/91 37.5-40 ft.		1616 064030 06/26/91 83 - 85.2 ft.		1616 064039 06/28/91 103 - 104.4 ft.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2-Methylphenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
2-Nitroaniline	U 2	-	U 2	UJ	U 1.8	-	U 1.9	UJ
2-Nitrophenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
3,3'-Dichlorobenzidine	U .82	UJ	U .82	UJ	U .76	UJ	U .78	UJ
3-Nitroaniline	U 2	-	U 2	UJ	U 1.8	-	U 1.9	UJ
4,6-Dinitro-2-methylphenol	U 2	-	U 2	UJ	U 1.8	UJ	U 1.9	UJ
4-Bromophenyl phenyl ether	U .41	-	U .41	UJ	U .38	-	U .39	UJ
4-Chloro-3-methylphenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
4-Chloroaniline	U .41	-	U .41	UJ	U .38	-	U .39	UJ
4-Chlorophenylphenyl ether	U .41	-	U .41	UJ	U .38	-	U .39	UJ
4-Methylphenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
4-Nitroaniline	U 2	-	U 2	UJ	U 1.8	-	U 1.9	UJ
4-Nitrophenol	U 2	-	U 2	UJ	U 1.8	-	U 1.9	UJ
Acenaphthene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Acenaphthylene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Anthracene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Benzo(a)anthracene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Benzo(a)pyrene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Benzo(b)fluoranthene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Benzo(g,h,i)perylene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Benzo(k)fluoranthene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Benzoic acid	U 2	R	U 2	UJ	J .084	-	U 1.9	UJ
Benzyl alcohol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
bis(2-Chloroethoxy)methane	U .41	-	U .41	UJ	U .38	-	U .39	UJ
bis(2-Chloroethyl)ether	U .41	-	U .41	UJ	U .38	-	U .39	UJ
bis(2-Chloroisopropyl) ether	U .41	-	U .41	UJ	U .38	-	U .39	UJ
bis(2-Ethylhexyl) phthalate	U .41	-	U .41	UJ	U .38	-	J .12	J
Butyl benzyl phthalate	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Chrysene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Di-n-butyl phthalate	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Di-n-octyl phthalate	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Dibenzo(a,h)anthracene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Dibenzofuran	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Diethyl phthalate	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Dimethyl phthalate	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Fluoranthene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Fluorene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Hexachlorobenzene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Hexachlorobutadiene	U .41	-	U .41	UJ	U .38	-	U .39	UJ

a = lab qualifier
b = validated qualifier

-4948
454

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066957 04/18/91 17.5-20.0 ft.		1615 066966 04/20/91 37.5-40 ft.		1616 064030 06/26/91 83 - 85.2 ft.		1616 064039 06/28/91 103 - 104.4 ft.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Hexachloroethane	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Indeno(1,2,3-cd)pyrene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Isophorone	U .41	-	U .41	UJ	U .38	-	U .39	UJ
N-Nitroso-di-n-propylamine	U .41	-	U .41	UJ	U .38	-	U .39	UJ
N-Nitrosodiphenylamine	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Naphthalene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Nitrobenzene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Pentachlorophenol	U 2	-	U 2	UJ	U 1.8	-	U 1.9	UJ
Phenanthrene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Phenol	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Pyrene	U .41	-	U .41	UJ	U .38	-	U .39	UJ
Tributyl Phosphate	U .41	-	U .41	-	NA		U .39	UJ
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	-	U .006	-	U .006	-	U .006	UJ
1,1,2,2-Tetrachloroethane	U .006	-	U .006	-	U .006	-	U .006	UJ
1,1,2-Trichloroethane	U .006	-	U .006	-	U .006	-	U .006	UJ
1,1-Dichloroethane	U .006	-	U .006	-	U .006	-	U .006	UJ
1,1-Dichloroethene	U .006	-	U .006	-	U .006	-	U .006	UJ
1,2-Dichloroethane	U .006	-	U .006	-	U .006	-	U .006	UJ
1,2-Dichloroethylene	U .006	-	U .006	-	U .006	-	U .006	UJ
1,2-Dichloropropane	U .006	-	U .006	-	U .006	-	U .006	UJ
2-Butanone	J .009	J	U .012	UJ	J .002	-	U .011	R
2-Hexanone	U .012	-	U .012	-	U .011	-	U .011	UJ
4-Methyl-2-pentanone	U .012	-	U .012	-	.024	-	U .011	UJ
Acetone	B .053	-	BJ .012	UJ	.024	R	BJ .011	UJ
Benzene	U .006	-	U .006	-	U .006	-	U .006	UJ
Bromodichloromethane	U .006	-	U .006	-	U .006	-	U .006	UJ
Bromoform	U .006	-	U .006	-	U .006	-	U .006	UJ
Bromomethane	U .012	-	U .012	UJ	U .011	-	U .006	UJ
Carbon disulfide	U .006	-	U .006	-	.011	-	U .011	UJ
Carbon Tetrachloride	U .006	-	U .006	-	U .006	-	U .006	UJ
Chlorobenzene	U .006	-	U .006	-	U .006	-	U .006	UJ
Chloroethane	U .012	-	U .012	UJ	U .011	-	U .011	UJ
Chloroform	U .006	-	U .006	-	U .006	-	U .006	UJ
Chloromethane	U .012	-	U .012	UJ	U .011	-	U .011	UJ
cis-1,3-Dichloropropene	U .006	-	U .006	-	U .006	-	U .006	UJ
Dibromochloromethane	U .006	-	U .006	-	U .006	-	U .006	UJ
Ethylbenzene	U .006	-	U .006	-	U .006	-	U .006	UJ
Methylene chloride	B .013	-	B .012	UJ	B .009	-	BJ .004	UJ
Styrene	U .006	-	U .006	-	U .006	-	U .006	UJ
Tetrachlorethene	U .006	-	U .006	-	U .006	-	U .006	UJ

a = lab qualifier
b = validated qualifier

455

-4948

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066957 04/18/91 17.5-20.0 ft.		1615 066966 04/20/91 37.5-40 ft.		1616 064030 06/26/91 83 - 85.2 ft.		1616 064039 06/28/91 103 - 104.4 ft.	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	U .006	-	U .006	-	U .006	-	U .006	UJ
Total xylenes	U .006	-	U .006	-	.009	-	U .006	UJ
trans-1,3-Dichloropropene	U .006	-	U .006	-	U .006	-	U .006	UJ
Trichloroethene	U .006	-	U .006	-	U .006	-	U .006	UJ
Vinyl Acetate	U .012	-	U .012	UJ	U .011	-	U .011	UJ
Vinyl chloride	U .012	-	U .012	-	U .011	-	U .011	UJ

a = lab qualifier
b = validated qualifier

4948
456

OU4 SLANT BORING-HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066981 05/02/91 17.5 - 20.2 ft.		1617 066990 05/03/91 36.5 - 40.2 ft.		1617 066998 05/04/91 58.5 - 59.7 ft.		1618 064102 07/29/91 47.5 - 48.5 ft.	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .02	-	U .019	UJ	U .018	-	U .019	-
4,4'-DDE	U .02	-	U .019	UJ	U .018	-	U .019	-
4,4'-DDT	U .02	-	U .019	UJ	U .018	-	U .019	-
Aldrin	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
alpha-BHC	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
alpha-Chlordane	U .1	-	U .097	UJ	U .089	-	U .097	-
Aroclor-1016	U .1	-	U .097	UJ	U .089	-	U .097	-
Aroclor-1221	U .1	-	U .097	UJ	U .089	-	U .097	-
Aroclor-1232	U .1	-	U .097	UJ	U .089	-	U .097	-
Aroclor-1242	U .1	-	U .097	UJ	U .089	-	U .097	-
Aroclor-1248	U .1	-	U .097	UJ	U .089	-	U .097	-
Aroclor-1254	U .2	-	U .19	UJ	U .18	-	U .19	-
Aroclor-1260	U .2	-	U .19	UJ	U .18	-	U .19	-
beta-BHC	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
delta-BHC	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
Dieldrin	U .02	-	U .019	UJ	U .018	-	U .019	-
Endosulfan II	U .02	-	U .019	UJ	U .018	-	U .019	-
Endosulfan sulfate	U .02	-	U .019	UJ	U .018	-	U .019	-
Endosulfan-I	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
Endrin	U .02	-	U .019	UJ	U .018	-	U .019	-
Endrin ketone	U .02	-	U .019	UJ	U .018	-	U .019	-
gamma-BHC (Lindane)	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
gamma-Chlordane	U .1	-	U .097	UJ	U .089	-	U .097	-
Heptachlor	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
Heptachlor epoxide	U .01	-	U .0097	UJ	U .0089	-	U .0097	-
Methoxychlor	U .1	-	U .097	UJ	U .089	-	U .097	-
Toxaphene	U .2	-	U .19	UJ	U .18	-	U .19	-
SEM-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .42	-	U .4	UJ	U .36	-	U .41	-
1,2-Dichlorobenzene	U .42	-	U .4	UJ	U .36	-	U .41	-
1,3-Dichlorobenzene	U .42	-	U .4	UJ	U .36	-	U .41	-
1,4-Dichlorobenzene	U .42	-	U .4	UJ	U .36	-	U .41	-
2,4,5-Trichlorophenol	U 2	-	U 1.9	UJ	U 1.7	-	U 2	-
2,4,6-Trichlorophenol	U .42	-	U .4	UJ	U .36	-	U .41	-
2,4-Dichlorophenol	U .42	-	U .4	UJ	U .36	-	U .41	-
2,4-Dimethylphenol	U .42	-	U .4	UJ	U .36	-	U .41	-
2,4-Dinitrophenol	U 2	UJ	U 1.9	UJ	U 1.7	UJ	U 2	-
2,4-Dinitrotoluene	U .42	-	U .4	UJ	U .36	-	U .41	-
2,6-Dinitrotoluene	U .42	-	U .4	UJ	U .36	-	U .41	-
2-Chloronaphthalene	U .42	-	U .4	UJ	U .36	-	U .41	-
2-Chlorophenol	U .42	-	U .4	UJ	U .36	-	U .41	-

a = lab qualifier
b = validated qualifier

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066981 05/02/91 17.5 - 20.2 ft. a	b	1617 066990 05/03/91 36.5 - 40.2 ft. a	b	1617 066998 05/04/91 58.5 - 59.7 ft. a	b	1618 064102 07/29/91 47.5 - 48.5 ft. a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .42	-	U .4	UJ	U .36	-	U .41	-
2-Methylphenol	U .42	-	U .4	UJ	U .36	-	U .41	-
2-Nitroaniline	U 2	-	U 1.9	UJ	U 1.7	-	U 2	-
2-Nitrophenol	U .42	-	U .4	UJ	U .36	-	U .41	-
3,3'-Dichlorobenzidine	U .83	UJ	U .8	UJ	U .72	-	U .81	UJ
3-Nitroaniline	U 2	-	U 1.9	UJ	U 1.7	-	U 2	UJ
4,6-Dinitro-2-methylphenol	U 2	-	U 1.9	UJ	U 1.7	-	U 2	-
4-Bromophenyl phenyl ether	U .42	-	U .4	UJ	U .36	-	U .41	-
4-Chloro-3-methylphenol	U .42	-	U .4	UJ	U .36	-	U .41	-
4-Chloroaniline	U .42	-	U .4	UJ	U .36	-	U .41	UJ
4-Chlorophenylphenyl ether	U .42	-	U .4	UJ	U .36	-	U .41	-
4-Methylphenol	U .42	-	U .4	UJ	U .36	-	U .41	-
4-Nitroaniline	U 2	-	U 1.9	UJ	U 1.7	-	U 2	UJ
4-Nitrophenol	U 2	-	U 1.9	UJ	U 1.7	-	U 2	UJ
Acenaphthene	U .42	-	U .4	UJ	U .36	-	U .41	-
Acenaphthylene	U .42	-	U .4	UJ	U .36	-	U .41	-
Anthracene	U .42	-	U .4	UJ	U .36	-	U .41	-
Benzo(a)anthracene	U .42	-	U .4	UJ	U .36	-	U .41	-
Benzo(a)pyrene	U .42	-	U .4	UJ	U .36	-	U .41	-
Benzo(b)fluoranthene	U .42	-	U .4	UJ	U .36	-	U .41	-
Benzo(g,h,i)perylene	U .42	-	U .4	UJ	U .36	-	U .41	UJ
Benzo(k)fluoranthene	U .42	-	U .4	UJ	U .36	-	U .41	-
Benzoic acid	U 2	UJ	U 1.9	UJ	U 1.7	UJ	U 2	UJ
Benzyl alcohol	U .42	-	U .4	UJ	U .36	-	U .41	-
bis(2-Chloroethoxy)methane	U .42	-	U .4	UJ	U .36	-	U .41	-
bis(2-Chloroethyl)ether	U .42	-	U .4	UJ	U .36	-	U .41	-
bis(2-Chloroisopropyl) ether	U .42	-	U .4	UJ	U .36	-	U .41	UJ
bis(2-Ethylhexyl) phthalate	U .42	-	U .4	UJ	J .045	J	U .41	-
Butyl benzyl phthalate	U .42	-	U .4	UJ	U .36	-	U .41	-
Chrysene	U .42	-	U .4	UJ	U .36	-	U .41	-
Di-n-butyl phthalate	U .42	-	U .4	UJ	U .36	-	U .41	-
Di-n-octyl phthalate	U .42	-	U .4	UJ	U .36	-	U .41	-
Dibenzo(a,h)anthracene	U .42	-	U .4	UJ	U .36	-	U .41	-
Dibenzofuran	U .42	-	U .4	UJ	U .36	-	U .41	-
Diethyl phthalate	U .42	-	J .19	J	U .36	-	U .41	-
Dimethyl phthalate	U .42	-	U .4	UJ	U .36	-	U .41	-
Fluoranthene	U .42	-	U .4	UJ	U .36	-	U .41	-
Fluorene	U .42	-	U .4	UJ	U .36	-	U .41	-
Hexachlorobenzene	U .42	-	U .4	UJ	U .36	-	U .41	-
Hexachlorobutadiene	U .42	-	U .4	UJ	U .36	-	U .41	-

a = lab qualifier
b = validated qualifier

1948
458

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066981 05/02/91 17.5 - 20.2 ft. a	b	1617 066990 05/03/91 36.5 - 40.2 ft. a	b	1617 066998 05/04/91 58.5 - 59.7 ft. a	b	1618 064102 07/29/91 47.5 - 48.5 ft. a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .42	-	U .4	UJ	U .36	-	U .41	-
Hexachloroethane	U .42	-	U .4	UJ	U .36	-	U .41	UJ
Indeno(1,2,3-cd)pyrene	U .42	-	U .4	UJ	U .36	-	U .41	-
Isophorone	U .42	-	U .4	UJ	U .36	-	U .41	-
N-Nitroso-di-n-propylamine	U .42	-	U .4	UJ	U .36	-	U .41	-
N-Nitrosodiphenylamine	U .42	-	U .4	UJ	U .36	-	U .41	-
Naphthalene	U .42	-	U .4	UJ	U .36	-	U .41	-
Nitrobenzene	U .42	-	U .4	UJ	U .36	-	U .41	-
Pentachlorophenol	U 2	-	U 1.9	UJ	U 1.7	-	U 2	-
Phenanthrene	U .42	-	U .4	UJ	U .36	-	U .41	-
Phenol	U .42	-	U .4	UJ	J .36	U	U .41	-
Pyrene	U .42	-	U .4	UJ	U .36	-	U .41	-
Tributyl Phosphate	NA		NA		U .36	-	U .41	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .006	-	U .006	R	U .005	-	U .006	-
1,1,2,2-Tetrachloroethane	U .006	-	U .006	R	U .005	-	U .006	-
1,1,2-Trichloroethane	U .006	-	U .006	R	U .005	-	U .006	-
1,1-Dichloroethane	U .006	-	U .006	R	U .005	-	U .006	-
1,1-Dichloroethene	U .006	-	U .006	R	U .005	-	U .006	-
1,2-Dichloroethane	U .006	-	U .006	R	U .005	UJ	U .006	-
1,2-Dichloroethylene	U .006	-	U .006	R	U .005	-	U .006	-
1,2-Dichloropropane	U .006	-	U .006	R	U .005	-	U .006	-
2-Butanone	U .012	R	U .012	R	U .011	-	U .012	-
2-Hexanone	U .012	-	U .012	R	U .011	-	U .012	-
4-Methyl-2-pentanone	U .012	-	U .012	R	U .011	-	J .002	-
Acetone	B .029	U	.037	J	BJ .011	UJ	B .034	U
Benzene	U .006	-	U .006	R	U .005	-	U .006	-
Bromodichloromethane	U .006	-	U .006	R	U .005	-	U .006	-
Bromoform	U .006	-	U .006	R	U .005	-	U .006	-
Bromomethane	U .012	-	U .012	R	U .011	-	U .012	-
Carbon disulfide	U .006	-	U .006	R	U .005	UJ	U .006	-
Carbon Tetrachloride	U .006	-	U .006	R	U .005	-	U .006	-
Chlorobenzene	U .006	-	U .006	R	U .005	-	U .006	-
Chloroethane	U .012	-	U .012	R	U .011	-	U .012	-
Chloroform	U .006	-	U .006	R	U .005	-	U .006	-
Chloromethane	U .012	-	U .012	R	U .011	UJ	U .012	-
cis-1,3-Dichloropropene	U .006	-	U .006	R	U .005	-	U .006	-
Dibromochloromethane	U .006	-	U .006	R	U .005	-	U .006	-
Ethylbenzene	U .006	-	U .006	R	U .005	-	U .006	-
Methylene chloride	B .023	UJ	BJ .004	R	BJ .005	U	BJ .006	U
Styrene	U .006	-	U .006	R	U .005	-	U .006	-
Tetrachlorethene	U .006	-	U .006	R	U .005	-	U .006	-

a = lab qualifier
b = validated qualifier

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066981 05/02/91 17.5 - 20.2 ft.			1617 066990 05/03/91 36.5 - 40.2 ft.			1617 066998 05/04/91 58.5 - 59.7 ft.			1618 064102 07/29/91 47.5 - 48.5 ft.		
	a		b	a		b	a		b	a		b
VOLATILE ORGANICS												
Toluene	U	.006	-	U	.006	R	U	.005	-	BJ	.006	U
Total xylenes	U	.006	-	U	.006	R	U	.005	-	U	.006	-
trans-1,3-Dichloropropene	U	.006	-	U	.006	R	U	.005	-	U	.006	-
Trichloroethene	U	.006	-	U	.006	R	U	.005	-	U	.006	-
Vinyl Acetate	U	.012	-	U	.012	R	U	.011	-	U	.012	-
Vinyl chloride	U	.012	-	U	.012	R	U	.011	-	U	.012	-

a = lab qualifier
b = validated qualifier

460

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064112 07/30/91 67.5 - 70 ft. a	b	1618 064123 08/01/91 87.5 - 90 ft. a	b	1618 064134 08/02/91 105 - 107.5 ft. a	b	1618 064146 08/03/91 125 - 127.5 ft. a	b
PESTICIDES/PCB								
4,4'-DDD	U .021	-	U .02	UJ	U .02	-	U .02	UJ
4,4'-DDE	U .021	-	U .02	UJ	U .02	-	U .02	UJ
4,4'-DDT	U .021	-	U .02	UJ	U .02	-	U .02	UJ
Aldrin	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
alpha-BHC	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
alpha-Chlordane	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Aroclor-1016	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Aroclor-1221	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Aroclor-1232	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Aroclor-1242	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Aroclor-1248	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Aroclor-1254	U .21	-	U .2	UJ	U .2	-	U .2	UJ
Aroclor-1260	U .21	-	U .2	UJ	U .2	-	U .2	UJ
beta-BHC	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
delta-BHC	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
Dieldrin	U .021	-	U .02	UJ	U .02	-	U .02	UJ
Endosulfan II	U .021	-	U .02	UJ	U .02	-	U .02	UJ
Endosulfan sulfate	U .021	-	U .02	UJ	U .02	-	U .02	UJ
Endosulfan-I	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
Endrin	U .021	-	U .02	UJ	U .02	-	U .02	UJ
Endrin ketone	U .021	-	U .02	UJ	U .02	-	U .02	UJ
gamma-BHC (Lindane)	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
gamma-Chlordane	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Heptachlor	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
Heptachlor epoxide	U .011	-	U .0099	UJ	U .01	-	U .01	UJ
Methoxychlor	U .11	-	U .099	UJ	U .1	-	U .1	UJ
Toxaphene	U .21	-	U .2	UJ	U .2	-	U .2	UJ
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .43	-	U .41	-	U .41	-	U .41	UJ
1,2-Dichlorobenzene	U .43	-	U .41	-	U .41	-	U .41	UJ
1,3-Dichlorobenzene	U .43	-	U .41	-	U .41	-	U .41	UJ
1,4-Dichlorobenzene	U .43	-	U .41	-	U .41	-	U .41	UJ
2,4,5-Trichlorophenol	U 2.1	-	U 2	-	U 2	-	U 2	UJ
2,4,6-Trichlorophenol	U .43	-	U .41	-	U .43	-	U .41	UJ
2,4-Dichlorophenol	U .43	-	U .41	-	U .41	-	U .41	UJ
2,4-Dimethylphenol	U .43	-	U .41	-	U .41	-	U .41	UJ
2,4-Dinitrophenol	U 2.1	-	U 2	-	U 2	-	U 2	UJ
2,4-Dinitrotoluene	U .43	-	U .41	-	U .41	-	U .41	UJ
2,6-Dinitrotoluene	U .43	-	U .41	-	U .41	-	U .41	UJ
2-Chloronaphthalene	U .43	-	U .41	-	U .41	-	U .41	UJ
2-Chlorophenol	U .43	-	U .41	-	U .41	-	U .41	UJ

a = lab qualifier
b = validated qualifier

-4948
461

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064112 07/30/91 67.5 - 70 ft. a	b	1618 064123 08/01/91 87.5 - 90 ft. a	b	1618 064134 08/02/91 105 - 107.5 ft. a	b	1618 064146 08/03/91 125 - 127.5 ft. a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .43	-	U .41	-	U .41	-	U .41	UJ
2-Methylphenol	U .43	-	U .41	-	U .41	-	U .41	UJ
2-Nitroaniline	U 2.1	UJ	U 2	UJ	U 2	UJ	U 2	UJ
2-Nitrophenol	U .43	-	U .41	-	U .41	-	U .41	UJ
3,3'-Dichlorobenzidine	U .86	UJ	U .82	UJ	U .81	UJ	U .82	UJ
3-Nitroaniline	U 2.1	UJ	U 2	UJ	U 2	UJ	U 2	UJ
4,6-Dinitro-2-methylphenol	U 2.1	-	U 2	-	U 2	-	U 2	UJ
4-Bromophenyl phenyl ether	U .43	-	U .41	-	U .41	-	U .41	UJ
4-Chloro-3-methylphenol	U .43	-	U .41	-	U .41	-	U .41	UJ
4-Chloroaniline	U .43	UJ	U .41	UJ	U .41	UJ	U .41	UJ
4-Chlorophenylphenyl ether	U .43	-	U .41	-	U .41	-	U .41	UJ
4-Methylphenol	U .43	-	U .41	-	U .41	-	U .41	UJ
4-Nitroaniline	U 2.1	UJ	U 2	UJ	U 2	UJ	U 2	UJ
4-Nitrophenol	U 2.1	UJ	U 2	UJ	U 2	UJ	U 2	UJ
Acenaphthene	U .43	-	U .41	-	U .41	-	U .41	UJ
Acenaphthylene	U .43	-	U .41	-	U .41	-	U .41	UJ
Anthracene	U .43	-	U .41	-	U .41	-	U .41	UJ
Benzo(a)anthracene	U .43	-	U .41	-	U .41	-	U .41	UJ
Benzo(a)pyrene	U .43	-	U .41	-	U .41	-	U .41	UJ
Benzo(b)fluoranthene	U .43	-	U .41	-	U .41	-	U .41	UJ
Benzo(g,h,i)perylene	U .43	-	U .41	-	U .41	-	U .41	UJ
Benzo(k)fluoranthene	U .43	-	U .41	-	U .41	-	U .41	UJ
Benzoic acid	U .085	UJ	U .07	J	BJ .049	UJ	U 2	UJ
Benzyl alcohol	U .43	-	U .41	-	U .41	-	U .41	UJ
bis(2-Chloroethoxy)methane	U .43	-	U .41	-	U .41	-	U .41	UJ
bis(2-Chloroethyl)ether	U .43	-	U .41	-	U .41	-	U .41	UJ
bis(2-Chloroisopropyl) ether	U .43	-	U .41	-	U .41	-	U .41	UJ
bis(2-Ethylhexyl) phthalate	U .43	-	U .4	R	U .41	-	U .41	UJ
Butyl benzyl phthalate	U .43	-	U .41	-	U .41	-	U .41	UJ
Chrysene	U .43	-	U .41	-	U .41	-	U .41	UJ
Di-n-butyl phthalate	U .43	-	U .41	-	U .41	-	U .41	UJ
Di-n-octyl phthalate	U .43	-	U .41	-	U .41	-	U .41	UJ
Dibenzo(a,h)anthracene	U .43	UJ	U .41	UJ	U .41	UJ	U .41	UJ
Dibenzofuran	U .43	-	U .41	-	U .41	-	U .41	UJ
Diethyl phthalate	U .43	-	U .41	-	U .41	-	U .41	UJ
Dimethyl phthalate	U .43	-	U .41	-	U .41	-	U .41	UJ
Fluoranthene	U .43	-	U .41	-	U .41	-	U .41	UJ
Fluorene	U .43	-	U .41	-	U .41	-	U .41	UJ
Hexachlorobenzene	U .43	-	U .41	-	U .41	-	U .41	UJ
Hexachlorobutadiene	U .43	-	U .41	-	U .41	-	U .41	UJ

a = lab qualifier
b = validated qualifier

0 1948
452

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064112 07/30/91 67.5 - 70 ft. a		b	1618 064123 08/01/91 87 .5 - 90 ft. a		B	1618 064134 08/02/91 105 - 107.5 ft. a		b	1618 064146 08/03/91 125 - 127.5 ft. a		b
SEMI-VOLATILE ORGANICS												
Hexachlorocyclopentadiene	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Hexachloroethane	U	.43	UJ	U	.41	UJ	U	.41	UJ	U	.41	UJ
Indeno(1,2,3-cd)pyrene	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Isophorone	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
N-Nitroso-di-n-propylamine	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
N-Nitrosodiphenylamine	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Naphthalene	U	.43	UJ	U	.41	UJ	U	.41	UJ	U	.41	UJ
Nitrobenzene	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Pentachlorophenol	U	2.1	-	U	2	-	U	2	-	U	2	UJ
Phenanthrene	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Phenol	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Pyrene	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
Tributyl Phosphate	U	.43	-	U	.41	-	U	.41	-	U	.41	UJ
VOLATILE ORGANICS												
1,1,1-Trichloroethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,1,2,2-Tetrachloroethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,1,2-Trichloroethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,1-Dichloroethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,1-Dichloroethene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,2-Dichloroethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,2-Dichloroethylene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
1,2-Dichloropropane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
2-Butanone	BJ	.01	UJ	U	.012	UJ	U	.012	UJ	U	.012	-
2-Hexanone	U	.013	UJ	U	.012	UJ	U	.012	UJ	U	.012	UJ
4-Methyl-2-pentanone	U	.013	-	U	.012	-	U	.012	-	U	.012	-
Acetone	B	.022	J	U	.012	UJ	B	.014	UJ	B	.014	U
Benzene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Bromodichloromethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Bromoform	U	.006	R	U	.006	-	U	.006	-	U	.006	UJ
Bromomethane	U	.013	-	U	.012	-	U	.012	-	U	.012	-
Carbon disulfide	U	.006	-	U	.006	-	U	.006	-	J	.006	U
Carbon Tetrachloride	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Chlorobenzene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Chloroethane	U	.013	-	U	.012	-	U	.012	-	U	.012	-
Chloroform	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Chloromethane	U	.013	UJ	U	.012	UJ	U	.012	UJ	U	.012	-
cis-1,3-Dichloropropene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Dibromochloromethane	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Ethylbenzene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Methylene chloride	BJ	.006	-	BJ	.005	-	BJ	.006	U	B	.025	U
Styrene	U	.006	-	U	.006	-	U	.006	-	U	.006	-
Tetrachlorethene	U	.006	-	U	.006	-	U	.006	-	U	.006	-

a = lab qualifier
b = validated qualifier

4948

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064112 07/30/91 67.5 - 70 ft.		1618 064123 08/01/91 87.5 - 90 ft.		1618 064134 08/02/91 105 - 107.5 ft.		1618 064146 08/03/91 125 - 127.5 ft.	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .002	-	J .006	U	J .006	U	BJ .006	U
Total xylenes	U .006	-	U .006	-	U .006	-	U .006	-
trans-1,3-Dichloropropene	U .006	-	U .006	-	U .006	-	U .006	-
Trichloroethene	U .006	-	U .006	-	U .006	-	U .006	-
Vinyl Acetate	U .013	-	U .012	-	U .012	-	U .012	-
Vinyl chloride	U .013	-	U .012	-	U .012	-	U .012	-

a = lab qualifier
b = validated qualifier

464

-4948

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1619 064067 07/20/91 57.5 - 60 ft. a		b
PESTICIDES/PCB			
4,4'-DDD	U	.019	-
4,4'-DDE	U	.019	-
4,4'-DDT	U	.019	-
Aldrin	U	.0095	-
alpha-BHC	U	.0095	-
alpha-Chlordane	U	.095	-
Aroclor-1016	U	.095	-
Aroclor-1221	U	.095	-
Aroclor-1232	U	.095	-
Aroclor-1242	U	.095	-
Aroclor-1248	U	.095	-
Aroclor-1254	U	.19	-
Aroclor-1260	U	.19	-
beta-BHC	U	.0095	-
delta-BHC	U	.0095	-
Dieldrin	U	.019	-
Endosulfan II	U	.019	-
Endosulfan sulfate	U	.019	-
Endosulfan-I	U	.0095	-
Endrin	U	.019	-
Endrin ketone	U	.019	-
gamma-BHC (Lindane)	U	.0095	-
gamma-Chlordane	U	.095	-
Heptachlor	U	.0095	-
Heptachlor epoxide	U	.0095	-
Methoxychlor	U	.095	-
Toxaphene	U	.19	-
SEMI-VOLATILE ORGANICS			
1,2,4-Trichlorobenzene	U	.39	-
1,2-Dichlorobenzene	U	.39	-
1,3-Dichlorobenzene	U	.39	-
1,4-Dichlorobenzene	U	.39	-
2,4,5-Trichlorophenol	U	1.9	-
2,4,6-Trichlorophenol	U	.39	-
2,4-Dichlorophenol	U	.39	-
2,4-Dimethylphenol	U	.39	-
2,4-Dinitrophenol	U	1.9	-
2,4-Dinitrotoluene	U	.39	-
2,6-Dinitrotoluene	U	.39	-
2-Chloronaphthalene	U	.39	-
2-Chlorophenol	U	.39	-

a = lab qualifier
b = validated qualifier

-4048

465

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1619 064067 07/20/91 57.5 - 60 ft. a	b
SEMI-VOLATILE ORGANICS		
2-Methylnaphthalene	U .39	-
2-Methylphenol	U .39	-
2-Nitroaniline	U 1.9	-
2-Nitrophenol	U .39	-
3,3'-Dichlorobenzidine	U .79	UJ
3-Nitroaniline	U 1.9	UJ
4,6-Dinitro-2-methylphenol	U 1.9	-
4-Bromophenyl phenyl ether	U .39	-
4-Chloro-3-methylphenol	U .39	-
4-Chloroaniline	U .39	-
4-Chlorophenylphenyl ether	U .39	-
4-Methylphenol	U .39	-
4-Nitroaniline	U 1.9	UJ
4-Nitrophenol	U 1.9	-
Acenaphthene	U .39	-
Acenaphthylene	U .39	-
Anthracene	U .39	-
Benzo(a)anthracene	U .39	-
Benzo(a)pyrene	U .39	-
Benzo(b)fluoranthene	U .39	-
Benzo(g,h,i)perylene	U .39	-
Benzo(k)fluoranthene	U .39	-
Benzoic acid	U 1.9	UJ
Benzyl alcohol	U .39	-
bis(2-Chloroethoxy)methane	U .39	-
bis(2-Chloroethyl)ether	U .39	-
bis(2-Chloroisopropyl) ether	U .39	-
bis(2-Ethylhexyl) phthalate	U .39	-
Butyl benzyl phthalate	U .39	-
Chrysene	U .39	-
Di-n-butyl phthalate	U .39	-
Di-n-octyl phthalate	U .39	-
Dibenzo(a,h)anthracene	U .39	-
Dibenzofuran	U .39	-
Diethyl phthalate	U .39	-
Dimethyl phthalate	U .39	-
Fluoranthene	U .39	-
Fluorene	U .39	-
Hexachlorobenzene	U .39	-
Hexachlorobutadiene	U .39	-

a = lab qualifier
b = validated qualifier

-4948

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1619 064067 07/20/91 57.5 - 60 ft. a		b
SEMI-VOLATILE ORGANICS			
Hexachlorocyclopentadiene	U	.39	-
Hexachloroethane	U	.39	UJ
Indeno(1,2,3-cd)pyrene	U	.39	-
Isophorone	U	.39	-
N-Nitroso-di-n-propylamine	U	.39	-
N-Nitrosodiphenylamine	U	.39	-
Naphthalene	U	.39	-
Nitrobenzene	U	.39	-
Pentachlorophenol	U	1.9	-
Phenanthrene	U	.39	-
Phenol	U	.39	-
Pyrene	U	.39	-
Tributyl Phosphate	U	.39	-
VOLATILE ORGANICS			
1,1,1-Trichloroethane	U	.006	-
1,1,2,2-Tetrachloroethane	U	.006	-
1,1,2-Trichloroethane	U	.006	-
1,1-Dichloroethane	U	.006	-
1,1-Dichloroethene	U	.006	-
1,2-Dichloroethane	U	.006	-
1,2-Dichloroethylene	U	.006	-
1,2-Dichloropropane	U	.006	-
2-Butanone	BJ	.012	UJ
2-Hexanone	U	.012	UJ
4-Methyl-2-pentanone	U	.012	UJ
Acetone	B	.016	UJ
Benzene	U	.006	-
Bromodichloromethane	U	.006	-
Bromoform	U	.006	UJ
Bromomethane	U	.012	UJ
Carbon disulfide	U	.006	-
Carbon Tetrachloride	U	.006	-
Chlorobenzene	U	.006	-
Chloroethane	U	.012	-
Chloroform	U	.006	-
Chloromethane	U	.012	-
cis-1,3-Dichloropropene	U	.006	-
Dibromochloromethane	U	.006	-
Ethylbenzene	U	.006	-
Methylene chloride	B	.006	U
Styrene	U	.006	-
Tetrachlorethene	U	.006	-

a = lab qualifier
b = validated qualifier

46/
48

OU4 SLANT BORING HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per kilogram (MG/KG).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1619 064067 07/20/91 57.5 - 60 ft. a		b
VOLATILE ORGANICS			
Toluene	U	.006	-
Total xylenes	U	.006	-
trans-1,3-Dichloropropene	U	.006	UJ
Trichloroethene	U	.006	-
Vinyl Acetate	U	.012	UJ
Vinyl chloride	U	.012	-

a = lab qualifier
b = validated qualifier

-4948
468

OU4 SLANT BORING TCLP RESULTS

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066958 04/18/91 17.5-20.0 ft.		1615 066967 04/20/91 37.5-40 ft.		1616 064031 06/26/91 83 - 85.2 ft.		1616 064040 06/28/91 103 - 104.4 ft.	
	a	b	a	b	a	b	a	b
METALS								
Arsenic	.1487	-	U .25	J	U .25	-	U .25	-
Barium	.1182	-	.55	-	1.107	-	N 2.15	J
Cadmium	U .002	-	U .01	-	U .01	-	B .011	-
Chromium	U .01	-	.107	-	.109	-	.245	-
Lead	U .04	-	U .2	J	.1	-	N .205	J
Mercury	U .0002	-	U .0002	JB	U .0002	-	U .0002	-
Selenium	.1237	-	U .4	-	.15	-	U .4	-
Silver	U .01	-	.156	-	.0957	-	.232	-

a = lab qualifier
b = validated qualifier

470

74948

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066982 05/02/91 17.5 - 20.2 ft.		1617 066991 05/03/91 36.5 - 40.2 ft.		1617 066999 05/04/91 59.7 - 61.0 ft.		1618 064103 07/29/91 47.5 - 48.5 ft.	
	a	b	a	b	a	b	a	b
METALS								
Arsenic	.136	UJ	.108	-	.25	UJ	.107	-
Barium	1.22	UJ	.752	-	.6	UJ	.316	-
Cadmium	U .002	-	.00355	-	U .01	-	U .002	-
Chromium	U .01	-	U .01	-	.073	-	.0172	-
Lead	U .04	-	U .04	-	U .2	-	U .04	-
Mercury	U .0002	-	U .0002	-	U .0002	-	U .0002	-
Selenium	.143	UJ	.104	-	U .4	-	.103	-
Silver	U .01	-	.01904	-	.138	-	.0135	-

a = lab qualifier
b = validated qualifier

4048
471

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064147 08/03/91 125 - 127.5 ft.		1619 064068 07/20/91 57.5 - 60 ft.	
	a	b	a	b
METALS				
Arsenic	UN .25	R	U .05	R
Barium	.499	R	.646	R
Cadmium	B .015	-	.006	R
Chromium	.115	R	.0871	R
Lead	.177	R	.0916	R
Mercury	U .0002	R	U .0002	R
Selenium	.187	R	.113	R
Silver	N .0973	R	.0859	R

a = lab qualifier
b = validated qualifier

472

5048

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066958 04/18/91 17.5-20.0 ft. a	b	1615 066967 04/20/91 37.5-40 ft. a	b	1616 064031 06/26/91 83 - 85.2 ft. a	b	1616 064040 06/28/91 103 - 104.4 ft. a	b
HERBICIDES								
2,4,5-TP (Silvex)	U .0026	-	U .0018	-	U .0018	-	U .0018	-
2,4-D	U .017	-	U .012	-	U .01	-	U .01	-
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	U .0005	-	U .0005	-	U .0005	-	U .0005	-
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	U .0001	-	U .0001	-	U .0001	-	U .0001	-
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	U .00005	-	U .00005	-	U .00005	-	U .00005	-
gamma-Chlordane	U .0005	-	U .0005	-	U .0005	-	U .0005	-
Heptachlor	U .00005	-	U .00005	-	U .00005	-	U .00005	-
Heptachlor epoxide	U .00005	-	U .00005	-	U .00005	-	U .00005	-
Methoxychlor	U .0005	-	U .0005	-	U .0005	-	U .0005	-
Toxaphene	U .001	-	U .001	-	U .001	-	U .001	R
SEMI-VOLATILE ORGANICS								
1,4-Dichlorobenzene	U .02	-	U .02	-	U .02	-	U .02	-
2,4,5-Trichlorophenol	U .1	-	U .1	-	U .1	-	U .1	-
2,4,6-Trichlorophenol	U .02	-	U .02	-	U .02	-	U .02	-
2,4-Dinitrotoluene	U .02	-	U .02	-	U .02	-	U .02	-
2-Methylphenol	U .02	-	U .02	-	U .02	-	U .02	-
3-Methylphenol	U .02	-	U .02	-	U .02	-	U .02	-
4-Methylphenol	U .02	-	U .02	-	U .02	-	U .02	-
Hexachlorobenzene	U .02	-	U .02	-	U .02	-	U .02	-
Hexachlorobutadiene	U .02	-	U .02	-	U .02	-	U .02	-
Hexachloroethane	U .02	-	U .02	-	U .02	-	U .02	-
Nitrobenzene	U .02	-	U .02	-	U .02	-	U .02	-

a = lab qualifier
b = validated qualifier

0048

473

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 066958 04/18/91 17.5-20.0 ft.		1615 066967 04/20/91 37.5-40 ft.		1616 064031 06/26/91 83 - 85.2 ft.		1616 064040 06/28/91 103 - 104.4 ft.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Pentachlorophenol	U .1	-	U .1	-	U .1	-	U .1	-
VOLATILE ORGANICS								
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .02	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .02	-
2-Butanone	BJ .006	UJ	U .01	-	U .01	-	U .04	-
Benzene	U .005	-	U .005	-	U .005	-	U .02	-
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .02	-
Chlorobenzene	U .005	-	U .005	-	U .005	-	U .02	-
Chloroform	U .005	-	U .005	-	U .005	-	U .02	-
Pyridine	U .02	-	U .02	-	U .02	-	U .02	-
Tetrachlorethene	U .005	-	U .005	-	JB .002	-	U .02	-
Trichloroethene	U .005	-	U .005	UJ	U .005	-	U .02	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .04	-

a = lab qualifier
b = validated qualifier

474

-4948

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066982 05/02/91 17.5 - 20.2 ft. a	b	1617 066991 05/03/91 36.5 - 40.2 ft. a	b	1617 066999 05/04/91 59.7 - 61.0 ft. a	b	1618 064103 07/29/91 47.5 - 48.5 ft. a	b
HERBICIDES								
2,4,5-TP (Silvex)	U .0014	-	U .0018	-	U .0018	-	U .0018	-
2,4-D	U .014	-	U .012	-	U .012	-	U .01	-
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	U .0005	-	U .0005	-	U .0005	-	U .0005	R
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	U .0001	-	U .0001	-	U .0001	-	U .0001	R
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	U .00005	-	U .00005	-	U .00005	-	U .00005	R
gamma-Chlordane	U .0005	-	U .0005	-	U .0005	-	U .0005	R
Heptachlor	U .00005	-	U .00005	-	U .00005	-	U .00005	R
Heptachlor epoxide	U .00005	-	U .00005	-	U .00005	-	U .00005	R
Methoxychlor	U .0005	-	U .0005	-	U .0005	-	U .0005	R
Toxaphene	U .001	-	U .001	-	U .001	-	U .001	R
SEMI-VOLATILE ORGANICS								
1,4-Dichlorobenzene	U .02	-	U .02	-	U .02	-	U .02	-
2,4,5-Trichlorophenol	U .1	-	U .1	-	U .1	-	U .1	J
2,4,6-Trichlorophenol	U .02	-	U .02	-	U .02	-	U .02	J
2,4-Dinitrotoluene	U .02	-	U .02	-	U .02	-	U .02	-
2-Methylphenol	U .02	-	U .02	-	U .02	-	U .02	J
3-Methylphenol	U .02	-	U .02	-	U .02	-	U .02	J
4-Methylphenol	U .02	-	U .02	-	U .02	-	U .02	J
Hexachlorobenzene	U .02	-	U .02	-	U .02	-	U .02	-
Hexachlorobutadiene	U .02	-	U .02	-	U .02	-	U .02	-
Hexachloroethane	U .02	-	U .02	-	U .02	-	U .02	-
Nitrobenzene	U .02	-	U .02	-	U .02	-	U .02	-

a = lab qualifier
b = validated qualifier

-4948

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1617 066982 05/02/91 17.5 - 20.2 ft.		1617 066991 05/03/91 36.5 - 40.2 ft.		1617 066999 05/04/91 59.7 - 61.0 ft.		1618 064103 07/29/91 47.5 - 48.5 ft.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Pentachlorophenol	U .1	-	U .1	-	J .014	-	J .015	J
VOLATILE ORGANICS								
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
2-Butanone	J .006	-	U .01	-	J .001	UJ	J .001	-
Benzene	U .005	-	U .005	-	U .005	-	U .005	-
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .005	-
Chlorobenzene	U .005	-	U .005	-	U .005	-	U .005	-
Chloroform	U .005	-	U .005	-	U .005	-	U .005	-
Pyridine	U .02	-	U .02	-	U .02	-	U .02	-
Tetrachlorethene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064147 08/03/91 125 - 127.5 ft. a	b	1619 064068 07/20/91 57.5 - 60 ft. a	b
HERBICIDES				
2,4,5-TP (Silvex)	U .0018	-	U .0018	-
2,4-D	U .01	-	U .01	-
PESTICIDES/PCB				
4,4'-DDD	U .0001	-	NA	
4,4'-DDE	U .0001	-	NA	
4,4'-DDT	U .0001	-	NA	
Aldrin	U .00005	-	NA	
alpha-BHC	U .00005	-	NA	
alpha-Chlordane	U .0005	-	U .0005	R
Aroclor-1016	U .0005	-	NA	
Aroclor-1221	U .0005	-	NA	
Aroclor-1232	U .0005	-	NA	
Aroclor-1242	U .0005	-	NA	
Aroclor-1248	U .0005	-	NA	
Aroclor-1254	U .001	-	NA	
Aroclor-1260	U .001	-	NA	
beta-BHC	U .00005	-	NA	
delta-BHC	U .00005	-	NA	
Dieldrin	U .0001	-	NA	
Endosulfan II	U .0001	-	NA	
Endosulfan sulfate	U .0001	-	NA	
Endosulfan-I	U .00005	-	NA	
Endrin	U .0001	-	U .0001	R
Endrin ketone	U .0001	-	NA	
gamma-BHC (Lindane)	U .00005	-	U .00005	R
gamma-Chlordane	U .0005	-	U .0005	R
Heptachlor	U .00005	-	U .00005	R
Heptachlor epoxide	U .00005	-	U .00005	R
Methoxychlor	U .0005	-	U .0005	R
Toxaphene	U .001	-	U .001	R
SEMI-VOLATILE ORGANICS				
1,4-Dichlorobenzene	U .02	UJ	U .02	R
2,4,5-Trichlorophenol	U .1	UJ	U .1	R
2,4,6-Trichlorophenol	U .02	UJ	U .02	R
2,4-Dinitrotoluene	U .02	UJ	U .02	R
2-Methylphenol	U .02	UJ	U .02	R
3-Methylphenol	U .02	UJ	U .02	-
4-Methylphenol	U .02	UJ	U .02	R
Hexachlorobenzene	U .02	UJ	U .02	R
Hexachlorobutadiene	U .02	UJ	U .02	R
Hexachloroethane	U .02	UJ	U .02	R
Nitrobenzene	U .02	UJ	U .02	R

a = lab qualifier
b = validated qualifier

4948

OU4 SLANT BORING TCLP RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064147 08/03/91 125 - 127.5 ft. a	b	1619 064068 07/20/91 57.5 - 60 ft. a	b
SEMI-VOLATILE ORGANICS				
Pentachlorophenol	U .1	UJ	U .1	R
VOLATILE ORGANICS				
1,1-Dichloroethene	U .005	-	U .02	R
1,2-Dichloroethane	U .005	-	U .02	R
2-Butanone	J .001	-	U .04	R
Benzene	U .005	-	U .02	R
Carbon Tetrachloride	U .005	-	U .02	R
Chlorobenzene	U .005	-	U .02	R
Chloroform	U .005	-	U .02	R
Pyridine	U .02	UJ	U .02	-
Tetrachlorethene	U .005	-	U .02	R
Trichloroethene	U .005	-	U .02	R
Vinyl chloride	U .01	-	U .04	R

a = lab qualifier
b = validated qualifier

478

-4948

-4948

OU4 SLANT BORING GEOTECHNICAL RESULTS

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64034
SPECIFIC GRAVITY:	2.77 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	10.9
LIQUID LIMIT:	29.0
PLASTICITY INDEX:	15.0
USCS GROUP NAME:	SANDY LEAN CLAY WITH GRAVEL

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	96.5
NO. 4	4.750	85.7
NO. 10	2.000	70.7
NO. 20	0.850	55.9
NO. 40	0.425	45.7
NO. 60	0.250	39.3
NO. 140	0.106	33.0
NO. 200	0.075	31.3

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0516	45.6
0.0378	40.8
0.0272	38.0
0.0175	35.1
0.0105	28.5
0.0076	24.7
0.0055	20.9
0.0039	17.1
0.0028	14.2
0.0011	10.4

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64034 DUPLICATE
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	10.2
LIQUID CONTENT:	23.0
PLASTICITY INDEX	10.0
USCS GROUP NAME:	SANDY LEAN CLAY WITH GRAVEL

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	98.0
NO. 4	4.750	88.7
NO. 10	2.000	69.2
NO. 20	0.850	51.3
NO. 40	0.425	42.2
NO. 60	0.250	37.2
NO. 140	0.106	32.1
NO. 200	0.075	30.6

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0524	45.8
0.0383	41.1
0.0276	38.2
0.0142	33.4
0.0098	27.7
0.0068	22.9
0.0052	19.1
0.0039	16.2
0.0028	14.3
0.0011	10.5

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64043
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	16.0
LIQUID LIMIT:	23.0
PLASTICITY INDEX:	10.0
USCS GROUP NAME:	SANDY LEAN CLAY WITH GRAVEL

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	98.1
NO. 4	4.750	94.8
NO. 10	2.000	90.0
NO. 20	0.850	85.8
NO. 40	0.425	82.2
NO. 60	0.250	78.8
NO. 140	0.106	72.7
NO. 200	0.075	70.5

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0454	61.6
0.0337	56.9
0.0246	53.1
0.0162	48.3
0.0100	39.8
0.0072	36.0
0.0053	30.3
0.0038	25.6
0.0027	20.9
0.0011	15.2

-4948

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64073
SPECIFIC GRAVITY:	2.73 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	21.2
LIQUID LIMIT:	27.0
PLASTICITY INDEX:	11.0
USCS GROUP NAME:	LEAN CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	99.7
NO. 40	0.425	99.4
NO. 60	0.250	99.3
NO. 140	0.106	98.8
NO. 200	0.075	98.0

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0312	71.3
0.0221	67.4
0.0152	59.7
0.0098	46.2
0.0072	40.4
0.0051	34.7
0.0037	29.8
0.0027	25.0
0.0011	19.3

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64079
SPECIFIC GRAVITY:	2.85 (MEASURED)
USCS SYMBOL:	CL-ML
WATER CONTENT (%):	28.3
LIQUID LIMIT:	22.0
PLASTICITY INDEX:	7.0
USCS GROUP NAME:	SILTY CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	100.0
NO. 40	0.425	99.9
NO. 60	0.250	99.8
NO. 140	0.106	96.3
NO. 200	0.075	91.9

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0434	65.8
0.0328	58.9
0.0242	54.0
0.0167	42.2
0.0103	31.4
0.0076	25.5
0.0054	21.6
0.0039	17.7
0.0028	15.7
0.0011	11.8

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64085
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	CL-ML
WATER CONTENT (%):	12.5
LIQUID LIMIT:	17.0
PLASTICITY INDEX:	5.0
USCS GROUP NAME:	SANDY SILTY CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	99.5
NO. 4	4.750	90.6
NO. 10	2.000	82.4
NO. 20	0.850	73.6
NO. 40	0.425	66.1
NO. 60	0.250	58.8
NO. 140	0.106	45.8
NO. 200	0.075	41.8

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0575	39.0
0.0419	33.9
0.0301	30.8
0.0195	26.7
0.0116	20.5
0.0083	18.5
0.0058	14.4
0.0041	12.3
0.0029	10.3
0.0012	7.2

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64107
SPECIFIC GRAVITY:	2.78 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	23.5
LIQUID LIMIT:	42.0
PLASTICITY INDEX:	24.0
USCS GROUP NAME:	LEAN CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	99.9
NO. 40	0.425	99.7
NO. 60	0.250	99.3
NO. 140	0.106	96.5
NO. 200	0.075	94.9

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0425	75.6
0.0308	71.4
0.0228	66.2
0.0149	60.9
0.0093	51.5
0.0067	47.3
0.0048	43.1
0.0035	38.9
0.0025	35.7
0.0010	29.4

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64117
SPECIFIC GRAVITY:	2.80 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	20.2
LIQUID LIMIT:	27.0
PLASTICITY INDEX:	11.0
USCS GROUP NAME:	LEAN CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	99.9
NO. 20	0.850	99.5
NO. 40	0.425	98.8
NO. 60	0.250	98.4
NO. 140	0.106	97.4
NO. 200	0.075	96.2

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0419	75.0
0.0297	70.9
0.0223	64.9
0.0158	49.7
0.0095	44.6
0.0070	38.5
0.0051	30.4
0.0037	27.4
0.0027	23.3
0.0011	16.2

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64127
SPECIFIC GRAVITY:	2.79 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	21.3
LIQUID LIMIT:	24.0
PLASTICITY INDEX:	10.0
USCS GROUP NAME:	LEAN CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	99.9
NO. 40	0.425	99.7
NO. 60	0.250	99.4
NO. 140	0.106	98.3
NO. 200	0.075	97.4

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0425	76.2
0.0308	72.0
0.0226	67.7
0.0154	58.2
0.0095	47.6
0.0071	40.2
0.0051	33.9
0.0038	28.6
0.0027	25.4
0.0011	16.9

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64138
SPECIFIC GRAVITY:	2.77 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	21.8
LIQUID LIMIT:	26.0
PLASTICITY INDEX:	11.0
USCS GROUP NAME:	LEAN CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	100.0
NO. 40	0.425	100.0
NO. 60	0.250	100.0
NO. 140	0.106	99.8
NO. 200	0.075	99.6

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0301	77.8
0.0213	73.8
0.0138	66.8
0.0089	54.9
0.0066	47.9
0.0049	39.9
0.0036	34.9
0.0026	29.9
0.0011	20.9

OU4 SLANT BORING GEOTECHNICAL RESULTS

SAMPLE NO.:	64150
SPECIFIC GRAVITY:	2.75 (MEASURED)
USCS SYMBOL:	CL
WATER CONTENT (%):	22.8
LIQUID LIMIT:	25.0
PLASTICITY INDEX:	11.0
USCS GROUP NAME:	LEAN CLAY

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	PERCENT FINER (%)
3.0 in.	75.000	100.0
1.5 in.	37.500	100.0
0.75 in.	19.000	100.0
0.375 in.	9.500	100.0
NO. 4	4.750	100.0
NO. 10	2.000	100.0
NO. 20	0.850	100.0
NO. 40	0.425	100.0
NO. 60	0.250	100.0
NO. 140	0.106	98.8
NO. 200	0.075	97.9

HYDROMETER ANALYSIS

DIAMETER (mm)	PERCENT FINER (%)
0.0425	78.4
0.0301	72.2
0.0223	68.1
0.0149	59.8
0.0095	46.4
0.0070	41.3
0.0051	34.0
0.0037	29.9
0.0027	24.8
0.0011	18.6

OU4 SLANT BORING
BORING LOGS

BORING/WELL LOGS LEGEND

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS PER SQUARE FT)
VERY SOFT	LESS THAN 0.25
SOFT	0.25 to 0.50
MEDIUM STIFF	0.50 to 1.0
STIFF	1.0 to 2.0
VERY STIFF	2.0 to 4.0
HARD	MORE THAN 4.0

DENSITY OF GRANULAR SOILS

DENSITY	STANDARD PENETRATION RESISTANCE
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS RECORDED FOR EACH 6-INCH INTERVAL THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

COBBLES	GRAVEL		SANDS			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

USCS CLASSIFICATION FOR SOILS

COARSE – GRAINED SOILS

CLEAN GRAVELS (LITTLE OR – NO FINES)	GW	WELL-GRADED GRAVELS GRAVEL-SAND MIXTURES LITTLE OR NO FINES
	GP	POORLY-GRADED GRAVELS GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	GC	CLAYEY GRAVELS GRAVEL-SAND-CLAY MIXTURES
CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY-GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
	SC	CLAYEY SANDS SAND-CLAY MIXTURES

FINE-GRADED/HIGHLY ORGANIC SOILS

SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

PROJECT NUMBER: 602 3.7	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1616	COORDINATES: NORTH 480,469.31 EAST 1,378,315.91		DATE: 06/06/91
GROUND ELEVATION: 571.0	GWL: Depth NA	Date/Time: NA	DATE STARTED: 06/06/91
ENGINEER/GEOLOGIST: G.M., K.M.	Depth: NA	Date/Time: NA	DATE COMPLETED: 07/15/91
DRILLING METHODS: HORIZONTAL DRILL MACHINE WITH 6 1/4 INCH			PAGE 1 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
5.0	64011 06/06/91 1600	NA	4	HARD OLIVE BROWN (2.5Y, 4/4) SANDY CLAY WITH SOME ROOT FRAGMENTS, DRY. HARD OLIVE BROWN (2.5Y, 4/4) SANDY CLAY WITH TRACE COARSE GRAVEL, DRY.	CL CL	>4.5 >4.5	HNu=0.0 ppm ALPHA = 400 cpm BETA-GAMMA = 0 cpm
8.0	64012 06/06/91 1700	NA	0	NO RECOVERY.			
13.0	64013 06/11/91 1730	NA	4	DARK YELLOWISH BROWN (10YR, 4/4) VERY STIFF SANDY CLAY WITH GRAVEL, TRACE ORGANIC MATTER, DAMP, LOW PLASTICITY.	CL	2.5	HNu=0.2 ppm ALPHA = 200 cpm BETA-GAMMA = 0 cpm
18.0	64014 06/12/91 1723	NA	0	NO RECOVERY.			
23.0	64015 06/14/91 0925	NA	4	DARK YELLOWISH BROWN (10YR, 4/4) STIFF SANDY CLAY WITH GRAVEL, DAMP, MEDIUM PLASTICITY. LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM DENSE CLAYEY SAND WITH A LITTLE GRAVEL, MOIST. VERY STIFF CLAYEY SILT WITH PALE YELLOW (2.5Y, 7/3) MOTTLING.	CL SC ML	1.25 1.25 1.25	HNu=0.2 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
28.0	64016 06/14/91 1730	NA	5	PALE YELLOW (5Y, 7/3) TO OLIVE (5Y, 5/4) MOTTLED VERY STIFF CLAYEY SILT WITH TRACE GRAVEL, DAMP, NON PLASTIC, MOIST.	ML	2.0	HNu=0.2 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
33.0	64017 06/15/91 1030	NA	5	PALE YELLOW (2.5Y, 7/3) TO LIGHT YELLOWISH BROWN (2.5Y, 6/4) MOTTLED VERY STIFF CLAYEY SILT, DAMP, NON PLASTIC. DARK YELLOWISH BROWN (10YR, 4/4) SOFT SANDY CLAY, MOIST, LOW PLASTICITY.	ML CL	2.5 2.5	HNu=0.1 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
38.0	64018 06/15/91 1220	NA	5	DARK YELLOWISH BROWN (10YR, 4/4) MEDIUM DENSE CLAYEY SAND, MOIST.	SC	NA	HNu=0.1 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
43.0	64019 06/15/91 1355	NA	4	DARK YELLOWISH BROWN (10YR, 4/4) MEDIUM DENSE CLAYEY SAND WITH A LITTLE LIGHT GRAY (5Y, 7/1) MOTTLING, MOIST.	SC	NA	HNu=0.1 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
48.0	64020 06/19/91 1710	NA	5	DARK YELLOWISH BROWN (10YR, 4/4) MEDIUM DENSE SAND WITH A LITTLE TO TRACE CLAY, SATURATED.	SC	NA	HNu=0.1 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
53.0	64023 06/21/91 1640	NA	1	YELLOWISH BROWN (10YR, 5/4) LOOSE SAND WITH A LITTLE GRAVEL AND TRACE FOSSILS, SATURATED.	SC	NA	HNu=0.1 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
58.0	64024 06/22/91 0915	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) MEDIUM DENSE SAND WITH A LITTLE GRAVEL, SATURATED.	SC	NA	HNu=0.1 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
63.0	64025 06/22/91 1130	NA	4	BROWN (10YR, 5/3) MEDIUM DENSE SAND WITH A LITTLE FINE GRAVEL AND CLAY, SATURATED. OLIVE GRAY (5Y, 5/2) STIFF CLAY, WET, LOW PLASTICITY.	SC CL	NA NA	HNu=0.1 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
68.0	64026 06/24/91 1000	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) LOOSE SAND, SATURATED. INTERBEDDED LAYERS OF GRAY (5Y, 5/1) STIFF CLAY WITH TRACE GRAVEL, MOIST, LOW PLASTICITY, AND LIGHT OLIVE BROWN (2.5Y, 5/	SC SC	NA NA	HNu=0.1 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
73.0	64027 06/24/91 1415	NA	5	GRAY (5Y, 5/1) DENSE GRAVEL, SAND AND CLAY MIXTURE, WET.	GC	NA	HNu=0.1 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
78.0	64028 06/25/91 1425	NA	5	GRAY (5Y, 5/1) DENSE GRAVEL, SAND AND CLAY MIXTURE, WET. GRAY (5Y, 5/1) STIFF CLAY WITH TRACE GRAVEL AND SAND, MOIST, LOW PLASTICITY. GRAY (5Y, 5/1) STIFF SANDY CLAY WITH A LITTLE GRAVEL, DAMP, NO PLASTICITY.	GC CL CL	NA NA NA	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.19	PROJECT NAME: FMPC RI/FS (K-65 SLANT BORING)		
BORING NUMBER: 1615	COORDINATES: NORTH 460,617.03 EAST 1,378,404.87		DATE: 04/07/91
GROUND ELEVATION: NA	GWL: Depth 33.60	Date/Time: 5/29/91/0830	DATE STARTED: 04/07/91
ENGINEER/GEOLOGIST: G.M., K.M.	Depth: 33.60	Date/Time: 5/29/91/1025	DATE COMPLETED: 09/26/91
DRILLING METHODS: HORIZONTAL DRILL MACHINE WITH 8-1/4 INCH AUGERS			PAGE 1 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
1.5	66953 04/07/91 1450	NA	18	DARK GRAYISH BROWN (10YR, 4/2) STIFF CLAYEY SILT WITH SOME SAND AND FINE GRAVEL, A FEW GRASS AND ROOT FRAGMENTS, DAMP, LOW PLASTICITY.	ML	2.0	HNu=1.0 ppm ALPHA = NA cpm BETA-GAMMA = 900 cpm
2.4	66953 04/07/91 1450	NA	10.8	DARK GRAYISH BROWN (10YR, 4/2) STIFF CLAYEY SILT WITH SOME SAND AND FINE GRAVEL, DAMP, LOW PLASTICITY.	ML	2.0	HNu=0.2 ppm ALPHA = 0.0 cpm BETA-GAMMA = 900 cpm
3.0	NA	NA	0	NO RECOVERY.	NA	NA	NA
4.8	66954 04/07/91 1530	NA	21.6	BROWN (10YR, 4/3) STIFF CLAY WITH A LITTLE SILT, SAND AND ROOT FRAGMENTS, TRACE COBBLES, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.4 ppm ALPHA = 0.0 cpm BETA-GAMMA = 900 cpm
8.2	NA	NA	0	NO RECOVERY.	NA	NA	NA
9.9	66955 04/10/91 1054	NA	20.4	OLIVE BROWN (2.5Y, 4/3) MEDIUM STIFF SILTY CLAY WITH A FEW ROOT FRAGMENTS, AND TRACE SUBROUNDED GRAVEL AND SAND, SATURATED, MEDIUM PLASTICITY.	CL	.75	HNu=3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1000 cpm
12.6	66955 04/10/91 1054	NA	32.4	DARK OLIVE BROWN (2.5Y, 3/3) VERY STIFF SILTY CLAY WITH TRACE ROOT FRAGMENTS, WEATHERED WOOD FRAGMENTS, SAND AND FINE GRAVEL, MOIST, MEDIUM PLASTICITY. SAMPLE WAS SATURATED DUE TO RAIN WATER ENTERING BOREHOLE. pH OF RAINWATER IS 7.	CL	.75	HNu=3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1000 cpm
13.2	NA	NA	0	NO RECOVERY.	NA	NA	NA
17.5	66956 04/10/91 1415	NA	51.6	OLIVE BROWN (2.5Y, 4/4) STIFF SILTY CLAY WITH TRACE SAND, FINE GRAVEL, ROOT FRAGMENTS AND WEATHERED WOOD FRAGMENTS, CEMENT COBBLE, MOIST, MEDIUM PLASTICITY. SAMPLE # 66974 TAKEN HERE, ANALYZED FOR FULL RAD. AT ABOUT 14 FT. THE SAMPLER BUSTED THROUGH A "LINER" OF COBBLE-SIZED PIECES OF CEMENT.	CL	2.0	HNu=6.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1600 cpm
20.1	66957 66958 66959 66960 66961 66962 04/18/91 1100	NA	31.2	OLIVE (5Y, 4/3) SOFT CLAY WITH TRACE ORGANICS AND FINE GRAVEL, WET, HIGH PLASTICITY.	CH	.25	HNu=2.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1100 cpm
22.5	66962 04/18/91 1100	NA	28.8	OLIVE (5Y, 4/3) MEDIUM STIFF CLAY WITH TRACE ORGANICS, MOIST, HIGH PLASTICITY.	CH	.75	HNu=2.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1100 cpm
23.8	66963 04/20/91 0855	NA	15.6	PALE OLIVE (5Y, 6/4) SOFT SILTY CLAY, WET, MEDIUM PLASTICITY.	CL	2.5	HNu=0.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
26.5	66963 04/20/91 0855	NA	32.4	PALE OLIVE (5Y, 6/4) VERY STIFF SILTY CLAY, MOIST, MEDIUM PLASTICITY.	CL	2.5	HNu=0.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
27.5	NA	NA	0	NO RECOVERY.	NA	NA	NA
29.8	66964 04/20/91 0955	NA	27.6	OLIVE (5Y, 5/4) MEDIUM STIFF SILTY CLAY WITH LIGHT GRAY (2.5Y, 7/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm

NOTES:
BORING SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT. USING A SLOPE INDICATOR.
DRILLING CO: PENNSYLVANIA DRILLING
DRILLER: DAVE NEWMAN ASSISTANTS: BOB JOHNSON, BOB FORD, VERN LARGER
SAMPLE #66951 - RINSATE SAMPLE TAKEN ON DRILL AUGERS PRIOR TO START OF DRILLING.

494

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.19	PROJECT NAME: FMPC RI/FS (K-65 SLANT BORING)		
BORING NUMBER: 1615	COORDINATES: NORTH 480,617.03 EAST 1,378,404.87		DATE: 04/07/91
GROUND ELEVATION: NA	GWL: Depth 33.80	Date/Time: 5/29/91/0830	DATE STARTED: 04/07/91
ENGINEER/GEOLOGIST: G.M., K.M.	Depth: 33.80	Date/Time: 5/29/91/1025	DATE COMPLETED: 09/26/91
DRILLING METHODS: HORIZONTAL DRILL MACHINE WITH 8-1/4 INCH AUGERS			PAGE 2 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
32.5	66964 04/20/91 0955	NA	32.4	OLIVE (5Y, 5/4) VERY STIFF SILTY CLAY WITH LIGHT GRAY (2.5Y, 7/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	1.75	HNu=0.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
36.0	66965 04/20/91 1045	NA	42	LIGHT OLIVE BROWN (2.5Y, 5/4) SILTY CLAY WITH LIGHT GRAY (5Y, 7/1) MOTTLING, MOIST, HIGH PLASTICITY. THE FIRST 0.3 FEET OF SAMPLE IS WET. pH IS 7.	CL	1.25	HNu=3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
37.5	66965 04/20/91 1045	NA	18	LIGHT OLIVE BROWN (2.5Y, 5/4) SANDY CLAY WITH SOME GRAVEL AND LIGHT GRAY (5Y, 7/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	ML	2.5	HNu=3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
39.5	66966 66967 66968 66969 66970 66971 04/20/91 1455	NA	24	LIGHT YELLOWISH BROWN (2.5Y, 6/4) VERY SOFT SANDY CLAY WITH LIGHT GRAY (5Y, 7/1) MOTTLING, SATURATED, HIGH PLASTICITY. pH IS 7.	CH	<.25	HNu = 3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
42.5	66971 04/20/91 1455	NA	36	LIGHT OLIVE BRWON (2.5Y, 5/4) STIFF CLAY WITH LIGHT GRAY (5Y, 7/1) MOTTLING, WET, HIGH PLASTICITY.	CH	2.0	HNu = 3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
45.5	66972 04/20/91 1645	NA	36	LIGHT YELLOWISH BROWN (10YR, 6/4) MEDIUM STIFF CLAY WITH TRACE SILT, SAND AND FOSSIL FRAGMENTS, LIGHT GRYA (5Y, 7/1) MOTTLING, SATURATED, HIGH PLASTICITY. pH IS 7.	CH	1.0	HNu = 3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
47.5	66972 04/20/91 1645	NA	24	BROWN (10YR, 5/3) LOOSE CLAYEY SAND, SATURATED. pH IS 7.	SC	NA	HNu = 3.0 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
48.5	66973 04/22/91 1040	NA	12	YELLOWISH BROWN (10YR, 5/4) LOOSE CLAYEY SAND, SATURATED pH IS 7.	SC	loose	HNu = 0.1 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
52.5	66973 04/22/91 1040	NA	48	LIGHT YELLOWISH BROWN (2.5Y, 6/4) VERY STIFF CLAY WITH A LITTLE LIGHT GRAY (10YR, 7/1) MOTTLING, MOIST, MEDIUM PLASTICITY. pH IS 7.	CL	2.5	HNu = 0.1 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
55	66975 04/22/91 1718	NA	30	LIGHT OLIVE BROWN (2.5Y, 5/3) VERY STIFF CLAY WITH LIGHT GRAY (10YR, 6/1) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL	2.75	HNu = 0.1 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm
57.5	66975 04/22/91 1718	NA	30	LIGHT OLIVE BROWN (2.5Y, 5/4) LOOSE CLAYEY SAND AND A LITTLE GRAVEL, SATURATED.	SC	loose	HNu = 0.1 ppm ALPHA = 0.0 cpm BETA-GAMMA = 1200 cpm

BOTTOM OF BOREHOLE 57.5 FT.

NOTES:
BORING SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT. USING A SLOPE INDICATOR.
DRILLING CO: PENNSYLVANIA DRILLING
DRILLER: DAVE NEWMAN ASSISTANCES: BOB JOHNSON, BOB FORD

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1616	COORDINATES:	NORTH 480,469.31 EAST 1,378,315.91	DATE:	06/08/91
GROUND ELEVATION:	571.0	GWL: Depth NA	Date/Time: NA	DATE STARTED:	06/08/91
ENGINEER/GEOLOGIST:	G.M., K.M.	Depth: NA	Date/Time: NA	DATE COMPLETED:	07/15/91
DRILLING METHODS:	HORIZONTAL DRILL MACHINE WITH 6 1/4 INCH			PAGE 2 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
83.0	64029 06/25/91 1650	NA	5	GRAY (5Y, 5/1) STIFF SANDY CLAY WITH A LITTLE GRAVEL, MOIST, LOW PLASTICITY. GRAY (5Y, 5/1) MEDIUM STIFF CLAY WITH SAND AND GRAVEL, MOIST, LOW PLASTICITY.	CL CL	2.0 2.0	HNu=0.0 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
85.2	64030 06/26/91 0835	NA	NA	GRAY (5Y, 5/1) MEDIUM STIFF CLAY WITH TRACE SAND AND GRAVEL, DAMP, MEDIUM PLASTICITY.	NA	NA	HNu=0.0 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
89.2	64032 06/26/91 1600	NA	5	GRAY (5Y, 5/1) MEDIUM STIFF CLAY WITH A LITTLE SAND AND GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.0	HNu=0.1 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
90.5	64034 06/26/91 1600	NA	5	GRAY (5Y, 5/1) MEDIUM STIFF CLAY WITH A LITTLE SAND AND GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.0	HNu=0.1 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
93.0	64036 06/26/91 1600	NA	5	GRAY (5Y, 5/1) MEDIUM STIFF CLAY WITH A LITTLE SAND AND GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.0	HNu=0.1 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
98.0	64037 06/27/91 0920	NA	5	GRAY (5Y, 5/1) MEDIUM STIFF CLAY WITH A LITTLE SAND AND GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.0	HNu=0.1 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
103.0	64038 06/27/91 1700	NA	5	GRAY (5Y, 5/1) STIFF CLAY WITH A LITTLE SAND AND TRACE GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.25	HNu=0.1 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
104.0	64039 06/28/91 1000	NA	5	GRAY (5Y, 5/1) STIFF CLAY WITH A LITTLE SAND AND TRACE GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.25	HNu=0.6 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
105.0	64045 06/28/91 1000	NA	5	GRAY (5Y, 5/1) STIFF CLAY WITH A LITTLE SAND AND TRACE GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.25	HNu=0.6 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
106.0	64041 06/28/91 1000	NA	5	GRAY (5Y, 5/1) STIFF CLAY WITH A LITTLE SAND AND TRACE GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.25	HNu=0.6 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
108.0	64043 06/28/91 1000	NA	5	GRAY (5Y, 5/1) STIFF CLAY WITH A LITTLE SAND AND TRACE GRAVEL, MOIST, HIGH PLASTICITY.	CL	1.25	HNu=0.6 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
113.0	64049 06/29/91 1100	NA	5	GRAY (5Y, 5/1) STIFF CLAY WITH SAND AND GRAVEL, MOIST, HIGH PLASTICITY. GRAY (5Y, 5/1) LIMESTONE.	CL	1.5 1.5	HNu=0.3 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
119.0	64050 07/01/91 2000	NA	1	OLIVE GRAY (5Y, 5/2) HARD CLAY WITH SAND AND GRAVEL, DRY, NON PLASTIC.	CL	>4.0	HNu=0.3 ppm ALPHA = 800 cpm BETA-GAMMA = 0 cpm
120.0	64051 07/02/91 0155	NA	5	OLIVE GRAY (5Y, 5/2) HARD CLAY WITH SAND AND GRAVEL, DRY, NON PLASTIC.	CL	>4.0	HNu=0.3 ppm ALPHA = 800 cpm BETA-GAMMA = 0 cpm

BOTTOM OF BORING 120.1 FT.

NOTES:

BORING SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT.USING A SLOPE INDICATOR. WATER ENTERED THE SAMPLE FROM A LAYER ABOVE. BOTTOM OF BOREHOLE.

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1617	COORDINATES:	NORTH 480,309.37 EAST 1,378,393.37	DATE:	05/02/91
GROUND ELEVATION:	576.2	GWL: Depth NA	Date/Time: NA	DATE STARTED:	04/30/91
ENGINEER/GEOLOGIST:	G.M., K.M.	Depth: NA	Date/Time: NA	DATE COMPLETED:	09/26/91
DRILLING METHODS:	HORIZONTAL DRILL MACHINE WITH 8 1/4 INCH			PAGE 1 OF 1	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1.5	66976 05/02/91 0920	NA	1	BROWN (10YR, 4/3) SOFT CLAY WITH SOME ROOT FRAGMENTS, LEAVES, ROOT STEMS, AND WILD ONIONS, DAMP, MEDIUM PLASTICITY.	CL	0.5	HNu=2.0 ppm ALPHA = 700 cpm BETA-GAMMA = 0 cpm
6.5	66977 05/02/91 1025	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) VERY STIFF CLAY WITH A LITTLE SAND, TRACE ROOT FRAGMENTS, AND FINE GRAVEL, DAMP, LOW PLASTICITY.	CL	3.0	HNu=2.0 ppm ALPHA = 700 cpm BETA-GAMMA = 0 cpm
11.5	66978 05/02/91 1105	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) VERY STIFF CLAY WITH SOME SAND AND TRACE FINE GRAVEL, TRACE STRONG BROWN (7.5YR, 5/6) WEATHERED STAINING, DAMP, LOW PLASTICITY, OLIVE BROWN (2.5Y, 4/3) STIFF.	CL	2.5	HNu=2.0 ppm ALPHA = 700 cpm BETA-GAMMA = 0 cpm
16.5	66979 05/02/91 1439	NA	3	DARK YELLOWISH BROWN (10YR, 4/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	2.0	HNu=1.0 ppm ALPHA = 800 cpm BETA-GAMMA = 0 cpm
22.5	66985 05/02/91 1715	NA	3	YELLOWISH BROWN (10YR, 5/4) STIFF CLAY, DAMP, MEDIUM PLASTICITY.	CL	2.0	HNu=1.0 ppm ALPHA = 800 cpm BETA-GAMMA = 0 cpm
31.5	66987 05/02/91 1752	NA	4	DARK YELLOWISH BROWN (10YR, 4/4) VERY STIFF CLAY, DAMP, LOW PLASTICITY. LIGHT YELLOWISH BROWN (2.5Y, 6/4) MEDIUM CLAYEY FINE SAND WITH LIGHT GRAY (10YR, 7/2) MOTTLING, DAMP, NON PLASTIC.	CL	2.0	HNu=1.0 ppm ALPHA = 800 cpm BETA-GAMMA = 0 cpm
36.5	66988 05/03/91 1600	NA	4	LIGHT OLIVE BROWN (2.5Y, 5/4) LOOSE CLAYEY SAND WITH LIGHT GRAY (2.5Y, 7/2) MOTTLING, MOIST. LIGHT OLIVE BROWN (2.5Y, 5/4) SOFT SANDY, SILTY CLAY, MOIST, HIGH PLASTICITY.	SC	NA	HNu=1.2 ppm ALPHA = 700 cpm BETA-GAMMA = 0 cpm
41.5	66989 05/03/91 1702	NA	3	LIGHT YELLOWISH BROWN (2.5Y, 6/4) LOOSE CLAYEY SAND AND CLAY WITH LIGHT GRAY (2.5Y, 7/1) MOTTLING, YELLOWISH BROWN (10YR, 5/6) TO LIGHT OLIVE (2.5Y, 5/6) MEDIUM STIFF SANDY CLAY.	SC	NA	HNu=1.2 ppm ALPHA = 700 cpm BETA-GAMMA = 0 cpm
46.5	66995 05/04/91 0900	NA	4	LIGHT OLIVE BROWN (2.5Y, 5/4) LOOSE CLAYEY SAND WITH TRACE WEATHERED BLACK ORGANICS, WET.	SC	NA	HNu=2.0 ppm ALPHA = 600 cpm BETA-GAMMA = 0 cpm
51.5	66996 05/04/91 0952	NA	4	LIGHT OLIVE BROWN (2.5Y, 5/4) LOOSE CLAYEY SAND, SATURATED.	SC	NA	HNu=2.0 ppm ALPHA = 600 cpm BETA-GAMMA = 0 cpm
56.5	66997 05/04/91 1030	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 5/4) VERY LOOSE CLAYEY SAND, SATURATED.	SC	NA	HNu=2.0 ppm ALPHA = 600 cpm BETA-GAMMA = 0 cpm
59.7	66998 05/04/91 1423	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/6) LOOSE CLAYEY SAND WITH SOME GRAVEL AND LIMESTONE COBBLES, MOIST TO DAMP.	SC	NA	NA
61.0	66999 05/04/91 1423	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/6) LOOSE CLAYEY SAND WITH SOME GRAVEL AND LIMESTONE COBBLES, MOIST TO DAMP.	SC	NA	NA
68.5	64005 05/04/91 1820	NA	4	LIGHT OLIVE BROWN (2.5Y, 5/4) CLAY, LOOSE SAND AND GRAVEL MIXTURE, TRACE LIMESTONE COBBLES, SATURATED, LIGHT BROWNISH GRAY (2.5Y, 6/2) MEDIUM DENSE CLAYEY SAND WITH SOME GRAVEL.	GC	NA	HNu=1.3 ppm ALPHA = 800 cpm BETA-GAMMA = 0 cpm

BOTTOM OF BORING 68.5 FT.

NOTES:

BORING SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT.USING A SLOPE INDICATOR. BOTTOM OF BOREHOLE.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1618	COORDINATES:	NORTH 480,307.07 EAST 1,378,575.33	DATE:	07/27/91
GROUND ELEVATION:	577.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	07/27/91
ENGINEER/GEOLOGIST:	K.M., G.M.	Depth: NA	Date/Time: NA	DATE COMPLETED:	08/03/91
DRILLING METHODS:	HORIZONTAL DRILL MACHINE WITH 8-1/4 INCH			PAGE 1 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
5	64092 07/27/91 1835	NA	5	ORGANIC MATTER SUCH AS GRASS AND ROOT STEMS WITH A LITTLE YELLOWISH BROWN (10YR, 5/6) CLAY, DRY, NON PLASTIC, A FEW GRAY INSECTS, STIFF CLAY, HARD CLAY, TRACE OF GRAVEL, DAMP.	CL	2.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
10	64093 07/27/91 1900	NA	4	YELLOWISH BROWN (10YR, 5/6) HARD CLAY WITH TRACE ROOT STEMS AND GRAVEL, DAMP, NON PLASTIC.	CL	4.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
15	64094 07/27/91 1910	NA	4	YELLOWISH BROWN (10YR, 5/6) VERY STIFF CLAY WITH TRACE GRAY (10YR, 6/1) MOTTLING, DAMP, LOW PLASTICITY. A MOTTLED DARK BROWN (10YR, 3/3) AND REDDISH BROWN (5YR, 4/4) MEDIUM STIFF CLAY.	CL	3.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
20	64095 07/27/91 1930	NA	3	DARK BROWN (10YR, 4/3) VERY STIFF SILTY CLAY WITH A LITTLE REDDISH BROWN (5YR, 4/4) MOTTLING AND TRACE ORGANIC MATTER, DAMP, NON PLASTIC, LIGHT OLIVE BROWN (2.5Y, 5/4) VERY STIFF SAND.	CL	3.0	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
25	64096 07/27/91 2320	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) HARD SANDY CLAY WITH GRAVEL, TRACE ROOT STEMS, DRY, NON PLASTIC.	CL	>4.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
30	64097 07/27/91 2330	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) HARD CLAY WITH SAND AND FINE GRAVEL, DRY, NON PLASTIC, A MOTTLED LIGHT OLIVE BROWN (2.5Y, 5/4) AND GRAYISH BROWN (2.5Y, 5/4) HARD CLAY.	CL	>4.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
35	64098 07/27/91 2345	NA	5	A MOTTLED LIGHT OLIVE BROWN (2.5Y, 5/4) AND LIGHT BROWNISH GRAY (2.5Y, 6/2) HARD CLAY, DAMP, NON PLASTIC.	CL	>4.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
40	64099 07/28/91 0000	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) VERY STIFF CLAY WITH GRAYISH BROWN (2.5Y, 5/2) MOTTLING, DAMP, LOW PLASTICITY, MEDIUM PLASTICITY.	CL	2.5	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
45	64100 07/29/91 1845	NA	3	GRAYISH BROWN (2.5Y, 5/2) STIFF CLAY WITH YELLOWISH BROWN (10YR, 5/6) MOTTLING, DAMP, LOW PLASTICITY, LIGHT OLIVE BROWN (2.5Y, 5/4) SOME GRAY (5Y, 6/1) DARK GRAYISH BROWN (10YR, 3/2).	CL	1.25	HNu=0.3 ppm ALPHA = 250 cpm BETA-GAMMA = 0 cpm
47.5	64101 07/29/91 1915	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH SOME GRAY (5Y, 6/1) AND A LITTLE VERY DARK GRAYISH BROWN (10YR, 3/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	2.0	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
48.5	64102 07/29/91 1915	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH SOME GRAY (5Y, 6/1) AND A LITTLE VERY DARK GRAYISH BROWN (10YR, 3/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	2.0	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
53.7	64104 07/30/91 0030	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH SOME GRAY (5Y, 6/1) AND A LITTLE VERY DARK GRAYISH BROWN (10YR, 3/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	2.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
51	64105 64106 07/30/91 0030	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH SOME GRAY (5Y, 6/1) AND A LITTLE VERY DARK GRAYISH BROWN (10YR, 3/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	2.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
52	64107* 07/30/91 0030	NA	3	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH SOME GRAY (5Y, 6/1) AND A LITTLE VERY DARK GRAYISH BROWN (10YR, 3/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	2.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
60	64109 07/30/91 0121	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, DAMP, MEDIUM PLASTICITY, LITTLE SAND AND GRAVEL, AND LIGHT GRAY (2.5Y, 7/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	2.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
65	64110 07/30/91 0140	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH A LITTLE SAND AND GRAVEL, AND LIGHT GRAY (2.5Y, 7/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	1.75	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm

NOTES:
BORINGS SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT. USING A SLOPE INDICATOR.
SAMPLES COMPARED TO MUNSELL COLOR CHART.
* GEOTECHNICAL SAMPLE

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1618	COORDINATES:	NORTH 480,307.07 EAST 1,378,575.33	DATE:	07/27/91
GROUND ELEVATION:	577.4	GWL: Depth NA	Date/Time: NA	DATE STARTED:	07/27/91
ENGINEER/GEOLOGIST:	K.M., G.M.	Depth: NA	Date/Time: NA	DATE COMPLETED:	08/03/91
DRILLING METHODS:	HORIZONTAL DRILL MACHINE WITH 8-1/4 INCH			PAGE 2 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
68	64111 64112 64113 07/30/91 2359	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY WITH A LITTLE LIGHT GRAY (2.5Y, 7/2) MOTTLING, DAMP, MEDIUM PLASTICITY.	CL	1.75	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
71	64115 64116 07/31/91 0040	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF SILTY CLAY WITH A LITTLE SAND AND LIGHT OLIVE GRAY (5Y, 6/2) MOTTLING, DAMP, LOW PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
72	64117 07/31/91 0040	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF SILTY CLAY WITH A LITTLE SAND AND LIGHT OLIVE GRAY (5Y, 6/2) MOTTLING, DAMP, LOW PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
75	64119 07/31/91 0040	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF SILTY CLAY WITH A LITTLE SAND AND LIGHT OLIVE GRAY (5Y, 6/2) MOTTLING, DAMP, LOW PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 280 cpm BETA-GAMMA = 0 cpm
80	64120 07/31/91 1400	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT, DAMP, NON PLASTIC.	ML	2.0	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
85	64121 07/31/91 2355	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT WITH A LITTLE LIGHT GRAY (2.5Y, 7/0) MOTTLING, DAMP, NON PLASTIC.	ML	1.5	HNu=0.4 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
90	64122 64123 64124 08/01/91 0010	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT WITH A LITTLE LIGHT GRAY (2.5Y, 7/0) MOTTLING, DAMP, LOW PLASTICITY.	ML	1.5	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
91	64125 64126 08/01/91 0107	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT WITH A LITTLE LIGHT GRAY (2.5Y, 7/0) MOTTLING, DAMP, LOW PLASTICITY.	ML	1.5	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
92	64127* 08/01/91 0107	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT WITH A LITTLE LIGHT GRAY (2.5Y, 7/0) MOTTLING, DAMP, LOW PLASTICITY.	ML	1.5	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
95	64128 64129 08/01/91 0107	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT WITH A LITTLE LIGHT GRAY (2.5Y, 7/0) MOTTLING, DAMP, LOW PLASTICITY.	ML	1.5	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
100	64132 08/01/91 1945	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF SILTY CLAY WITH FINE SAND AND A LITTLE LIGHT GRAY (2.5Y, 7/0) AND LIGHT GRAY (2.5Y, 7/2) MOTTLING, DAMP, LOW PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
105	64133 08/01/91 2340	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAYEY SILT WITH A LITTLE LIGHT GRAY (2.5Y, 7/0) AND LIGHT GRAY (2.5Y, 7/2) MOTTLING, DAMP, LOW PLASTICITY, LIGHT OLIVE BROWN (2.5Y, 5/4).	ML	1.5	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
106	64134 64135 64136 08/02/91 0015	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY, OLIVE (5Y, 5/4) VERY STIFF CLAY, MOIST, HIGH PLASTICITY.	CL	2.0	HNu=0.0 ppm ALPHA = 360 cpm BETA-GAMMA = 0 cpm
107	64137 08/02/91 0015	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY, OLIVE (5Y, 5/4) VERY STIFF CLAY, MOIST, HIGH PLASTICITY.	CL	2.0	HNu=0.0 ppm ALPHA = 360 cpm BETA-GAMMA = 0 cpm

NOTES:
BORINGS SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT. USING A SLOPE INDICATOR.
SAMPLES COMPARED TO MUNSELL COLOR CHART.
* GEOTECHNICAL SAMPLE

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.7	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1618	COORDINATES: NORTH 480,307.07 EAST 1,378,575.33		DATE: 07/27/91
GROUND ELEVATION: 577.4	GWL: Depth NA	Date/Time: NA	DATE STARTED: 07/27/91
ENGINEER/GEOLOGIST: K.M., G.M.	Depth: NA	Date/Time: NA	DATE COMPLETED: 08/03/91
DRILLING METHODS: HORIZONTAL DRILL MACHINE WITH 8-1/4 INCH			PAGE 3 OF 3

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
109	64138* 08/02/91 0015	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY, OLIVE (5Y, 5/4) VERY STIFF CLAY, MOIST, HIGH PLASTICITY.	CL	2.0	HNu=0.0 ppm ALPHA = 360 cpm BETA-GAMMA = 0 cpm
108	64141 08/02/91 0015	NA	5	LIGHT OLIVE BROWN (2.5Y, 5/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY, OLIVE (5Y, 5/4) VERY STIFF CLAY, MOIST, HIGH PLASTICITY.	CL	2.0	HNu=0.0 ppm ALPHA = 360 cpm BETA-GAMMA = 0 cpm
115	64142 08/03/91 0200	NA	5	OLIVE (5Y, 5/3) TO OLIVE GRAY (5Y, 5/2) STIFF CLAY, DAMP, HIGH PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
120	64143 08/03/91 1622	NA	5	OLIVE (5Y, 5/3) STIFF CLAY WITH TRACE BLACK WEATHERING, DAMP, HIGH PLASTICITY.	CL	1.25	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
125	64144 08/03/91 1700	NA	5	OLIVE (5Y, 5/3) STIFF SILTY CLAY WITH TRACE BLACK WEATHERING, DAMP, HIGH PLASTICITY.	CL	1.0	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
126	64145 64146 64147 08/03/91 1820	NA	5	A MOTTLED PALE OLIVE (5Y, 6/4) AND OLIVE GRAY (5Y, 5/2) MEDIUM STIFF SILTY CLAY WITH A LITTLE FINE SAND, TRACE BLACK WEATHERING, DAMP, MEDIUM PLASTICITY.	CL	0.5	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
128	64148 64149 08/03/91 1820	NA	5	A MOTTLED PALE OLIVE (5Y, 6/4) AND OLIVE GRAY (5Y, 5/2) MEDIUM STIFF SILTY CLAY WITH A LITTLE FINE SAND, TRACE BLACK WEATHERING, DAMP, MEDIUM PLASTICITY.	CL	0.5	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm
130	64152 64154 64150* 08/03/91 1820	NA	5	A MOTTLED PALE OLIVE (5Y, 6/4) AND OLIVE GRAY (5Y, 5/2) MEDIUM STIFF SILTY CLAY WITH A LITTLE FINE SAND, TRACE BLACK WEATHERING, DAMP, MEDIUM PLASTICITY.	CL	0.5	HNu=0.0 ppm ALPHA = 260 cpm BETA-GAMMA = 0 cpm

BOTTOM OF BORING 130.0 FT.

NOTES:
BORINGS SAMPLED CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECKED EVERY 2 FT. USING A SLOPE INDICATOR.
SAMPLES COMPARED TO MUNSELL COLOR CHART.
*GEOTECHNICAL SAMPLE

500

PROJECT NUMBER: 602 3.7	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1619	COORDINATES: NORTH 480,412.98 EAST 1,378,593.22		DATE: 07/19/91
GROUND ELEVATION: 578.8	GWL: Depth NA	Date/Time: NA	DATE STARTED: 07/19/91
ENGINEER/GEOLOGIST: K.M., G.M.	Depth: NA	Date/Time: NA	DATE COMPLETED: 09/06/91
DRILLING METHODS: HORIZONTAL DRILL MACHINE WITH 8 1/4 INCH			PAGE 1 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
5.0	64055 07/19/91 1745	NA	3	DARK YELLOWISH BROWN (10YR, 4/4) VERY STIFF SILT WITH SOME CLAY AND A LITTLE ORGANIC MATTER, DRY, NON PLASTIC. LIGHT YELLOWISH BROWN (2.5Y, 6/4) HARD CLAY WITH A LITTLE DARK GRAY (10YR, 4/1) MOTTLING, TRACE ORGANIC MATTER.	ML CL	4.0 4.0	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
10.0	64056 07/19/91 1825	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) HARD CLAY WITH A LITTLE DARK GRAY (10YR, 4/1) MOTTLING, TRACE ORGANIC MATTER, DRY, NON PLASTIC. VERY STIFF CLAY WITH A LITTLE DARK GRAYISH BROWN (10YR, 4/2) LITTLE SAND AND GRAVEL, DAMP. OLIVE GRAY (5Y, 5/2).	CL CL CL	>4.5 >4.5 >4.5	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
15.0	64057 07/19/91 1840	NA	3	OLIVE GRAY (5Y, 5/2) VERY STIFF CLAY WITH TRACE ORGANIC MATTER, MOIST, NON PLASTIC.	CL	2.75	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
20.0	64058 07/19/91 2300	NA	3	OLIVE (5Y, 5/4) VERY DENSE GRAVEL, SAND AND CLAY MIXTURE, ONE LARGE STEEL NAIL IS IN THE SAMPLE, DRY.	GC	NA	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
25.0	64059 07/19/91 2315	NA	5	OLIVE (5Y, 5/4) VERY DENSE GRAVEL, SAND AND CLAY MIXTURE, DRY LIGHT OLIVE BROWN (2.5Y, 5/4) VERY STIFF CLAY WITH A LITTLE LIGHT BROWNISH GRAY (2.5Y, 6/2) MOTTLING, DAMP, LOW PLASTICITY.	GC CL	NA NA	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
30.0	64060 07/19/91 2330	NA	5	A MOTTLED LIGHT YELLOWISH BROWN (2.5Y, 6/4) LIGHT BROWNISH GRAY (2.5Y, 6/2) AND DARK GRAYISH BROWN (2.5Y, 4/2) VERY STIFF CLAY, MOIST, LOW PLASTICITY. LIGHT OLIVE BROWN (2.5Y, 5/4) MOTTLING, MOIST, MEDIUM PLASTICITY.	CL CL	2.5 2.5	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
35.0	64061 07/19/91 2350	NA	5	LIGHT OLIVE BROWN (2.5Y, 6/4) STIFF CLAY, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
40.0	64062 07/20/91 0005	NA	4	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAY WITH LIGHT BROWNISH GRAY (2.5Y, 6/2) MOTTLING, MOIST, LOW PLASTICITY WITH SILT.	CL	1.5	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
45.0	64063 07/20/91 0025	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) STIFF CLAY WITH LIGHT BROWNISH GRAY (2.5Y, 6/2) MOTTLING, TRACE SAND AND FINE GRAVEL, DAMP, NO PLASTICITY WITH SILT.	CL	1.5	HNu=0.4 ppm ALPHA = 1000 cpm BETA-GAMMA = 0 cpm
50.0	64064 07/20/91 1855	NA	3	YELLOWISH BROWN (10YR, 5/4) HARD CLAY WITH SILT AND GRAY GRAY (10YR, 7/2) MOTTLING, DAMP, LOW PLASTICITY.	CL	>4.5	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
55.0	64065 07/20/91 1915	NA	5	YELLOWISH BROWN (10YR, 5/4) VERY STIFF CLAY WITH SILT, LIGHT GRAY (10YR, 7/2) MOTTLING, DAMP, NON PLASTIC.	CL	3.75	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
60.0	64066 07/20/91 1940	NA	5	A MOTTLED YELLOWISH BROWN (10YR, 5/6) YELLOWISH BROWN (10YR, 5/6) AND LIGHT GRAY (10YR, 7/2) STIFF CLAY WITH SILT, MOIST, MEDIUM PLASTICITY.	CL	1.25	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
61.2	64071 07/20/91 2325	NA	5	A MOTTLED YELLOWISH BROWN (10YR, 6/4) TO LIGHT GRAY (2.5Y, 7/2) STIFF CLAY WITH SILT, MOIST, MEDIUM PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
62.5	64073 07/20/91 2325	NA	5	A MOTTLED YELLOWISH BROWN (10YR, 6/4) TO LIGHT GRAY (2.5Y, 7/2) STIFF CLAY WITH SILT, MOIST, MEDIUM PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
65.0	64074 07/20/91 2325	NA	5	A MOTTLED YELLOWISH BROWN (10YR, 6/4) TO LIGHT GRAY (2.5Y, 7/2) STIFF CLAY WITH SILT, MOIST, MEDIUM PLASTICITY.	CL	1.5	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm

NOTES:

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.7	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	1619	COORDINATES:	NORTH 480,412.98 EAST 1,378,593.22	DATE:	07/19/91
GROUND ELEVATION:	578.6	GWL: Depth NA	Date/Time: NA	DATE STARTED:	07/19/91
ENGINEER/GEOLOGIST:	K.M., G.M.	Depth: NA	Date/Time: NA	DATE COMPLETED:	09/06/91
DRILLING METHODS:	HORIZONTAL DRILL MACHINE WITH 8 1/4 INCH			PAGE 2 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
70.0	64075 07/22/91 1030	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) MEDIUM DENSE, CLAYEY, VERY FINE SAND, WET, MEDIUM PLASTICITY.	SC	NA	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
75.0	64076 07/22/91 0150	NA	4	LIGHT YELLOWISH BROWN (2.5Y, 6/4) MEDIUM DENSE, CLAYEY, VERY FINE SAND AND A LITTLE LIGHT GRAY (5Y, 7/1) MOTTLING, WET, MEDIUM PLASTICITY.	NA	NA	HNu=0.2 ppm ALPHA = 275 cpm BETA-GAMMA = 0 cpm
80.0	64077 07/23/91 1930	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) MEDIUM DENSE, CLAYEY, VERY FINE SAND, WET, LOW PLASTICITY.	SC	NA	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
82.5	64079 07/23/91 2315	NA	5	LIGHT YELLOWISH BROWN (2.5Y, 6/4) MEDIUM DENSE, CLAYEY SAND, SATURATED.	SC	NA	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
90.0	64081 07/23/91 2350	NA	5	OLIVE (5Y, 5/4) DENSE SAND WITH A LITTLE CLAY AND GRAVEL, SATURATED.	SC	NA	HNu=0.2 ppm ALPHA = 300 cpm BETA-GAMMA = 0 cpm
95.0	64082 07/24/91 0100	NA	0	NA	NA	NA	HNu=0.2 ppm ALPHA = 350 cpm BETA-GAMMA = 0 cpm
100.0	64083 07/24/91 2350	NA	5	OLIVE (5Y, 5/4) DENSE SAND, SATURATED. OLIVE 5Y, 5/4) DENSE GRAVEL, SAND, AND CLAY MIXTURE, SATURATED. OLIVE GRAY (5Y, 5/2) DENSE GRAVEL, SAND AND CLAY MIXTURE, SATURATED.	SC GC GC	NA NA NA	HNu=0.2 ppm ALPHA = 350 cpm BETA-GAMMA = 0 cpm
103.0	64084 07/25/91 0130	NA	5	OLIVE GRAY (5Y, 5/3) VERY LOOSE CLAYEY SAND WITH A LITTLE GRAVEL, SATURATED. LOOSE SAND DRIPPED OUT OF THE SAMPLE TUBE WHEN THE SPOON WAS BROKEN OPEN.	SC	NA	HNu=0.2 ppm ALPHA = 350 cpm BETA-GAMMA = 0 cpm
105.0	64085 07/25/91 0130	NA	5	OLIVE GRAY (5Y, 5/3) VERY LOOSE CLAYEY SAND WITH A LITTLE GRAVEL, SATURATED. LOOSE SAND DRIPPED OUT OF THE SAMPLE TUBE WHEN THE SPOON WAS BROKEN OPEN. OLIVE GRAY (5Y, 5/3) LOOSE CLAYEY SAND WITH GRAVEL, SATURATED	SC SC	NA NA	HNu=0.2 ppm ALPHA = 350 cpm BETA-GAMMA = 0 cpm
110.0	64087 07/25/91 0200	NA	5	OLIVE GRAY (5Y, 5/2) VERY STIFF GRAVELLY CLAY WITH SAND, WET, MEDIUM PLASTICITY.	CL	2.75	HNu=0.2 ppm ALPHA = 350 cpm BETA-GAMMA = 0 cpm

BOTTOM OF BORING 110.0 FT.

NOTES:
BORINGS SAMPLE CONTINUOUS USING A 5.0 SAMPLER. BORING ANGLE CHECK EVERY 2 FT. USING A SLOPE INDICATOR.
BOTTOM OF BOREHOLE.

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1029 007407 10/27/87 13.5 - 15.0 ft			1032 007504 10/30/87 15.0 - 16.5 ft			1033 008854 04/08/88 1.5 - 3.0 ft			1072 008188 03/06/88 0 - 1.5 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		J	< .2		J	< .2		J	< .2		J
Neptunium 237	< .6		J	< .6		J	< .6		-	< .6		J
Plutonium 238	< .6		-	< .6		-	< .6		-	< .6		-
Plutonium 239/240	< .6		-	< .6		-	< .6		-	< .6		-
Radium 226	.6	± .1	J	1	± .3	J	1.3	± .1	J	1.5	± .1	J
Radium 228	.5	± .1	J	.6	± .2	J	1.1	± .1	J	1	± .1	J
Ruthenium 106	< 1		J	< 1		J	< 1		J	< 1		J
Strontium 90	< .5		-	< .5		-	.5	± .2	J	< .5		J
Technetium 99	< .9		-	< .9		-	< 1.3		D	3.6	± 1.1	-
Thorium 228	< .6		J	.8	± .3	-	1.3	± .4	J	1.2	± .4	J
Thorium 230	1	± .3	J	1.6	± .4	-	1.6	± .5	J	4.8	± .9	J
Thorium 232	< .6		J	.7	± .3	-	1.3	± .4	J	.9	± .3	J
Total Thorium **	NA			NA			NA			NA		
Total Uranium **	NA			NA			NA			NA		
Uranium 234	< .6		-	2.1	± .5	-	1.2	± .4	-	3.4	± .7	-
Uranium 235/236	< .6		-	< .6		-	< .6		-	< .6		-
Uranium 238	.6	± .2	-	1.3	± .4	-	1.4	± .4	-	15	± 2.3	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

504

-4048

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1476 055998 11/18/89 5.0 ft			1476 055999 11/18/89 10.0 ft			1476 056000 11/18/89 15.0 ft			1477 056001 11/18/89 5.0 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		-	< .2		-	< .2		R	< .2		R
Neptunium 237	< .6		J	< .6		J	< .6		J	< .6		J
Plutonium 238	< .6		-	< .6		-	< .6		-	< .6		-
Plutonium 239/240	< .6		-	< .6		-	< .6		-	< .6		-
Radium 226	< .3		-	.8	± .097	-	.84	± .11	R	.51	± .04	R
Radium 228	< .5		-	.673	± .147	-	< .5		R	< .5		R
Ruthenium 106	< 1		-	< 1		-	< 1		R	< 1		R
Strontium 90	< .5		R	< .5		R	< .5		R	< .5		R
Technetium 99	< .9		J	< .9		J	< .9		J	< .9		J
Thorium 228	< .6		-	< .6		-	.686	± .179	-	< .6		-
Thorium 230	.719	± .205	-	< .6		-	1.6	± .31	-	< .6		-
Thorium 232	< .6		-	< .6		-	< .6		-	< .6		-
Total Thorium **	1.3	± .92	-	4.97	± 1.31	-	5.38	± 1.5	-	1.42	± .75	-
Total Uranium **	7.07	± 1.3	-	11.1	± 2.5	-	2.32	± 1.62	R	2.47	± .74	R
Uranium 234	2.7	± .43	J	1.76	± .3	J	.932	± .193	J	.91	± .178	J
Uranium 235/236	< .6		J	< .6		J	< .6		J	< .6		J
Uranium 238	2.99	± .46	J	3.49	± .5	J	.913	± .19	J	.993	± .188	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

505

54048

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1477 056002 11/18/89 10.0 ft			1478 056003 11/18/89 5.0 ft			1478 056004 11/18/89 9.5 ft			1479 056013 11/19/89 5.0 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		J	< .2		J	< .2		R	< .2		-
Neptunium 237	< .6		J	< .6		J	< .6		J	< .6		J
Plutonium 238	< .6		-	< .6		-	< .6		-	< .6		-
Plutonium 239/240	< .6		-	< .6		-	< .6		-	< .6		-
Radium 226	< .3		J	.68	± .08	J	< .3		R	.636	± .078	-
Radium 228	< .5		J	.41	± .08	J	.72	± .16	R	< .5		-
Ruthenium 106	< 1		J	< 1		J	< 1		R	< 1		-
Strontium 90	< .5		R	< .5		R	< .5		R	< .5		-
Technetium 99	< .9		J	< .9		J	< .9		J	.039	± .498	U
Thorium 228	.834	± .185	-	< .6		-	< .6		-	.631	± .178	-
Thorium 230	< .6		-	.966	± .191	-	.716	± .179	-	1.48	± .3	-
Thorium 232	< .6		-	< .6		-	< .6		-	< .6		-
Total Thorium **	5.16	± 1.33	-	2.84	± .9	-	4.1	± 1.26	-	4.49	± 1.42	-
Total Uranium **	6.53	± 2.16	J	2.48	± 1.27	J	2.78	± 1.87	R	2.67	± 1.32	-
Uranium 234	1.79	± .3	J	.71	± .159	J	1	± .21	J	.652	± .16	-
Uranium 235/236	< .6		J	< .6		J	< .6		J	< .6		-
Uranium 238	1.71	± .29	J	< .6		J	1.01	± .21	J	.673	± .163	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

506

-4948

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1479 056014 11/19/89 10.0 ft			1479 056015 11/19/89 15.0 ft			1479 056023 11/20/89 5 ft			1479 056025 11/19/89 15.0 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		-	< .2		-	NA			NA		
Neptunium 237	< .6		J	< .6		J	NA			NA		
Plutonium 238	< .6		-	< .6		-	NA			NA		
Plutonium 239/240	< .6		-	< .6		-	NA			NA		
Radium 226	.655	± .077	-	< .3		-	NA			NA		
Radium 228	< .5		-	< .5		-	NA			NA		
Ruthenium 106	< 1		-	< 1		-	NA			NA		
Strontium 90	< .5		J	< .5		-	NA			NA		
Technetium 99	< .9		-	< .9		-	NA			NA		
Thorium 228	< .6		-	< .6		-	NA			NA		
Thorium 230	1.46	± .28	-	1.16	± .23	-	NA			NA		
Thorium 232	.645	± .166	-	< .6		-	NA			NA		
Total Thorium **	5.82	± 1.5	-	3.11	± 1	-	14.1	± 4.6	J	15	± 4.6	J
Total Uranium **	2.01	± 1.21	-	3	± 2.23	-	37.1	± 6	-	246	± 35	R
Uranium 234	.687	± .189	-	< .6		-	NA			NA		
Uranium 235/236	< .6		-	< .6		-	NA			NA		
Uranium 238	.789	± .204	-	.721	± .176	-	NA			NA		

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

-4948
507

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1480 056016 11/20/89 5.0 ft			1480 056017 11/20/89 10.0 ft			1480 056018 11/20/89 15.0 ft			1481 056019 11/20/89 5.0 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		-	< .2		-	< .2		-	< .2		J
Neptunium 237	< .6		J	< .6		J	< .6		J	< .6		J
Plutonium 238	< .6		-	< .6		-	< .6		-	< .6		-
Plutonium 239/240	< .6		-	< .6		-	< .6		-	< .6		-
Radium 226	.733	± .127	-	.699	± .1	-	< .3		-	< .3		J
Radium 228	< .5		-	< .5		-	< .5		-	< .5		J
Ruthenium 106	< 1		-	< 1		-	< 1		-	< 1		J
Strontium 90	< .5		-	< .5		-	< .5		-	< .5		-
Technetium 99	< .9		-	< .9		-	< .9		-	< .9		-
Thorium 228	< .6		-	.74	± .188	-	< .6		-	.7	± .181	-
Thorium 230	.908	± .204	-	1.05	± .23	-	1.53	± .29	-	1.06	± .23	-
Thorium 232	< .6		-	< .6		-	< .6		-	< .6		-
Total Thorium **	4.5	± 1.3	-	4.5	± 1.37	-	5.16	± 1.45	-	4.77	± 1.4	-
Total Uranium **	< 4		-	2.53	± 1.81	-	7.76	± 2.64	-	4.43	± 1.87	-
Uranium 234	< .6		-	.652	± .162	-	1.23	± .22	-	.726	± .195	-
Uranium 235/236	< .6		-	< .6		-	< .6		-	< .6		-
Uranium 238	.755	± .175	-	< .6		-	2.22	± .34	-	.652	± .183	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

4948
508

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1481 056020 11/20/89 10.0 ft			1481 056021 11/20/89 15.0 ft			1481 056029 11/20/89 5.0 ft			2032 032456 02/06/90 7.5 - 9.0 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		-	< .2		-	NA			< .2		J
Neptunium 237	< .6		J	< .6		J	NA			< .6		-
Plutonium 238	< .6		-	< .6		-	NA			< .6		-
Plutonium 239/240	< .6		-	< .6		-	NA			< .6		-
Radium 226	< .3		-	< .3		-	NA			.69	± .13	J
Radium 228	< .5		-	< .5		-	NA			< .5		J
Ruthenium 106	< 1		-	< 1		-	NA			< 1		J
Strontium 90	< .5		-	< .5		-	NA			2.8	± .6	J
Technetium 99	< .9		-	< .9		-	NA			< .9		-
Thorium 228	< .6		-	< .6		-	NA			.7	± .2	-
Thorium 230	.765	± .165	-	1.3	± .27	-	NA			.8	± .2	-
Thorium 232	< .6		-	< .6		-	NA			< .6		-
Total Thorium **	2.72	± .88	-	3.47	± 1.21	-	9.9	± 4.43	J	5	± 1	-
Total Uranium **	2.63	± 1.79	-	2.42	± 1.92	-	6.93	± 1.92	J	9.81	± 2.7	J
Uranium 234	.643	± .157	-	< .6		-	NA			1.3	± .2	-
Uranium 235/236	< .6		-	< .6		-	NA			< .6		-
Uranium 238	.643	± .157	-	.81	± .191	-	NA			1.3	± .2	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

1948
509

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2032 032465 02/07/90 25.0 - 26.5 ft			2033 032766 06/05/90 40.0 - 40.5 ft			2033 032773 06/05/90 0 ft			3032 033083 09/23/90 95.0 - 96.5 ft		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		J	< .2		-	NA			< .2		J
Neptunium 237	< .6		-	< .6		J	NA			< .6		R
Plutonium 238	< .6		-	< .6		-	NA			< .6		J
Plutonium 239/240	< .6		-	< .6		-	NA			< .6		J
Radium 226	.59	± .09	J	.53	± .078	-	NA			.87	± .07	J
Radium 228	< .5		J	< .5		-	NA			.41	± .08	J
Ruthenium 106	< 1		J	< 1		-	NA			< 1		J
Strontium 90	.6	± .4	J	< .5		R	NA			.808	± .11	J
Technetium 99	< .9		-	< .9		-	NA			< .9		J
Thorium 228	< .6		-	< .6		-	NA			.905	± .232	J
Thorium 230	1.4	± .3	-	1.17	± .23	J	NA			1.75	± .36	J
Thorium 232	< .6		-	< .6		-	NA			< .6		-
Total Thorium **	4	± 1	-	2.46	± .89	-	NA			1.76	± .99	J
Total Uranium **	7.86	± 2	J	4.72	± 1.5	-	< 2.8		J	2.74	± 1.08	J
Uranium 234	< .6		-	< .6		J	NA			.944	± .192	J
Uranium 235/236	< .6		-	< .6		J	NA			< .6		J
Uranium 238	.6	± .2	-	< .6		J	NA			.997	± .199	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

510

-4048

OU4 SUBSURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	3032 033090 09/24/90 0 ft			3034 008272 03/20/88 10.5 - 12.0 ft			3034 008279 03/20/88 21.0 - 22.5 ft		
	a		b	a		b	a		b
Cesium 137	NA			< .2		J	< .2		J
Neptunium 237	NA			< .6		-	< .6		-
Plutonium 238	NA			< .6		-	< .6		-
Plutonium 239/240	NA			< .6		-	< .6		-
Radium 226	NA			< .3		J	.7	± .1	J
Radium 228	NA			< .5		J	.6	± .1	J
Ruthenium 106	NA			< 1		J	< 1		J
Strontium 90	NA			< .5		-	< .5		-
Technetium 99	NA			< .9		J	2.1	± .7	J
Thorium 228	NA			.9	± .3	-	.8	± .3	-
Thorium 230	NA			.9	± .3	-	3.8	± .9	-
Thorium 232	NA			.6	± .3	-	.7	± .3	-
Total Thorium **	NA			NA			NA		
Total Uranium **	1.64	± .93	J	NA			NA		
Uranium 234	NA			.6	± .2	-	.8	± .3	-
Uranium 235/236	NA			< .6		-	< .6		-
Uranium 238	NA			.6	± .2	-	.9	± .3	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4SSOILRD.PRN

511

-4948

OU4 SUBSURFACE SOIL HSL RESULTS

OU4 SUBSURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1481 056022 11/20/89 15.0		
	a		b
METALS			
Aluminum		4280	-
Antimony	UN	5	UJ
Arsenic		3.2	-
Barium	B	27.7	-
Beryllium		1.3	-
Cadmium	E	4.1	J
Calcium		154000	-
Chromium	E	16.8	J
Cobalt		9.4	-
Copper	B	1.9	-
Cyanide	U	.27	-
Iron	*	12500	J
Lead		8.5	-
Magnesium		30000	-
Manganese		446	-
Mercury	U	.11	R
Molybdenum	U	1.7	-
Nickel		24.7	J
Potassium	B	724	-
Selenium	UWN	.32	UJ
Silver	UN	1.7	UJ
Sodium	B	164	-
Thallium	U	.16	-
Vanadium	E	20.1	J
Zinc	E*	39.8	UJ

a = lab qualifier
b = validated qualifier

513

4048

OU4 SUBSURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1481 056022 11/20/89 15.0 a	b
ORGANOPHOSPOROUS PESTICIDES		
Dimethoate	U .05	-
Disulfoton	U .05	-
Famphur	U .1	-
Parathion, ethyl	U .05	-
Parathion, methyl	U .05	-
Phorate	U .05	-
Sulfotepp	U .05	-
Thionazin	U .05	-
PESTICIDES/PCB		
4,4'-DDD	U .09	R
4,4'-DDE	U .09	R
4,4'-DDT	U .09	R
Aldrin	U .045	R
alpha-BHC	U .045	R
alpha-Chlordane	U .45	R
Aroclor-1016	U .45	R
Aroclor-1221	U .45	R
Aroclor-1232	U .45	R
Aroclor-1242	U .45	R
Aroclor-1248	U .45	R
Aroclor-1254	U .9	R
Aroclor-1260	U .9	R
beta-BHC	U .045	R
delta-BHC	U .045	R
Dieldrin	U .09	R
Endosulfan II	U .09	R
Endosulfan sulfate	U .09	R
Endosulfan-I	U .045	R
Endrin	U .09	R
Endrin ketone	U .09	R
gamma-BHC (Lindane)	U .045	R
gamma-Chlordane	U .45	R
Heptachlor	U .045	R
Heptachlor epoxide	U .045	R
Methoxychlor	U .45	R
Toxaphene	U .9	R
SEMI-VOLATILE ORGANICS		
1,2,4-Trichlorobenzene	U .37	UJ
1,2-Dichlorobenzene	U .37	-
1,3-Dichlorobenzene	U .37	-
1,4-Dichlorobenzene	U .37	-
2,4,5-Trichlorophenol	U1.8	-

a = lab qualifier
b = validated qualifier

948

514

OU4 SUBSURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1481 056022 11/20/89 15.0 a		b
SEMI-VOLATILE ORGANICS			
2,4,6-Trichlorophenol	U	.37	-
2,4-Dichlorophenol	U	.37	-
2,4-Dimethylphenol	U	.37	-
2,4-Dinitrophenol	U	1.8	-
2,4-Dinitrotoluene	U	.37	-
2,6-Dinitrotoluene	U	.37	-
2-Chloronaphthalene	U	.37	-
2-Chlorophenol	U	.37	-
2-Methylnaphthalene	U	.37	-
2-Methylphenol	U	.37	-
2-Nitroaniline	U	1.8	-
2-Nitrophenol	U	.37	-
3,3'-Dichlorobenzidine	U	.74	UJ
3-Nitroaniline	U	1.8	-
4,6-Dinitro-2-methylphenol	U	1.8	-
4-Bromophenyl phenyl ether	U	.37	-
4-Chloro-3-methylphenol	U	.37	-
4-Chloroaniline	U	.37	-
4-Chlorophenylphenyl ether	U	.37	-
4-Methylphenol	U	.37	-
4-Nitroaniline	U	1.8	UJ
4-Nitrophenol	U	1.8	UJ
Acenaphthene	U	.37	-
Acenaphthylene	U	.37	-
Anthracene	U	.37	-
Benzo(a)anthracene	U	.37	-
Benzo(a)pyrene	U	.37	-
Benzo(b)fluoranthene	U	.37	-
Benzo(g,h,i)perylene	U	.37	-
Benzo(k)fluoranthene	U	.37	-
Benzoic acid	U	1.8	-
Benzyl alcohol	U	.37	-
bis(2-Chloroethoxy)methane	U	.37	UJ
bis(2-Chloroethyl)ether	U	.37	-
bis(2-Chloroisopropyl) ether	U	.37	-
bis(2-Ethylhexyl) phthalate	U	.37	-
Butyl benzyl phthalate	U	.37	-
Chrysene	U	.37	-
Di-n-butyl phthalate	U	.37	-
Di-n-octyl phthalate	U	.37	-

a = lab qualifier
b = validated qualifier

515

7048

OU4 SUBSURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	1481 056022 11/20/89 15.0 a		b
SEMI-VOLATILE ORGANICS			
Dibenzo(a,h)anthracene	U	.37	-
Dibenzofuran	U	.37	-
Diethyl phthalate	U	.37	-
Dimethyl phthalate	U	.37	-
Fluoranthene	U	.37	-
Fluorene	U	.37	-
Hexachlorobenzene	U	.37	-
Hexachlorobutadiene	U	.37	-
Hexachlorocyclopentadiene	U	.37	-
Hexachloroethane	U	.37	-
Indeno(1,2,3-cd)pyrene	U	.37	-
Isophorone	U	.37	-
N-Nitroso-di-n-propylamine	U	.37	-
N-Nitrosodiphenylamine	U	.37	-
Naphthalene	U	.37	-
Nitrobenzene	U	.37	-
Pentachlorophenol	U	1.8	-
Phenanthrene	U	.37	-
Phenol	U	.37	-
Pyrene	U	.37	-
VOLATILE ORGANICS			
1,1,1-Trichloroethane	U	.005	-
1,1,2,2-Tetrachloroethane	U	.005	-
1,1,2-Trichloroethane	U	.005	-
1,1-Dichloroethane	U	.005	UJ
1,1-Dichloroethene	U	.005	-
1,2-Dichloroethane	U	.005	-
1,2-Dichloroethylene	U	.005	-
1,2-Dichloropropane	U	.005	-
2-Butanone	BJ	.004	UJ
2-Hexanone	U	.011	UJ
4-Methyl-2-pentanone	U	.011	UJ
Acetone	BJ	.008	UJ
Benzene	U	.005	-
Bromodichloromethane	U	.005	-
Bromoform	U	.005	-
Bromomethane	U	.011	UJ
Carbon disulfide	U	.005	-
Carbon Tetrachloride	U	.005	-
Chlorobenzene	U	.005	-
Chloroethane	U	.011	-

a = lab qualifier
b = validated qualifier

4948
516

OU4 SUBSURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	a	1481 056022 11/20/89 15.0	b
VOLATILE ORGANICS			
Chloroform		.015	-
Chloromethane	U	.011	-
cis-1,3-Dichloropropene	U	.005	-
Dibromochloromethane	U	.005	-
Ethylbenzene	U	.005	-
Methylene chloride	B	.006	-
Styrene	U	.005	-
Tetrachlorethene	U	.005	-
Toluene	U	.005	-
Total xylenes	U	.005	-
trans-1,3-Dichloropropene	U	.005	-
Trichloroethene	U	.005	-
Vinyl Acetate	U	.011	-
Vinyl chloride	U	.011	-

a = lab qualifier
b = validated qualifier

517
048

OU4 SUBSURFACE SOIL BORING LOGS

BORING/WELL LOGS LEGEND

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS PER SQUARE FT)
VERY SOFT	LESS THAN 0.25
SOFT	0.25 to 0.50
MEDIUM STIFF	0.50 to 1.0
STIFF	1.0 to 2.0
VERY STIFF	2.0 to 4.0
HARD	MORE THAN 4.0

DENSITY OF GRANULAR SOILS

DENSITY	STANDARD PENETRATION RESISTANCE
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS RECORDED FOR EACH 6-INCH INTERVAL THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

COBBLES	GRAVEL		SANDS			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

USCS CLASSIFICATION FOR SOILS

COARSE – GRAINED SOILS

CLEAN GRAVELS (LITTLE OR – NO FINES)	GW	WELL-GRADED GRAVELS GRAVEL-SAND MIXTURES LITTLE OR NO FINES
	GP	POORLY-GRADED GRAVELS GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	GC	CLAYEY GRAVELS GRAVEL-SAND-CLAY MIXTURES
CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY-GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
	SC	CLAYEY SANDS SAND-CLAY MIXTURES

FINE-GRADED/HIGHLY ORGANIC SOILS

SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS LIQUID LIMIT (LESS THAN 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

519

NOTE: Only one boring log, corresponding to the deepest well is displayed for wells installed in clusters. Therefore:

- Well 2034 is covered by 3034.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1029	COORDINATES: NORTH 480,826.11 EAST 1,378,398.38		DATE: 10/21/87
GROUND ELEVATION: 577.3	GWL: Depth NA	Date/Time: NA	DATE STARTED: 10/21/87
ENGINEER/GEOLOGIST: D. OAKLEY	Depth: NA	Date/Time: NA	DATE COMPLETED: 10/26/87
DRILLING METHODS: CABLE-TOOL			PAGE 1 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1.5	007398 10/21/87 1635	9 7 14	15	VERY STIFF, YELLOWISH BROWN SILT, SOME CLAY, TRACE SAND, DRY. MEDIUM DENSE, YELLOWISH BROWN SILTY SAND, SOME GRAVEL, TRACE CLAY, DRY.	ML SP	4.5+ NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
3.0	007399 10/21/87 1700	11 8 9	14	MEDIUM DENSE, YELLOWISH BROWN SILTY SAND, SOME SAND, TRACE CLAY, DRY. MEDIUM DENSE, YELLOWISH BROWN FINE SAND, TRACE SILT, DRY. VERY STIFF BROWNISH YELLOW SILT, SOME SAND AND CLAY, DRY. LIMESTONE GRAVEL	SP SP ML	NA NA 3.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
4.5	007400 10/21/87 1705	20 27 21	18	HARD, BROWNISH YELLOW SANDY CLAY, TRACE SILT, DRY. DENSE, BROWNISH YELLOW SILTY SAND, SOME GRAVEL, TRACE CLAY, DRY.	CL SP	2.75 NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
6.0	007401 10/21/87 1715	21 26 20	16	HARD, BROWNISH YELLOW SILTY CLAY, TRACE GRAVEL AND SAND, DRY. LIMESTONE GRAVEL	CL	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
7.5	007402 10/21/87 1720	14 16 21	18	HARD, GRAY SILTY CLAY, TRACE SAND AND GRAVEL, DRY. LIMESTONE GRAVEL	CL	3.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
9.0	007403 10/22/87 1040	11 7 14	5	HARD, GRAY SILTY CLAY, TRACE SAND AND GRAVEL, DRY. LIMESTONE GRAVEL VERY STIFF, PALE OLIVE GRAVELLY CLAY, TRACE SAND AND SILT, MOIST.	CL CL	3.0 1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
12.5	007405 10/22/87 1150	2 2 11	0	SHELBY TUBE. PUSHED SHELBY 12 IN. ATTEMPTED 8 SPOONS, NO RECOVERY.			
13.5	007406 10/22/87 0830	6 6 10	5	VERY STIFF, OLIVE GRAY CLAY, SOME GRAVEL, TRACE SAND AND SILT, MOIST.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
15.0	007407 10/22/87 0845	4 6 8	12	STIFF, OLIVE GRAY CLAY, SOME GRAVEL, TRACE SAND AND SILT, MOIST.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
16.5	007409 10/22/87 1020	6 4 6	11	STIFF, OLIVE GRAY CLAY, SOME GRAVEL, TRACE SILT AND SAND, MOIST.	CL	.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
18.0	007410 10/22/87 1125	2 2 4	4	MEDIUM STIFF, OLIVE GRAY GRAVELLY CLAY, TRACE SAND AND SILT, WET.	CL	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
21.0	007412 10/22/87 1335	4 4 5	12	STIFF, OLIVE GRAY GRAVELLY CLAY, TRACE SILT AND SAND, DRY.	CL	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
22.5	007413 10/22/87 1350	3 4 6	4	STIFF, OLIVE GRAY GRAVELLY CLAY, TRACE SILT AND SAND, DRY.	CL	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm

NOTES:
MUNSELL (5Y, 5/2), SAMPLE SCANNED - BACKGROUND.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1029	COORDINATES: NORTH 480,826.11 EAST 1,378,398.38		DATE: 10/21/87
GROUND ELEVATION: 577.3	GWL: Depth NA	Date/Time: NA	DATE STARTED: 10/21/87
ENGINEER/GEOLOGIST: D. OAKLEY	Depth: NA	Date/Time: NA	DATE COMPLETED: 10/21/87
DRILLING METHODS: CABLE-TOOL			PAGE 2 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
24.0	007414 10/21/87 1410	5 15 25	4	HARD, GRAY GRAVELLY CLAY, TRACE SAND, DRY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
25.5	007415 10/21/87 1420	15 32 40	15	HARD, OLIVE GRAY GRAVELLY CLAY, WET.	CL	4.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
27.0	007416 10/27/87 1515	8 12 18	3	VERY STIFF, OLIVE GRAY GRAVELLY CLAY, WET.	CL	0.1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
28.5	007417 10/27/87 1535	6 9 14	18	OLIVE GRAY GRAVELLY CLAY, WET. GRAYISH BROWN FINE SAND, TRACE CLAY, WET. VERY STIFF, OLIVE GRAY CLAY, SOME GRAVEL AND SAND, TRACE SILT, MOIST.	CL SP CL	1.5 NA 1.50	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
30.0	007418 10/27/87 1545	4 6 13	18	VERY STIFF, OLIVE GRAY CLAY, SOME FINE GRAVEL AND SAND, TRACE SILT, MOIST.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
31.5	007419 10/27/87 1615	6 7 15	9	VERY STIFF, GRAY CLAY, SOME GRAVEL, TRACE SILT AND SAND, MOIST.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
33.0	007490 10/27/87 1645	7 10 16	7	VERY STIFF, LIGHT OLIVE GRAY GRAVELLY CLAY, TRACE SAND AND SILT, WET.	CL	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
34.5	007491 10/27/87 1710	6 16 18	14	SOFT, GRAY MOTTLED GRAVELLY CLAY, TRACE SAND. DENSE, BROWNISH YELLOW SAND, DRY.	CL GP	0.25 NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
36.0	007492 10/27/87 1720	15 20 21	12	DENSE, LIGHT YELLOWISH BROWN SAND, DRY.	GP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm
40.5	007404 10/28/87 1050	5 9 12	9	VERY STIFF, PALE OLIVE CLAY, SOME GRAVEL AND SAND, TRACE SILT, MOIST.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 40-60 cpm

BOTTOM OF BORING 36.0 FT.

NOTES:
MUNSELL (5Y, 5/2), SAMPLE SCANNED - BACKGROUND.

PROJECT NUMBER: 602 3.2		PROJECT NAME: FMPC RI/FS			
BORING NUMBER: 1032		COORDINATES: NORTH 480,515.31 EAST 1,378,296.81		DATE: 10/30/87	
GROUND ELEVATION: 569.3		GWL: Depth NA	Date/Time: NA	DATE STARTED: 10/30/87	
ENGINEER/GEOLOGIST: D. OAKLEY		Depth: NA	Date/Time: NA	DATE COMPLETED: 10/31/87	
DRILLING METHODS: CABLE-TOOL				PAGE 1 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1.5	007494 10/30/87 0740	4 3 3	14	MEDIUM STIFF, LIGHT YELLOWISH BROWN (2.5Y, 6/4) SILT, SOME CLAY, TRACE SAND AND GRAVEL. OLIVE GRAY (5Y, 5/2) CLAY, SOME SILT, TRACE SAND AND GRAVEL, DRY.	ML CL	3.0 1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
3.0	007495 10/30/87 0800	3 4 4	12	MEDIUM STIFF, OLIVE (5Y, 5/3) CLAY, SOME SILT, TRACE GRAVEL AND SAND, DRY. LIGHT YELLOWISH BROWN (2.5Y, 6/4) SILT, SOME SAND AND CLAY, DRY.	CL ML	1.5 1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 70 cpm
4.5	007496 10/30/87 0815	3 4 4	10	MEDIUM STIFF, YELLOWISH BROWN (10YR, 5/4) CLAY AND SILT, TRACE SAND AND GRAVEL, DRY. DARK BROWN (10YR, 3/3) SILT, SOME CLAY, TRACE SAND AND GRAVEL, DRY.	CL ML	3.5 NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 70 cpm
6.0	007497 10/30/87 0825	6 8 11	14	VERY STIFF, YELLOWISH BROWN (10YR, 5/4) CLAY, SOME SILT, TRACE SAND AND GRAVEL, DRY. VERY STIFF, BROWNISH YELLOW (10YR, 6/6) SILT, TRACE SAND, CLAY AND GRAVEL, DRY.	CL ML	3.5 1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 70 cpm
7.5	007498 10/30/87 0830	9 7 11	14	VERY STIFF, BROWN ISH YELLOW (10YR, 6/6) SILT, SOME GRAVEL AND SAND, TRACE CLAY, DRY.	ML	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
9.0	007499 10/30/87 1010	13 14 17	12	MEDIUM DENSE, BROWNISH YELLOW (10YR, 6/6) GRAVEL, SOME SAND AND SILT, DRY.	GM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
10.5	007500 10/30/87 1030	8 7 10	10	BROWNISH YELLOW (10YR, 6/6) GRAVEL, SOME SAND AND SILT. VERY STIFF, YELLOWISH BROWN (10YR, 5/4) CLAY, TRACE SILT AND SAND, MOIST.	CL	4.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 70 cpm
12.0	007501 10/30/87 1040	3 5 7	14	MEDIUM DENSE, LIGHT YELLOWISH BROWN (2.5YR, 6/4) GRAVEL, SOME CLAY, TRACE SAND AND SILT, MOIST. STIFF, YELLOWISH BROWN (10YR, 5/4) CLAY, SOME SILT, TRACE SAND, MOIST.	GC CL	NA 2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
13.5	007502 10/30/87 1100	1 2 2	8	SOFT, BROWN (10YR, 5/3) CLAY, SOME SAND, TRACE GRAVEL AND SILT, WET.	CH	0.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 70 cpm
15.0	007503 10/30/87 1110	5 11 14	5	VERY STIFF, BROWN (10YR, 5/3) CLAY, SOME GRAVEL, TRACE SAND AND SILT, DRY.	CH	0.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 70 cpm
15.5	007506 10/30/87 1300	NA	NA	HARD, OLIVE GRAY (5Y, 5/2) CLAY, SOME GRAVEL, TRACE SAND AND SILT, MOIST.	CL	4.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60-60 cpm
16.5	007504 10/30/87 1330	5 11 18	13	VERY STIFF, OLIVE GRAY (5Y, 5/2) CLAY, SOME GRAVEL, TRACE SAND AND SILT, MOIST.	CL	4.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60-60 cpm

NOTES:
SAMPLES TAKEN USING ASTM STANDARD PENETRATION TEST. COLORS CLASSIFIED USING MUNSELL COLOR CHARTS.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1032	COORDINATES: NORTH 480,515.31 EAST 1,378,296.61		DATE: 10/30/87
GROUND ELEVATION: 589.3	GWL: Depth NA	Date/Time: NA	DATE STARTED: 10/30/87
ENGINEER/GEOLOGIST: D. OAKLEY	Depth: NA	Date/Time: NA	DATE COMPLETED: 10/31/87
DRILLING METHODS: CABLE-TOOL			PAGE 2 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
18.0	007505 10/30/87 1400	9 12 32	12	HARD, OLIVE GRAY (5Y, 5/2) CLAY, SOME GRAVEL, TRACE SAND AND SILT, MOIST.	CL	4.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60-60 cpm
19.5	007507 10/30/87 1540	11 13 15	11	HARD, OLIVE GRAY (5Y, 5/2) CLAY, SOME GRAVEL, TRACE SAND AND SILT, MOIST. VERY STIFF, YELLOWISH RED (5YR, 5/6) CLAY, SOME SAND, GRAVEL, AND SILT, DRY.	CL CL	4.25 4.00	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
21.0	007508 10/30/87 1600	11 11 15	14	BROWNISH YELLOW (10YR, 6/6) SILT, SOME SAND, DRY. MEDIUM DENSE, YELLOWISH BROWN (10YR, 5/6) FINE SAND, TRACE SILT AND CLAY, DRY. BROWNISH YELLOW (10YR, 6/6) SILT, SOME SAND, DRY.	ML SP ML	.20 NA 0.2	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
22.5	007509 10/30/87 1625	8 11 17	12	BROWNISH YELLOW (10YR, 6/6) SILT, SOME SAND, DRY. MEDIUM DENSE, YELLOWISH BROWN (10YR, 5/6) FINE SAND, DRY.	ML SP	.20 NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm
24.0	007510 10/30/87 1635	12 14 18	14	MEDIUM DENSE, YELLOWISH BROWN (10YR, 5/6) FINE SAND, DRY.	SP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 60 cpm

BOTTOM OF BORING 24.0 FT.

NOTES:
SAMPLES TAKEN USING ASTM STANDARD PENETRATION TEST. COLORS CLASSIFIED USING MUNSELL COLOR CHARTS.

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1033	COORDINATES: NORTH 480,412.69 EAST 1,378,675.14		DATE: 04/06/88
GROUND ELEVATION: 577.0	GWL: Depth NA	Date/Time: NA	DATE STARTED: 04/06/88
ENGINEER/GEOLOGIST: M. GOLDBERG	Depth: NA	Date/Time: NA	DATE COMPLETED: 04/10/88
DRILLING METHODS: CABLE-TOOL			PAGE 1 OF 1

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1.5	008853 04/06/88 1450	3 4 6	18	STIFF, DARK YELLOWISH BROWN (10YR, 4/6) CLAY, DRY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
3.0	008854 04/06/88 1455	9 7 11	12	STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, DRY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
4.5	008855 04/06/88 1530	10 11 14	18	VERY STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, TRACE SILT.	ML	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
6.0	008856 04/06/88 1540	10 10 10	18	VERY STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, VERY SILTY, MOIST.	ML	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
7.5	008857 04/09/88 1540	NA	18	SHELBY TUBE.			
9.0	008858 04/09/88 1030	1 1 1	12	SOFT, OLIVE GRAY (5Y, 5/2) CLAY, HIGH PLASTICITY, DRY.	CL	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
10.5	008859 04/09/88 1035	1 2 2	18	SOFT, OLIVE GRAY (5Y, 5/2) SILTY CLAY, PLASTIC, DRY.	CL	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
12.0	008860 04/09/88 1040	4 5 3	18	SOFT, GRAY (5Y, 5/1) SILTY CLAY, TRACE SAND, MOIST, WET. MEDIUM DENSE, GRAY (5Y, 5/1) SILTY SAND, WET.	CL SM	<1 <1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 600 cpm
13.5	008861 04/09/88 1355	4 7 7	12	MEDIUM DENSE, GRAY (5Y, 5/1) SILTY SAND, WET.	SM	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 450 cpm
15.0	008862 04/09/88 1400	12 10 11	14	MEDIUM DENSE, GRAY (5Y, 5/1) SILTY SAND, TRACE GRAVEL, WET.	SM	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 400 cpm
16.5	008863 04/09/88 1440	5 5 6	10	MEDIUM DENSE, GRAY (5Y, 5/1) SILTY SAND, TRACE GRAVEL, WET. MEDIUM STIFF, DARK GRAY (5Y, 5/1) SANDY CLAY, TRACE GRAVEL, WET.	SM CL	<1 <1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 400 cpm
18.0	008864 04/09/88 1530	6 9 11	8	STIFF, DARK GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, MOIST.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 400 cpm
19.5	008865 04/09/88 1535	7 9 6	12	MEDIUM DENSE, GRAY (5Y, 5/1) SANDY SILT WITH TRACE OF GRAVEL, MOIST.	SM	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 380 cpm
21.0	008866 04/09/88 1630	6 6 6	12	STIFF, DARK GRAY (5Y, 5/1) CLAY, TRACE OF GRAVEL, DRY.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 380 cpm

BOTTOM OF BORING 21.0 FT.

NOTES:
SAMPLES VIA MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1072	COORDINATES: NORTH 481,025.93 EAST 1,378,478.33	DATE: 03/06/88	
GROUND ELEVATION: 575.9	GWL: Depth NA	Date/Time: NA	DATE STARTED: 03/06/88
ENGINEER/GEOLOGIST: M. GOLDBERG	Depth: NA	Date/Time: NA	DATE COMPLETED: 03/15/88
DRILLING METHODS: CABLE-TOOL			PAGE 1 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1.5	008188 03/06/88 1035	3 5 7	12	VERY STIFF, LIGHT OLIVE BROWN (2.5Y, 5/4) CLAY, DRY.	CL	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 120 cpm
3.0	008189 03/06/88 1045	3 6 6	14	STIFF, DARK GRAYISH BROWN (10YR, 4/2) CLAY, DRY.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 100 cpm
4.5	008190 03/06/88 1050	7 13 14	14	STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, TRACE SAND AND SILT, DRY.	ML	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 120 cpm
6.0	008191 03/06/88 1055	14 34 43	18	VERY STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, TRACE SAND AND SILT.	ML	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 120 cpm
7.0	008192 03/06/88 1600	NA	12	SHELBY TUBE.			
9.0	008193 03/06/88 1635	2 3 2	12	STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, WET.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 140 cpm
10.5	008194 03/06/88 1640	3 4 3	18	VERY SOFT, YELLOWISH BROWN (10YR, 5/4) CLAY, WET.	CH	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 160 cpm
12.0	008195 03/07/88 0850	13 18 23	18	VERY STIFF, YELLOWISH BROWN (10YR, 5/6) CLAY, DRY.	CL	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 150 cpm
13.5	008196 03/07/88 0900	20 23 26	18	VERY STIFF, REDDISH BROWN (5YR, 4/4) CLAY, TRACE GRAVEL, DRY.	CL	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 150 cpm
15.0	008197 03/07/88 0935	11 12 18	18	STIFF, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 130 cpm
16.5	008198 03/07/88 0940	3 5 7	12	STIFF, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 130 cpm
18.0	008199 03/07/88 0945	6 7 9	18	MEDIUM STIFF, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 120 cpm
19.5	008200 03/07/88 1410	2 6 6	18	SOFT, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 140 cpm

NOTES:
BRIGHT BLUE TRACES OF CLAY. SAMPLES VIA MUNSELL COLOR CHART.

526

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1072	COORDINATES: NORTH 481,025.93 EAST 1,378,476.33		DATE: 03/06/88
GROUND ELEVATION: 575.9	GWL: Depth NA	Date/Time: NA	DATE STARTED: 03/06/88
ENGINEER/GEOLOGIST: M. GOLDBERG	Depth: NA	Date/Time: NA	DATE COMPLETED: 03/15/88
DRILLING METHODS: CABLE-TOOL			PAGE 2 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
21.0	008201 03/07/88 1417	6 7 12	18	SOFT, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 140 cpm
23.0	008202 03/07/88 1565		24	SHELBY TUBE.			
24.0	008203 03/07/88 1635	3 6	12	MEDIUM STIFF, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 140 cpm
25.5	008204 03/08/88 0850	5 6 13	12	MEDIUM STIFF, GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	NA	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 110 cpm
27.0	008205 03/08/88 0915	3 4 6	10	STIFF, DARK GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	CL	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 100 cpm
28.5	008206 03/08/88 1020	4 6 18	18	STIFF, DARK GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY.	NA	1.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 100 cpm
30.0	008207 03/08/88 1105	22 30 41	18	HARD, DARK GRAY (5Y, 5/1) CLAY, TRACE GRAVEL, DRY. BLUE GRAVEL AND CLAY STRINGERS.	CL	4.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 120 cpm
31.5	008208 03/08/88 1425	12 22 41	18	VERY STIFF, DARK OLIVE GRAY (5Y, 3/2) CLAY, ABUNDANT GRAVEL, DRY	CL	3.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 100 cpm
33.0	008209 03/08/88 1600	12 22 38	18	VERY STIFF, DARK OLIVE GRAY (5Y, 3/2) CLAY, ABUNDANT GRAVEL, DRY VERY STIFF, YELLOWISH BROWN (10YR, 6/6) SILTY CLAY, DRY. DENSE YELLOWISH BROWN (10YR, 6/6) SAND, DRY.	CL CL SW	3.5 2.5 <1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 100 cpm
39.5	008210 03/09/88 0930	17 31 37	18	VERY DENSE, YELLOWISH BROWN (10YR, 6/6) SAND, DRY.	SW	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 140 cpm
44.5	008211 03/09/88 1035	26 28 34	18	VERY DENSE, YELLOWISH BROWN (10YR, 6/6) SAND, TRACE GRAVEL, DRY.	SW	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 160 cpm
50.0	008212 03/09/88 1115	10 28 50	20	VERY DENSE, YELLOWISH BROWN (10YR, 6/6) SAND, TRACE GRAVEL, DRY.	SW	<1	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 140 cpm

BOTTOM OF BORING 31.0 FT.

NOTES:
SAMPLES VIA MUNSELL COLOR CHART.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER:	602 3.2	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	2032	COORDINATES:	NORTH 460,503.68 EAST 1,378,296.59	DATE:	02/06/90
GROUND ELEVATION:	568.8	GWL: Depth NA	Date/Time: NA	DATE STARTED:	02/06/90
ENGINEER/GEOLOGIST:	MIKE SWANSON	Depth: NA	Date/Time: NA	DATE COMPLETED:	02/13/90
DRILLING METHODS:	CABLE-TOOL			PAGE 1 OF 2	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
1.5	032451 02/06/90 1310	3 5 6	7	TOPSOIL, VERY DARK BROWN (10YR, 2/2) SILT, PEBBLES, SLIGHT PLASTICITY, SLIGHTLY MOIST. HARD, GRAY TO DARK GRAY (10YR, 5/1;7.5Y, 4/0) SILTY CLAY, TRACE OF SAND, LOW PLASTICITY, DRY TO SLIGHTLY MOIST.	ML CL	2.0 3.0	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 400-500 cpm
3.0	032452 02/06/90 1316	2 2 3	2	HARD, GRAY TO DARK GRAY (10YR, 5/1;7.5Y, 4/0) SILTY CLAY, TRACE OF SAND, LOW PLASTICITY, DRY TO SLIGHTLY MOIST.	CL	3.0	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 400-500 cpm
4.5	032453 02/06/90 1321	3 6 5	7	HARD YELLOWISH BROWN (10YR, 5/6) SILTY CLAY, TRACE OF SAND, LOW PLASTICITY, SLIGHTLY MOIST.	CL	2.5	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 300-400 cpm
6.0	032454 02/06/90 1324	5 8 11	11	MEDIUM DENSE, GRAVELLY WELL GRADED SAND, BROWNISH YELLOW (10YR, 6/6) SOME CLAY, TRACE OF SILT, SUBANGULAR GRAVELS AND SAND.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-600 cpm
7.5	032455 02/06/90 1329	10 11 8	10	MEDIUM DENSE, GRAVELLY WELL GRADED SAND, BROWNISH YELLOW (10YR, 6/6) SOME CLAY, TRACE OF SILT, SUBANGULAR GRAVELS AND SAND. H R	SW CL	NA 3.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-600 cpm
9.0	032456 02/06/90 1335	8 8 8	13	VERY SOFT, LIGHT OLIVE BROWN (2.5Y, 5/6) SANDY SILT, SOME CLAY, WET.	ML	<.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-600 cpm
10.5	032457 02/06/90 1454	3 5 6	8	FIRM; LIGHT OLIVE BROWN (2.5Y, 5/6) SANDY CLAYEY SILT, SLIGHT PLASTICITY, SLIGHTLY MOIST TO MOIST.	ML	1.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 400-500 cpm
12.0	032458 02/06/90 1501	6 6 11	9	FIRM; LIGHT OLIVE BROWN (2.5Y, 5/6) SANDY CLAYEY SILT, SLIGHT PLASTICITY, SLIGHTLY MOIST TO MOIST. HARD, GRAY (5Y, 5/1) SILTY CLAY, TRACE OF SAND, LOW PLASTICITY, SLIGHTLY MOIST.	ML CL	1.0 2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-500 cpm
13.5	032459 02/06/90 1513	2 5 10	5	HARD, GRAY (5Y, 5/1) SILTY CLAY, TRACE OF SAND, LOW PLASTICITY, SLIGHTLY MOIST.	CL	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 400-600 cpm
15.0	032460 02/06/90 1519	12 5 15	8	HARD, GRAY (5Y, 5/1) SILTY CLAY, SOME PEBBLES AND GRAVEL, TRACE OF SAND, PEBBLES AND GRAVEL, ABOUT 3.5 IN., LOW PLASTICITY.	CL	3.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 400-500 cpm
16.5	032461 02/06/90 1553	25 16 16	7	HARD, OLIVE GRAY (2.5Y, 4/2) SILTY CLAY, COBBLE, SOME SAND AND PEBBLES, LOW PLASTICITY, TOP 3 IN. MOIST, BOTTOM 4 IN. SLIGHTLY MOIST.	CL	2.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-400 cpm
18.0	032462 02/06/90 1601	25 36 40	16	VERY HARD, DARK GRAY (2.5Y, 4/1)SILTY CLAY, TRACE OF SAND, PEBBLES, ONE COBBLE, LOW PLASTICITY, DRY TO SLIGHTLY MOIST.	CL	>4	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-400 cpm
19.5	032463 02/07/90 1053	26 21 30	9	HARD, GRAY (5Y, 5/1) SILTY CLAY, TRACE OF SAND, COBBLES (QUARTZ), LOW PLASTICITY, SLIGHTLY MOIST.	CL	2.75	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 600-600 cpm

NOTES:
ALL SAMPLES IN ACCORDANCE WITH ASTM STANDARD PENETRATION TEST. MUNSELL COLORCHART USED FOR SOIL SAMPLE COLOR DESCRIPTION.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 2032	COORDINATES: NORTH 460,503.68 EAST 1,378,296.59	DATE: 02/06/90	
GROUND ELEVATION: 568.8	GWL: Depth NA	Date/Time: NA	DATE STARTED: 02/06/90
ENGINEER/GEOLOGIST: MIKE SWANSON	Depth: NA	Date/Time: NA	DATE COMPLETED: 02/13/90
DRILLING METHODS: CABLE-TOOL			PAGE 2 OF 2

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
22.5	032464 02/07/90 1412	12 13 19	13	DENSE, BROWNISH YELLOW TO YELLOWISH BROWN (10YR, 6/6 TO 5/6) FINE, POORLY GRADED SAND, DRY.	SP	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 300-400 cpm
26.5	032465 02/07/90 1439	8 7 11	12	MEDIUM DENSE, BROWNISH YELLOW TO YELLOWISH BROWN (10YR, 6/6 TO 5/6) POORLY GRADED SAND, DRY.	SP	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 400 cpm
31.5	032466 02/07/90 1602	3 15 25	10	DENSE, LIGHT YELLOWISH BROWN (10YR, 6/4) WITH 3 IN. LAYER OF BLACK AND WHITE SAND, SAND MEDIUM TO WELL GRADED, TRACE OF PEBBLES.	SW	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 350-450 cpm
36.5	032467 02/13/90 0916	13 27 50	9	VERY DENSE, YELLOWISH BROWN (10YR, 5/6) WELL GRADED SAND, SOME PEBBLES (.2 IN.) TRACE OF SILT, CLAY; ROUNDED TO SUBROUNDED, DRY.	SW	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 350-450 cpm
41.5	032468 02/13/90 0946	11 18 23	3	DENSE OLIVE YELLOW (2.5Y, 6/6) POORLY GRADED, FINE GRAINED SAND, DRY TO SLIGHTLY MOIST.	SP	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 300-400 cpm
46.5	032469 02/13/90 1114	10 15 23	8	DENSE, DARK YELLOWISH BROWN (10YR, 4/6) WELL GRADED SAND, SOME PEBBLES, SUBROUNDED; TRACE OF GRAVEL (APPROXIMATELY .25 TO .5 IN.)	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-400 cpm
51.5	032470 02/13/90 1354	7 9 13	5	MEDIUM DENSE, DARK BROWN (10YR, 3/3) WELL GRADED, SANDY GRAVEL (.25 TO .4 IN.) SUBANGULAR TO SUBROUNDED, WET.	GW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-400 cpm
56.5	032471 02/13/90 1423	5 5 8	6	MEDIUM DENSE, DARK BROWN (10YR, 3/3) GRAVELLY SAND, WELL GRADED, SUBANGULAR TO ROUNDED, WET.	SW	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
61.5	032472 02/13/90 1537	2 3 6	7	LOOSE, LIGHT YELLOWISH BROWN (10YR, 6/4) WELL GRADED, GRAVELLY SAND (APPROXIMATELY .25 TO .5 IN.),ANGULAR TO ROUNDED, WET.	SW	NA	HNu=0.1 ppm ALPHA = 0 cpm BETA-GAMMA = 400-500 cpm
66.5	032473 02/13/90 1621	5 8 12	6	MEDIUM DENSE, DARK BROWN (10YR, 3/3) (WITH BLACK AND WHITE PARTICLES) GRAVELLY SAND, SOME COBBLES (.5 TO .75 IN.)	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-450 cpm

BOTTOM OF BORING 65.0 FT.

NOTES:
ALL SAMPLES IN ACCORDANCE WITH ASTM STANDARD PENETRATION TEST. MUNSELL COLORCHART USED FOR SOIL SAMPLE COLOR DESCRIPTION.

529

-4948

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 2033	COORDINATES: NORTH 460,411.10 EAST 1,378,687.33		DATE: 05/31/90
GROUND ELEVATION: 577.0	GWL: Depth NA	Date/Time: NA	DATE STARTED: 05/31/90
ENGINEER/GEOLOGIST: C. GRUBE	Depth: NA	Date/Time: NA	DATE COMPLETED: 06/12/90
DRILLING METHODS: CABLE-TOOL			PAGE 1 OF 1

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
22.5	032759 05/31/90 1535	7 14 15	5	HARD, DARK GRAY (5Y, 4/1) SANDY CLAY, TRACE OF FINE TO COARSE GRAVEL, LOW PLASTICITY, MOIST.	CL	2.0	HNu=0.2 ppm ALPHA = 0 cpm BETA-GAMMA = 220-240 cpm
24.0	032760 05/31/90 1600	5 7 9	6	FIRM, DARK GRAY (5Y, 4/1) SILTY CLAY, TRACE OF SAND AND FINE TO MEDIUM GRAVEL, MEDIUM PLASTICITY, MOIST.	CL	1.75	HNu=0.2 ppm ALPHA = 0 cpm BETA-GAMMA = 190-200 cpm
25.5	032761 06/05/90 1035	10 50 32	6	FIRM, DARK GRAY (5Y, 4/1) SILTY CLAY, SOME SAND, TRACE OF FINE TO COARSE GRAVEL, LOW PLASTICITY, VERY MOIST.	CL	0.75	HNu=1.0 ppm ALPHA = 0 cpm BETA-GAMMA = 190-200 cpm
27.0	032762 06/05/90 1100	32 27 30	9	VERY HARD, DARK GRAY (5Y, 4/1) SILTY CLAY, TRACE OF SAND, TRACE OF FINE TO MEDIUM GRAVEL, MEDIUM PLASTICITY, MOIST.	CL	4.5	HNu=1.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-220 cpm
28.5	032763 06/05/90 1108	6 15 22	6	VERY HARD, DARK GRAY (5Y, 4/1) SILTY CLAY, TRACE OF SAND, TRACE OF FINE TO COARSE GRAVEL, LOW PLASTICITY, MOIST.	CL	>4.5	HNu=1.0 ppm ALPHA = 0 cpm BETA-GAMMA = 220-240 cpm
30.0	032764 06/05/90 1400	4 12 18	7	FIRM, DARK GRAY (5Y, 4/1) SANDY CLAY, TRACE OF FINE TO COARSE GRAVEL, LOW PLASTICITY, MOIST.	CL	1.0	HNu=1.2 ppm ALPHA = 0 cpm BETA-GAMMA = 230-240 cpm
36.5	032765 06/05/90 1435	10 14 18	12	DENSE, YELLOWISH BROWN (10YR, 5/4) WELL TO POORLY GRADED SAND, TRACE OF SILT AND FINE TO MEDIUM GRAVEL, MOIST.	SW	NA	HNu=1.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-220 cpm
40.5	032766 06/05/90 1455	15 45 45	18	VERY DENSE, LIGHT OLIVE BROWN (2.5Y, 5/4) TO LIGHT YELLOWISH BROWN (2.5Y, 6/4) POORLY GRADED TO SILTY SAND, TRACE OF FINE GRAVELS.	SP	NA	HNu=1.0 ppm ALPHA = 0 cpm BETA-GAMMA = 180-200 cpm
46.5	032767 06/05/90 1600	35 50	10	VERY DENSE, LIGHT YELLOWISH BROWN (2.5Y, 6/4) SILTY TO GRAVELLY WELL GRADED SAND, DRY TO SLIGHTLY MOIST.	SM	NA	HNu=0.6 ppm ALPHA = 0 cpm BETA-GAMMA = 220-230 cpm
51.5	032768 06/07/90 0955	18 25 45	12	VERY DENSE, YELLOWISH BROWN (10YR, 5/4) WELL TO POORLY GRADED SAND, TRACE OF FINE TO MEDIUM GRAVEL, WET.	SW	NA	HNu=0.2 ppm ALPHA = 0 cpm BETA-GAMMA = 200-220 cpm
56.5	032769 06/07/90 1100	3 8 20	8	MEDIUM DENSE, DARK YELLOWISH BROWN (10YR, 4/4) POORLY GRADED SAND, TRACE OF SILT AND FINE GRAVEL, WET.	SP	NA	HNu=0.2 ppm ALPHA = 0 cpm BETA-GAMMA = 180-200 cpm
61.5	032770 06/12/90 1015	6 9 15	11	MEDIUM DENSE, YELLOWISH BROWN (10YR, 5/4) SILTY TO POORLY GRADED SAND, TRACE OF FINE GRAVEL, WET.	SM	NA	HNu=0.4 ppm ALPHA = 0 cpm BETA-GAMMA = 200-220 cpm
66.5	032771 06/12/90 1120	20 50	14	VERY DENSE, LIGHT OLIVE BROWN (2.5Y, 5/4) POORLY TO WELL GRADED SAND, TRACE OF FINE TO MEDIUM GRAVEL, WET.	SP	NA	HNu=0.2 ppm ALPHA = 0 cpm BETA-GAMMA = 160-170 cpm
71.5	032772 033078 06/12/90 1518	10 21 17	17	DENSE, BROWN (10YR, 4/3) GRAVELLY WELL GRADED SAND, SOME SILT, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 900 cpm

BOTTOM OF BORING 70.0 FT.

NOTES:
SAMPLES COLLECTED PER ASTM STANDARD PENETRATION TEST. MUNSELL COLOR CHART USED FOR SAMPLE COLOR IDENTIFICATION.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 3032	COORDINATES: NORTH 480,492.78 EAST 1,378,296.62		DATE: 09/21/90
GROUND ELEVATION: 569.1	GWL: Depth NA	Date/Time: NA	DATE STARTED: 09/21/90
ENGINEER/GEOLOGIST: M. GARMAN	Depth: NA	Date/Time: NA	DATE COMPLETED: 09/24/90
DRILLING METHODS: CABLE-TOOL			PAGE 1 OF 1

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
71.5	033078 09/21/90 1518	10 21 17	17	DENSE, BROWN (10YR, 4/3) GRAVELLY WELL GRADED SAND, SOME SILT, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 900 cpm
76.5	033079 09/21/90 1533	17 15 15	14	MEDIUM DENSE, VERY DARK BROWN (10YR, 3/3) WELL GRADED SAND, SOME GRAVEL (FINE), TRACE SILT, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 1000 cpm
81.5	033080 09/21/90 1600	50	5	VERY DENSE, BROWN (10YR, 4/3) FINE TO MEDIUM SILTY SAND, WET.	SM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 1000 cpm
86.5	033081 09/23/90 0924	18 22 31	18	VERY DENSE, DARK GRAYISH BROWN (10YR, 4/2) WELL GRADED SAND, SOME SILT, WET (85.0 - 85.9). VERY DENSE, DARK GRAYISH BROWN (10YR, 4/2) SILTY FINE TO MEDIUM GRAINED SAND, WET (85.9 - 86.5).	SW SM	NA NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 1000 cpm
91.5	033082 09/23/90 1007	9 10 14	11	MEDIUM DENSE, DARK GRAYISH BROWN (10YR, 4/2) SANDY FINE GRAVEL, WET.	GM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 800 cpm
96.5	033083 09/23/90 1419	10 17 15	18	DENSE, VERY DARK GRAYISH BROWN (10YR, 3/2) SILTY WELL GRADED SAND, SOME FINE GRAVEL, WET.	SM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 900 cpm
101.5	033084 09/23/90 1442	7 8 18	14	MEDIUM DENSE, DARK BROWN (10YR, 4/3) WELL GRADED SAND, SOME SILT, TRACE FINE GRAVEL, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 800 cpm
106.5	033085 09/23/90 1626	11 13 11	18	MEDIUM DENSE, DARK BROWN (10YR, 4/3) WELL GRADED SAND, TRACE SILT, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 900 cpm
111.5	033086 09/24/90 0929	12 10 6	18	MEDIUM DENSE, GRAYISH BROWN (10YR, 5/2) WELL GRADED SAND, TRACE FINE GRAVEL, TRACE SILT, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 800 cpm
116.5	033087 09/24/90 1040	14 50	18	VERY DENSE, GRAYISH BROWN (10YR, 5/2) WELL GRADED SAND, SOME FINE GRAVEL, TRACE SILT, WET.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 800 cpm
121.5	033088 09/24/90 1345	11 24 25	15	HARD, DARK GRAY (5Y, 4/1) SILTY CLAY, TRACE FINE SAND, SLIGHTLY MOIST TO MOIST, MEDIUM TO HIGH PLASTICITY.	CL	2.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 800 cpm
123.1	033089 09/24/90 1545	NA	19	HARD, DARK GRAY (5Y, 4/1) SILTY CLAY, TRACE FINE SAND, HIGH PLASTICITY. SLIGHTLY MOIST. * SHELBY TUBE SAMPLE 121.5 - 123.1 FT.	CL	2.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 800 cpm

BOTTOM OF BORING 123.1 FT.

NOTES:
SAMPLES COMPARED TO MUNSELL COLOR CHART.

531

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 3034	COORDINATES: NORTH 480, 240.23 EAST 1,378,431.39		DATE: 03/19/88
GROUND ELEVATION: 569.9	GWL: Depth NA	Date/Time: NA	DATE STARTED: 03/19/88
ENGINEER/GEOLOGIST: F. MARKERT	Depth: NA	Date/Time: NA	DATE COMPLETED: 03/29/88
DRILLING METHODS: CABLE-TOOL			PAGE 1 OF 3

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
1.5	008265 03/19/88 1645	2 5 6	17	MEDIUM DENSE, DARK BROWN (10YR, 3/3) SOIL, SOME SILT, SOME CLAY, ORGANIC RICH, ROOTS, DRY. MEDIUM DENSE, BROWN (10YR, 4/4) CLAY, TRACE SILT, TRACE ORGANICS, MOTTLED, DRY.	OH CL	2.0 4.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
3.0	008266 03/19/88 1700	3 8 15	15	MEDIUM DENSE, GRAY (10YR, 6/2) CLAY, SOME SILT, TRACE ORGANICS AT TOP, MOTTLED, DRY.	CL	>4.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
4.5	08267 03/19/88 1715	15 18 21	18	DENSE, GRAY (10YR, 5/2) CLAY, SOME SILT WITH SILT LENSES, TRACE ORGANICS, MOTTLED TAN AT BOTTOM, DRY.	CL	>4.5	HNu=0.0 ppm ALPHA = 1 cpm BETA-GAMMA = 250-300 cpm
6.0	08268 03/19/88 1725	15 18 21	17	DENSE, GRAY (10YR, 5/1) CLAY, TRACE SILT WITH SILT LENSES, MOTTLED TAN, DRY.	CL	>4.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
7.5	08269 03/19/88 1735	21 23 19	18	DENSE, GRAY (10YR, 6/2) CLAY, SOME SILT WITH SILT LENSES, MOTTLED TAN, DRY. DENSE, BROWN (10YR, 5/4) FINE SAND, SOME SILT, SOME ANGULAR GRAVEL, MOTTLED DARK GRAY, MOIST.	CL SM	3.5 NA	HNu=0.0 ppm ALPHA = 1 cpm BETA-GAMMA = 250-300 cpm
9.0	08270 03/19/88 1735	1 3 7	7	LOOSE, BROWN (2.5Y, 4/2) FINE SAND, SOME GRAVEL, TRACE CLAY, TRACE SILT, POORLY GRADED, UNSTRATIFIED, MOIST.	SP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
12.0	008272 03/20/88 1120	4 5 9	10	MEDIUM DENSE, GRAY (10YR, 5/1) CLAY, SOME SILT, DRY.	CL	1.25	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
13.5	008273 03/20/88 1145	5 6 10	12	MEDIUM DENSE, GRAY (5Y, 4/1) CLAY, TRACE ANGULAR GRAVEL, SOME SILT, DRY. MEDIUM DENSE, GRAY (5Y, 3/1) FINE SAND LENSES, SOME GRAVEL, SOME SILT, MOIST.	CL SM	2.75 NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
15.0	008274 03/20/88 1340	3 5 9	9	MEDIUM DENSE, GRAY (5Y, 4/1) CLAY, TRACE ANGULAR GRAVEL, SOME SILT, DRY.	CL	2.5	HNu=0.0 ppm ALPHA = 1 cpm BETA-GAMMA = 250-300 cpm
16.5	008275 03/20/88 1400	2 2 5	9	LOOSE, GRAY (5Y, 4/1) CLAY, SOME ANGULAR GRAVEL, TRACE SAND, SOME SILT, DRY.	CL	0.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
18.0	008276 03/20/88 1415	7 19 22	15	DENSE, GRAY (5Y, 3/1) CLAY, SOME ANGULAR GRAVEL, TRACE SAND, SOME SILT, DRY.	CL	4.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
19.5	008277 03/20/88 1430	8 13 31	6	DENSE, GRAY (5Y, 4/1) CLAY, SOME ANGULAR GRAVEL, SOME SAND, SOME SILT, DRY.	CL	3.5	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
21.0	008278 03/20/88 1450	9 13 25	9	DENSE, GRAY (5Y, 4/1) CLAY, SOME ROUNDED GRAVEL, SOME SAND, SOME SILT, DRY.	CL	3.0	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
22.5	008279 03/20/88 1645	8 11 21	16	DENSE, GRAY (5Y, 3/1) CLAY, SOME ROUNDED GRAVEL, SOME SILT, TRACE SAND, DRY.	CL	2.75	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm

NOTES:
BLOWS ON SAMPLES FOLLOW ASTM STANDARD FOR 2X18 INCH SPLIT SPOON SAMPLES. SOIL COLORS FOLLOW MUNSELL COLOR CHARTS.

-4948

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.2	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 3034	COORDINATES: NORTH 480, 240.23 EAST 1,378,431.39		
GROUND ELEVATION: 589.9	GWL: Depth NA	Date/Time: NA	DATE: 03/19/88
ENGINEER/GEOLOGIST: F. MARKERT	Depth: NA	Date/Time: NA	DATE STARTED: 03/19/88
DRILLING METHODS: CABLE-TOOL			DATE COMPLETED: 03/29/88
			PAGE 2 OF 3

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
24.0	008280 03/20/88 1700	9 15 22	14	DENSE, TAN (10YR, 6/4) FINE SAND, EXTREMELY WELL GRADED, UNSTRATIFIED, DRY.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
25.5	008281 03/20/88 1715	8 21 23	15	DENSE, TAN (10YR, 7/4) FINE SAND, WELL GRADED, STRATIFIED, SOME SILT IN LENSES OF DARKER (10YR, 5/6) 1/2 IN. TO 1 IN. THICK, DRY.	SM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
31.5	008282 03/21/88 0850	5 9 14	12	MEDIUM DENSE, TAN (10YR, 5/6) FINE SAND, TRACE SILT, EXTREMELY WELL GRADED, PARTIALLY STRATIFIED, DRY.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
36.5	008283 03/21/88 1030	14 49	14	VERY DENSE, TAN (10YR, 5/4) FINE SAND, TRACE ROUNDED GRAVEL, TRACE SILT, WELL GRADED, UNSTRATIFIED, DRY.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
41.5	008284 03/21/88 1050	12 15 17	13	DENSE, TAN (10YR, 6/4) FINE SAND, TRACE SILT, EXTREMELY WELL GRADED, UNSTRATIFIED, DRY.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
46.5	008285 03/21/88 1120	8 22 20	13	DENSE, LIGHT TAN (10YR, 6/2) FINE SAND, TRACE SILT, EXTREMELY WELL GRADED, PARTIALLY STRATIFIED, DRY.	SW	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
51.5	008286 03/21/88 1335	9 14 17	11	DENSE, BROWN (10YR, 4/2) MEDIUM TO COARSE SAND, TRACE ROUNDED GRAVEL, TRACE SILT, FAIR TO POOR GRADING, UNSTRATIFIED, WET.	SW	NA	HNu=0.0 ppm ALPHA = 1 cpm BETA-GAMMA = 300-350 cpm
56.5	008287 03/21/88 1350	5 10 21	9	DENSE, BROWN (10YR, 4/2) MEDIUM TO COARSE SAND, SOME ROUNDED GRAVEL, TRACE SILT, POORLY GRADED, UNSTRATIFIED, WET.	SP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
61.5	008288 03/21/88 1455	9 15 19	12	DENSE, BROWN (10YR, 4/2) ROUNDED GRAVEL, SOME MEDIUM TO COARSE SAND, SOME SILT, POORLY GRADED, UNSTRATIFIED, WET.	SP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
66.5	008289 03/21/88 1635	10 20 24	14	DENSE, BROWN (10YR, 3/3) FINE TO COARSE GRAVELLY SAND, SOME ROUNDED GRAVEL, POORLY GRADED, UNSTRATIFIED, WET.	GM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
71.5	008290 03/21/88 1750	12 33 28	11	DENSE, BROWN (10YR, 3/3) FINE TO COARSE GRAVELLY SAND, SOME ROUNDED GRAVEL, POORLY GRADED, UNSTRATIFIED, WET.	GP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
76.5	008291 03/22/88 0830	13 24 36	14	VERY DENSE, BROWN (10YR, 4/2) MEDIUM TO COARSE GRAVELLY SAND, SOME ROUND GRAVEL (PEBBLES), SOME SILT, POORLY GRADED, UNSTRATIFIED.	GM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 300-350 cpm
81.5	008292 03/22/88 0945	15 29 26	12	VERY DENSE, BROWN (10YR, 4/3) GRAVELLY MEDIUM SAND, SOME ROUND GRAVEL (PEBBLES), TRACE SILT, POORLY GRADED, UNSTRATIFIED, WET.	GM	NA	ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
86.5	008293 03/22/88 1010	6 13 17	11	VERY DENSE, BROWN (10YR, 3/3) MEDIUM TO COARSE SAND, SOME ROUNDED GRAVEL, SOME SILT, POORLY GRADED, UNSTRATIFIED, WET. VERY DENSE, BROWN (10YR, 4/3) FINE SAND, SOME SILT, WELL GRADED, UNSTRATIFIED, WET. MEDIUM DENSE, BROWN (10YR, 3/3) FINE TO MEDIUM SAND, SOME SILT, WELL GRADED, UNSTRATIFIED, WET.	GM SM SM	NA NA NA	ALPHA = 2 cpm BETA-GAMMA = 200-250 cpm ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm

NOTES:
HNU METER UNCHARGED AT BEGINNING OF DAY. HAD TO SWITCH TO DRAEGER TUBES. BLOWS ON SAMPLER FOLLOW ASTM STANDARD FOR 2X18 INCH SPLIT SPOON SAMPLES. SOIL COLORS FOLLOW MUNSELL COLOR CHARTS.

533

PROJECT NUMBER:	602 3.2	PROJECT NAME:	FMPC RI/FS		
BORING NUMBER:	3034	COORDINATES:	NORTH 480, 240.23 EAST 1,378,431.39	DATE:	03/19/88
GROUND ELEVATION:	569.9	GWL: Depth NA	Date/Time: NA	DATE STARTED:	03/19/88
ENGINEER/GEOLOGIST:	F. MARKERT	Depth: NA	Date/Time: NA	DATE COMPLETED:	03/29/88
DRILLING METHODS:	CABLE-TOOL			PAGE 3 OF 3	

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (IN.)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
91.5	008294 03/22/88 1100	5 12 18	8	MEDIUM DENSE, BROWN (10YR, 3/2) FINE TO MEDIUM SAND, SOME SILT, FAIR GRADING, UNSTRATIFIED, WET.	SM	NA	ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
96.5	008295 03/22/88 1410	5 10 15	9	MEDIUM DENSE, BROWN (10YR, 3/2) MEDIUM TO COARSE SAND, SOME SILT, TRACE ROUNDED GRAVEL, FAIR GRADING, UNSTRATIFIED, WET.	SM	NA	ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
101.5	008296 03/22/88 1430	2 3 8	9	MEDIUM DENSE, BROWN (10YR, 4/2) FINE TO COARSE SAND, TRACE SILT, TRACE ROUNDED GRAVEL, FAIR GRADING, PARTIALLY UNSTRATIFIED, WET.	SM	NA	ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
106.5	008297 03/22/88 1615	12 19 27	12	DENSE, BROWN (10YR, 4/2) MEDIUM SAND, WELL GRADED, UNSTRATIFIED, WET. DENSE, BROWN (10YR, 5/2) VERY FINE SAND, SOME SILT, EXTREMELY WELL GRADED, PARTIALLY STRATIFIED, WET.	SW SM	NA NA	ALPHA = 0 cpm BETA-GAMMA = 200-250 cpm
111.5	008298 03/22/88 1645	3 9 13	7	MEDIUM DENSE, GRAY TO BLACK (5Y, 2.5/1) CLAY, SOME SILT, TRACE SAND, MOIST.	CL	2.75	ALPHA = 1 cpm BETA-GAMMA = 200-250 cpm
114.1	008299 03/22/88 1800	NA	NA	SHELBY TUBE. PUSHED SHELBY AT 1800 112.1 TO 114.1, RECOVERED 1.7 FT.	NA	NA	
116.5	008300 03/23/88 0800	4 5 5	16	LOOSE, GRAY (5Y, 3/1) FINE SAND, SOME SILT, SOME CLAY, WELL GRADED, UNSTRATIFIED, WET. MORE CLAY RICH IN LAST 4 INCHES.	SM	NA	ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
121.5	008301 03/23/88 1030	5 8 15	11	MEDIUM DENSE, GRAY (5Y, 4/1) FINE TO COARSE GRAVELLY SAND, SOME COARSE ROUND GRAVEL, SOME SILT, TRACE CLAY, POORLY GRADED, UNSTRATIFIED.	GM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
126.5	008302 03/23/88 1155	32 48 37	11	DENSE, GRAY (5Y, 3/2) MEDIUM TO COARSE GRAVELLY SAND, SOME COARSE ROUND GRAVEL, SOME SILT, POORLY GRADED, UNSTRATIFIED, WET.	GM	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
131.5	008303 03/23/88 1525	70	8	DENSE, GRAY (2.5Y, 5/2) COARSE GRAVELLY SAND, SOME COARSE ROUND GRAVEL, TRACE SILT, POORLY GRADED, UNSTRATIFIED, WET.	GP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
136.5	008304 03/23/88 1635	10 14 18	10	DENSE, GRAY TO BROWN (10YR, 5/2) MEDIUM TO COARSE SAND, TRACE ROUNDED GRAVEL, TRACE SILT, FAIR GRADING, UNSTRATIFIED, WET.	SP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm
141.5	008305 03/23/88 1745	5 11 19	9	MEDIUM DENSE, GRAY TO BROWN (10YR, 5/2) FINE TO MEDIUM SAND, TRACE SILT, FAIR GRADING, UNSTRATIFIED, WET.	SP	NA	HNu=0.0 ppm ALPHA = 0 cpm BETA-GAMMA = 250-300 cpm

BOTTOM OF BORING 140.0 FT.

NOTES:
HNu METER UNCHARGED AT BEGINNING OF DAY. HAD TO SWITCH TO DRAEGER TUBES.
BLOWS ON SAMPLES FOLLOW ASTM STANDARD FOR 2X18 INCH SPLIT SPOON SAMPLES. SOIL COLORS FOLLOW MUNSELL COLOR CHARTS.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.7.4	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1476	COORDINATES: NORTH 480,415 EAST 1,378,292		DATE: 11/18-19/89
GROUND ELEVATION: 589.5	GWL: Depth NA	Date/Time: NA	DATE STARTED: 11/18/89
ENGINEER/GEOLOGIST: E. TROLLINGER	Depth: NA	Date/Time: NA	DATE COMPLETED: 11/19/89
DRILLING METHODS: CAT 225 B LC BACKHOE TRACK MOUNTED			PAGE OF

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
3.5	11/18/89	NA	NA	TOPSOIL FROM SURFACE IS COMPOSED OF SILTY SAND FROM SURROUNDING AREA. FROM 3.5 FT. SOIL BECOMES MORE GRAVELLY. DISTURBED ↓	NA	NA	EXCAVATED SOIL SURVEYED AT BELOW BACKGROUND LEVELS.
9	55998 11/18/89 1025	NA	NA	LOOSE, BROWN (10YR 4/3) WELL GRADED SANDY GRAVEL (0.5 - 1.5 IN.), MOIST	GW	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500-1000 cpm SPA-3 = 500,000-700,000 cpm SOIL ~28,700 cpm
14	55999 11/18/89 1050	NA	NA	MEDIUM DENSE, BROWN (10YR 4/3) SILTY SAND, TRACE OF GRAVEL (0.5 - 2.0 IN.), MOIST.	SM	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500 cpm SPA-3 = 24,000 cpm
15	56000 11/18/89 1100	NA	NA	FIRM, GRAY (7.5YR 5/0) SILTY CLAY, TRACE OF COARSE SAND AND FINE GRAVEL, LOW PLASTICITY, DRY TO MOIST.	CL	1.5	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500 cpm SPA-3 = 23,900 cpm

BOTTOM OF LOCATION 1476 AT 15.0 FT.

NOTES:

DRILLING CONTRACTOR: ASI/IT CORP

DRILLING EQUIPMENT: CAT 225 B LC

DRILLER: DAVID ORPHEY (IT)

ARCHIVED SAMPLES: 56006 - 5.0 ft.
56007 - 10.0 ft.
56008 - 15 ft.

SAMPLE # 56005 - HSL SAMPLE COLLECTED AT 15.0 FT.

INSTRUMENT BACKGROUND

HNu = 0.0 ppm

ALPHA = 0 cpm

BETA-GAMMA (B-G) = 1,200 - 1,800 cpm

SPA-3 = 700,000 cpm

HIGH BACKGROUND DUE TO K-65 SILOS NEARBY

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.7.4	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1477	COORDINATES: NORTH 480,390 EAST 1,378,292		DATE: 11/18-19/89
GROUND ELEVATION: 569.9	GWL: Depth NA	Date/Time: NA	DATE STARTED: 11/18/89
ENGINEER/GEOLOGIST: E. TROLLINGER	Depth: NA	Date/Time: NA	DATE COMPLETED: 11/19/89
DRILLING METHODS: CAT 225 B LC BACKHOE TRACK MOUNTED			PAGE OF

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
4	11/18/89	NA	NA	TOPSOIL TO 4.0 FT. IS A SILTY SAND WITH GRAVEL (0.5-3.0 IN.), NO RUBBLE FOUND AT THIS LOCATION. DISTURBED ↓	NA	NA	FILL MATERIAL COMPOSED OF SOIL FROM SURROUNDING AREA.
8	56001 11/18/89 1115	NA	NA	MEDIUM DENSE, BROWN (10YR 4/3), WELL GRADED GRAVELLY SAND, MOIST.	SW	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500-1,000 cpm SPA-3 = 29,000 cpm
10	56002 11/18/89 1130	NA	NA	VERY STIFF, GRAY (7.5YR 5/0), SILTY CLAY, TRACE OF FINE GRAVEL (0.5-.75 IN.), LOW PLASTICITY, MOIST.	CL	2.0	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500 cpm SPA-3 = 25,000 cpm

BOTTOM OF LOCATION 1477 AT 10.0 FT.

NOTES:

DRILLING CONTRACTOR: ASI/IT CORP

DRILLING EQUIPMENT: CAT 225 B LC

DRILLER: DAVID ORPHEY (IT)

ARCHIVED SAMPLES: 56009 - 5.0 ft.
56010 - 10.0 ft.

SEE LOG FOR LOCATION 1476 FOR HSL SAMPLE.

INSTRUMENT BACKGROUND

HNu = 0.0 ppm

ALPHA = 0 cpm

BETA-GAMMA (B-G) = 1,200 - 1,800 cpm

SPA-3 = 500,00 - 700,000 cpm

HIGH BACKGROUND DUE TO K-65 SILOS NEARBY

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.7.4	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1478	COORDINATES: NORTH 480,365 EAST 1,378,292		DATE: 11/18-19/89
GROUND ELEVATION: 569.3	GWL: Depth NA	Date/Time: NA	DATE STARTED: 11/18/89
ENGINEER/GEOLOGIST: E. TROLLINGER	Depth: NA	Date/Time: NA	DATE COMPLETED: 11/19/89
DRILLING METHODS: CAT 225 B LC BACKHOE TRACK MOUNTED			PAGE OF

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
3	11/18/89	NA	NA	TOPSOIL TO 3.0 FT. IS A SILTY SAND WITH GRAVEL, TRACE OF COBBLES (4-5 IN.), NO RUBBLE ENCOUNTERED.	NA	NA	SURVEYED EXCAVATED SOIL BELOW OR AT BACKGROUND LEVELS
9	56003 11/18/89 1400	NA	NA	MEDIUM DENSE, BROWN (10YR 4/3), WELL GRADED SAND, TRACE OF GRAVEL (0.5-1.5 IN.), MOIST. BECOMING MORE SILTY WITH DEPTH AND LESS GRAVEL	SW	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500 cpm SPA-3 = 40,000 cpm
9.5	56004 11/18/89 1430	NA	NA	FIRM, GRAY (7.5YR 5/0), SILTY CLAY, LOW PLASTICITY, TRACE OF SAND, MOIST.	CL	1.5	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 500 cpm SPA-3 = 31,000 cpm

BOTTOM OF LOCATION 1478 AT 9.5 FT.

NOTES:

DRILLING CONTRACTOR: ASI/IT CORP

DRILLING EQUIPMENT: CAT 225 B LC

DRILLER: DAVID ORPHEY (IT)

ARCHIVED SAMPLES: 56011 - 5.0 ft.
56012 - 9.5 FT.

SEE LOG FOR LOCATION 1476 FOR HSL SAMPLE.

INSTRUMENT BACKGROUND

HNu = 0.0 ppm

ALPHA = 0 cpm

BETA-GAMMA (B-G) = 1,000 - 1,500 cpm

SPA-3 = 500,000 - 700,000 cpm

HIGH BACKGROUND DUE TO K-65 SILOS NEARBY.

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.7.4	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1479	COORDINATES: NORTH 480,802 EAST 1,378,343		DATE: 11/19-20/89
GROUND ELEVATION: 578.6	GWL: Depth NA	Date/Time: NA	DATE STARTED: 11/19/89
ENGINEER/GEOLOGIST: E. TROLLINGER	Depth: NA	Date/Time: NA	DATE COMPLETED: 11/20/89
DRILLING METHODS: CAT 225 B LC BACKHOE TRACK MOUNTED			PAGE OF

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
2	11/19/89	NA	NA	TOPSOIL TO 2.0 FT. IS A SILTY SAND WITH CONSTRUCTION RUBBLE MIXED IN. CONCRETE (1.0-2.0 FT.), ASPHALT (3-6 IN. PIECES).	NA	NA	BACKFILL SURVEYED AS STOCKPILED. BACKGROUND LEVELS DETECTED.
9	56013 11/19/89 1500	NA	NA	MEDIUM DENSE, BROWN (10YR 3/3), WELL GRADED SAND, TRACE OF GRAVEL (0.5-3.0 IN.), SEVERAL PIECES OF RUBBLE FOUND CONCRETE, ASPHALT (0.5-2.0 FT.).	SW	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300 cpm SPA-3 = 13,000 cpm
14	56014 11/19/89 1515	NA	NA	MEDIUM DENSE, GRAY (10YR 5/2), CLAYEY SILT, TRACE OF GRAVEL (0.5-2.0 IN.), BECOMING MORE COHESIVE WITH DEPTH.	ML	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300-400 cpm SPA-3 = 12,000 cpm
15	56015 11/19/89 1600	NA	NA	FIRM, GRAY (10YR 5/1), SANDY CLAY, TRACE OF GRAVEL (0.5-1.5 IN.), LOW PLASTICITY, MOIST.	CL	1.5	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300 cpm SPA-3 = 11,800 cpm

BOTTOM OF LOCATION 1479 AT 15.0 FT.

NOTES:

DRILLING CONTRACTOR: ASI/IT CORP

DRILLING EQUIPMENT: CAT 225 B LC

DRILLER: DAVID ORPHEY (IT)

ARCHIVED SAMPLES: 56023 - 5.0 ft.
56024 - 10.0 ft.
56025 - 15 ft.

SEE LOG FOR LOCATION 1481 FOR HSL SAMPLE.

INSTRUMENT BACKGROUND

HNu = 0.0 ppm

ALPHA = 0 cpm

BETA-GAMMA (B-G) = 600 - 1,000 cpm

SPA-3 = 250,000 - 280,000 cpm

HIGH BACKGROUND DUE TO K-65 SILOS NEARBY.

PROJECT NUMBER: 602 3.7.4	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1480	COORDINATES: NORTH 480,827 EAST 1,378,343		DATE: 11/19-20/89
GROUND ELEVATION: 578.7	GWL: Depth NA	Date/Time: NA	DATE STARTED: 11/19/89
ENGINEER/GEOLOGIST: E. TROLLINGER	Depth: NA	Date/Time: NA	DATE COMPLETED: 11/20/89
DRILLING METHODS: CAT 225 B LC BACKHOE TRACK MOUNTED			PAGE OF

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	TSF	REMARKS
2	11/19/89	NA	NA	TOPSOIL TO 2.0 FT. IS A SILTY SAND WITH RUBBLE MIXED IN, CONCRETE (0.5-2.0 FT.), ASPHALT (0.5-3.0 IN.) AND COBBLES (4-5 IN.)	NA	NA	SOIL SURVEYED, BACKGROUND LEVELS DETECTED.
8	56016 11/19/89 1000	NA	NA	MEDIUM DENSE, YELLOWISH BROWN (10YR 4/4), SILTY SAND, TRACE OF FINE GRAVEL, MOIST	SM	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 250-300 cpm SPA-3 = 40,000 cpm
14	56017 11/19/89 1007	NA	NA	DENSE, GRAYISH BROWN (10YR 5/2), CLAYEY SAND, TRACE OF GRAVEL (0.5-2.0 IN.), SLIGHTLY COHESIVE, MOIST.	SC	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300-500 cpm SPA-3 = 27,000 cpm
15	56018 11/19/89 1015	NA	NA	FIRM, GRAY (10YR 5/2), CLAY, TRACE OF SILT AND GRAVEL, (0.5-1.0 IN.), MEDIUM PLASTICITY, MOIST.	CL	1.0	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300 cpm SPA-3 = 27,000 cpm

BOTTOM OF LOCATION 1480 AT 15.0 FT.

NOTES:

DRILLING CONTRACTOR: ASI/IT CORP

DRILLING EQUIPMENT: CAT 225 B LC

DRILLER: DAVID ORPHEY (IT)

ARCHIVED SAMPLES: 56026 - 5.0 ft.
56027 - 10.0 ft.
56028 - 15 ft.

SEE LOG FOR LOCATION 1481 FOR HSL SAMPLE.

INSTRUMENT BACKGROUND

HNu = 0.0 ppm

ALPHA = 0 cpm

BETA-GAMMA (B-G) = 600 - 1,000 cpm

SPA-3 = 250,000 - 280,000 cpm

HIGH BACKGROUND DUE TO K-65 SILOS NEARBY.

539

FERNALD RI/FS

VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 602 3.7.4	PROJECT NAME: FMPC RI/FS		
BORING NUMBER: 1481	COORDINATES: NORTH 480,852 EAST 1,378,343		DATE: 11/19-20/89
GROUND ELEVATION: NA	GWL: Depth NA	Date/Time: NA	DATE STARTED: 11/19/89
ENGINEER/GEOLOGIST: E. TROLLINGER	Depth: NA	Date/Time: NA	DATE COMPLETED: 11/20/89
DRILLING METHODS: CAT 225 B LC BACKHOE TRACK MOUNTED			PAGE OF

DEPTH (FT)	SAMPLE DATE TIME	BLOWS ON SAMPLE	RECOVERY (N/A)	DESCRIPTION	USCS SYMBOL	T S F	REMARKS
2.5	11/19/89	NA	NA	TOPSOIL TO 2.5 FT. IS A SILTY SAND WITH GRAVEL, SOME RUBBLE FOUND, CONCRETE, ASPHALT, (0.5-2.0 FT.)	NA	NA	SOIL SURVEYED AS BACKFILLED AND STOCKPILED, LEVELS AT BACKGROUND.
9.5	56019 11/19/89 1257	NA	NA	LOOSE, BROWN (10YR 4/3), CLAYEY SAND, TRACE OF GRAVEL (0.5-1.5 IN.), SLIGHTLY COHESIVE, MOIST.	SC	NA	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300 cpm SPA-3 = 40,000 cpm
14	56020 11/19/89 1305	NA	NA	FIRM, GRAYISH BROWN (10YR 5/2), CLAYEY SILT, LOW PLASTICITY, TRACE OF GRAVEL (0.5-1.0 IN.), MOIST.	ML	1.0	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300-400 cpm SPA-3 = 19,400 cpm
15	56021 11/19/89 1310	NA	NA	FIRM, GRAY (10YR 5/1), CLAY, TRACE OF GRAVEL (0.5-2.5 IN.), LOW PLASTICITY, MOIST.	CL	1.0	HNu = 0.0 ppm ALPHA = 0 cpm B-G = 300 cpm SPA-3 = 23,000 cpm

BOTTOM OF LOCATION 1481 AT 15.0 FT.

NOTES:

DRILLING CONTRACTOR: ASI/IT CORP

DRILLING EQUIPMENT: CAT 225 B LC

DRILLER: DAVID ORPHEY (IT)

ARCHIVED SAMPLES: 56029 - 5.0 ft.
56030 - 10.0 ft.
56031 - 15 ft.

SAMPLE # 56022 - HSL SAMPLE COLLECTED AT 15.0 FT.

INSTRUMENT BACKGROUND

HNu = 0.0 ppm

ALPHA = 0 cpm

BETA-GAMMA (B-G) = 500 - 1,000 cpm

SPA-3 = 250,000 - 280,000 cpm

HIGH BACKGROUND DUE TO K-65 SILOS NEARBY

OU4 SURFACE SOILS RADIOLOGICAL RESULTS

OU4 SURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number or sample location coordinates, sample number and collection date, and depth of sample.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1072 008188 03/06/88 0-1.5 ft.		N480100, E1379300 005423 09/15/88 0-2 in.		N480260, E1378340 005644 06/19/88 0-2 in.		N480260, E1378340 005645 06/19/88 2-4 in.	
	a	b	a	b	a	b	a	b
Cesium 137	< .2	J	< .2	J	NA		< .2	J
Neptunium 237	< .6	J	< .6	-	NA		< .6	J
Plutonium 238	< .6	-	< .6	J	NA		< .6	R
Plutonium 239/240	< .6	-	< .6	J	NA		< .6	R
Radium 226	1.5 ± .1	J	.6 ± .1	J	NA		1 ± .2	J
Radium 228	1 ± .1	J	.5 ± .2	J	NA		1.7 ± .3	J
Ruthenium 106	< 1	J	< 1	J	NA		< 1.5	JD
Strontium 90	< .5	J	< .5	-	NA		.9 ± .2	J
Technetium 99	3.6 ± 1.1	-	< .9	-	NA		< .9	J
Thorium 228	1.2 ± .4	J	< .6	-	NA		1.4 ± .3	-
Thorium 230	4.8 ± .9	J	3.4 ± .5	-	NA		2.5 ± .4	-
Thorium 232	.9 ± .3	J	< .6	-	NA		1.7 ± .3	-
Total Uranium **			11 ± 2	J	NA		4 ± 3	J
Uranium 234	3.4 ± .7	-	3.2 ± .5	-	2.5 ± .5	J		
Uranium 235/236	< .6	-	< .6	-	< .6	J		
Uranium 238	15 ± 2.3	-	4.5 ± .6	-	4.8 ± .8	J		

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

542

-4048

OU4 SURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date, and depth of sample.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	N480260, E1378340 005646 06/19/88 4-6 in.			N480540, E1378350 005647 06/19/88 0-2 in.			N480540, E1378350 005648 06/19/88 2-4 in.			N480540, E1378350 005649 06/19/88 4-6 in.		
	a		b	a		b	a		b	a		b
Cesium 137	< .2		J	NA			< .2		J	< .2		R
Neptunium 237	< .6		J	NA			< .6		J	< .6		J
Plutonium 238	< .6		R	NA			< .6		R	< .6		R
Plutonium 239/240	< .6		R	NA			< .6		R	< .6		R
Radium 226	1	± .2	J	NA			2.3	± .2	J	4.2	± .4	R
Radium 228	1.4	± .3	J	NA			1.4	± .2	J	1.3	± .2	R
Ruthenium 106	< 1.8		JD	NA			< 1.1		JD	< 1		R
Strontium 90	.8	± .3	J	NA			.8	± .3	J	1	± .3	J
Technetium 99	< .9		J	NA			< 1.1		D	1.2	± .7	J
Thorium 228	1.2	± .3	-	NA			1.2	± .2	-	1.1	± .2	-
Thorium 230	1.9	± .4	-	NA			3.9	± .6	-	4.3	± .6	-
Thorium 232	1.2	± .3	-	NA			1.2	± .3	-	.9	± .2	-
Total Uranium **	4	± 3	J	NA			64	± 7	J	46	± 7	R
Uranium 234	NA			6.9	± 1.3	J	NA			NA		
Uranium 235/236	NA			< .6		J	NA			NA		
Uranium 238	NA			20.8	± 3.5	J	NA			NA		

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 SURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date, and depth of sample.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	N480700, E1378400 005650 06/19/88 0-2 in.			N480700, E1378400 005651 06/19/88 2-4 in.			N480700, E1378400 005652 06/19/88 4-6 in.			N480250, E1378500 005884 10/09/88 0-6 in.		
	a		b	a		b	a		b	a		b
Cesium 137	NA			< .2		J	< .2		J	< .2		R
Neptunium 237	NA			< .6		J	< .6		J	< .6		-
Plutonium 238	NA			< .6		R	< .6		R	< .6		-
Plutonium 239/240	NA			< .6		R	< .6		R	< .6		J
Radium 226	NA			1.1	± .1	J	1.2	± .1	J	1.1	± .1	R
Radium 228	NA			1	± .2	J	1.2	± .2	J	1.3	± .1	R
Ruthenium 106	NA			< 1		J	< 1.1		JD	< 1		R
Strontium 90	NA			2.6	± .4	R	1.6	± .3	J	< .5		J
Technetium 99	NA			< .9		J	< .9		J	< .9		J
Thorium 228	NA			.9	± .2	-	1	± .2	-	.9	± .2	-
Thorium 230	NA			3.3	± .5	-	3.3	± .5	-	2.2	± .4	-
Thorium 232	NA			1.3	± .3	-	1	± .2	-	.9	± .2	-
Total Uranium **	NA			10	± 2	J	12	± 3	J	11	± 2	R
Uranium 234	4.7	± .7	J	NA			NA			2.4	± .4	-
Uranium 235/236	< .6		J	NA			NA			< .6		-
Uranium 238	7.3	± 1.1	J	NA			NA			2.4	± .4	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

544

-4948

OU4 SURFACE SOIL RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and collection date, and depth of sample.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	N480245, E1378750 005887 10/09/88 0-6 in. a		b
Cesium 137	.2	± .1	R
Neptunium 237	< .6		-
Plutonium 238	< .6		-
Plutonium 239/240	< .6		J
Radium 226	.9	± .1	R
Radium 228	.8	± .1	R
Ruthenium 106	< 1		R
Strontium 90	1.8	± .3	J
Technetium 99	< .9		J
Thorium 228	1.1	± .2	-
Thorium 230	1.4	± .3	-
Thorium 232	1	± .2	-
Total Uranium **	8	± 2	R
Uranium 234	2.8	± .4	-
Uranium 235/236	< .6		-
Uranium 238	3.3	± .5	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4SFSRAD.PRN

545

4048

OU4 SURFACE SOILS HSL RESULTS

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 15 061100 04/25/91 0.0 - 0.5 ft		WPA 18 061121 04/27/91 0.0 - 0.5 ft		WPA 19 061128 04/27/91 0.0 - 0.5 ft		WPA 20 061135 04/26/91 0.0 - 0.5 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	10900	-	6910	-	4690	-	9980	-
Antimony	N 29.7	J	N 28.3	-	N 25.7	-	N 29.8	J
Arsenic	S 9.5	J	3.6	-	S 5.5	-	9	-
Barium	E 113	J	52.6	-	B 44.7	-	E 74.4	-
Beryllium	B .7	-	B .86	-	B .7	-	B .88	-
Cadmium	4.9	-	5.6	-	5.3	-	4.9	-
Calcium	23300	-	108000	-	123000	-	68600	-
Chromium	22.6	-	* 13	-	* 10.2	-	19.4	-
Cobalt	14.8	-	B 8.7	-	B 7.8	-	B 11.3	-
Copper	23.5	-	16.2	-	19	-	19.2	-
Cyanide	U .12	-	B .12	-	U .11	-	U .12	-
Iron	26300	-	13300	-	11100	-	18100	-
Lead	10.8	-	N* 16.5	J	N* 8.7	J	16.6	-
Magnesium	14400	-	26800	-	23600	-	18000	-
Manganese	N 1130	-	* 471	J	* 372	J	N 526	-
Mercury	U .13	R	U .1	UJ	U .11	UJ	U .12	R
Molybdenum	4.7	-	4.1	-	4.8	-	4.3	-
Nickel	38.9	-	22.8	-	23.1	-	26.6	-
Potassium	1430	-	B 767	-	B 786	-	B 988	-
Selenium	UW .5	-	UN .43	-	UWN .44	-	U .49	-
Silver	6.6	-	8	-	7.7	-	9.7	-
Sodium	B 119	-	B 145	-	B 145	-	B 99.2	-
Thallium	U .5	-	UN .43	-	UN .44	-	B .51	-
Vanadium	27.7	-	18.2	-	15.9	-	25	-
Zinc	E 65.2	-	32.9	-	34.8	-	E 47.4	-

a = lab qualifier
b = validated qualifier

541

48

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection d ate and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 21 061142 04/26/91 0.0 - 0.5 ft		WPA 22 061150 04/21/91 0.0 - 0.5 ft		WPA 22 061156 04/21/91 1.5 - 2.0 ft		WPA 24 061163 04/27/91 0.0 - 0.5 ft	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	7450	-	5450	-	9520	-	10000	-
Antimony	N 32.3	J	N 22.6	J	N 31.3	-	N 28.6	-
Arsenic	5.7	-	S 6.8	-	5.4	-	2.7	-
Barium	E 49.5	-	E 49.8	J	80.3	-	67.3	-
Beryllium	B .74	-	B .67	-	B .93	-	B 1	-
Cadmium	6.2	-	5.8	-	6.1	-	4.7	-
Calcium	87200	-	73700	-	100000	-	131000	-
Chromium	17.9	-	14.5	-	* 18.6	-	* 15.8	-
Cobalt	B 10.5	-	B 8.7	-	12.8	-	12.4	-
Copper	20.5	-	17.6	-	21.7	-	20.2	-
Cyanide	U .11	-	U .11	-	U .12	-	U .12	-
Iron	17200	-	16200	-	19600	-	20400	-
Lead	10.5	-	12	-	N* 10.2	J	SN* 6.7	J
Magnesium	25100	-	25000	-	26000	-	15400	-
Manganese	N 478	-	N 457	J	* 529	J	* 498	J
Mercury	U .11	R	U .12	-	U .12	UJ	U .11	UJ
Molybdenum	4.9	-	4.6	-	4.4	-	3.6	-
Nickel	31.3	-	26.8	-	35	-	30	-
Potassium	B 1010	-	B 530	-	B 1100	-	B 949	-
Selenium	UW .46	-	U .46	-	UN .48	-	UWN .48	-
Silver	9.7	-	9	-	9.7	-	8.4	-
Sodium	B 107	-	B 125	U	B 122	-	B 97.9	-
Thallium	U .46	-	UW .46	-	UN .48	-	UN .48	-
Vanadium	24.5	-	20.6	-	22.9	-	24	-
Zinc	E 47.6	-	E 37.4	J	51	-	45.4	-

a = lab qualifier
b = validated qualifier

548

-4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection d ate and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 35 061240 04/25/91 0.0 - 0.5 ft a		b	WPA 37 061254 04/23/91 0.0 - 0.5 ft a		b
METALS						
Aluminum		8110	-		8770	-
Antimony	N	30.2	J	N	20.6	J
Arsenic		5.1	-	+	9	J
Barium	E	63.4	-	E	75.2	J
Beryllium	B	.74	-	B	.7	-
Cadmium		5.3	-		3.7	-
Calcium		66800	-		33100	-
Chromium		17	-		16.7	-
Cobalt	B	10.1	-	B	10	-
Copper		17.5	-		18.2	-
Cyanide	U	.11	-	U	.11	-
Iron		15200	-		19200	-
Lead		9.9	-	S	17	-
Magnesium		20500	-		10800	-
Manganese	N	530	-	N	522	J
Mercury	U	.11	R	U	.11	-
Molybdenum		4	-		3.2	-
Nickel		27.5	-		23.2	-
Potassium	B	752	-	B	1090	-
Selenium	U	.44	-	B	.54	-
Silver		9.1	-		7.1	-
Sodium	B	97.2	-	B	86.2	U
Thallium	U	.44	-	UW	.46	-
Vanadium		22.9	-		23.7	-
Zinc	E	43.9	-	E	49.3	J

a = lab qualifier
b = validated qualifier

-4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 15 061100 04/25/91 0.0 - 0.5 ft		WPA 15 061105 04/25/91 1.5 - 2.0 ft		WPA 18 061121 04/27/91 0.0 - 0.5 ft		WPA 18 061126 04/27/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .02	-	NA		U .054	-	NA	
4,4'-DDE	U .02	-	NA		U .054	-	NA	
4,4'-DDT	U .02	-	NA		U .054	-	NA	
Aldrin	U .01	-	NA		U .027	-	NA	
alpha-BHC	U .01	-	NA		U .027	-	NA	
alpha-Chlordane	U .1	-	NA		U .27	-	NA	
Aroclor-1016	U .1	-	NA		U .27	-	NA	
Aroclor-1221	U .1	-	NA		U .27	-	NA	
Aroclor-1232	U .1	-	NA		U .27	-	NA	
Aroclor-1242	U .1	-	NA		U .27	-	NA	
Aroclor-1248	U .2	-	NA		U .27	-	NA	
Aroclor-1254	U .2	-	NA		U .54	-	NA	
Aroclor-1260	U .01	-	NA		U .027	-	NA	
beta-BHC	U .01	-	NA		U .027	-	NA	
delta-BHC	U .02	-	NA		U .054	-	NA	
Dieldrin	U .02	-	NA		U .054	-	NA	
Endosulfan II	U .02	-	NA		U .054	-	NA	
Endosulfan sulfate	U .01	-	NA		U .027	-	NA	
Endosulfan-I	U .02	-	NA		U .054	-	NA	
Endrin	U .02	-	NA		U .054	-	NA	
Endrin ketone	U .01	-	NA		U .027	-	NA	
gamma-BHC (Lindane)	U .1	-	NA		U .27	-	NA	
gamma-Chlordane	U .01	-	NA		U .027	-	NA	
Heptachlor	U .01	-	NA		U .027	-	NA	
Heptachlor epoxide	U .1	-	NA		U .27	-	NA	
Methoxychlor	U .2	-	NA		U .54	-	NA	
Toxaphene								
SEMI-VOLATILE ORGANIC								
1,2,4-Trichlorobenzene	NA		U .42	-	NA		U1.8	UJ
1,2-Dichlorobenzene	NA		U .42	-	NA		U1.8	UJ
1,3-Dichlorobenzene	NA		U .42	-	NA		U1.8	UJ
1,4-Dichlorobenzene	NA		U .42	-	NA		U1.8	UJ
2,4,5-Trichlorophenol	NA		U2	-	NA		U8.7	UJ
2,4,6-Trichlorophenol	NA		U .42	-	NA		U1.8	UJ
2,4-Dichlorophenol	NA		U .42	-	NA		U1.8	UJ
2,4-Dimethylphenol	NA		U .42	-	NA		U1.8	UJ
2,4-Dinitrophenol	NA		U2	-	NA		U8.7	UJ
2,4-Dinitrotoluene	NA		U .42	-	NA		U1.8	UJ
2,6-Dinitrotoluene	NA		U .42	-	NA		U1.8	UJ
2-Chloronaphthalene	NA		U .42	-	NA		U1.8	UJ
2-Chlorophenol	NA		U .42	-	NA		U1.8	UJ

a = lab qualifier
b = validated qualifier

-4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 15 061100 04/25/91 0.0 - 0.5 ft		WPA 15 061105 04/25/91 1.5 - 2.0 ft		WPA 18 061121 04/27/91 0.0 - 0.5 ft		WPA 18 061126 04/27/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .42	-	NA		U1.8	UJ
2-Methylphenol	NA		U .42	-	NA		U1.8	UJ
2-Nitroaniline	NA		U2	UJ	NA		U8.7	UJ
2-Nitrophenol	NA		U .42	-	NA		U1.8	UJ
3,3'-Dichlorobenzidine	NA		U .84	UJ	NA		U3.6	UJ
3-Nitroaniline	NA		U2	-	NA		U8.7	UJ
4,6-Dinitro-2-methylphenol	NA		U2	-	NA		U8.7	UJ
4-Bromophenyl phenyl ether	NA		U .42	-	NA		U1.8	UJ
4-Chloro-3-methylphenol	NA		U .42	-	NA		U1.8	UJ
4-Chloroaniline	NA		U .42	-	NA		U1.8	UJ
4-Chlorophenylphenyl ether	NA		U .42	-	NA		U1.8	UJ
4-Methylphenol	NA		U .42	-	NA		U8.7	UJ
4-Nitroaniline	NA		U2	-	NA		U8.7	UJ
4-Nitrophenol	NA		U2	-	NA		U1.8	UJ
Acenaphthene	NA		U .42	-	NA		J1.3	J
Acenaphthylene	NA		U .42	-	NA		J .78	J
Anthracene	NA		U .42	-	NA		4.7	J
Benzo(a)anthracene	NA		U .42	-	NA		5.2	J
Benzo(a)pyrene	NA		U .42	-	NA		9.7	J
Benzo(b)fluoranthene	NA		U .42	-	NA		5.3	J
Benzo(g,h,i)perylene	NA		U .42	-	NA		U1.8	UJ
Benzo(k)fluoranthene	NA		U .42	-	NA		U8.7	UJ
Benzoic acid	NA		U2	R	NA		U1.8	UJ
Benzyl alcohol	NA		U .42	-	NA		U1.8	UJ
bis(2-Chloroethoxy)methane	NA		U .42	-	NA		U1.8	UJ
bis(2-Chloroethyl)ether	NA		U .42	-	NA		U1.8	UJ
bis(2-Chloroisopropyl) ether	NA		U .42	-	NA		U1.8	UJ
bis(2-Ethylhexyl) phthalate	NA		J .1	-	NA		U1.8	UJ
Butyl benzyl phthalate	NA		U .42	-	NA		U1.8	UJ
Chrysene	NA		U .42	-	NA		3.5	J
Di-n-butyl phthalate	NA		U .42	-	NA		BJ .19	J
Di-n-octyl phthalate	NA		U .42	-	NA		U1.8	UJ
Dibenzo(a,h)anthracene	NA		U .42	-	NA		J .9	J
Dibenzofuran	NA		U .42	-	NA		U1.8	UJ
Diethyl phthalate	NA		U .42	-	NA		U1.8	UJ
Dimethyl phthalate	NA		U .42	-	NA		U1.8	UJ
Fluoranthene	NA		U .42	-	NA		6.7	J
Fluorene	NA		U .42	UJ	NA		U1.8	UJ
Hexachlorobenzene	NA		U .42	-	NA		U1.8	UJ
Hexachlorobutadiene	NA		U .42	-	NA		U1.8	UJ

a = lab qualifier
b = validated qualifier

551
55
-49048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 15 061100 04/25/91 0.0 - 0.5 ft		WPA 15 061105 04/25/91 1.5 - 2.0 ft		WPA 18 061121 04/27/91 0.0 - 0.5 ft		WPA 18 061126 04/27/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .42	-	NA		U1.8	UJ
Hexachloroethane	NA		U .42	UJ	NA		U1.8	UJ
Indeno(1,2,3-cd)pyrene	NA		U .42	-	NA		4.2	J
Isophorone	NA		U .42	-	NA		U1.8	UJ
N-Nitroso-di-n-propylamine	NA		U .42	-	NA		U1.8	UJ
N-Nitrosodiphenylamine	NA		U .42	-	NA		U1.8	UJ
Naphthalene	NA		U .42	-	NA		U1.8	UJ
Nitrobenzene	NA		U .42	-	NA		U1.8	UJ
Pentachlorophenol	NA		U2	-	NA		U8.7	UJ
Phenanthrene	NA		U .42	-	NA		2.6	J
Phenol	NA		U .42	-	NA		U1.8	UJ
Pyrene	NA		U .42	-	NA		8.2	J
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .006	-	U .005	-	NA	
1,1,2,2-Tetrachloroethane	NA		U .006	-	U .005	-	NA	
1,1,2-Trichloroethane	NA		U .006	-	U .005	-	NA	
1,1-Dichloroethane	NA		U .006	-	U .005	-	NA	
1,1-Dichloroethene	NA		U .006	-	U .005	-	NA	
1,2-Dichloroethane	NA		U .006	-	U .005	UJ	NA	
1,2-Dichloroethylene	NA		U .006	-	U .005	-	NA	
1,2-Dichloropropane	NA		U .006	-	U .005	-	NA	
2-Butanone	NA		U .013	-	U .011	UJ	NA	
2-Hexanone	NA		U .013	-	U .011	-	NA	
4-Methyl-2-pentanone	NA		BJ .003	U	U .011	-	NA	
Acetone	NA		B .02	UJ	.015	J	NA	
Benzene	NA		U .006	-	U .005	-	NA	
Bromodichloromethane	NA		U .006	-	U .005	-	NA	
Bromoform	NA		U .006	-	U .005	-	NA	
Bromomethane	NA		U .013	-	U .011	-	NA	
Carbon disulfide	NA		U .006	-	U .005	UJ	NA	
Carbon Tetrachloride	NA		U .006	-	U .005	-	NA	
Chlorobenzene	NA		U .006	-	U .005	-	NA	
Chloroethane	NA		U .013	-	U .011	-	NA	
Chloroform	NA		U .006	-	U .005	-	NA	
Chloromethane	NA		U .013	UJ	U .011	-	NA	
cis-1,3-Dichloropropene	NA		U .006	-	U .005	-	NA	
Dibromochloromethane	NA		U .006	-	U .005	-	NA	
Ethylbenzene	NA		U .006	-	U .005	-	NA	
Methylene chloride	NA		B .013	U	B .025	-	NA	
Styrene	NA		U .006	-	U .005	-	NA	
Tetrachlorethene	NA		U .006	-	U .005	-	NA	

a = lab qualifier
b = validated qualifier

4948

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 15 061100 04/25/91 0.0 - 0.5 ft		WPA 15 061105 04/25/91 1.5 - 2.0 ft		WPA 18 061121 04/27/91 0.0 - 0.5 ft		WPA 18 061126 04/27/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		J .001	-	U .005	-	NA	
Total xylenes	NA		U .006	-	U .005	-	NA	
trans-1,3-Dichloropropene	NA		U .006	-	U .005	-	NA	
Trichloroethene	NA		U .006	-	U .005	-	NA	
Vinyl Acetate	NA		U .013	-	U .011	-	NA	
Vinyl chloride	NA		U .013	-	U .011	-	NA	

a = lab qualifier
b = validated qualifier

49448

553

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 19 061128 04/27/91 0.0 - 0.5 ft		WPA 19 061133 04/27/91 1.5 - 2.0 ft		WPA 20 061135 04/26/91 0.0 - 0.5 ft		WPA 20 061140 04/26/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .018	-	NA		U .02	-	NA	
4,4'-DDE	U .018	-	NA		U .02	-	NA	
4,4'-DDT	U .018	-	NA		U .02	-	NA	
Aldrin	U .009	-	NA		U .01	-	NA	
alpha-BHC	U .009	-	NA		U .01	-	NA	
alpha-Chlordane	U .09	-	NA		U .1	-	NA	
Aroclor-1016	U .09	-	NA		U .1	-	NA	
Aroclor-1221	U .09	-	NA		U .1	-	NA	
Aroclor-1232	U .09	-	NA		U .1	-	NA	
Aroclor-1242	U .09	-	NA		U .1	-	NA	
Aroclor-1248	U .09	-	NA		U .1	-	NA	
Aroclor-1254	U .18	-	NA		U .1	-	NA	
Aroclor-1260	U .18	-	NA		U .2	-	NA	
beta-BHC	U .009	-	NA		U .2	-	NA	
delta-BHC	U .009	-	NA		U .01	-	NA	
Dieldrin	U .018	-	NA		U .01	-	NA	
Endosulfan II	U .018	-	NA		U .02	-	NA	
Endosulfan sulfate	U .018	-	NA		U .02	-	NA	
Endosulfan-I	U .009	-	NA		U .02	-	NA	
Endrin	U .018	-	NA		U .01	-	NA	
Endrin ketone	U .018	-	NA		U .02	-	NA	
gamma-BHC (Lindane)	U .009	-	NA		U .02	-	NA	
gamma-Chlordane	U .09	-	NA		U .01	-	NA	
Heptachlor	U .009	-	NA		U .1	-	NA	
Heptachlor epoxide	U .009	-	NA		U .01	-	NA	
Methoxychlor	U .09	-	NA		U .01	-	NA	
Toxaphene	U .18	-	NA		U .1	-	NA	
SEMI-VOLATILE ORGANICS					U .2	-	NA	
1,2,4-Trichlorobenzene	NA		U .38	-	NA		U .39	-
1,2-Dichlorobenzene	NA		U .38	-	NA		U .39	-
1,3-Dichlorobenzene	NA		U .38	-	NA		U .39	-
1,4-Dichlorobenzene	NA		U .38	-	NA		U .39	-
2,4,5-Trichlorophenol	NA		U1.9	-	NA		U1.9	-
2,4,6-Trichlorophenol	NA		U .38	-	NA		U .39	-
2,4-Dichlorophenol	NA		U .38	-	NA		U .39	-
2,4-Dimethylphenol	NA		U .38	-	NA		U .39	-
2,4-Dinitrophenol	NA		U1.9	-	NA		U1.9	-
2,4-Dinitrotoluene	NA		U .38	-	NA		U .39	-
2,6-Dinitrotoluene	NA		U .38	-	NA		U .39	-
2-Chloronaphthalene	NA		U .38	-	NA		U .39	-
2-Chlorophenol	NA		U .38	-	NA		U .39	-

a = lab qualifier
b = validated qualifier

54

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 19 061128 04/27/91 0.0 - 0.5 ft		WPA 19 061133 04/27/91 1.5 - 2.0 ft		WPA 20 061135 04/26/91 0.0 - 0.5 ft		WPA 20 061140 04/26/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .38	-	NA		U .39	-
2-Methylphenol	NA		U .38	-	NA		U .39	-
2-Nitroaniline	NA		U1.9	-	NA		U1.9	UJ
2-Nitrophenol	NA		U .38	-	NA		U .39	-
3,3'-Dichlorobenzidine	NA		U .76	-	NA		U .77	UJ
3-Nitroaniline	NA		U1.9	-	NA		U1.9	-
4,6-Dinitro-2-methylphenol	NA		U1.9	-	NA		U1.9	-
4-Bromophenyl phenyl ether	NA		U .38	-	NA		U .39	-
4-Chloro-3-methylphenol	NA		U .38	-	NA		U .39	-
4-Chloroaniline	NA		U .38	UJ	NA		U .39	-
4-Chlorophenylphenyl ether	NA		U .38	-	NA		U .39	-
4-Methylphenol	NA		U .38	-	NA		U .39	-
4-Nitroaniline	NA		U1.9	-	NA		U .39	-
4-Nitrophenol	NA		U1.9	UJ	NA		U1.9	-
Acenaphthene	NA		U .38	-	NA		U1.9	-
Acenaphthylene	NA		U .38	-	NA		U .39	-
Anthracene	NA		U .38	-	NA		U .39	-
Benzo(a)anthracene	NA		J .062	-	NA		U .39	-
Benzo(a)pyrene	NA		U .38	-	NA		U .39	-
Benzo(b)fluoranthene	NA		J .15	-	NA		U .39	-
Benzo(g,h,i)perylene	NA		U .38	-	NA		U .39	-
Benzo(k)fluoranthene	NA		U .38	-	NA		U .39	-
Benzoic acid	NA		U1.9	-	NA		U .39	-
Benzyl alcohol	NA		U .38	-	NA		U1.9	R
bis(2-Chloroethoxy)methane	NA		U .38	-	NA		U .39	-
bis(2-Chloroethyl)ether	NA		U .38	-	NA		U .39	-
bis(2-Chloroisopropyl) ether	NA		U .38	-	NA		U .39	-
bis(2-Ethylhexyl) phthalate	NA		J .075	-	NA		U .39	-
Butyl benzyl phthalate	NA		U .38	-	NA		U .39	-
Chrysene	NA		J .062	-	NA		U .39	-
Di-n-butyl phthalate	NA		U .38	-	NA		U .39	-
Di-n-octyl phthalate	NA		U .38	-	NA		U .39	-
Dibenzo(a,h)anthracene	NA		U .38	-	NA		U .39	-
Dibenzofuran	NA		U .38	-	NA		U .39	-
Diethyl phthalate	NA		U .38	-	NA		U .39	-
Dimethyl phthalate	NA		U .38	-	NA		U .39	-
Fluoranthene	NA		J .079	-	NA		U .39	-
Fluorene	NA		U .38	-	NA		J .04	-
Hexachlorobenzene	NA		U .38	-	NA		U .39	UJ
Hexachlorobutadiene	NA		U .38	-	NA		U .39	-
							U .39	-

a = lab qualifier
b = validated qualifier

4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 19 061128 04/27/91 0.0 - 0.5 ft		WPA 19 061133 04/27/91 1.5 - 2.0 ft		WPA 20 061135 04/26/91 0.0 - 0.5 ft		WPA 20 061140 04/26/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .38	-	NA		U .39	-
Hexachloroethane	NA		U .38	-	NA		U .39	-
Indeno(1,2,3-cd)pyrene	NA		U .38	-	NA		U .39	-
Isophorone	NA		U .38	-	NA		U .39	-
N-Nitroso-di-n-propylamine	NA		U .38	-	NA		U .39	-
N-Nitrosodiphenylamine	NA		U .38	-	NA		U .39	-
Naphthalene	NA		U .38	-	NA		U .39	-
Nitrobenzene	NA		U .38	-	NA		U .39	-
Pentachlorophenol	NA		U .38	-	NA		U .39	UJ
Phenanthrene	NA		U1.9	-	NA		U1.9	-
Phenol	NA		U .38	-	NA		U .39	-
Pyrene	NA		U .38	-	NA		U .39	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .006	-	NA		U .006	-
1,1,2,2-Tetrachloroethane	NA		U .006	-	NA		U .006	-
1,1,2-Trichloroethane	NA		U .006	-	NA		U .006	-
1,1-Dichloroethane	NA		U .006	-	NA		U .006	-
1,1-Dichloroethene	NA		U .006	-	NA		U .006	-
1,2-Dichloroethane	NA		U .006	UJ	NA		U .006	-
1,2-Dichloroethylene	NA		U .006	-	NA		U .006	-
1,2-Dichloropropane	NA		U .006	-	NA		U .006	-
2-Butanone	NA		U .011	UJ	NA		J .008	-
2-Hexanone	NA		U .011	-	NA		BJ .005	U
4-Methyl-2-pentanone	NA		U .011	-	NA		U .011	U
Acetone	NA		J .004	-	NA		B .079	J
Benzene	NA		U .006	-	NA		U .006	-
Bromodichloromethane	NA		U .006	-	NA		U .006	-
Bromoform	NA		U .006	-	NA		U .006	-
Bromomethane	NA		U .011	-	NA		U .011	-
Carbon disulfide	NA		U .006	UJ	NA		U .006	-
Carbon Tetrachloride	NA		U .006	-	NA		U .006	-
Chlorobenzene	NA		U .006	-	NA		U .006	-
Chloroethane	NA		U .011	-	NA		U .011	-
Chloroform	NA		U .006	-	NA		U .006	-
Chloromethane	NA		U .011	-	NA		U .011	UJ
cis-1,3-Dichloropropene	NA		U .006	-	NA		U .006	-
Dibromochloromethane	NA		U .006	-	NA		U .006	-
Ethylbenzene	NA		U .006	-	NA		U .006	-
Methylene chloride	NA		B .02	U	NA		B .01	UJ
Styrene	NA		U .006	-	NA		U .006	-
Tetrachlorethene	NA		U .006	-	NA		U .006	-

a = lab qualifier
b = validated qualifier

-4948

556

OU4 SURFACE SOIL HAZARD[illegible] SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 19 061128 04/27/91 0.0 - 0.5 ft		WPA 19 061133 04/27/91 1.5 - 2.0 ft		WPA 20 061135 04/26/91 0.0 - 0.5 ft		WPA 20 061140 04/26/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		U .006	-	NA		U .006	-
Total xylenes	NA		U .006	-	NA		U .006	-
trans-1,3-Dichloropropene	NA		U .006	-	NA		U .006	-
Trichloroethene	NA		U .006	-	NA		U .006	-
Vinyl Acetate	NA		U .011	-	NA		U .011	-
Vinyl chloride	NA		U .011	-	NA		U .011	-

a = lab qualifier
b = validated qualifier

4948

551

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 21 061142 04/26/91 0.0 - 0.5 ft		WPA 21 061147 04/26/91 1.5 - 2.0 ft		WPA 22 061150 04/21/91 0.0 - 0.5 ft		WPA 22 061156 04/21/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .019	-	NA		U .019	R	U .02	-
4,4'-DDE	U .019	-	NA		U .019	R	U .02	-
4,4'-DDT	U .019	-	NA		U .019	R	U .02	-
Aldrin	U .0094	-	NA		U .0097	R	U .01	-
alpha-BHC	U .0094	-	NA		U .0097	R	U .01	-
alpha-Chlordane	U .094	-	NA		U .097	R	U .1	-
Aroclor-1016	U .094	-	NA		U .097	R	U .1	-
Aroclor-1221	U .094	-	NA		U .097	R	U .1	-
Aroclor-1232	U .094	-	NA		U .097	R	U .1	-
Aroclor-1242	U .094	-	NA		U .097	R	U .1	-
Aroclor-1248	U .094	-	NA		U .097	R	U .1	-
Aroclor-1254	U .19	-	NA		U .19	R	U .2	-
Aroclor-1260	U .19	-	NA		U .19	R	U .2	-
beta-BHC	U .0094	-	NA		U .0097	R	U .01	-
delta-BHC	U .0094	-	NA		U .0097	R	U .01	-
Dieldrin	U .019	-	NA		U .019	R	U .02	-
Endosulfan II	U .019	-	NA		U .019	R	U .02	-
Endosulfan sulfate	U .019	-	NA		U .019	R	U .02	-
Endosulfan-I	U .0094	-	NA		U .0097	R	U .01	-
Endrin	U .019	-	NA		U .019	R	U .02	-
Endrin ketone	U .019	-	NA		U .019	R	U .02	-
gamma-BHC (Lindane)	U .0094	-	NA		U .0097	R	U .01	-
gamma-Chlordane	U .094	-	NA		U .097	R	U .1	-
Heptachlor	U .0094	-	NA		U .0097	R	U .01	-
Heptachlor epoxide	U .0094	-	NA		U .0097	R	U .01	-
Methoxychlor	U .094	-	NA		U .097	R	U .1	-
Toxaphene	U .19	-	NA		U .19	R	U .2	-
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .37	-	NA		U .36	-
1,2-Dichlorobenzene	NA		U .37	-	NA		U .36	-
1,3-Dichlorobenzene	NA		U .37	-	NA		U .36	-
1,4-Dichlorobenzene	NA		U .37	-	NA		U .36	-
2,4,5-Trichlorophenol	NA		U1.8	-	NA		U1.8	-
2,4,6-Trichlorophenol	NA		U .37	-	NA		U .36	-
2,4-Dichlorophenol	NA		U .37	-	NA		U .36	-
2,4-Dimethylphenol	NA		U .37	-	NA		U .36	-
2,4-Dinitrophenol	NA		U1.8	-	NA		U1.8	UJ
2,4-Dinitrotoluene	NA		U .37	-	NA		U .36	-
2,6-Dinitrotoluene	NA		U .37	-	NA		U .36	-
2-Chloronaphthalene	NA		U .37	-	NA		U .36	-
2-Chlorophenol	NA		U .37	-	NA		U .36	-

a = lab qualifier
b = validated qualifier

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 21 061142 04/26/91 0.0 - 0.5 ft		WPA 21 061147 04/26/91 1.5 - 2.0 ft		WPA 22 061150 04/21/91 0.0 - 0.5 ft		WPA 22 061156 04/21/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .37	-	NA		U .36	-
2-Methylphenol	NA		U .37	-	NA		U .36	-
2-Nitroaniline	NA		U1.8	UJ	NA		U1.8	-
2-Nitrophenol	NA		U .37	-	NA		U .36	-
3,3'-Dichlorobenzidine	NA		U .75	UJ	NA		U .72	-
3-Nitroaniline	NA		U1.8	-	NA		U1.8	-
4,6-Dinitro-2-methylphenol	NA		U1.8	-	NA		U1.8	-
4-Bromophenyl phenyl ether	NA		U .37	-	NA		U .36	-
4-Chloro-3-methylphenol	NA		U .37	-	NA		U .36	-
4-Chloroaniline	NA		U .37	-	NA		U .36	-
4-Chlorophenylphenyl ether	NA		U .37	-	NA		U .36	-
4-Methylphenol	NA		U .37	-	NA		U .36	-
4-Nitroaniline	NA		U1.8	-	NA		U1.8	-
4-Nitrophenol	NA		U1.8	-	NA		U1.8	-
Acenaphthene	NA		U .37	-	NA		U .36	-
Acenaphthylene	NA		U .37	-	NA		U .36	-
Anthracene	NA		U .37	-	NA		U .36	-
Benzo(a)anthracene	NA		U .37	-	NA		U .36	-
Benzo(a)pyrene	NA		U .37	-	NA		U .36	-
Benzo(b)fluoranthene	NA		U .37	-	NA		U .36	-
Benzo(g,h,i)perylene	NA		U .37	-	NA		U .36	-
Benzo(k)fluoranthene	NA		U .37	-	NA		U .36	-
Benzoic acid	NA		U1.8	R	NA		J .059	J
Benzyl alcohol	NA		U .37	-	NA		U .36	-
bis(2-Chloroethoxy)methane	NA		U .37	-	NA		U .36	-
bis(2-Chloroethyl)ether	NA		U .37	-	NA		U .36	-
bis(2-Chloroisopropyl) ether	NA		U .37	-	NA		U .36	-
bis(2-Ethylhexyl) phthalate	NA		U .37	-	NA		1.6	-
Butyl benzyl phthalate	NA		U .37	-	NA		U .36	-
Chrysene	NA		U .37	-	NA		U .36	-
Di-n-butyl phthalate	NA		U .37	-	NA		U .36	-
Di-n-octyl phthalate	NA		U .37	-	NA		U .36	-
Dibenzo(a,h)anthracene	NA		U .37	-	NA		U .36	-
Dibenzofuran	NA		U .37	-	NA		U .36	-
Diethyl phthalate	NA		U .37	-	NA		U .36	-
Dimethyl phthalate	NA		U .37	-	NA		U .36	-
Fluoranthene	NA		U .37	-	NA		U .36	-
Fluorene	NA		U .37	-	NA		U .36	-
Hexachlorobenzene	NA		U .37	UJ	NA		U .36	UJ
Hexachlorobutadiene	NA		U .37	-	NA		U .36	-
			U .37	-	NA		U .36	-

a = lab qualifier
b = validated qualifier

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 21 061142 04/26/91 0.0 - 0.5 ft		WPA 21 061147 04/26/91 1.5 - 2.0 ft		WPA 22 061150 04/21/91 0.0 - 0.5 ft		WPA 22 061156 04/21/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .37	-	NA		U .36	-
Hexachloroethane	NA		U .37	-	NA		U .36	-
Indeno(1,2,3-cd)pyrene	NA		U .37	-	NA		U .36	-
Isophorone	NA		U .37	-	NA		U .36	-
N-Nitroso-di-n-propylamine	NA		U .37	-	NA		U .36	-
N-Nitrosodiphenylamine	NA		U .37	-	NA		U .36	-
Naphthalene	NA		U .37	-	NA		U .36	-
Nitrobenzene	NA		U .37	UJ	NA		U .36	-
Pentachlorophenol	NA		U1.8	-	NA		U1.8	-
Phenanthrene	NA		U .37	-	NA		U .36	-
Phenol	NA		U .37	-	NA		BJ .23	-
Pyrene	NA		U .37	-	NA		U .36	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		U .006	-	NA		U .005	-
1,1,2,2-Tetrachloroethane	NA		U .006	-	NA		U .005	-
1,1,2-Trichloroethane	NA		U .006	-	NA		U .005	-
1,1-Dichloroethane	NA		U .006	-	NA		U .005	-
1,1-Dichloroethene	NA		U .006	-	NA		U .005	-
1,2-Dichloroethane	NA		U .006	-	NA		U .005	-
1,2-Dichloroethylene	NA		U .006	-	NA		U .005	-
1,2-Dichloropropane	NA		U .006	-	NA		U .005	-
2-Butanone	NA		U .011	-	NA		J .002	-
2-Hexanone	NA		U .011	-	NA		U .011	-
4-Methyl-2-pentanone	NA		U .011	-	NA		U .011	-
Acetone	NA		B .015	UJ	NA		B .012	UJ
Benzene	NA		U .006	-	NA		U .005	-
Bromodichloromethane	NA		U .006	-	NA		U .005	-
Bromoform	NA		U .006	-	NA		U .005	-
Bromomethane	NA		U .011	-	NA		U .011	UJ
Carbon disulfide	NA		U .006	-	NA		U .005	-
Carbon Tetrachloride	NA		U .006	-	NA		U .005	-
Chlorobenzene	NA		U .006	-	NA		U .005	-
Chloroethane	NA		U .011	-	NA		U .011	-
Chloroform	NA		U .006	-	NA		U .005	-
Chloromethane	NA		U .011	UJ	NA		U .011	-
cis-1,3-Dichloropropene	NA		U .006	-	NA		U .005	-
Dibromochloromethane	NA		U .006	-	NA		U .005	-
Ethylbenzene	NA		U .006	-	NA		U .005	-
Methylene chloride	NA		B .009	U	NA		B .012	UJ
Styrene	NA		U .006	-	NA		U .005	-
Tetrachlorethene	NA		U .006	-	NA		U .005	-

a = lab qualifier
b = validated qualifier

-4048

0 3 6 0

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 21 061142 04/26/91 0.0 - 0.5 ft		WPA 21 061147 04/26/91 1.5 - 2.0 ft		WPA 22 061150 04/21/91 0.0 - 0.5 ft		WPA 22 061156 04/21/91 1.5 - 2.0 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		J .001	-	NA		U .005	-
Total xylenes	NA		U .006	-	NA		U .005	-
trans-1,3-Dichloropropene	NA		U .006	-	NA		U .005	-
Trichloroethene	NA		U .006	-	NA		U .005	-
Vinyl Acetate	NA		U .011	-	NA		U .011	-
Vinyl chloride	NA		U .011	-	NA		U .011	-

a = lab qualifier
b = validated qualifier

561

-4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 24 061163 04/27/91 0.0 - 0.5 ft		WPA 35 061240 04/25/91 0.0 - 0.5 ft		WPA 35 061245 04/25/91 1.5 - 2.0 ft		WPA 37 061254 04/23/91 0.0 - 0.5 ft	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .02	-	U .018	-	NA		U .019	-
4,4'-DDE	U .02	-	U .018	-	NA		U .019	-
4,4'-DDT	U .02	-	U .018	-	NA		U .019	-
Aldrin	U .0098	-	U .0092	-	NA		U .0095	-
alpha-BHC	U .0098	-	U .0092	-	NA		U .0095	-
alpha-Chlordane	U .098	-	U .092	-	NA		U .095	-
Aroclor-1016	U .098	-	U .092	-	NA		U .095	-
Aroclor-1221	U .098	-	U .092	-	NA		U .095	-
Aroclor-1232	U .098	-	U .092	-	NA		U .095	-
Aroclor-1242	U .098	-	U .092	-	NA		U .095	-
Aroclor-1248	U .098	-	U .092	-	NA		U .095	-
Aroclor-1254	U .2	-	U .18	-	NA		JX .03	-
Aroclor-1260	U .2	-	U .18	-	NA		U .19	-
beta-BHC	U .0098	-	U .0092	-	NA		U .0095	-
delta-BHC	U .0098	-	U .0092	-	NA		U .0095	-
Dieldrin	U .02	-	U .018	-	NA		U .019	-
Endosulfan II	U .02	-	U .018	-	NA		U .019	-
Endosulfan sulfate	U .02	-	U .018	-	NA		U .019	-
Endosulfan-I	U .0098	-	U .0092	-	NA		U .0095	-
Endrin	U .02	-	U .018	-	NA		U .019	-
Endrin ketone	U .02	-	U .018	-	NA		U .019	-
gamma-BHC (Lindane)	U .0098	-	U .0092	-	NA		U .0095	-
gamma-Chlordane	U .098	-	U .092	-	NA		U .095	-
Heptachlor	U .0098	-	U .0092	-	NA		U .0095	-
Heptachlor epoxide	U .0098	-	U .0092	-	NA		U .095	-
Methoxychlor	U .098	-	U .092	-	NA		U .19	-
Toxaphene	U .2	-	U .18	-	NA			
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		U .39	-	NA	
1,2-Dichlorobenzene	NA		NA		U .39	-	NA	
1,3-Dichlorobenzene	NA		NA		U .39	-	NA	
1,4-Dichlorobenzene	NA		NA		U .39	-	NA	
2,4,5-Trichlorophenol	NA		NA		U1.9	-	NA	
2,4,6-Trichlorophenol	NA		NA		U .39	-	NA	
2,4-Dichlorophenol	NA		NA		U .39	-	NA	
2,4-Dimethylphenol	NA		NA		U .39	-	NA	
2,4-Dinitrophenol	NA		NA		U1.9	-	NA	
2,4-Dinitrotoluene	NA		NA		U .39	-	NA	
2,6-Dinitrotoluene	NA		NA		U .39	-	NA	
2-Chloronaphthalene	NA		NA		U .39	-	NA	
2-Chlorophenol	NA		NA		U .39	-	NA	

a = lab qualifier
b = validated qualifier

562

4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 24 061163 04/27/91 0.0 - 0.5 ft		WPA 35 061240 04/25/91 0.0 - 0.5 ft		WPA 35 061245 04/25/91 1.5 - 2.0 ft		WPA 37 061254 04/23/91 0.0 - 0.5 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		U .39	-	NA	
2-Methylphenol	NA		NA		U .39	-	NA	
2-Nitroaniline	NA		NA		U1.9	UJ	NA	
2-Nitrophenol	NA		NA		U .39	-	NA	
3,3'-Dichlorobenzidine	NA		NA		U .78	UJ	NA	
3-Nitroaniline	NA		NA		U1.9	-	NA	
4,6-Dinitro-2-methylphenol	NA		NA		U1.9	-	NA	
4-Bromophenyl phenyl ether	NA		NA		U .39	-	NA	
4-Chloro-3-methylphenol	NA		NA		U .39	-	NA	
4-Chloroaniline	NA		NA		U .39	-	NA	
4-Chlorophenylphenyl ether	NA		NA		U .39	-	NA	
4-Methylphenol	NA		NA		U .39	-	NA	
4-Nitroaniline	NA		NA		U .39	-	NA	
4-Nitrophenol	NA		NA		U1.9	-	NA	
Acenaphthene	NA		NA		U1.9	-	NA	
Acenaphthylene	NA		NA		U .39	-	NA	
Anthracene	NA		NA		U .39	-	NA	
Benzo(a)anthracene	NA		NA		U .39	-	NA	
Benzo(a)pyrene	NA		NA		U .39	-	NA	
Benzo(b)fluoranthene	NA		NA		U .39	-	NA	
Benzo(g,h,i)perylene	NA		NA		U .39	-	NA	
Benzo(k)fluoranthene	NA		NA		U .39	-	NA	
Benzoic acid	NA		NA		U .39	-	NA	
Benzyl alcohol	NA		NA		U1.9	R	NA	
bis(2-Chloroethoxy)methane	NA		NA		U .39	-	NA	
bis(2-Chloroethyl)ether	NA		NA		U .39	-	NA	
bis(2-Chloroisopropyl) ether	NA		NA		U .39	-	NA	
bis(2-Ethylhexyl) phthalate	NA		NA		U .39	-	NA	
Butyl benzyl phthalate	NA		NA		U .39	-	NA	
Chrysene	NA		NA		U .39	-	NA	
Di-n-butyl phthalate	NA		NA		U .39	-	NA	
Di-n-octyl phthalate	NA		NA		U .39	-	NA	
Dibenzo(a,h)anthracene	NA		NA		U .39	-	NA	
Dibenzofuran	NA		NA		U .39	-	NA	
Diethyl phthalate	NA		NA		U .39	-	NA	
Dimethyl phthalate	NA		NA		U .39	-	NA	
Fluoranthene	NA		NA		U .39	-	NA	
Fluorene	NA		NA		U .39	-	NA	
Hexachlorobenzene	NA		NA		U .39	UJ	NA	
Hexachlorobutadiene	NA		NA		U .39	-	NA	
			NA		U .39	-	NA	

a = lab qualifier
b = validated qualifier

5 3 3

8 0 4 9

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 24 061163 04/27/91 0.0 - 0.5 ft		WPA 35 061240 04/25/91 0.0 - 0.5 ft		WPA 35 061245 04/25/91 1.5 - 2.0 ft		WPA 37 061254 04/23/91 0.0 - 0.5 ft	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		U .39	-	NA	
Hexachloroethane	NA		NA		U .39	-	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		U .39	-	NA	
Isophorone	NA		NA		U .39	-	NA	
N-Nitroso-di-n-propylamine	NA		NA		U .39	-	NA	
N-Nitrosodiphenylamine	NA		NA		U .39	-	NA	
Naphthalene	NA		NA		U .39	-	NA	
Nitrobenzene	NA		NA		U .39	UJ	NA	
Pentachlorophenol	NA		NA		U1.9	-	NA	
Phenanthrene	NA		NA		U .39	-	NA	
Phenol	NA		NA		U .39	-	NA	
Pyrene	NA		NA		U .39	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	NA		NA		U .006	-	NA	
1,1,2,2-Tetrachloroethane	NA		NA		U .006	-	NA	
1,1,2-Trichloroethane	NA		NA		U .006	-	NA	
1,1-Dichloroethane	NA		NA		U .006	-	NA	
1,1-Dichloroethene	NA		NA		U .006	-	NA	
1,2-Dichloroethane	NA		NA		U .006	-	NA	
1,2-Dichloroethylene	NA		NA		U .006	-	NA	
1,2-Dichloropropane	NA		NA		U .006	-	NA	
2-Butanone	NA		NA		BJ .002	U	NA	
2-Hexanone	NA		NA		U .011	-	NA	
4-Methyl-2-pentanone	NA		NA		U .011	-	NA	
Acetone	NA		NA		B .016	U	NA	
Benzene	NA		NA		U .006	-	NA	
Bromodichloromethane	NA		NA		U .006	-	NA	
Bromoform	NA		NA		U .006	-	NA	
Bromomethane	NA		NA		U .011	-	NA	
Carbon disulfide	NA		NA		U .006	-	NA	
Carbon Tetrachloride	NA		NA		U .006	-	NA	
Chlorobenzene	NA		NA		U .006	-	NA	
Chloroethane	NA		NA		U .011	-	NA	
Chloroform	NA		NA		U .006	-	NA	
Chloromethane	NA		NA		U .011	UJ	NA	
cis-1,3-Dichloropropene	NA		NA		U .006	-	NA	
Dibromochloromethane	NA		NA		U .006	-	NA	
Ethylbenzene	NA		NA		U .006	-	NA	
Methylene chloride	NA		NA		B .007	U	NA	
Styrene	NA		NA		U .006	-	NA	
Tetrachlorethene	NA		NA		U .006	-	NA	

a = lab qualifier
b = validated qualifier

-4948
564

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 24 061163 04/27/91 0.0 - 0.5 ft		WPA 35 061240 04/25/91 0.0 - 0.5 ft		WPA 35 061245 04/25/91 1.5 - 2.0 ft		WPA 37 061254 04/23/91 0.0 - 0.5 ft	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	NA		NA		U .006	-	NA	
Total xylenes	NA		NA		U .006	-	NA	
trans-1,3-Dichloropropene	NA		NA		U .006	-	NA	
Trichloroethene	NA		NA		U .006	-	NA	
Vinyl Acetate	NA		NA		U .011	-	NA	
Vinyl chloride	NA		NA		U .011	-	NA	

a = lab qualifier
b = validated qualifier

505

-4048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 37 061258 04/23/91 1.5 - 2.0 ft a	b
PESTICIDES/PCB		
4,4'-DDD	NA	
4,4'-DDE	NA	
4,4'-DDT	NA	
Aldrin	NA	
alpha-BHC	NA	
alpha-Chlordane	NA	
Aroclor-1016	NA	
Aroclor-1221	NA	
Aroclor-1232	NA	
Aroclor-1242	NA	
Aroclor-1248	NA	
Aroclor-1254	NA	
Aroclor-1260	NA	
beta-BHC	NA	
delta-BHC	NA	
Dieldrin	NA	
Endosulfan II	NA	
Endosulfan sulfate	NA	
Endosulfan-I	NA	
Endrin	NA	
Endrin ketone	NA	
gamma-BHC (Lindane)	NA	
gamma-Chlordane	NA	
Heptachlor	NA	
Heptachlor epoxide	NA	
Methoxychlor	NA	
Toxaphene	NA	
SEMI-VOLATILE ORGANICS		
1,2,4-Trichlorobenzene	U .37	-
1,2-Dichlorobenzene	U .37	-
1,3-Dichlorobenzene	U .37	-
1,4-Dichlorobenzene	U .37	-
2,4,5-Trichlorophenol	U1.8	-
2,4,6-Trichlorophenol	U .37	-
2,4-Dichlorophenol	U .37	-
2,4-Dimethylphenol	U .37	-
2,4-Dinitrophenol	U1.8	UJ
2,4-Dinitrotoluene	U .37	-
2,6-Dinitrotoluene	U .37	-
2-Chloronaphthalene	U .37	-
2-Chlorophenol	U .37	-

a = lab qualifier
b = validated qualifier

566

-4948

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 37 061258 04/23/91 1.5 - 2.0 ft a	b
SEMI-VOLATILE ORGANICS		
2-Methylnaphthalene	U .37	-
2-Methylphenol	U .37	-
2-Nitroaniline	U1.8	-
2-Nitrophenol	U .37	-
3,3'-Dichlorobenzidine	U .73	-
3-Nitroaniline	U1.8	-
4,6-Dinitro-2-methylphenol	U1.8	-
4-Bromophenyl phenyl ether	U .37	-
4-Chloro-3-methylphenol	U .37	-
4-Chloroaniline	U .37	-
4-Chlorophenylphenyl ether	U .37	-
4-Methylphenol	U .37	-
4-Nitroaniline	U1.8	-
4-Nitrophenol	U1.8	-
Acenaphthene	U .37	-
Acenaphthylene	U .37	-
Anthracene	U .37	-
Benzo(a)anthracene	U .37	-
Benzo(a)pyrene	U .37	-
Benzo(b)fluoranthene	U .37	-
Benzo(g,h,i)perylene	U .37	-
Benzo(k)fluoranthene	U .37	-
Benzoic acid	U1.8	UJ
Benzyl alcohol	U .37	-
bis(2-Chloroethoxy)methane	U .37	-
bis(2-Chloroethyl)ether	U .37	-
bis(2-Chloroisopropyl) ether	U .37	-
bis(2-Ethylhexyl) phthalate	U .37	-
Butyl benzyl phthalate	U .37	-
Chrysene	U .37	-
Di-n-butyl phthalate	U .37	-
Di-n-octyl phthalate	U .37	-
Dibenzo(a,h)anthracene	U .37	-
Dibenzofuran	U .37	-
Diethyl phthalate	U .37	-
Dimethyl phthalate	U .37	-
Fluoranthene	U .37	-
Fluorene	U .37	UJ
Hexachlorobenzene	U .37	-
Hexachlorobutadiene	U .37	-

a = lab qualifier
b = validated qualifier

19048

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 37 061258 04/23/91 1.5 - 2.0 ft a	b
SEMI-VOLATILE ORGANICS		
Hexachlorocyclopentadiene	U .37	-
Hexachloroethane	U .37	-
Indeno(1,2,3-cd)pyrene	U .37	-
Isophorone	U .37	-
N-Nitroso-di-n-propylamine	U .37	-
N-Nitrosodiphenylamine	U .37	-
Naphthalene	U .37	-
Nitrobenzene	U .37	-
Pentachlorophenol	U1.8	-
Phenanthrene	U .37	-
Phenol	U .37	-
Pyrene	U .37	-
VOLATILE ORGANICS		
1,1,1-Trichloroethane	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-
1,1,2-Trichloroethane	U .005	-
1,1-Dichloroethane	U .005	-
1,1-Dichloroethene	U .005	-
1,2-Dichloroethane	U .005	-
1,2-Dichloroethylene	U .005	-
1,2-Dichloropropane	U .005	-
2-Butanone	J .002	-
2-Hexanone	U .011	-
4-Methyl-2-pentanone	U .011	-
Acetone	U .011	UJ
Benzene	U .005	-
Bromodichloromethane	U .005	-
Bromoform	U .005	-
Bromomethane	U .011	UJ
Carbon disulfide	U .005	-
Carbon Tetrachloride	U .005	-
Chlorobenzene	U .005	-
Chloroethane	U .011	-
Chloroform	U .005	-
Chloromethane	U .011	-
cis-1,3-Dichloropropene	U .005	-
Dibromochloromethane	U .005	-
Ethylbenzene	U .005	-
Methylene chloride	B .015	UJ
Styrene	U .005	-
Tetrachlorethene	U .005	-

a = lab qualifier
b = validated qualifier

-4948

OU4 SURFACE SOIL HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by boring number, sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	WPA 37 061258 04/23/91 1.5 - 2.0 ft a	b
VOLATILE ORGANICS		
Toluene	U .005	-
Total xylenes	U .005	-
trans-1,3-Dichloropropene	U .005	-
Trichloroethene	U .005	-
Vinyl Acetate	U .011	-
Vinyl chloride	U .011	-

a = lab qualifier
b = validated qualifier

4948

-4948

OU4 CIS
RADIOLOGICAL DATA

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifer	Activity Concentration pCi/g	Uncertainty Value pCi/g
SD-40-011	1378704.00	480081.00	.00	.50	RA-226	=	.80	.40
SD-40-011	1378704.00	480081.00	.00	.50	U-238	=	4.70	2.90
SD-40-011	1378704.00	480081.00	.00	.50	RU-106	<	3.50	
SD-40-011	1378704.00	480081.00	.00	.50	CS-137	<	.40	
SD-40-011	1378704.00	480081.00	.00	.50	TH-232	<	.80	
SD-40-012	1378614.00	480081.00	.00	.50	RU-106	<	.50	
SD-40-012	1378614.00	480081.00	.00	.50	U-238	=	6.80	2.90
SD-40-012	1378614.00	480081.00	.00	.50	RA-226	<	1.50	
SD-40-012	1378614.00	480081.00	.00	.50	CS-137	<	.40	
SD-40-012	1378614.00	480081.00	.00	.50	TH-232	<	2.10	
SD-40-013	1378536.00	480099.00	.00	.42	RA-226	=	.70	.20
SD-40-013	1378536.00	480099.00	.00	.42	CS-137	<	.90	
SD-40-013	1378536.00	480099.00	.00	.42	TH-232	=	.60	.50
SD-40-013	1378536.00	480099.00	.00	.42	U-238	=	3.30	2.00
SD-40-013	1378536.00	480099.00	.00	.42	RU-106	<	6.20	
SD-40-013D	1378536.00	480099.00	.00	.42	U-238	=	7.60	3.0[illegible]
SD-40-013D	1378536.00	480099.00	.00	.42	RA-226	=	.70	.40
SD-40-013D	1378536.00	480099.00	.00	.42	RU-106	<	7.40	
SD-40-013D	1378536.00	480099.00	.00	.42	TH-232	=	.60	.40
SD-40-013D	1378536.00	480099.00	.00	.42	CS-137	<	.80	
SD-40-014	1378446.00	480059.00	.00	.16	RU-106	<	7.30	
SD-40-014	1378446.00	480059.00	.00	.16	CS-137	<	.10	
SD-40-014	1378446.00	480059.00	.00	.16	RA-226	=	.80	.50
SD-40-014	1378446.00	480059.00	.00	.16	U-238	=	7.40	2.90
SD-40-014	1378446.00	480059.00	.00	.16	TH-232	<	2.30	
SD-40-015	1378369.00	480023.00	.00	.42	RU-106	<	5.30	
SD-40-015	1378369.00	480023.00	.00	.42	CS-137	<	.10	
SD-40-015	1378369.00	480023.00	.00	.42	U-238	=	8.10	2.40
SD-40-015	1378369.00	480023.00	.00	.42	RA-226	<	.50	
SD-40-015	1378369.00	480023.00	.00	.42	TH-232	<	1.70	
SL-46-326	1378423.13	480733.44	.16	.50	U-238	<	13.70	
SL-46-326	1378423.13	480733.44	.16	.50	CS-137	<	.90	
SL-46-326	1378423.13	480733.44	.16	.50	RA-226	=	3.20	.60
SL-46-326	1378423.13	480733.44	.16	.50	RU-106	<	4.90	
SL-46-326	1378423.13	480733.44	.16	.50	TH-232	<	4.30	
SL-46-327	1378623.06	480727.97	.16	.50	RU-106	<	4.90	
SL-46-327	1378623.06	480727.97	.16	.50	TH-232	=	.40	.20
SL-46-327	1378623.06	480727.97	.16	.50	CS-137	<	.10	
SL-46-327	1378623.06	480727.97	.16	.50	U-238	=	3.00	2.20
SL-46-327	1378623.06	480727.97	.16	.50	RA-226	=	1.00	.30

511

49048

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates
that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifer	Activity Concentration pCi/g	Uncertainty Value pCi/g
SL-46-571	1378446.76	480682.78	.50	1.00	TH-232	<	2.20	
SL-46-571	1378446.76	480682.78	.50	1.00	U-238	<	23.00	
SL-46-571	1378446.76	480682.78	.50	1.00	RA-226	=	11.60	.90
SL-46-571	1378446.76	480682.78	.50	1.00	RU-106	<	8.20	
SL-46-571	1378446.76	480682.78	.50	1.00	CS-137	<	.50	
SL-46-572	1378446.76	480682.78	.50	1.00	RU-106	<	2.40	
SL-46-572	1378446.76	480682.78	.50	1.00	RA-106	=	2.30	.40
SL-46-572	1378446.76	480682.78	.50	1.00	U-238	<	11.20	
SL-46-572	1378446.76	480682.78	.50	1.00	CS-137	<	.60	
SL-46-572	1378446.76	480682.78	.50	1.00	TH-232	<	2.30	
SS-23-046	1378796.30	480442.13	.00	.50	CS-137	<	.60	
SS-23-046	1378796.30	480442.13	.00	.50	RU-106	<	6.10	
SS-23-046	1378796.30	480442.13	.00	.50	TH-232	<	3.70	
SS-23-046	1378796.30	480442.13	.00	.50	RA-226	=	3.90	
SS-23-047	1378776.78	480459.67	.00	.50	RA-226	=	.80	.40
SS-23-047	1378776.78	480459.67	.00	.50	TH-232	=	1.00	
SS-23-047	1378776.78	480459.67	.00	.50	RU-106	<	8.20	
SS-23-047	1378776.78	480459.67	.00	.50	CS-137	<	16.70	
SS-23-048	1378757.37	480459.67	.00	.50	RA-226	=	.90	.30
SS-23-048	1378757.37	480459.67	.00	.50	RU-106	<	.60	
SS-23-048	1378757.37	480459.67	.00	.50	CS-137	=	.40	.30
SS-23-048	1378757.37	480459.67	.00	.50	TH-232	<	2.00	
SS-23-049	1378739.73	480458.68	.00	.50	U-238	=	6.90	3.40
SS-23-049	1378739.73	480458.68	.00	.50	TH-232	<	.30	
SS-23-049	1378739.73	480458.68	.00	.50	CS-137	=	.60	.20
SS-23-049	1378739.73	480458.68	.00	.50	RA-226	=	.80	.60
SS-23-049	1378739.73	480458.68	.00	.50	RU-106	<	6.70	
SS-23-050	1378715.41	480447.34	.00	.50	TH-232	=	3.60	1.00
SS-23-050	1378715.41	480447.34	.00	.50	U-238	<	9.00	
SS-23-050	1378715.41	480447.34	.00	.50	CS-137	<	.40	
SS-23-050	1378715.41	480447.34	.00	.50	RA-226	=	1.90	.50
SS-23-050	1378715.41	480447.34	.00	.50	RU-106	<	7.80	
SS-23-050Q	1378715.41	480447.34	.00	.50	RA-226	=	2.40	.50
SS-23-050Q	1378715.41	480447.34	.00	.50	TH-232	=	1.70	1.20
SS-23-050Q	1378715.41	480447.34	.00	.50	CS-137	<	1.10	
SS-23-050Q	1378715.41	480447.34	.00	.50	U-238	=	6.20	4.00
SS-23-050Q	1378715.41	480447.34	.00	.50	RU-106	<	6.50	
SS-23-051	1378695.81	480461.88	.00	.50	TH-232	<	.30	
SS-23-051	1378695.81	480461.88	.00	.50	U-238	<	8.00	
SS-23-051	1378695.81	480461.88	.00	.50	RA-226	=	2.40	.40

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifer	Activity Concentration pCi/g	Uncertainty Value pCi/g
SS-23-051	1378695.81	480461.88	.00	.50	RU-106	<	.40	
SS-23-051	1378695.81	480461.88	.00	.50	CS-137	<	.40	
SS-23-052	1378674.43	480448.46	.00	.50	U-238	<	10.10	
SS-23-052	1378674.43	480448.46	.00	.50	CS-137	<	.80	
SS-23-052	1378674.43	480448.46	.00	.50	RA-226	=	.40	.20
SS-23-052	1378674.43	480448.46	.00	.50	RU-106	<	.60	
SS-23-052	1378674.43	480448.46	.00	.50	TH-232	<	2.10	
SS-23-053	1378635.42	480448.53	.00	.50	RA-226	=	.60	.40
SS-23-053	1378635.42	480448.53	.00	.50	CS-137	<	.70	
SS-23-053	1378635.42	480448.53	.00	.50	TH-232	=	.90	.40
SS-23-053	1378635.42	480448.53	.00	.50	RU-106	<	.80	
SS-23-053	1378635.42	480448.53	.00	.50	U-238	=	4.50	2.80
SS-23-053D	1378635.42	480448.53	.00	.50	RA-226	<	.40	
SS-23-053D	1378635.42	480448.53	.00	.50	TH-232	=	.90	.40
SS-23-053D	1378635.42	480448.53	.00	.50	CS-137	<	.50	
SS-23-053D	1378635.42	480448.53	.00	.50	U-238	=	4.10	3.50
SS-23-053D	1378635.42	480448.53	.00	.50	RU-106	<	4.80	
SS-23-054	1378717.55	480525.31	.00	.50	CS-137	<	.90	
SS-23-054	1378717.55	480525.31	.00	.50	RA-226	=	.70	.30
SS-23-054	1378717.55	480525.31	.00	.50	U-238	<	6.80	
SS-23-054	1378717.55	480525.31	.00	.50	TH-232	<	.30	
SS-23-054	1378717.55	480525.31	.00	.50	RU-106	<	5.60	
SS-23-055	1378714.81	480425.35	.00	.50	TH-232	=	1.10	.30
SS-23-055	1378714.81	480425.35	.00	.50	RU-106	<	5.40	
SS-23-055	1378714.81	480425.35	.00	.50	CS-137	<	.60	
SS-23-055	1378714.81	480425.35	.00	.50	RA-226	=	1.00	.30
SS-23-055	1378714.81	480425.35	.00	.50	U-238	<	6.70	
SS-23-056	1378712.08	480325.39	.00	.50	TH-232	=	.50	.30
SS-23-056	1378712.08	480325.39	.00	.50	RU-106	<	7.90	
SS-23-056	1378712.08	480325.39	.00	.50	U-238	<	10.20	
SS-23-056	1378712.08	480325.39	.00	.50	RA-226	=	1.10	.30
SS-23-056	1378712.08	480325.39	.00	.50	CS-137	<	.30	
SS-23-056D	1378712.08	480325.39	.00	.50	TH-232	<	.30	
SS-23-056D	1378712.08	480325.39	.00	.50	CS-137	<	.30	
SS-23-056D	1378712.08	480325.39	.00	.50	RU-106	<	.50	
SS-23-056D	1378712.08	480325.39	.00	.50	U-238	<	3.40	
SS-23-056D	1378712.08	480325.39	.00	.50	RA-226	=	1.10	.30
SS-23-057	1378709.34	480225.42	.00	.50	RA-226	=	.50	.30
SS-23-057	1378709.34	480225.42	.00	.50	TH-232	=	.80	.40
SS-23-057	1378709.34	480225.42	.00	.50	CS-137	<	.10	

4948

-4048

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates
that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifer	Activity Concentration pCi/g	Uncertainty Value pCi/g
SS-23-057	1378709.34	480225.42	.00	.50	U-238	<	5.10	
SS-23-057	1378709.34	480225.42	.00	.50	RU-106	<	6.90	
SS-46-196	1378531.30	481030.60	.00	.16	RA-226	=	1.70	.40
SS-46-196	1378531.30	481030.60	.00	.16	TH-232	<	.30	
SS-46-196	1378531.30	481030.60	.00	.16	RU-106	<	3.60	
SS-46-196	1378531.30	481030.60	.00	.16	CS-137	<	.30	
SS-46-196	1378531.30	481030.60	.00	.16	U-238	=	8.70	3.50
SS-46-196D	1378531.30	481030.60	.00	.16	RA-226	=	1.70	.40
SS-46-196D	1378531.30	481030.60	.00	.16	U-238	=	10.60	3.50
SS-46-196D	1378531.30	481030.60	.00	.16	CS-137	<	.70	
SS-46-196D	1378531.30	481030.60	.00	.16	TH-232	=	.70	.30
SS-46-196D	1378531.30	481030.60	.00	.16	RU-106	<	4.90	
SS-46-197	1378631.27	481027.86	.00	.16	CS-137	<	.10	
SS-46-197	1378631.27	481027.86	.00	.16	TH-232	<	1.20	
SS-46-197	1378631.27	481027.86	.00	.16	RA-226	=	.70	.30
SS-46-197	1378631.27	481027.86	.00	.16	U-238	=	4.10	2.[illegible]
SS-46-197	1378631.27	481027.86	.00	.16	RU-106	<	4.30	
SS-46-198	1378731.23	481025.12	.00	.16	RU-106	<	3.20	
SS-46-198	1378731.23	481025.12	.00	.16	CS-137	<	.30	
SS-46-198	1378731.23	481025.12	.00	.16	RA-226	=	1.00	.30
SS-46-198	1378731.23	481025.12	.00	.16	U-238	=	4.10	.90
SS-46-198	1378731.23	481025.12	.00	.16	TH-232	=	.70	.30
SS-46-199	1378428.61	480933.37	.00	.16	TH-232	<	2.80	
SS-46-199	1378428.61	480933.37	.00	.16	RA-226	<	.30	
SS-46-199	1378428.61	480933.37	.00	.16	RU-106	<	.50	
SS-46-199	1378428.61	480933.37	.00	.16	CS-137	<	.40	
SS-46-199	1378428.61	480933.37	.00	.16	U-238	<	8.80	
SS-46-200	1378628.53	480927.90	.00	.16	U-238	<	9.00	
SS-46-200	1378628.53	480927.90	.00	.16	RA-226	=	.50	.20
SS-46-200	1378628.53	480927.90	.00	.16	TH-232	<	1.80	
SS-46-200	1378628.53	480927.90	.00	.16	RU-106	<	3.60	
SS-46-200	1378628.53	480927.90	.00	.16	CS-137	<	.20	
SS-46-201	1378728.49	480925.16	.00	.16	TH-232	<	.70	
SS-46-201	1378728.49	480925.16	.00	.16	RA-226	=	1.00	.30
SS-46-201	1378728.49	480925.16	.00	.16	CS-137	<	.30	
SS-46-201	1378728.49	480925.16	.00	.16	U-238	<	8.70	
SS-46-201	1378728.49	480925.16	.00	.16	RU-106	<	3.00	
SS-46-202	1378425.87	480833.41	.00	.16	U-238	=	2.60	1.70
SS-46-202	1378425.87	480833.41	.00	.16	TH-232	=	.70	.30
SS-46-202	1378425.87	480833.41	.00	.16	RU-106	<	.40	

574

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifer	Activity Concentration pCi/g	Uncertainty Value pCi/g
SS-46-202	1378425.87	480833.41	.00	.16	RA-226	=	.90	.40
SS-46-202	1378425.87	480833.41	.00	.16	CS-137	<	.20	
SS-46-203	1378525.83	480830.67	.00	.16	U-238	=	12.30	2.90
SS-46-203	1378525.83	480830.67	.00	.16	CS-137	=	.80	.30
SS-46-203	1378525.83	480830.67	.00	.16	RU-106	<	3.80	
SS-46-203	1378525.83	480830.67	.00	.16	TH-232	<	.50	
SS-46-203	1378525.83	480830.67	.00	.16	RA-226	=	1.10	.50
SS-46-204	1378625.79	480827.93	.00	.16	U-238	=	5.60	3.40
SS-46-204	1378625.79	480827.93	.00	.16	RA-226	=	4.50	.60
SS-46-204	1378625.79	480827.93	.00	.16	RU-106	<	3.50	
SS-46-204	1378625.79	480827.93	.00	.16	TH-232	<	.30	
SS-46-204	1378625.79	480827.93	.00	.16	CS-137	<	.40	
SS-46-205	1378725.76	480825.20	.00	.16	RA-226	<	.50	
SS-46-205	1378725.76	480825.20	.00	.16	TH-232	=	.70	.30
SS-46-205	1378725.76	480825.20	.00	.16	CS-137	<	.40	
SS-46-205	1378725.76	480825.20	.00	.16	U-238	<	3.10	
SS-46-205	1378725.76	480825.20	.00	.16	RU-106	<	3.10	
SS-46-206	1378423.13	480733.44	.00	.16	U-238	<	19.40	
SS-46-206	1378423.13	480733.44	.00	.16	CS-137	=	.90	.40
SS-46-206	1378423.13	480733.44	.00	.16	TH-232	<	1.00	
SS-46-206	1378423.13	480733.44	.00	.16	RU-106	<	.60	
SS-46-206	1378423.13	480733.44	.00	.16	RA-226	=	4.40	.60
SS-46-206D	1378423.13	480733.44	.00	.16	U-238	<	18.40	
SS-46-206D	1378423.13	480733.44	.00	.16	TH-232	<	2.60	
SS-46-206D	1378423.13	480733.44	.00	.16	CS-137	=	.90	.40
SS-46-206D	1378423.13	480733.44	.00	.16	RU-106	<	4.20	
SS-46-206D	1378423.13	480733.44	.00	.16	RA-226	=	4.00	.50
SS-46-207	1378623.06	480727.97	.00	.16	RU-106	<	6.00	
SS-46-207	1378623.06	480727.97	.00	.16	RA-226	=	5.30	.60
SS-46-207	1378623.06	480727.97	.00	.16	U-238	=	6.20	3.40
SS-46-207	1378623.06	480727.97	.00	.16	CS-137	<	.90	
SS-46-207	1378623.06	480727.97	.00	.16	TH-232	<	.80	
SS-46-208QC	1378623.06	480727.97	.00	.16	U-238	=	7.70	5.00
SS-46-208QC	1378623.06	480727.97	.00	.16	RU-106	<	6.00	
SS-46-208QC	1378623.06	480727.97	.00	.16	TH-232	<	1.40	
SS-46-208QC	1378623.06	480727.97	.00	.16	CS-137	<	.50	
SS-46-208QC	1378623.06	480727.97	.00	.16	U-238	=	7.70	5.00
SS-46-208QC	1378623.06	480727.97	.00	.16	RA-226	=	8.40	.70
SS-46-209	1378723.02	480725.24	.00	.16	RU-106	<	.50	
SS-46-209	1378723.02	480725.24	.00	.16	U-238	=	6.20	3.40

515

4048

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifier	Activity Concentration pCi/g	Uncertainty Value pCi/g
SS-46-209	1378723.02	480725.24	.00	.16	CS-137	<	.20	
SS-46-209	1378723.02	480725.24	.00	.16	TH-232	<	.60	
SS-46-209	1378723.02	480725.24	.00	.16	RA-226	=	1.10	.40
SS-46-318	1378623.74	480752.96	.00	.16	U-238	<	14.90	
SS-46-318	1378623.74	480752.96	.00	.16	TH-232	<	.90	
SS-46-318	1378623.74	480752.96	.00	.16	CS-137	=	1.20	.30
SS-46-318	1378623.74	480752.96	.00	.16	RA-226	=	10.30	.90
SS-46-318	1378623.74	480752.96	.00	.16	RU-106	<	11.00	
SS-46-319	1378648.05	480727.29	.00	.16	CS-137	<	1.40	
SS-46-319	1378648.05	480727.29	.00	.16	U-238	<	12.10	
SS-46-319	1378648.05	480727.29	.00	.16	RA-226	=	7.90	.90
SS-46-319	1378648.05	480727.29	.00	.16	RU-106	<	.50	.90
SS-46-319	1378648.05	480727.29	.00	.16	TH-232	<	2.50	
SS-46-320	1378471.75	480682.09	.00	.16	RA-226	=	1.30	
SS-46-320	1378471.75	480682.09	.00	.16	TH-232	<	4.30	
SS-46-320	1378471.75	480682.09	.00	.16	RU-106	<	5.80	.50
SS-46-320	1378471.75	480682.09	.00	.16	CS-137	<	.80	
SS-46-320	1378471.75	480682.09	.00	.16	U-238	=	3.20	1.90
SS-46-320D	1378471.75	480682.09	.00	.16	TH-232	=	.60	.40
SS-46-320D	1378471.75	480682.09	.00	.16	RA-226	=	1.60	.60
SS-46-320D	1378471.75	480682.09	.00	.16	CS-137	<	.40	
SS-46-320D	1378471.75	480682.09	.00	.16	U-238	=	6.40	3.10
SS-46-320D	1378471.75	480682.09	.00	.16	RU-106	<	.90	
SS-46-321	1378449.49	480782.74	.00	.16	CS-137	=	.50	.30
SS-46-321	1378449.49	480782.74	.00	.16	RU-106	<	.60	
SS-46-321	1378449.49	480782.74	.00	.16	TH-232	<	4.20	
SS-46-321	1378449.49	480782.74	.00	.16	U-238	<	14.90	
SS-46-321	1378449.49	480782.74	.00	.16	RA-226	=	4.70	.80
SS-46-322	1378422.45	480708.45	.00	.16	TH-232	<	4.40	
SS-46-322	1378422.45	480708.45	.00	.16	U-238	=	6.10	3.60
SS-46-322	1378422.45	480708.45	.00	.16	RU-106	<	3.40	
SS-46-322	1378422.45	480708.45	.00	.16	CS-137	<	1.00	
SS-46-322	1378422.45	480708.45	.00	.16	RA-226	=	2.00	.60
SS-46-323	1378474.48	480782.06	.00	.16	RU-106	<	.60	
SS-46-323	1378474.48	480782.06	.00	.16	U-238	=	8.50	4.30
SS-46-323	1378474.48	480782.06	.00	.16	CS-137	=	1.00	.40
SS-46-323	1378474.48	480782.06	.00	.16	TH-232	<	4.60	
SS-46-323	1378474.48	480782.06	.00	.16	RA-226	=	4.40	.60
SS-46-324	1378446.76	480682.78	.00	.16	CS-137	<	2.40	
SS-46-324	1378446.76	480682.78	.00	.16	RA-226	=	35.8	1.60

948

516

OU4 CIS – RADIOLOGICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed; A sample preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument

Sample Number	East Coordinate	North Coordinate	Begin Depth	End Depth	Radionuclide	Laboratory Qualifer	Activity Concentration pCi/g	Uncertainty Value pCi/g
SS-46-324	1378446.76	480682.78	.00	.16	RU-106	<	9.00	
SS-46-324	1378446.76	480682.78	.00	.16	TH-232	<	4.00	
SS-46-324	1378446.76	480682.78	.00	.16	U-238	<	7.20	
SS-46-325	1378423.82	480758.43	.00	.16	U-238	=	5.50	2.00
SS-46-325	1378423.82	480758.43	.00	.16	RU-106	<	3.20	
SS-46-325	1378423.82	480758.43	.00	.16	RA-226	=	1.70	.50
SS-46-325	1378423.82	480758.43	.00	.16	CS-137	=	.40	.20
SS-46-325	1378423.82	480758.43	.00	.16	TH-232	<	2.70	
SS-46-566	1378674.41	480776.59	.00	.16	U-238	=	8.70	4.90
SS-46-566	1378674.41	480776.59	.00	.16	TH-232	<	6.50	
SS-46-566	1378674.41	480776.59	.00	.16	CS-137	<	.60	
SS-46-566	1378674.41	480776.59	.00	.16	RU-106	<	6.70	
SS-46-566	1378674.41	480776.59	.00	.16	RA-226	=	3.50	.60
SS-46-567	1378574.44	480779.32	.00	.16	RA-226	=	22.50	1.90
SS-46-567	1378574.44	480779.32	.00	.16	U-238	=	37.40	10.20
SS-46-567	1378574.44	480779.32	.00	.16	RU-106	<	13.00	
SS-46-567	1378574.44	480779.32	.00	.16	TH-232	<	3.20	
SS-46-567	1378574.44	480779.32	.00	.16	CS-137	<	1.90	
SS-46-568	1378673.04	480726.60	.00	.16	TH-232	<	3.30	
SS-46-568	1378673.04	480726.60	.00	.16	RA-226	=	2.60	.70
SS-46-568	1378673.04	480726.60	.00	.16	CS-137	<	.50	
SS-46-568	1378673.04	480726.60	.00	.16	U-238	=	6.90	3.80
SS-46-568	1378673.04	480726.60	.00	.16	RU-106	<	6.40	
SS-46-569	1378624.43	480777.95	.00	.16	U-238	=	18.60	4.90
SS-46-569	1378624.43	480777.95	.00	.16	CS-137	=	1.10	.50
SS-46-569	1378624.43	480777.95	.00	.16	TH-232	<	.70	
SS-46-569	1378624.43	480777.95	.00	.16	RU-106	<	1.40	
SS-46-569	1378624.43	480777.95	.00	.16	RA-226	=	3.60	.80

OU4 CIS
CHEMICAL DATA

OU4 CIS – CHEMICAL DATA
RI/FS SUPPORT DATA – ROY F. WESTON, 1987
NA indicates not analyzed

Sample Number	North Coordinate	East Coordinate	Begin Depth	End Depth	Analyte	Concentration	Concentration Units
02-PS-026	480730.71	1378523.10	.00	10.00	Aluminum, Total	21920.70	MG/KG
23-SS-049	480458.68	1378739.73	.00	.50	NA	NA	NA
23-SS-050	480447.34	1378715.41	.00	.50	NA	NA	NA
23-SS-051	480461.88	1378695.81	.00	.50	NA	NA	NA
23-SS-052	480448.46	1378674.43	.00	.50	NA	NA	NA
23-SS-053	480448.53	1378635.42	.00	.50	NA	NA	NA
23-SS-054	480525.31	1378717.55	.00	.50	NA	NA	NA
23-SS-055	480425.35	1378714.81	.00	.50	NA	NA	NA
23-SS-056	480325.39	1378712.08	.00	.50	NA	NA	NA
23-SS-057	480225.42	1378709.34	.00	.50	NA	NA	NA
40-SD-011	480081.00	1378704.00	.00	.50	NA	NA	NA
40-SD-012	480081.00	1378614.00	.00	.50	NA	NA	NA
40-SD-013	480099.00	1378536.00	.00	.42	NA	NA	NA
40-SD-014	480059.00	1378446.00	.00	.16	NA	NA	NA
40-SD-015	480023.00	1378369.00	.00	.42	NA	NA	NA
46-SL-326	480733.44	1378423.13	.16	.50	NA	NA	NA
46-SL-327	480727.97	1378623.06	.16	.50	NA	NA	NA
46-SL-571	480682.78	1378446.76	.50	1.00	NA	NA	NA
46-SL-572	480682.78	1378446.76	.50	1.00	NA	NA	NA
46-SS-196	481030.60	1378531.30	.00	.16	NA	NA	NA
46-SS-197	481027.86	1378631.27	.00	.16	NA	NA	NA
46-SS-198	481025.12	1378731.23	.00	.16	NA	NA	NA
46-SS-199	480933.37	1378428.61	.00	.16	NA	NA	NA
46-SS-200	480927.90	1378628.53	.00	.16	NA	NA	NA
46-SS-201	480925.16	1378728.49	.00	.16	NA	NA	NA
46-SS-202	480833.41	1378425.87	.00	.16	NA	NA	NA
46-SS-203	480830.67	1378525.83	.00	.16	NA	NA	NA
46-SS-204	480827.93	1378625.79	.00	.16	NA	NA	NA
46-SS-205	480825.20	1378725.76	.00	.16	NA	NA	NA
46-SS-206	480733.44	1378423.13	.00	.16	NA	NA	NA
46-SS-207	480727.97	1378623.06	.00	.16	NA	NA	NA
46-SS-208	480727.97	1378623.06	.00	.16	NA	NA	NA
46-SS-209	480725.24	1378723.02	.00	.16	NA	NA	NA
46-SS-318	480752.96	1378623.74	.00	.16	NA	NA	NA
46-SS-319	480727.29	1378648.05	.00	.16	NA	NA	NA
46-SS-320	480682.09	1378471.75	.00	.16	NA	NA	NA
46-SS-321	480782.74	1378449.49	.00	.16	NA	NA	NA
46-SS-322	480708.45	1378422.45	.00	.16	NA	NA	NA
46-SS-323	480782.06	1378474.48	.00	.16	NA	NA	NA
46-SS-324	480682.78	1378446.76	.00	.16	NA	NA	NA
46-SS-325	480758.43	1378423.82	.00	.16	NA	NA	NA
46-SS-566	480776.59	1378674.41	.00	.16	NA	NA	NA
46-SS-567	480779.32	1378574.44	.00	.16	NA	NA	NA
46-SS-568	480726.60	1378673.04	.00	.16	NA	NA	NA
46-SS-569	480777.95	1378624.43	.00	.16	NA	NA	NA

-4948

OU4 SEDIMENT RADIOLOGICAL RESULTS

OU4 SEDIMENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	W10 9038 06/18/88 0-3 in.		ASIT-10 9050 06/28/88 0-3 in.		W10 9102 08/27/88 0-3 in.		W10 9153 04/17/89 0-3 in.	
	a	b	a	b	a	b	a	b
GROSS ALPHA	9	± 4 J	26	± 8 J	NA		15	± 7 J
GROSS BETA	13	± 7 J	26	± 9 J	NA		< 9	J
Radium 226	.9	± .1 J	.686	± .052 J	.8	± .1 J	1	± .1 J
Radium 228	< .5	J	.9	± .0958 J	< .5	J	< .5	J
Total Uranium **	3	± 1 J	30.3	± 2.1 J	4	± 1 J	1	± 1 J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

OU4 SEDIMENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	W5 9036 06/18/88 0-3 in.		W5 9101 06/27/88 0-3 in.		W5 9149 04/17/89 0-3 in.		W11 9037 06/18/88 0-3 in.	
	a	b	a	b	a	b	a	b
GROSS ALPHA	7	± 3	NA		NA		NA	
GROSS BETA	12	± 11	NA		NA		NA	
Radium 226	.4	± .1 J	.5	± .1 J	.4	± .1 J	.5	± .1 J
Radium 228	< .5	J	< .5	J	< .5	J	< .5	J
Total Uranium **	3	± 1 J	1.0	± 1 J	1.0	± 1 J	2.0	± 1 J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g

582

-4048

OU4 SEDIMENT RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per gram (pCi/g).
Data presented by boring number, sample number and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	W11 9103 08/27/88 0-3 in.		W11 9155 04/17/89 0-3 in.	
	a	b	a	b
GROSS ALPHA	NA		NA	
GROSS BETA	NA		NA	
Radium 226	.4	± .1 J	.6	± .1 J
Radium 228	< .5	J	< .5	J
Total Uranium **	1.0	± 1 J	1.0	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/g
4SEDRAD.PRN

-4048

533

OU4 SEDIMENT HSL RESULTS

OU4 SEDIMENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	ASI/IT-10 9050 06/28/88 0-3 in.		W10 9147 01/12/89 0-3 in.		W5 9146 01/12/89		W11 9145 01/12/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	5460		* 3920		* 1970		* 2080	
Antimony	U .1		UN .1		N 0.1		N 0.1	
Arsenic	B 3.5		N 6.5		N 7.0		N 2.7	
Barium	49.4		B 31.2		21.0		21.0	
Beryllium	B .2		B .5		0.5		0.5	
Cadmium	U .2		3.9		3.7		4.5	
Calcium	25200		78700		25900		110000	
Chromium	6.9		18.4		18.3		17.4	
Cobalt	B 3.8		B 6.5		4.9		4.7	
Copper	9.2		14.5		10.8		11.7	
Cyanide	U .9		U 2.7		2.2		2.4	
Iron	10000		8830		6700		5940	
Lead	18.4		SN 11.4		SN 9.5		SN 4.6	
Magnesium	8580		18300		18700		2660	
Manganese	500		415		411		362	
Mercury	1.7		U .1		0.1		0.1	
Molybdenum	U 2.4		U 5		4.5		4.6	
Nickel	9.4		19.5		13.7		16.4	
Potassium	B 659		B 655		307		366	
Selenium	U .2		UN .5		N 0.4		N 0.5	
Silver	U .1		U .1		0.1		0.1	
Sodium	111		BE 180		E 197		E 188	
Thallium	UW .1		U .3		0.2		0.2	
Vanadium	8.4		14		12.4		13.7	
Zinc	37.3		E 24.4		E 13.5		E 13.4	

a = lab qualifier

585

-4948

OU4 SEDIMENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	ASIT/IT-10 9050 06/28/88 0-3 in.		W-10 9147 01/12/89 0-3 in.		W-5 9146 01/12/89 0-3 in.		W-11 9145 01/12/89 0-3 in.	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .023		U .024		U .019		U .02	
4,4'-DDE	U .023		U .024		U .019		U .02	
4,4'-DDT	U .023		U .024		U .019		U .02	
Aldrin	U .012		U .012		U .009		U .0099	
alpha-BHC	U .012		U .012		U .0094		U .0099	
alpha-Chlordane	U .12		U .12		U .094		U .099	
Aroclor-1016	U .12		U .12		U .094		U .099	
Aroclor-1221	U .12		U .12		U .094		U .099	
Aroclor-1232	U .12		U .12		U .094		U .099	
Aroclor-1242	U .12		U .12		U .094		U .099	
Aroclor-1248	U .12		U .12		U .094		U .099	
Aroclor-1254	U .23		U .24		U .19		U .2	
Aroclor-1260	U .23		U .24		U .19		U .2	
beta-BHC	U .012		XU .13		U .0094		XU .17	
delta-BHC	U .012		U .012		U .0094		U .0099	
Dieldrin	U .023		U .024		U .019		U .02	
Endosulfan II	U .023		U .024		U .019		U .02	
Endosulfan sulfate	U .023		U .024		U .019		U .02	
Endosulfan-I	U .012		U .012		U .094		U .0099	
Endrin	U .023		U .024		U .019		U .02	
Endrin ketone	U .023		U .024		U .019		U .02	
gamma-BHC (Lindane)	U .012		U .012		U .0094		U .0099	
gamma-Chlordane	U .12		U .12		U .094		U .099	
Heptachlor	U .012		U .012		U .0094		U .0099	
Heptachlor epoxide	U .012		U .012		U .0094		U .0099	
Methoxychlor	U .12		U .12	J	U .094		U .099	
Toxaphene	U .23		U .24		U .19		U .2	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .49		U .48		U .39		U .4	
1,2-Dichlorobenzene	U .49		U .48		U .39		U .4	
1,3-Dichlorobenzene	U .49		U .48		U .39		U .4	
1,4-Dichlorobenzene	U .49		U .48		U .39		U .4	
2,4,5-Trichlorophenol	U 2.5		U2.3		U 1.9		U .2	
2,4,6-Trichlorophenol	U .49		U .48		U .39		U .4	
2,4-Dichlorophenol	U .49		U .48		U .39		U .4	
2,4-Dimethylphenol	U .49		U .48		U .39		U .4	
2,4-Dinitrophenol	U 2.5		U2.3	J	U 1.9		U 2.0	
2,4-Dinitrotoluene	U .49		U .48		U .39		U .4	
2,6-Dinitrotoluene	U .49		U .48		U .39		U .4	
2-Chloronaphthalene	U .49		U .48		U .39		U .4	
2-Chlorophenol	U .49		U .48		U .39		U .4	

a = lab qualifier
b = validated qualifier

OU4 SEDIMENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	ASIT/IT-10 9050 06/28/88 0-3 in.		W-10 9147 01/12/89 0-3 in.		W-5 9146 01/12/89 0-3 in.		W-11 9145 01/12/89 0-3 in.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	U .49		U .48		U .39		U .4	
2-Methylphenol	U .49		U .48		U .39		U .4	
2-Nitroaniline	U 2.5		U2.3		U 1.9		U 2.0	
2-Nitrophenol	U .49		U .48		U .39		U .4	
3,3'-Dichlorobenzidine	U .98		U .96		U .77		U .8	
3-Nitroaniline	U 2.5		U2.3	R	U 1.9		U 2.0	
4,6-Dinitro-2-methylphenol	U 2.5		U2.3	J	U 1.9		U 2.0	
4-Bromophenyl phenyl ether	U .49		U .48		U .39		U .4	
4-Chloro-3-methylphenol	U .49		U .48		U .39		U .4	
4-Chloroaniline	U .49		U .48	R	U .39		U .4	
4-Chlorophenylphenyl ether	U .49		U .48		U .39		U .4	
4-Methylphenol	U .49		U .48		U .39		U .4	
4-Nitroaniline	U 2.5		U2.3		U 1.9		U 2.0	
4-Nitrophenol	U 2.5		U2.3	J	U 1.9		U 2.0	
Acenaphthene	U .49		U .48		U .39		U .4	
Acenaphthylene	U .49		U .48		U .39		U .4	
Anthracene	U .49		U .48		U .39		U .4	
Benzo(a)anthracene	U .49		U .48		U .39		U .4	
Benzo(a)pyrene	U .49		U .48		U .39		U .4	
Benzo(b)fluoranthene	U .49		U .48		U .39		U .4	
Benzo(g,h,i)perylene	U .49		U .48		U .39		U .4	
Benzo(k)fluoranthene	U .49		U .48		U .39		U .4	
Benzoic acid	U 2.5		U2.3		U 1.9		U 2.0	
Benzyl alcohol	U .49		U .48		U .39		U .4	
bis(2-Chloroethoxy)methane	U .49		U .48		U .39		U .4	
bis(2-Chloroethyl)ether	U .49		U .48		U .39		U .4	
bis(2-Chloroisopropyl) ether	U .49		U .48	J	U .39		U .4	
bis(2-Ethylhexyl) phthalate	U .49		B .59	JB	B .46		B .5	
Butyl benzyl phthalate	U .49		U .48		U .39		U .4	
Chrysene	U .49		U .48		U .39		U .4	
Di-n-butyl phthalate	U .49		BJ .051		BJ .39		NA	
Di-n-octyl phthalate	U .49		U .48	JB	U .39		U .4	
Dibenzo(a,h)anthracene	U .49		U .48		U .39		U .4	
Dibenzofuran	U .49		U .48		U .39		U .4	
Diethyl phthalate	U .49		U .48		U .39		U .4	
Dimethyl phthalate	U .49		U .48		U .39		U .4	
Fluoranthene	U .49		U .48		U .39		U .4	
Fluorene	U .49		U .48		U .39		U .4	
Hexachlorobenzene	U .49		U .48		U .39		U .4	
Hexachlorobutadiene	U .49		U .48		U .39		U .4	

a = lab qualifier
b = validated qualifier

-4948

5871

OU4 SEDIMENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	ASI/IT-10 9050 06/28/88 0-3 in.		W-10 9147 01/12/89 0-3 in.		W-5 9146 01/12/89 0-3 in.		W-11 9145 01/12/89 0-3 in.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	U .49		U .48	J	U .39		U .4	
Hexachloroethane	U .49		U .48		U .39		U .4	
Indeno(1,2,3-cd)pyrene	U .49		U .48		U .39		U .4	
Isophorone	U .49		U .48		U .39		U .4	
N-Nitroso-di-n-propylamine	U .49		U .48		U .39		U .4	
N-Nitrosodiphenylamine	U .49		U .48		U .39		U .4	
Naphthalene	U .49		U .48		U .39		U .4	
Nitrobenzene	U .49		U .48		U .39		U .4	
Pentachlorophenol	U 2.5		U2.3		U 1.9		U 2.0	
Phenanthrene	U .49		U .48		U .39		U .4	
Phenol	U .49		U .48		U .39		U .4	
Pyrene	U .49		U .48		U .39		U .4	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .007		U .007	J	U .006		U .006	
1,1,2,2-Tetrachloroethane	U .007		U .007		U .006		U .006	
1,1,2-Trichloroethane	U .007		U .007	J	U .006		U .006	
1,1-Dichloroethane	U .007		U .007		U .006		U .006	
1,1-Dichloroethene	U .007		U .007		U .006		U .006	
1,2-Dichloroethane	U .007		U .007	J	U .006		U .006	
1,2-Dichloroethylene	U .007		U .007		U .006		U .006	
1,2-Dichloropropane	U .007		U .007		U .006		U .006	
2-Butanone	U .015		U .015	R	U .012		U .012	
2-Hexanone	U .015		U .015	R	U .012		U .012	
4-Methyl-2-pentanone	U .015		U .015	R	U .012		U .012	
Acetone	B .094		U .015	R	B .018		BJ .008	
Benzene	U .007		U .007	J	U .006		U .006	
Bromodichloromethane	U .007		U .007		U .006		U .006	
Bromoform	U .007		U .007	J	U .006		U .006	
Bromomethane	U .015		U .015		U .012		U .012	
Carbon disulfide	U .007		U .007		U .006		U .006	
Carbon Tetrachloride	U .007		U .007	J	U .006		U .006	
Chlorobenzene	U .007		U .007		U .006		U .006	
Chloroethane	U .015		U .015		U .012		U .012	
Chloroform	U .007		U .007		U .006		U .006	
Chloromethane	U .015		U .015		U .012		U .012	
cis-1,3-Dichloropropene	U .007		U .007		U .006		U .006	
Dibromochloromethane	U .007		U .007	J	U .006		U .006	
Ethylbenzene	U .007		U .007		U .006		U .006	
Methylene chloride	B .019		U .007	R	B .007		B .015	
Styrene	U .007		U .007		U .006		U .006	
Tetrachlorethene	U .007		U .007		U .006		U .006	

a = lab qualifier
b = validated qualifier

583
-4948

OU4 SEDIMENT HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per Kilogram (MG/KG).
Data presented by sample number, collection date and depth in feet.
NA indicates not analyzed.

Chemical Parameters	ASI/IT-10 9050 06/28/88 0-3 in.		W-10 9147 01/12/89 0-3 in.		W-5 9146 01/12/89 0-3 in.		W-11 9145 01/12/89 0-3 in.	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	U .007		U .007		U .006		U .006	
Total xylenes	U .007		U .007		U .006		U .006	
trans-1,3-Dichloropropene	U .007		U .007		U .006		U .006	
Trichloroethene	U .007		U .007		U .006		U .006	
Vinyl Acetate	U .015		U .015	J	U .012		U .012	
Vinyl chloride	U .015		U .015		U .012		U .012	

a = lab qualifier
b = validated qualifier

-4048

-4948

OU4 BERM QA/QC RADIOLOGICAL RESULTS

OU4 BERM QA/QC RADIOLOGICALS RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1620 099471 05/15/91		1623 099645 06/03/91		1623 099648 06/04/91	
	a	b	a	b	a	b
Lead 210	NA		< 3	R	NA	
Protactinium 231	<266	R	<228	J	<286	J
Radium 224	< 19	R	< 17	J	< 21	J
Radium 226	< 1	-	1.83 ± .48	-	< 1	-
Radium 228	< 3	J	< 3	J	< 3	J
Total Uranium **	NA		252 ± 34	J	NA	
Uranium 234	NA		64.3 ± 8.8	J	NA	
Uranium 235/236	NA		6.9 ± 1.56	J	NA	
Uranium 238	NA		83.8 ± 11.2	J	NA	

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

591

-4048

OU4 BERM QA/QC HSL RESULTS

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099522 05/21/91		1621 099523 05/21/91		1621 099526 05/21/91	
	a	b	a	b	a	b
METALS						
Aluminum	NA		U .06	R	NA	
Antimony	NA		U .03	R	NA	
Arsenic	NA		U .002	R	NA	
Barium	NA		U .002	R	NA	
Beryllium	NA		U .002	R	NA	
Cadmium	NA		U .002	R	NA	
Calcium	NA		B .148	R	NA	
Chromium	NA		U* .01	R	NA	
Cobalt	NA		U .01	R	NA	
Copper	NA		U .01	R	NA	
Cyanide	U .002	J	NA		NA	
Iron	NA		U .01	R	NA	
Lead	NA		B .0022	R	NA	
Magnesium	NA		U .05	R	NA	
Manganese	NA		U .002	R	NA	
Mercury	NA		NA		U.0002	R
Molybdenum	NA		U .01	R	NA	
Nickel	NA		U .02	R	NA	
Potassium	NA		U .1	R	NA	
Selenium	NA		U .002	R	NA	
Silver	NA		U .01	R	NA	
Sodium	NA		B .564	R	NA	
Thallium	NA		U .002	R	NA	
Vanadium	NA		U .01	R	NA	
Zinc	NA		B .0122	R	NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099519 05/21/91		1621 099521 05/21/91		1621 099524 05/21/91		1621 099525 05/21/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		U .0001	R	NA	
4,4'-DDE	NA		NA		U .0001	R	NA	
4,4'-DDT	NA		NA		U .0001	R	NA	
Aldrin	NA		NA		U .00005	R	NA	
alpha-BHC	NA		NA		U .00005	R	NA	
alpha-Chlordane	NA		NA		U .0005	R	NA	
Aroclor-1016	NA		NA		U .0005	R	NA	
Aroclor-1221	NA		NA		U .0005	R	NA	
Aroclor-1232	NA		NA		U .0005	R	NA	
Aroclor-1242	NA		NA		U .0005	R	NA	
Aroclor-1248	NA		NA		U .0005	R	NA	
Aroclor-1254	NA		NA		U .001	R	NA	
Aroclor-1260	NA		NA		U .001	R	NA	
beta-BHC	NA		NA		U .00005	R	NA	
delta-BHC	NA		NA		U .00005	R	NA	
Dieldrin	NA		NA		U .0001	R	NA	
Endosulfan II	NA		NA		U .0001	R	NA	
Endosulfan sulfate	NA		NA		U .0001	R	NA	
Endosulfan-I	NA		NA		U .00005	R	NA	
Endrin	NA		NA		U .0001	R	NA	
Endrin ketone	NA		NA		U .0001	R	NA	
gamma-BHC (Lindane)	NA		NA		U .00005	R	NA	
gamma-Chlordane	NA		NA		U .0005	R	NA	
Heptachlor	NA		NA		U .00005	R	NA	
Heptachlor epoxide	NA		NA		U .00005	R	NA	
Methoxychlor	NA		NA		U .0005	R	NA	
Toxaphene	NA		NA		U .001	R	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		NA		U .01	R
1,2-Dichlorobenzene	NA		NA		NA		U .01	R
1,3-Dichlorobenzene	NA		NA		NA		U .01	R
1,4-Dichlorobenzene	NA		NA		NA		U .01	R
2,4,5-Trichlorophenol	NA		NA		NA		U .05	R
2,4,6-Trichlorophenol	NA		NA		NA		U .01	R
2,4-Dichlorophenol	NA		NA		NA		U .01	R
2,4-Dimethylphenol	NA		NA		NA		U .01	R
2,4-Dinitrophenol	NA		NA		NA		U .05	R
2,4-Dinitrotoluene	NA		NA		NA		U .01	R
2,6-Dinitrotoluene	NA		NA		NA		U .01	R
2-Chloronaphthalene	NA		NA		NA		U .01	R
2-Chlorophenol	NA		NA		NA		U .01	R

a = lab qualifier
b = validated qualifier

-4048

549

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099519 05/21/91		1621 099521 05/21/91		1621 099524 05/21/91		1621 099525 05/21/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		U .01	R
2-Methylphenol	NA		NA		NA		U .01	R
2-Nitroaniline	NA		NA		NA		U .05	R
2-Nitrophenol	NA		NA		NA		U .01	R
3,3'-Dichlorobenzidine	NA		NA		NA		U .02	R
3-Nitroaniline	NA		NA		NA		U .05	R
4,6-Dinitro-2-methylphenol	NA		NA		NA		U .05	R
4-Bromophenyl phenyl ether	NA		NA		NA		U .01	R
4-Chloro-3-methylphenol	NA		NA		NA		U .01	R
4-Chloroaniline	NA		NA		NA		U .01	R
4-Chlorophenylphenyl ether	NA		NA		NA		U .01	R
4-Methylphenol	NA		NA		NA		U .01	R
4-Nitroaniline	NA		NA		NA		U .01	R
4-Nitrophenol	NA		NA		NA		U .05	R
Acenaphthene	NA		NA		NA		U .05	R
Acenaphthylene	NA		NA		NA		U .01	R
Anthracene	NA		NA		NA		U .01	R
Benzo(a)anthracene	NA		NA		NA		U .01	R
Benzo(a)pyrene	NA		NA		NA		U .01	R
Benzo(b)fluoranthene	NA		NA		NA		U .01	R
Benzo(g,h,i)perylene	NA		NA		NA		U .01	R
Benzo(k)fluoranthene	NA		NA		NA		U .01	R
Benzoic acid	NA		NA		NA		U .01	R
Benzyl alcohol	NA		NA		NA		U .05	R
bis(2-Chloroethoxy)methane	NA		NA		NA		U .01	R
bis(2-Chloroethyl)ether	NA		NA		NA		U .01	R
bis(2-Chloroisopropyl) ether	NA		NA		NA		U .01	R
bis(2-Ethylhexyl) phthalate	NA		NA		NA		U .01	R
Butyl benzyl phthalate	NA		NA		NA		U .01	R
Chrysene	NA		NA		NA		U .01	R
Di-n-butyl phthalate	NA		NA		NA		U .01	R
Di-n-octyl phthalate	NA		NA		NA		U .01	R
Dibenzo(a,h)anthracene	NA		NA		NA		U .01	R
Dibenzofuran	NA		NA		NA		U .01	R
Diethyl phthalate	NA		NA		NA		U .01	R
Dimethyl phthalate	NA		NA		NA		U .01	R
Fluoranthene	NA		NA		NA		U .01	R
Fluorene	NA		NA		NA		U .01	R
Hexachlorobenzene	NA		NA		NA		U .01	R
Hexachlorobutadiene	NA		NA		NA		U .01	R

a = lab qualifier
b = validated qualifier

596

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099519 05/21/91		1621 099521 05/21/91		1621 099524 05/21/91		1621 099525 05/21/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		U .01	R
Hexachloroethane	NA		NA		NA		U .01	R
Indeno(1,2,3-cd)pyrene	NA		NA		NA		U .01	R
Isophorone	NA		NA		NA		U .01	R
N-Nitroso-di-n-propylamine	NA		NA		NA		U .01	R
N-Nitrosodiphenylamine	NA		NA		NA		U .01	R
Naphthalene	NA		NA		NA		U .01	R
Nitrobenzene	NA		NA		NA		U .01	R
Pentachlorophenol	NA		NA		NA		U .05	R
Phenanthrene	NA		NA		NA		U .01	R
Phenol	NA		NA		NA		J .008	R
Pyrene	NA		NA		NA		U .01	R
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	NA		NA	
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	NA		NA	
1,1,2-Trichloroethane	U .005	-	U .005	-	NA		NA	
1,1-Dichloroethane	U .005	-	U .005	-	NA		NA	
1,1-Dichloroethene	U .005	-	U .005	-	NA		NA	
1,2-Dichloroethane	U .005	-	U .005	-	NA		NA	
1,2-Dichloroethylene	U .005	-	U .005	-	NA		NA	
1,2-Dichloropropane	U .005	-	U .005	-	NA		NA	
2-Butanone	UJ .01	UJ	U .01	UJ	NA		NA	
2-Hexanone	U .01	-	U .01	-	NA		NA	
4-Methyl-2-pentanone	U .01	-	U .01	-	NA		NA	
Acetone	J .018	J	B .013	R	NA		NA	
Benzene	UJ .005	UJ	U .005	UJ	NA		NA	
Bromodichloromethane	U .005	-	U .005	-	NA		NA	
Bromoform	U .005	-	U .005	-	NA		NA	
Bromomethane	U .01	-	U .01	-	NA		NA	
Carbon disulfide	U .005	-	U .005	-	NA		NA	
Carbon Tetrachloride	U .005	-	U .005	-	NA		NA	
Chlorobenzene	UJ .005	UJ	U .005	UJ	NA		NA	
Chloroethane	U .01	-	U .01	-	NA		NA	
Chloroform	.014	-	.011	-	NA		NA	
Chloromethane	U .01	-	U .01	-	NA		NA	
cis-1,3-Dichloropropene	U .005	-	U .005	-	NA		NA	
Dibromochloromethane	U .005	-	U .005	-	NA		NA	
Ethylbenzene	UJ .005	UJ	U .005	UJ	NA		NA	
Methylene chloride	J .002	-	BJ .005	UJ	NA		NA	
Styrene	U .005	UJ	U .005	UJ	NA		NA	
Tetrachlorethene	U .005	-	U .005	-	NA		NA	

a = lab qualifier
b = validated qualifier

14048

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099519 05/21/91		1621 099521 05/21/91		1621 099524 05/21/91		1621 099525 05/21/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	UJ .005	UJ	U .005	UJ	NA		NA	
Total xylenes	UJ .005	UJ	U .005	UJ	NA		NA	
trans-1,3-Dichloropropene	U .005	-	U .005	-	NA		NA	
Trichloroethene	U .005	-	U .005	-	NA		NA	
Vinyl Acetate	U .01	-	U .01	-	NA		NA	
Vinyl chloride	U .01	-	U .01	-	NA		NA	

a = lab qualifier
b = validated qualifier

5971

04948

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099564 05/22/91		1621 099565 05/22/91		1621 099584 05/23/91		1622 099587 05/29/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099564 05/22/91		1621 099565 05/22/91		1621 099584 05/23/91		1622 099587 05/29/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

599

04048

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099564 05/22/91		1621 099565 05/22/91		1621 099584 05/23/91		1622 099587 05/29/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1-Dichloroethane	U .005	UJ	NA		U .005	-	U .005	-
1,1-Dichloroethene	U .005	UJ	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	UJ	NA		U .005	UJ	U .005	-
1,2-Dichloropropane	U .005	-	NA		U .005	-	U .005	-
2-Butanone	U .01	-	U .01	-	U .01	UJ	J .003	-
2-Hexanone	U .01	-	NA		U .01	-	UJ .01	UJ
4-Methyl-2-pentanone	U .01	-	NA		U .01	-	U .01	-
Acetone	U .01	R	NA		U .01	R	J .013	J
Benzene	U .005	-	U .005	-	U .005	-	U .005	-
Bromodichloromethane	U .005	-	NA		U .005	-	U .005	-
Bromoform	U .005	-	NA		U .005	-	U .005	-
Bromomethane	U .01	-	NA		U .01	-	U .01	-
Carbon disulfide	U .005	UJ	NA		U .005	-	U .005	-
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .005	-
Chlorobenzene	U .005	UJ	U .005	-	U .005	UJ	U .005	-
Chloroethane	U .01	-	NA		U .01	-	U .01	-
Chloroform	.018	-	.015	-	.015	-	U .005	-
Chloromethane	U .01	UJ	NA		U .01	UJ	U .01	-
cis-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Dibromochloromethane	U .005	-	NA		U .005	-	U .005	-
Ethylbenzene	U .005	UJ	NA		U .005	UJ	U .005	-
Methylene chloride	U .005	-	NA		U .005	-	J .002	J
Styrene	U .005	UJ	NA		U .005	UJ	U .005	-
Tetrachlorethene	U .005	-	U .005	-	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

000
1049848

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1621 099564 05/22/91		1621 099565 05/22/91		1621 099584 05/23/91		1622 099587 05/29/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	.007	J	NA		U .005	UJ	U .005	-
Total xylenes	U .005	UJ	NA		U .005	UJ	U .005	-
trans-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Vinyl Acetate	U .01	-	NA		U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

603
4048

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1622 099611 05/30/91		1622 099628 05/31/91		1623 099646 06/04/91		1623 099665 06/04/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1622 099611 05/30/91		1622 099628 05/31/91		1623 099646 06/04/91		1623 099665 06/04/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

633

-4948

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1622 099611 05/30/91		1622 099628 05/31/91		1623 099646 06/04/91		1623 099665 06/04/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	UJ	U .005	UJ	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	-	U .005	-	U .005	-
2-Butanone	BJ .002	J	U .01	UJ	U .01	R	U .01	R
2-Hexanone	U .01	UJ	U .01	UJ	U .01	-	U .01	-
4-Methyl-2-pentanone	U .01	-	U .01	-	U .01	-	U .01	-
Acetone	B .023	J	B .022	J	U .01	R	U .01	R
Benzene	U .005	UJ	U .005	-	U .005	-	U .005	-
Bromodichloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Bromoform	U .005	-	U .005	-	U .005	-	U .005	-
Bromomethane	U .01	-	U .01	-	U .01	UJ	U .01	UJ
Carbon disulfide	U .005	-	U .005	-	.011	J	U .005	UJ
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .005	-
Chlorobenzene	U .005	UJ	U .005	-	U .005	-	U .005	-
Chloroethane	U .01	-	U .01	-	U .01	-	U .01	-
Chloroform	U .005	-	U .005	-	.013	-	.01	-
Chloromethane	U .01	-	U .01	-	U .01	UJ	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Ethylbenzene	U .005	UJ	U .005	-	U .005	-	U .005	-
Methylene chloride	BJ .002	J	BJ .002	J	BJ .001	J	U .005	UJ
Styrene	U .005	UJ	U .005	-	U .005	-	U .005	-
Tetrachlorethene	U .005	-	U .005	-	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

-4048-

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1622 099611 05/30/91		1622 099628 05/31/91		1623 099646 06/04/91		1623 099665 06/04/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	U .005	UJ	U .005	-	J .002	J	J .002	J
Total xylenes	U .005	UJ	U .005	-	U .005	-	U .005	-
trans-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Vinyl Acetate	U .01	-	U .01	-	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4948

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1623 099679 06/05/91		1790 099690 06/17/91	
	a	b	a	b
PESTICIDES/PCB				
4,4'-DDD	NA		NA	
4,4'-DDE	NA		NA	
4,4'-DDT	NA		NA	
Aldrin	NA		NA	
alpha-BHC	NA		NA	
alpha-Chlordane	NA		NA	
Aroclor-1016	NA		NA	
Aroclor-1221	NA		NA	
Aroclor-1232	NA		NA	
Aroclor-1242	NA		NA	
Aroclor-1248	NA		NA	
Aroclor-1254	NA		NA	
Aroclor-1260	NA		NA	
beta-BHC	NA		NA	
delta-BHC	NA		NA	
Dieldrin	NA		NA	
Endosulfan II	NA		NA	
Endosulfan sulfate	NA		NA	
Endosulfan-I	NA		NA	
Endrin	NA		NA	
Endrin ketone	NA		NA	
gamma-BHC (Lindane)	NA		NA	
gamma-Chlordane	NA		NA	
Heptachlor	NA		NA	
Heptachlor epoxide	NA		NA	
Methoxychlor	NA		NA	
Toxaphene	NA		NA	
SEMI-VOLATILE ORGANICS				
1,2,4-Trichlorobenzene	NA		NA	
1,2-Dichlorobenzene	NA		NA	
1,3-Dichlorobenzene	NA		NA	
1,4-Dichlorobenzene	NA		NA	
2,4,5-Trichlorophenol	NA		NA	
2,4,6-Trichlorophenol	NA		NA	
2,4-Dichlorophenol	NA		NA	
2,4-Dimethylphenol	NA		NA	
2,4-Dinitrophenol	NA		NA	
2,4-Dinitrotoluene	NA		NA	
2,6-Dinitrotoluene	NA		NA	
2-Chloronaphthalene	NA		NA	
2-Chlorophenol	NA		NA	

a = lab qualifier
b = validated qualifier

1-4048

909

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1623 099679 06/05/91		1790 099690 06/17/91	
	a	b	a	b
SEMI-VOLATILE ORGANICS				
2-Methylnaphthalene	NA		NA	
2-Methylphenol	NA		NA	
2-Nitroaniline	NA		NA	
2-Nitrophenol	NA		NA	
3,3'-Dichlorobenzidine	NA		NA	
3-Nitroaniline	NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA	
4-Bromophenyl phenyl ether	NA		NA	
4-Chloro-3-methylphenol	NA		NA	
4-Chloroaniline	NA		NA	
4-Chlorophenylphenyl ether	NA		NA	
4-Methylphenol	NA		NA	
4-Nitroaniline	NA		NA	
4-Nitrophenol	NA		NA	
Acenaphthene	NA		NA	
Acenaphthylene	NA		NA	
Anthracene	NA		NA	
Benzo(a)anthracene	NA		NA	
Benzo(a)pyrene	NA		NA	
Benzo(b)fluoranthene	NA		NA	
Benzo(g,h,i)perylene	NA		NA	
Benzo(k)fluoranthene	NA		NA	
Benzoic acid	NA		NA	
Benzyl alcohol	NA		NA	
bis(2-Chloroethoxy)methane	NA		NA	
bis(2-Chloroethyl)ether	NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA	
Butyl benzyl phthalate	NA		NA	
Chrysene	NA		NA	
Di-n-butyl phthalate	NA		NA	
Di-n-octyl phthalate	NA		NA	
Dibenzo(a,h)anthracene	NA		NA	
Dibenzofuran	NA		NA	
Diethyl phthalate	NA		NA	
Dimethyl phthalate	NA		NA	
Fluoranthene	NA		NA	
Fluorene	NA		NA	
Hexachlorobenzene	NA		NA	
Hexachlorobutadiene	NA		NA	

a = lab qualifier
b = validated qualifier

4943

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1623 099679 06/05/91 a	1623 099679 06/05/91 b	1790 099690 06/17/91 a	1790 099690 06/17/91 b
SEMI-VOLATILE ORGANICS				
Hexachlorocyclopentadiene	NA		NA	
Hexachloroethane	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA	
Isophorone	NA		NA	
N-Nitroso-di-n-propylamine	NA		NA	
N-Nitrosodiphenylamine	NA		NA	
Naphthalene	NA		NA	
Nitrobenzene	NA		NA	
Pentachlorophenol	NA		NA	
Phenanthrene	NA		NA	
Phenol	NA		NA	
Pyrene	NA		NA	
VOLATILE ORGANICS				
1,1,1-Trichloroethane	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	-
2-Butanone	J .001	J	BJ .005	-
2-Hexanone	U .01	-	U .01	-
4-Methyl-2-pentanone	U .01	-	U .01	-
Acetone	BJ .01	UJ	B .033	J
Benzene	U .005	-	U .005	-
Bromodichloromethane	J .001	-	U .005	-
Bromoform	U .005	-	U .005	-
Bromomethane	U .01	-	U .01	-
Carbon disulfide	U .005	-	.006	-
Carbon Tetrachloride	U .005	-	U .005	-
Chlorobenzene	U .005	-	U .005	-
Chloroethane	U .01	-	U .01	-
Chloroform	.007	-	J .004	-
Chloromethane	U .01	UJ	U .01	-
cis-1,3-Dichloropropene	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	-
Ethylbenzene	U .005	-	U .005	-
Methylene chloride	BJ .001	-	BJ .003	-
Styrene	U .005	-	U .005	-
Tetrachlorethene	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

608

84048

OU4 BERM QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1623 099679 06/05/91		1790 099690 06/17/91	
	a	b	a	b
VOLATILE ORGANICS				
Toluene	J .004	-	U .005	-
Total xylenes	U .005	-	U .005	-
trans-1,3-Dichloropropene	U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-
Vinyl Acetate	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

609

E-54948

OU4 SLANT BORING QA/QC RADIOLOGICAL RESULTS

OU4 SLANT QA/QC RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number, sample date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1616 064046 06/27/91 105 ft. a	b	1619 064088 07/25/91 110 ft. a	b
Actinium 227	< 44.2	R	< 1	R
Cesium 137	NA		NA	
Lead 210	< 3	J	< 1	-
Neptunium 237	NA		NA	
Plutonium 238	NA		NA	
Plutonium 239/240	NA		NA	
Polonium 210	< 1	J	< 1	J
Protactinium 231	<214	R	< 326	DJ
Radium 224	< 15	R	< 18	DR
Radium 224 (GAMMA)	< 15	J	NA	
Radium 226	< 1	R	< 1	J
Radium 226 (GAMMA)	< 18	DR	< 21	DR
Radium 228	< 3	R	< 3.8	J
Radium 228 (GAMMA)	< 52	DR	< 52	DJ
Ruthenium 106	NA		NA	
Strontium 90	NA		NA	
Technetium 99	NA		NA	
Thorium 228	NA		< 1	R
Thorium 230	NA		< 1	R
Thorium 232	NA		< 1	R
Total Thorium **	NA		< 12.1	R
Total Uranium **	< 1	J	2.99 ± 1.07	R
Uranium 234	< 1	J	1.67 ± .43	R
Uranium 235/236	< 1	J	< 1	R
Uranium 238	< 1	-	< 1	R

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

6114

4948

OU4 SLANT BORING QA/QC CHEMICAL RESULTS

OU4 SLANT BORING QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1616 064046 06/27/91 a	b	1619 064088 07/25/91 a	b
GENERAL CHEMISTRY				
Ammonia	U .1	-	U .1	-
Chloride	U .5	-	U .5	-
Fluoride	U .1	-	.032	-
Nitrate	211	-	38.03	-
Phenols	U .01	-	U .01	-
Phosphorus	U .02	-	U .02	-
Sulfate	U 2	-	U 2	-
Sulfide	U .5	-	U .5	-
Total Organic Carbon	1.86	-	U 1	-
Total Organic Halides	U .01	-	.0125	-
Total Organic Nitrogen	U .1	-	.058	-

a = lab qualifier
b = validated qualifier

613

4948

OU4 SLANT BORING QA/QC HSL RESULTS

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1616 064046 06/27/91		1619 064088 07/25/91	
	a	b	a	b
METALS				
Aluminum	U* .06	UJ	U .06	-
Antimony	BN .0351	J	UN .03	J
Arsenic	UWN .002	UJ	UN .002	J
Barium	UN .002	R	UN .002	R
Beryllium	U .002	-	U .002	-
Cadmium	U .002	-	U .002	-
Calcium	B .0842	-	U .02	-
Chromium	U* .01	UJ	U .01	-
Cobalt	U .01	-	U .01	-
Copper	U .01	-	U .01	-
Cyanide	U .002	-	U .002	-
Iron	B* .0417	UJ	U .01	-
Lead	UWN .002	UJ	BN .0023	J
Magnesium	U .05	-	U .05	-
Manganese	U .002	-	U .002	-
Mercury	U .0002	J	U .0002	J
Molybdenum	U* .01	UJ	U .01	-
Nickel	U .02	-	U .02	-
Potassium	U* .1	J	U .1	-
Selenium	UW .01	UJ	UN .002	J
Silicon	U* .025	UJ	U .025	J
Silver	U .01	J	U .01	J
Sodium	U .1	-	U .1	-
Thallium	UN .002	R	BN .0026	J
Vanadium	U* .01	UJ	U .01	-
Zinc	B .0151	J	B* .0171	J

a = lab qualifier
b = validated qualifier

-4948

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064035 06/26/91		1616 064044 06/28/91		1616 064046 06/27/91		1616 064047 06/27/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		U .0001	-	NA	
4,4'-DDE	NA		NA		U .0001	-	NA	
4,4'-DDT	NA		NA		U .0001	-	NA	
Aldrin	NA		NA		U .00005	-	NA	
alpha-BHC	NA		NA		U .00005	-	NA	
alpha-Chlordane	NA		NA		U .0005	-	NA	
Aroclor-1016	NA		NA		U .0005	-	NA	
Aroclor-1221	NA		NA		U .0005	-	NA	
Aroclor-1232	NA		NA		U .0005	-	NA	
Aroclor-1242	NA		NA		U .0005	-	NA	
Aroclor-1248	NA		NA		U .0005	-	NA	
Aroclor-1254	NA		NA		U .001	-	NA	
Aroclor-1260	NA		NA		U .001	-	NA	
beta-BHC	NA		NA		U .00005	-	NA	
delta-BHC	NA		NA		U .00005	-	NA	
Dieldrin	NA		NA		U .0001	-	NA	
Endosulfan II	NA		NA		U .0001	-	NA	
Endosulfan sulfate	NA		NA		U .0001	-	NA	
Endosulfan-I	NA		NA		U .00005	-	NA	
Endrin	NA		NA		U .0001	-	NA	
Endrin ketone	NA		NA		U .0001	-	NA	
gamma-BHC (Lindane)	NA		NA		U .00005	-	NA	
gamma-Chlordane	NA		NA		U .0005	-	NA	
Heptachlor	NA		NA		U .00005	-	NA	
Heptachlor epoxide	NA		NA		U .00005	-	NA	
Methoxychlor	NA		NA		U .0005	-	NA	
Toxaphene	NA		NA				NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		U .001	-		
1,2-Dichlorobenzene	NA		NA		U .01	-	NA	
1,3-Dichlorobenzene	NA		NA		U .01	-	NA	
1,4-Dichlorobenzene	NA		NA		U .01	-	NA	
2,4,5-Trichlorophenol	NA		NA		U .01	-	NA	
2,4,6-Trichlorophenol	NA		NA		U .05	-	NA	
2,4-Dichlorophenol	NA		NA		U .01	-	NA	
2,4-Dimethylphenol	NA		NA		U .01	-	NA	
2,4-Dinitrophenol	NA		NA		U .01	-	NA	
2,4-Dinitrotoluene	NA		NA		U .05	-	NA	
2,6-Dinitrotoluene	NA		NA		U .01	-	NA	
2-Chloronaphthalene	NA		NA		U .01	-	NA	
2-Chlorophenol	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

-4948
616

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064035 06/26/91		1616 064044 06/28/91		1616 064046 06/27/91		1616 064047 06/27/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		U .01	-	NA	
2-Methylphenol	NA		NA		U .01	-	NA	
2-Nitroaniline	NA		NA		U .05	-	NA	
2-Nitrophenol	NA		NA		U .01	-	NA	
3,3'-Dichlorobenzidine	NA		NA		U .02	-	NA	
3-Nitroaniline	NA		NA		U .05	-	NA	
4,6-Dinitro-2-methylphenol	NA		NA		U .05	-	NA	
4-Bromophenyl phenyl ether	NA		NA		U .01	-	NA	
4-Chloro-3-methylphenol	NA		NA		U .01	-	NA	
4-Chloroaniline	NA		NA		U .01	-	NA	
4-Chlorophenylphenyl ether	NA		NA		U .01	-	NA	
4-Methylphenol	NA		NA		U .01	-	NA	
4-Nitroaniline	NA		NA		U .01	-	NA	
4-Nitrophenol	NA		NA		U .05	-	NA	
Acenaphthene	NA		NA		U .05	-	NA	
Acenaphthylene	NA		NA		U .01	-	NA	
Anthracene	NA		NA		U .01	-	NA	
Benzo(a)anthracene	NA		NA		U .01	-	NA	
Benzo(a)pyrene	NA		NA		U .01	-	NA	
Benzo(b)fluoranthene	NA		NA		U .01	-	NA	
Benzo(g,h,i)perylene	NA		NA		U .01	-	NA	
Benzo(k)fluoranthene	NA		NA		U .01	-	NA	
Benzoic acid	NA		NA		U .01	-	NA	
Benzyl alcohol	NA		NA		U .05	-	NA	
bis(2-Chloroethoxy)methane	NA		NA		U .01	-	NA	
bis(2-Chloroethyl)ether	NA		NA		U .01	-	NA	
bis(2-Chloroisopropyl) ether	NA		NA		U .01	-	NA	
bis(2-Ethylhexyl) phthalate	NA		NA		U .01	-	NA	
Butyl benzyl phthalate	NA		NA		U .01	-	NA	
Chrysene	NA		NA		U .01	-	NA	
Di-n-butyl phthalate	NA		NA		U .01	-	NA	
Di-n-octyl phthalate	NA		NA		U .01	-	NA	
Dibenzo(a,h)anthracene	NA		NA		U .01	-	NA	
Dibenzofuran	NA		NA		U .01	-	NA	
Diethyl phthalate	NA		NA		U .01	-	NA	
Dimethyl phthalate	NA		NA		U .01	-	NA	
Fluoranthene	NA		NA		U .01	-	NA	
Fluorene	NA		NA		U .01	-	NA	
Hexachlorobenzene	NA		NA		U .01	-	NA	
Hexachlorobutadiene	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

-4048

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064035 06/26/91 a	b	1616 064044 06/28/91 a	b	1616 064046 06/27/91 a	b	1616 064047 06/27/91 a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		U .01	-	NA	
Hexachloroethane	NA		NA		U .01	-	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		U .01	-	NA	
Isophorone	NA		NA		U .01	-	NA	
N-Nitroso-di-n-propylamine	NA		NA		U .01	-	NA	
N-Nitrosodiphenylamine	NA		NA		U .01	-	NA	
Naphthalene	NA		NA		U .01	-	NA	
Nitrobenzene	NA		NA		U .01	-	NA	
Pentachlorophenol	NA		NA		U .05	-	NA	
Phenanthrene	NA		NA		U .01	-	NA	
Phenol	NA		NA		U .01	-	NA	
Pyrene	NA		NA		U .01	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,1,2,2-Tetrachloroethane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,1,2-Trichloroethane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,1-Dichloroethane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,1-Dichloroethene	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,2-Dichloroethane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,2-Dichloroethylene	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
1,2-Dichloropropane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
2-Butanone	U .01	UJ	U .01	R	U .01	R	U .01	R
2-Hexanone	U .01	UJ	U .01	UJ	U .01	UJ	U .01	UJ
4-Methyl-2-pentanone	U .01	UJ	U .01	UJ	U .01	UJ	U .01	UJ
Acetone	BJ .005	R	U .01	UJ	U .01	UJ	U .01	UJ
Benzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Bromodichloromethane	J .002	-	U .005	UJ	U .005	UJ	U .005	UJ
Bromoform	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
Bromomethane	U .01	-	U .01	UJ	U .01	UJ	U .01	UJ
Carbon disulfide	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
Carbon Tetrachloride	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
Chlorobenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Chloroethane	U .01	-	U .01	UJ	U .01	UJ	U .01	UJ
Chloroform	.02	-	U .005	UJ	U .005	UJ	.02	J
Chloromethane	U .01	-	U .01	UJ	U .01	UJ	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
Dibromochloromethane	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
Ethylbenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Methylene chloride	BJ .001	J	BJ .004	J	U .005	UJ	U .005	UJ
Styrene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ

a = lab qualifier
b = validated qualifier

-4948
618

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064035 06/26/91		1616 064044 06/28/91		1616 064046 06/27/91		1616 064047 06/27/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .001	-	U .005	UJ	U .005	UJ	J .001	J
Total xylenes	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Trichloroethene	U .005	-	U .005	UJ	U .005	UJ	U .005	UJ
Vinyl Acetate	U .01	-	U .01	UJ	U .01	UJ	U .01	UJ
Vinyl chloride	U .01	-	U .01	UJ	U .01	UJ	U .01	UJ

a = lab qualifier
b = validated qualifier

C-18

E-5494B

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064048 06/27/91		1617 064010 06/10/91		1618 064108 07/29/91		1618 064114 07/30/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

1 of 8

630

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064048 06/27/91		1617 064010 06/10/91		1618 064108 07/29/91		1618 064114 07/30/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064048 06/27/91 a	1616 064048 06/27/91 b	1617 064010 06/10/91 a	1617 064010 06/10/91 b	1618 064108 07/29/91 a	1618 064108 07/29/91 b	1618 064114 07/30/91 a	1618 064114 07/30/91 b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	UJ	U .005	UJ	U .005	J	U .005	U
1,1,2,2-Tetrachloroethane	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
1,1,2-Trichloroethane	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
1,1-Dichloroethane	U .005	UJ	U .005	UJ	U .005	J	U .005	U
1,1-Dichloroethene	U .005	UJ	U .005	UJ	U .005	J	U .005	U
1,2-Dichloroethane	U .005	UJ	U .005	UJ	U .005	J	U .005	U
1,2-Dichloroethylene	U .005	UJ	U .005	UJ	U .005	J	U .005	U
1,2-Dichloropropane	U .005	UJ	U .005	UJ	U .005	J	U .005	U
2-Butanone	U .01	R	U .01	R	U .01	J	U .01	U
2-Hexanone	U .01	UJ	U .01	UJ	U .01	J	U .01	UJ
4-Methyl-2-pentanone	U .01	UJ	U .01	UJ	U .01	J	U .01	U
Acetone	BJ .003	UJ	.015	J	BJ .007	UJ	BJ .008	UJ
Benzene	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
Bromodichloromethane	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Bromoform	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Bromomethane	U .01	UJ	U .01	UJ	U .01	J	U .01	U
Carbon disulfide	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Carbon Tetrachloride	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Chlorobenzene	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
Chloroethane	U .01	UJ	U .01	UJ	U .01	J	U .01	U
Chloroform	U .005	UJ	.022	J	U .005	J	J .004	J
Chloromethane	U .01	UJ	U .01	UJ	U .01	J	U .01	UJ
cis-1,3-Dichloropropene	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Dibromochloromethane	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Ethylbenzene	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
Methylene chloride	BJ .002	UJ	BJ .002	UJ	BJ .002	UJ	BJ .002	J
Styrene	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
Tetrachlorethene	U .005	UJ	U .005	UJ	U .005	J	U .005	J

a = lab qualifier
b = validated qualifier

-4948

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1616 064048 06/27/91		1617 064010 06/10/91		1618 064108 07/29/91		1618 064114 07/30/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	U .005	UJ	J .001	J	BJ .001	UJ	BJ .004	UJ
Total xylenes	U .005	UJ	U .005	UJ	U .005	J	U .005	UJ
trans-1,3-Dichloropropene	U .005	UJ	U .005	UJ	U .005	J	U .005	U
Trichloroethene	U .005	UJ	U .005	UJ	U .005	J	J .001	J
Vinyl Acetate	U .01	UJ	U .01	UJ	U .01	J	U .01	U
Vinyl chloride	U .01	UJ	U .01	UJ	U .01	J	U .01	U

a = lab qualifier
b = validated qualifier

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064118 07/30/91		1618 064130 08/01/91		1618 064139 08/01/91		1618 064140 08/02/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

1-4948

624

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064118 07/30/91		1618 064130 08/01/91		1618 064139 08/01/91		1618 064140 08/02/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4048

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064118 07/30/91		1618 064130 08/01/91		1618 064139 08/01/91		1618 064140 08/02/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	-	U .005	-	U .005	-
2-Butanone	U .01	UJ	U .01	UJ	U .01	UJ	U .01	UJ
2-Hexanone	U .01	UJ	U .01	UJ	U .01	UJ	U .01	UJ
4-Methyl-2-pentanone	U .01	-	U .01	-	U .01	-	U .01	-
Acetone	BJ .01	J	BJ .003	J	B .01	J	BJ .01	J
Benzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Bromodichloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Bromoform	U .005	UJ	U .005	-	U .005	-	U .005	-
Bromomethane	U .01	-	U .01	-	U .01	-	U .01	-
Carbon disulfide	U .005	-	U .005	-	J .002	J	U .005	-
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .005	-
Chlorobenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Chloroethane	U .01	-	U .01	-	U .01	-	U .01	-
Chloroform	J .002	J	J .002	J	.006	-	U .005	-
Chloromethane	U .01	UJ	U .01	UJ	U .01	UJ	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Ethylbenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Methylene chloride	BJ .005	J	BJ .002	J	U .005	-	BJ .005	J
Styrene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	-	U .005	-	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

-4948-
626

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064118 07/30/91		1618 064130 08/01/91		1618 064139 08/01/91		1618 064140 08/02/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	BJ .002	UJ	BJ .001	J	BJ .002	J	BJ .002	J
Total xylenes	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Vinyl Acetate	U .01	-	U .01	-	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4048

629

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064151 08/03/91		1619 064069 07/20/91		1619 064088 07/25/91		1619 064089 07/25/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		U .0001	-	NA	
4,4'-DDE	NA		NA		U .0001	-	NA	
4,4'-DDT	NA		NA		U .0001	-	NA	
Aldrin	NA		NA		U .00005	-	NA	
alpha-BHC	NA		NA		U .00005	-	NA	
alpha-Chlordane	NA		NA		U .0005	-	NA	
Aroclor-1016	NA		NA		U .0005	-	NA	
Aroclor-1221	NA		NA		U .0005	-	NA	
Aroclor-1232	NA		NA		U .0005	-	NA	
Aroclor-1242	NA		NA		U .0005	-	NA	
Aroclor-1248	NA		NA		U .0005	-	NA	
Aroclor-1254	NA		NA		U .001	-	NA	
Aroclor-1260	NA		NA		U .001	-	NA	
beta-BHC	NA		NA		U .00005	-	NA	
delta-BHC	NA		NA		U .00005	-	NA	
Dieldrin	NA		NA		U .0001	-	NA	
Endosulfan II	NA		NA		U .0001	-	NA	
Endosulfan sulfate	NA		NA		U .0001	-	NA	
Endosulfan-I	NA		NA		U .00005	-	NA	
Endrin	NA		NA		U .0001	-	NA	
Endrin ketone	NA		NA		U .0001	-	NA	
gamma-BHC (Lindane)	NA		NA		U .00005	-	NA	
gamma-Chlordane	NA		NA		U .0005	-	NA	
Heptachlor	NA		NA		U .00005	-	NA	
Heptachlor epoxide	NA		NA		U .00005	-	NA	
Methoxychlor	NA		NA		U .0005	-	NA	
Toxaphene	NA		NA		U .001	-	NA	
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	NA		NA		U .01	-	NA	
1,2-Dichlorobenzene	NA		NA		U .01	-	NA	
1,3-Dichlorobenzene	NA		NA		U .01	-	NA	
1,4-Dichlorobenzene	NA		NA		U .01	-	NA	
2,4,5-Trichlorophenol	NA		NA		U .05	-	NA	
2,4,6-Trichlorophenol	NA		NA		U .01	-	NA	
2,4-Dichlorophenol	NA		NA		U .01	-	NA	
2,4-Dimethylphenol	NA		NA		U .01	-	NA	
2,4-Dinitrophenol	NA		NA		U .05	UJ	NA	
2,4-Dinitrotoluene	NA		NA		U .01	-	NA	
2,6-Dinitrotoluene	NA		NA		U .01	-	NA	
2-Chloronaphthalene	NA		NA		U .01	-	NA	
2-Chlorophenol	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

-4948
628

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064151 08/03/91		1619 064069 07/20/91		1619 064088 07/25/91		1619 064089 07/25/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		U .01	-	NA	
2-Methylphenol	NA		NA		U .01	-	NA	
2-Nitroaniline	NA		NA		U .05	-	NA	
2-Nitrophenol	NA		NA		U .01	-	NA	
3,3'-Dichlorobenzidine	NA		NA		U .02	UJ	NA	
3-Nitroaniline	NA		NA		U .05	UJ	NA	
4,6-Dinitro-2-methylphenol	NA		NA		U .05	-	NA	
4-Bromophenyl phenyl ether	NA		NA		U .01	-	NA	
4-Chloro-3-methylphenol	NA		NA		U .01	-	NA	
4-Chloroaniline	NA		NA		U .01	-	NA	
4-Chlorophenylphenyl ether	NA		NA		U .01	-	NA	
4-Methylphenol	NA		NA		U .01	-	NA	
4-Nitroaniline	NA		NA		U .05	UJ	NA	
4-Nitrophenol	NA		NA		U .05	-	NA	
Acenaphthene	NA		NA		U .01	-	NA	
Acenaphthylene	NA		NA		U .01	-	NA	
Anthracene	NA		NA		U .01	-	NA	
Benzo(a)anthracene	NA		NA		U .01	-	NA	
Benzo(a)pyrene	NA		NA		U .01	-	NA	
Benzo(b)fluoranthene	NA		NA		U .01	-	NA	
Benzo(g,h,i)perylene	NA		NA		U .01	-	NA	
Benzo(k)fluoranthene	NA		NA		U .01	-	NA	
Benzoic acid	NA		NA		U .05	UJ	NA	
Benzyl alcohol	NA		NA		U .01	-	NA	
bis(2-Chloroethoxy)methane	NA		NA		U .01	-	NA	
bis(2-Chloroethyl)ether	NA		NA		U .01	-	NA	
bis(2-Chloroisopropyl) ether	NA		NA		U .01	-	NA	
bis(2-Ethylhexyl) phthalate	NA		NA		U .01	-	NA	
Butyl benzyl phthalate	NA		NA		U .01	-	NA	
Chrysene	NA		NA		U .01	-	NA	
Di-n-butyl phthalate	NA		NA		U .01	-	NA	
Di-n-octyl phthalate	NA		NA		U .01	-	NA	
Dibenzo(a,h)anthracene	NA		NA		U .01	-	NA	
Dibenzofuran	NA		NA		U .01	-	NA	
Diethyl phthalate	NA		NA		U .01	-	NA	
Dimethyl phthalate	NA		NA		U .01	-	NA	
Fluoranthene	NA		NA		U .01	-	NA	
Fluorene	NA		NA		U .01	-	NA	
Hexachlorobenzene	NA		NA		U .01	-	NA	
Hexachlorobutadiene	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

629

8048

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064151 08/03/91 a	1618 064151 08/03/91 b	1619 064069 07/20/91 a	1619 064069 07/20/91 b	1619 064088 07/25/91 a	1619 064088 07/25/91 b	1619 064089 07/25/91 a	1619 064089 07/25/91 b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		U .01	-	NA	
Hexachloroethane	NA		NA		U .01	UJ	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		U .01	-	NA	
Isophorone	NA		NA		U .01	-	NA	
N-Nitroso-di-n-propylamine	NA		NA		U .01	-	NA	
N-Nitrosodiphenylamine	NA		NA		U .01	-	NA	
Naphthalene	NA		NA		U .01	-	NA	
Nitrobenzene	NA		NA		U .01	-	NA	
Pentachlorophenol	NA		NA		U .05	-	NA	
Phenanthrene	NA		NA		U .01	-	NA	
Phenol	NA		NA		U .01	-	NA	
Pyrene	NA		NA		U .01	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,1,2,2-Tetrachloroethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,1,2-Trichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,1-Dichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,1-Dichloroethene	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,2-Dichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,2-Dichloroethylene	U .005	-	U .005	UJ	U .005	-	U .005	UJ
1,2-Dichloropropane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
2-Butanone	U .01	-	U .01	UJ	U .01	UJ	BJ .001	UJ
2-Hexanone	J .006	-	U .01	UJ	U .01	-	U .01	UJ
4-Methyl-2-pentanone	U .01	-	U .01	UJ	U .01	-	U .01	UJ
Acetone	BJ .003	J	BJ .003	-	BJ .006	UJ	BJ .006	UJ
Benzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Bromodichloromethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
Bromoform	U .005	UJ	U .005	UJ	U .005	-	U .005	UJ
Bromomethane	U .01	-	U .01	UJ	U .01	-	U .01	UJ
Carbon disulfide	J .002	-	U .005	UJ	U .005	-	U .005	UJ
Carbon Tetrachloride	U .005	-	U .005	UJ	U .005	-	U .005	UJ
Chlorobenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Chloroethane	U .01	-	U .01	UJ	U .01	-	U .01	UJ
Chloroform	U .005	-	U .005	UJ	U .005	-	J .002	UJ
Chloromethane	U .01	-	U .01	UJ	U .01	UJ	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	UJ	U .005	-	U .005	UJ
Dibromochloromethane	U .005	-	U .005	UJ	U .005	-	U .005	UJ
Ethylbenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Methylene chloride	B .005	J	BJ .003	-	U .005	-	U .005	UJ
Styrene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	-	U .005	UJ	U .005	-	U .005	UJ

a = lab qualifier
b = validated qualifier

-4948

633

OU4 SLANT BORING QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064151 08/03/91		1619 064069 07/20/91		1619 064088 07/25/91		1619 064089 07/25/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	BJ .002	J	U .005	UJ	U .005	UJ	J .001	J
Total xylenes	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	UJ	U .005	-	U .005	UJ
Trichloroethene	U .005	-	J .003	UJ	U .005	-	U .005	UJ
Vinyl Acetate	U .01	-	U .01	UJ	U .01	-	U .01	UJ
Vinyl chloride	U .01	-	U .01	UJ	U .01	-	U .01	UJ

a = lab qualifier
b = validated qualifier

OU4 SUBSURFACE SOIL QA/QC RADIOLOGICAL RESULTS

OU4 SUBSURFACE SOILS QA/QC RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1032 007511 10/31/87			1072 008213 03/09/88			3034 008306 03/28/88		
	a		b	a		b	a		b
Cesium 137	< 20		J	< 20		R	< 20		R
Neptunium 237	< 1		J	< .6		R	< 1		R
Plutonium 238	< 1		J	< .6		R	< 1		J
Plutonium 239/240	< 1		J	< .6		R	< 1		J
Radium 226	< 1		J	< 1		J		NA	
Radium 228	< 3.4		J	< 3		J		NA	
Ruthenium 106	<150		J	<150		R	<150		R
Strontium 90	< 5		J	< 5		R	< 5		R
Technetium 99	< 3		J	< 30		R	< 30		R
Thorium 228	< 1		J	< .6		R	< 1		R
Th[illegible]	< 1		J	.7	± .3	-	< 1		R
232	< 1		J	< .6		-	< 1		R
Total Uranium **	7	± 4	J	4	± 1	R	< 1		R
Uranium 234	4	± 1.6	J	.6	± .3	J	< 1		R
Uranium 235/236	< 1		J	< .6		J	< 1		R
Uranium 238	2.2	± 1.2	J	.8	± .3	J	< 1		R

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

633

4048

OU4 SUBSURFACE SOIL QA/QC CHEMICAL RESULTS

OU4 SUBSURFACE SOILS QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 007493 10/29/87		1032 007511 10/31/87		1072 008213 03/09/88		3034 008306 03/28/88	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Chloride	.25	-	.8	R	U .5	-	5.9	-
Fluoride	U .1	-	U .1	R	U .1	-	U .1	-
Nitrate	.26	-	.1	-	.4	-	.1	-
Phenols	U .01	-	U .01	R	U .01	-	U .01	-
Sulfate	3.3	-	2.5	-	U 2	-	8	-

a = lab qualifier
b = validated qualifier

635

-4048

OU4 SUBSURFACE SOIL QA/QC HSL RESULTS

OU4 SUBSURFACE SOILS QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 007493 10/29/87		1032 007511 10/31/87		1072 008213 03/09/88		3034 008306 03/28/88	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	.17	-	NA		NA		NA	
Antimony	U .06	-	NA		NA		NA	
Arsenic	U .005	-	U .2	-	U .2	-	U .2	-
Barium	.005	-	U .002	J	.003	-	.062	J
Beryllium	U .001	-	NA		NA		NA	
Cadmium	U .002	-	.005	-	U .002	-	U .002	-
Calcium	20.7	-	NA		. 4	-	.5	-
Chromium	U .02	-	U .02	-	U .02	-	U .02	-
Cobalt	U .01	-	NA		NA		NA	
Copper	U .01	-	U .02	-	U .01	-	U .01	-
Cyanide	U .01	-	U .01	-	NA		NA	
Hexavalent Chromium	U .01	-	U .01	R	U .01	R	U .01	R
Iron	U .005	-	U .005	-	.038	-	.1	-
Lead	U .005	-	U .05	-	.05	U	U .05	-
Magnesium	12.46	-	NA		.03	-	.11	-
Manganese	U .001	-	U .001	-	.005	-	.004	-
Mercury	U .0002	-	U .0002	R	U .0002	-	U .0002	-
Molybdenum	U .02	-	U .02	-	U .02	-	U .02	-
Nickel	U .02	-	U .02	-	U .02	-	U .02	-
Potassium	U .2	-	NA		U .2	-	U .2	-
Selenium	U .005	-	U .2	J	U .2	-	U .2	R
Silver	U .005	-	U .01	J	.132	-	U .01	-
Sodium	9.87	-	.36	-	.23	UJ	.28	-
Thallium	U .01	-	NA		NA		NA	
Vanadium	U .01	-	NA		NA		NA	
Zinc	U .01	-	NA		NA		NA	

a = lab qualifier
b = validated qualifier

637

-49948

OU4 SUBSURFACE SOILS QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 007493 10/29/87	
	a	b
PESTICIDES/PCB		
4,4'-DDD	U .0004	-
4,4'-DDE	U .0004	-
4,4'-DDT	U .0004	-
Aldrin	U .0002	-
alpha-BHC	U .0002	-
alpha-Chlordane	U .002	-
Aroclor-1016	U .002	-
Aroclor-1221	U .002	-
Aroclor-1232	U .002	-
Aroclor-1242	U .002	-
Aroclor-1248	U .002	-
Aroclor-1254	U .004	-
Aroclor-1260	U .004	-
beta-BHC	U .0002	-
delta-BHC	U .0002	-
Dieldrin	U .0004	-
Endosulfan II	U .0004	-
Endosulfan sulfate	U .0004	-
Endosulfan-I	U .0002	-
Endrin	U .0004	-
Endrin ketone	U .0004	-
gamma-BHC (Lindane)	U .0002	-
gamma-Chlordane	U .002	-
Heptachlor	U .0002	-
Heptachlor epoxide	U .0002	-
Methoxychlor	U .002	-
Toxaphene	U .004	-
SEMI-VOLATILE ORGANICS		
1,2,4-Trichlorobenzene	U .01	-
1,2-Dichlorobenzene	U .01	-
1,3-Dichlorobenzene	U .01	-
1,4-Dichlorobenzene	U .01	-
2,4,5-Trichlorophenol	U .05	-
2,4,6-Trichlorophenol	U .01	-
2,4-Dichlorophenol	U .01	-
2,4-Dimethylphenol	U .01	-
2,4-Dinitrophenol	U .05	-
2,4-Dinitrotoluene	U .01	-
2,6-Dinitrotoluene	U .01	-
2-Chloronaphthalene	U .01	-
2-Chlorophenol	U .01	-

a = lab qualifier
b = validated qualifier

-4948
638

OU4 SUBSURFACE SOILS QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 007493 10/29/87	
	a	b
SEMI-VOLATILE ORGANICS		
2-Methylnaphthalene	U .01	-
2-Methylphenol	U .01	-
2-Nitroaniline	U .05	-
2-Nitrophenol	U .01	-
3,3'-Dichlorobenzidine	U .02	-
3-Nitroaniline	U .05	-
4,6-Dinitro-2-methylphenol	U .05	-
4-Bromophenyl phenyl ether	U .01	-
4-Chloro-3-methylphenol	U .01	-
4-Chloroaniline	U .01	-
4-Chlorophenylphenyl ether	U .01	-
4-Methylphenol	U .01	-
4-Nitroaniline	U .05	-
4-Nitrophenol	U .05	-
Acenaphthene	U .01	-
Acenaphthylene	U .01	-
Anthracene	U .01	-
Benzo(a)pyrene	U .01	-
Benzo(b)fluoranthene	U .01	-
Benzo(g,h,i)perylene	U .01	-
Benzo(k)fluoranthene	U .01	-
Benzoic acid	U .05	-
Benzyl alcohol	U .01	-
bis(2-Chloroethoxy)methane	U .01	-
bis(2-Chloroethyl)ether	U .01	-
bis(2-Chloroisopropyl) ether	U .01	-
bis(2-Ethylhexyl) phthalate	U .01	-
Butyl benzyl phthalate	U .01	-
Chrysene	U .01	-
Di-n-butyl phthalate	U .01	-
Di-n-octyl phthalate	U .01	-
Dibenzofuran	U .01	-
Diethyl phthalate	U .01	-
Dimethyl phthalate	U .01	-
Fluoranthene	U .01	-
Fluorene	U .01	-
Hexachlorobenzene	U .01	-
Hexachlorobutadiene	U .01	-
Hexachlorocyclopentadiene	U .01	-
Hexachloroethane	U .01	-

a = lab qualifier
b = validated qualifier

-4048

033

OU4 SUBSURFACE SOILS QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 007493 10/29/87	
	a	b
SEMI-VOLATILE ORGANICS		
Indeno(1,2,3-cd)pyrene	U .01	-
Isophorone	U .01	-
N-Nitroso-di-n-propylamine	U .01	-
N-Nitrosodiphenylamine	U .02	-
Naphthalene	U .01	-
Nitrobenzene	U .01	-
Pentachlorophenol	U .05	-
Phenanthrene	U .01	-
Phenol	U .01	-
Pyrene	U .01	-
VOLATILE ORGANICS		
1,1,1-Trichloroethane	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-
1,1,2-Trichloroethane	U .005	-
1,1-Dichloroethane	U .005	-
1,1-Dichloroethene	U .005	-
1,2-Dichloroethane	U .005	-
1,2-Dichloroethylene	U .005	-
1,2-Dichloropropane	U .005	-
2-Butanone	U .01	-
2-Hexanone	U .01	-
4-Methyl-2-pentanone	U .01	-
Acetone	JB .001	-
Benzene	U .005	-
Bromodichloromethane	U .005	-
Bromoform	J .002	-
Bromomethane	U .01	-
Carbon disulfide	U .005	-
Carbon Tetrachloride	U .005	-
Chlorobenzene	U .005	-
Chloroethane	U .01	-
Chloroform	U .005	-
Chloromethane	U .01	-
cis-1,3-Dichloropropene	U .005	-
Ethylbenzene	U .005	-
Methylene chloride	U .005	-
Styrene	U .005	-
Tetrachlorethene	U .005	-
Toluene	U .005	-
Total xylenes	U .005	-
trans-1,3-Dichloropropene	U .005	-

a = lab qualifier
b = validated qualifier

640

-4948

OU4 SUBSURFACE SOILS QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 007493 10/29/87	
	a	b
VOLATILE ORGANICS		
Trichloroethene	U .005	-
Vinyl Acetate	U .01	-
Vinyl chloride	U .01	-

a = lab qualifier
b = validated qualifier

OU4 RI/FS APPENDICES LISTING

APPENDIX C GROUNDWATER

C.1	PERCHED WATER	RADIOLOGICAL CHEMICAL HSL
C.2	SURFACE WATER	RADIOLOGICAL CHEMICAL HSL
C.3	GROUNDWATER	RADIOLOGICAL CHEMICAL HSL
C.4	FEMP GROUNDWATER	RADIOLOGICAL CHEMICAL
C.5	RI/FS MONITORING WELL ELEVATION DATA	
C.6	MONITORING WELL INSTALLATION RECORDS	
C.7	QA/QC RESULTS	PERCHED WATER SURFACE WATER

APPENDIX C OU4 RI/FS SAMPLE NUMBER LIST

APPENDIX C RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
1047	SURFACE WATER	ASIT-010	NA	06/28/88	RADIOLOGICAL
1107	SURFACE WATER	W-11	NA	01/12/89	CHEM., FULL HSL, & RADIOLOGICAL
1108	SURFACE WATER	W-10	NA	01/12/89	CHEM., FULL HSL, & RADIOLOGICAL
1114	SURFACE WATER	ASIT-025	NA	03/10/89	RADIOLOGICAL
1115	SURFACE WATER	ASIT-026	NA	03/10/89	RADIOLOGICAL
1116	SURFACE WATER	ASIT-026	NA	03/10/89	RADIOLOGICAL QC DUPLICATE
1117	SURFACE WATER	ASIT-010	NA	03/10/89	RADIOLOGICAL
1118	SURFACE WATER	ASIT-010	NA	03/10/89	RADIOLOGICAL
1150	SURFACE WATER	ASIT-023	NA	02/21/89	RADIOLOGICAL
1151	SURFACE WATER	ASIT-023	NA	02/21/89	RADIOLOGICAL QC DUPLICATE
1152	SURFACE WATER	ASIT-024	NA	02/21/89	RADIOLOGICAL
1153	SURFACE WATER	ASIT-024	NA	02/21/89	RADIOLOGICAL QC DUPLICATE
1209	SURFACE WATER	W-11	NA	05/14/89	CHEMICAL, HSL METALS, & RADIOLOGICAL
1216	SURFACE WATER	W-10	NA	05/23/89	RADIOLOGICAL
1217	SURFACE WATER	W-10	NA	05/23/89	CHEM., HSL METALS & RAD. QC DUP.
1247	SURFACE WATER	W-11	NA	07/15/90	CHEMICAL & HSL METALS
1249	SURFACE WATER	W-10	NA	07/15/90	CHEMICAL, HSL METALS, & RADIOLOGICAL
1250	SURFACE WATER	W-10	NA	07/15/90	RADIOLOGICAL
3076	GROUND WATER	1029	NA	04/05/88	FULL HSL, CHEM. & RADIOLOGICAL
3354	GROUND WATER	1029	NA	07/20/88	CHEM., HSL METALS, & RADIOLOGICAL
3634	GROUND WATER	1029	NA	10/23/88	CHEM., HSL METALS, & RADIOLOGICAL
3852	GROUND WATER	1029	NA	01/22/89	CHEM., HSL METALS, & RADIOLOGICAL
4061	GROUND WATER	1029	NA	03/31/89	ORGANOPHOSPOROUS PESTICIDES
3133	GROUND WATER	1032	NA	04/27/88	CHEM., HSL METALS, & RADIOLOGICAL
3355	GROUND WATER	1032	NA	07/20/88	RADIOLOGICAL
3635	GROUND WATER	1032	NA	10/23/88	RADIOLOGICAL
3851	GROUND WATER	1032	NA	01/22/89	CHEM., HSL METALS, & RADIOLOGICAL
3220	GROUND WATER	1033	NA	05/22/88	CHEM., HSL METALS, & RADIOLOGICAL
3567	GROUND WATER	1033	NA	08/24/88	CHEM., HSL METALS, & RADIOLOGICAL
3773	GROUND WATER	1033	NA	11/20/88	CHEM., HSL METALS, & RADIOLOGICAL
3961	GROUND WATER	1033	NA	03/10/89	CHEM., HSL METALS, & RADIOLOGICAL
3122	GROUND WATER	1034	NA	04/25/88	CHEM., HSL METALS, & RADIOLOGICAL
3850	GROUND WATER	1034	NA	01/22/89	CHEM., HSL METALS, & RADIOLOGICAL
64007	PERCHED WATER	1615	57.5	05/29/91	CHEM., FULL HSL, & RADIOLOGICAL
64008	PERCHED WATER	1615	NA	05/28/91	TRIP BLANK
66951	PERCHED WATER	1615	NA	04/23/91	RINSATE
64021	PERCHED WATER	1616	48	06/21/91	CHEM., FULL HSL, & RADIOLOGICAL
64022	PERCHED WATER	1616	48	06/21/91	TRIP BLANK
64052	PERCHED WATER	1616	120	07/09/91	CHEM., FULL HSL, & RADIOLOGICAL
64053	PERCHED WATER	1616	NA	07/09/91	FIELD BLANK
64054	PERCHED WATER	1616	NA	07/09/91	TRIP BLANK
64009	PERCHED WATER	1617	68.5	06/10/91	CHEM., FULL HSL, & RADIOLOGICAL
64010	PERCHED WATER	1617	NA	06/10/91	TRIP BLANK
64152	PERCHED WATER	1618	130	08/08/91	CHEM., HSL VOLATILES, METALS, & RAD.
64153	PERCHED WATER	1618	NA	08/08/91	TRIP BLANK
64154	PERCHED WATER	1618	130	08/20/91	HSL SEMIVOLATILES, PEST./PCB
64155	PERCHED WATER	1618	NA	08/20/91	TRIP BLANK
64156	PERCHED WATER	1618	NA	08/20/91	FIELD BLANK
64090	PERCHED WATER	1619	110	07/31/91	CHEM., FULL HSL, & RADIOLOGICAL
64091	PERCHED WATER	1619	NA	07/31/91	TRIP BLANK
64129	PERCHED WATER	1619	NA	07/31/91	RINSATE
64131	PERCHED WATER	1619	NA	07/31/91	TRIP BLANK
4299	GROUND WATER	2032	NA	06/29/90	CHEM., HSL METALS, & RADIOLOGICAL

APPENDIX C RI/FS SAMPLE NUMBER LIST

SAMPLE NUMBER	SAMPLE LOCATION	LOCATION NUMBER	BORING LENGTH (ft.)	COLLECTION DATE	ANALYTICAL PARAMETERS
4208	GROUND WATER	2033	NA	06/19/90	CHEM., HSL METALS, & RADIOLOGICAL
4334	GROUND WATER	2033	NA	08/27/90	CHEM., HSL METALS, & RADIOLOGICAL
3223	GROUND WATER	2034	NA	05/23/88	CHEM., FULL HSL, & RADIOLOGICAL
3224	GROUND WATER	2034	NA	05/23/88	CHEM., FULL HSL, & RADIOLOGICAL
3367	GROUND WATER	2034	NA	07/24/88	CHEM., HSL METALS, & RADIOLOGICAL
3646	GROUND WATER	2034	NA	10/24/88	CHEM., HSL METALS, & RADIOLOGICAL
3835	GROUND WATER	2034	NA	01/19/89	CHEM., HSL METALS, & RADIOLOGICAL
4018	GROUND WATER	2108	NA	03/22/89	RADIOLOGICAL
4108	GROUND WATER	2108	NA	05/31/89	RADIOLOGICAL
66852	GROUND WATER	2108	NA	12/13/89	RADIOLOGICAL
4346	GROUND WATER	3032	NA	10/17/90	CHEM., HSL METALS, & RADIOLOGICAL
4377	GROUND WATER	3032	NA	02/04/91	CHEM., HSL METALS, & RADIOLOGICAL
3116	GROUND WATER	3034	NA	04/24/88	CHEM., HSL METALS, & RADIOLOGICAL
3366	GROUND WATER	3034	NA	07/24/88	CHEM., HSL METALS, & RADIOLOGICAL
3645	GROUND WATER	3034	NA	10/24/88	CHEM., HSL METALS, & RADIOLOGICAL
3836	GROUND WATER	3034	NA	01/19/89	CHEM., HSL METALS, & RADIOLOGICAL
A90	GROUND WATER	3034	NA	03/27/90	RADIOLOGICAL
A92	GROUND WATER	3032	NA	03/18/92	CHEM., HSL VOLATILES, METALS, & RAD.
A92	GROUND WATER	3034	NA	03/18/92	CHEM., HSL VOLATILES, METALS, & RAD.
B90	GROUND WATER	1029	NA	04/19/90	CHEM., HSL VOLATILES, & RAD.
B90	GROUND WATER	1032	NA	04/18/90	CHEM., HSL VOLATILES, & RAD.
B90	GROUND WATER	1033	NA	04/23/90	CHEM., HSL VOLATILES, & RAD.
B90	GROUND WATER	1034	NA	04/16/90	CHEM., HSL VOLATILES, & RAD.
B90	GROUND WATER	2034	NA	04/19/90	CHEM., HSL VOLATILES, & RAD.
D90	GROUND WATER	1029	NA	10/18/90	CHEMICAL & HSL VOLATILES
D90	GROUND WATER	1032	NA	10/24/90	CHEM., HSL VOLATILES, & RADIOLOGICAL
D90	GROUND WATER	1034	NA	10/18/90	CHEMICAL & HSL VOLATILES
D90	GROUND WATER	2034	NA	10/18/90	CHEMICAL & HSL VOLATILES

FULL HSL = VOLATILE ORGANICS, SEMIVOLATILE ORGANICS, PEST./PCB, & METALS

OU4 RI/FS DATA VALIDATION QUALIFIERS

CHEMICAL VALIDATION QUALIFIERS

"N" Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

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

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

"UJ" Not detected, quantitation limit may be inaccurate or imprecise.

"UB" Not detected, quantitation limit is probably higher.

"JB" Approximate data due to blank contamination.

"J" Analyte present. Reported value may not be accurate or precise.

"R" Results unusable. Analyte may or may not be present in the sample. Supporting data necessary to confirm result. Resampling and reanalysis would be necessary.

"-" Validated, but not qualified.

LABORATORY QUALIFIERS

Organic Qualifiers

"U" Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

"J" Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

"B" This flag issued when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the user to take appropriate action.

"F" Estimated value due to a confirmed compound which is off-scale in both columns.

"Z" No estimated value reported, or an elevated CRQL reported because matrix effects interfere with or obscure the compound on one or both columns. In either situation, the compound does not confirm as a positive identification.

"C" This flag applies to pesticide results where the identification has been confirmed by GC/MS.

"E" This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and reanalyzed. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms I. The Form I for the diluted shall have the "DL" suffix appended to the sample number.

"D" This flag identifies all compounds identified in analysis at a secondary dilution factor.

"A" This flag indicates that a TIC is a suspected aldol-condensation product.

"X" A flag that FORMASTER III CLP software automatically inserts to indicate that the data was entered manually.

"Y" Indistinguishable isomer in tentatively identified compounds.

"*" Values outside of contract required QC limits.

LABORATORY QUALIFIERS

Inorganic Qualifiers

Concentration Qualifiers (C)

"B" Reported value was obtained from a reading that was less than Contract Required Detection Limit (CRQL) but greater than or equal to the Instrument Detection Limit (IDL).

"U" Analyte was analyzed for but not detected.

Quality Qualifiers (Q)

"E" The reported value is estimated because of the presence of interference.

"N" Spiked sample recovery not within control limits.

"S" The reported value was determined by the Method of Standard Additions.

"W" Post-digestion spike for Furnace AA analysis is not out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

"*" Duplicate analysis not within control limits.

"M" Duplicate injection precision not met.

"G" Native analyte > 4 times spike added, therefore acceptance criteria do not apply.

"X" Detection limit is higher than normal due to sample matrix interferences.

"+" Correlation coefficient for the MSA is less than 0.955.

Radiological Laboratory Qualifiers

"<" The radionuclide was analyzed for but not detected. The CRDL or lower limit of detection (LLD), which ever is greater for the analysis, follows the qualifier. The LLD is based on the 95% confidence interval of false detection and false rejection determination.

RADIOLOGICAL DATA VALIDATION QUALIFIERS

"C" The total uranium analytical result (mass) does not agree within +/- 20% of the calculated uranium mass as determined by isotope specific analyses. This qualifier is not applied to analytical results which are less than ten (10) times the contract required quantitation limit (CRQL).

"D" The radionuclide was analyzed for but not detected. The reported SQL exceeds the CRQL and professional judgement must be exercised in the use of this data depending on the media that was sampled and the end use of the data (ie. risk assessment, nature and extent, etc.).

"E" The calculated U-235/U-238 mass ratio is outside of 0.2 - 1.3% enrichment and may indicate man's involvement in isotope depletion or enrichment. Professional judgement should be exercised in evaluating the likelihood of this occurrence. The U-235/U-238 ratio for soil in nature is 0.0072. This qualifier is not applied to analytical results which are less than ten (10) times the contract required CRQL.

"F" The calculated U-234/U-238 activity ratio is less than 0.4 or greater than 1.3 and may indicate man's involvement in isotope separation. Professional judgement should be exercised in evaluating the likelihood of this occurrence. The U-234 and U-238 isotopes are generally in equilibrium (or slightly depleted in U-234) in soil impacted groundwater. This qualifier is not applied to analytical results which are less than ten (10) times the contract required CRQL.

"M" The matrix spike per cent recovery is not within the control limits of 70-130%.

"J" The reported value should be considered an estimate based on laboratory quality control results or lack of QC documentation.

"R" Laboratory quality control results indicates that the data are unusable (analyte may or may not be present). Re-sampling and/or re-analysis is necessary for verification.

"-" The analysis meets all requirements of the indicated analytical support level (ASL).

OU4 PERCHED WATER RADIOLOGICAL RESULTS

OU4 PERCHED WATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number, sample date and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1615 064007 05/29/91 57 Ft.			1616 064021 06/21/91 48 Ft.			1616 064052 07/09/91 120 Ft.			1617 064009 06/10/91 69 Ft.		
	a		b	a		b	a		b	a		b
Actinium 227	< 1		J	< 37.7		J	< 62		J	NA		
Cesium 137	< 20		J	NA			NA			< 20		R
Lead 210	< 3		-	< 3		J	< 1		J	< 3.0		
Neptunium 237	< 1		R	NA			NA			< 1.0		R
Plutonium 238	< 1		J	NA			NA			< 1.0		R
Plutonium 239/240	< 1		-	NA			NA			< 1.0		-
Polonium 210	NA			< 1.6		J	< 1.7		J	< 1.4		
Protactinium 231	<348		DJ	< 69		J	<290		J	< 283		
Radium 224	< 21		J	NA			< 20		J	< 17		
Radium 224 (GAMMA)	NA			< 19		J	NA			NA		
Radium 226	< 1		-	< 1		J	< 1		-	< 1.0		R
Radium 226 (GAMMA)	NA			< 21		DJ	< 24		DJ	NA		
Radium 228	< 3		-	< 3		J	< 3		J	< 3.0		R
Radium 228 (GAMMA)	NA			< 62		DJ	< 44		DJ	NA		
Ruthenium 106	<150		J	NA			NA			< 150		R
Strontium 90	< 5		R	NA			NA			< 5.0		J
Technetium 99	< 30		J	NA			NA			< 30.0		-
Thorium 228	1.96	± .96	J	< 1		J	1.54	± .48	J	< 1.0		R
Thorium 230	< 1		J	< 1		J	< 1		J	< 1.0		R
Thorium 232	< 1		-	< 1		J	< 1		J	< 1.0		J
Total Thorium **	< 9.1		D	< 2.4		J	< 3		J	< 3.5		J
Total Uranium **	1.51	± .16	J	439	± 56	J	6.17	± 1.53	J	3816	± 920	-
Uranium 234	1.17	± .39	J	139	± 18	J	3.04	± .61	J	< 1.0		R
Uranium 235/236	< 1		J	9.92	± 1.83	J	< 1		J	< 1.0		R
Uranium 238	< 1		-	146	± 18	J	1.96	± .47	J	1313	± 195	J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

652
E4948

OU4 PERCHED WATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number, sample date and length in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1618 064152 08/08/91 130 Ft. a		b	1619 064090 07/31/91 110 Ft. a		b
Actinium 227	< 1		-	< 1		R
Cesium 137	NA			NA		
Lead 210	1.96	± .6	J	2.81	± 1.74	J
Neptunium 237	NA			NA		
Plutonium 238	NA			NA		
Plutonium 239/240	NA			NA		
Polonium 210	4.69	± 1.69	R	< 1.2		J
Protactinium 231	<414		-	<269		R
Radium 224	< 23		-	< 19		R
Radium 224 (GAMMA)	NA			NA		
Radium 226	2.89	± .63	-	< 1		-
Radium 226 (GAMMA)	NA			< 25		D
Radium 228	< 3		J	< 3		-
Radium 228 (GAMMA)	NA			< 44		D
Ruthenium 106	NA			NA		
Strontium 90	NA			NA		
Technetium 99	NA			NA		
Thorium 228	< 1		-	< 1		R
Thorium 230	< 1		-	< 1		R
Thorium 232	< 1		-	< 1		R
Total Thorium **	< 3.6		-	< 3.9		R
Total Uranium **	NA			NA		
Uranium 234	NA			NA		
Uranium 235/236	NA			NA		
Uranium 238	NA			NA		

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

653

-4048

OU4 PERCHED WATER CHEMICAL RESULTS

OU4 PERCHED WATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 064007 05/29/91 57.5 FT.		1616 064021 06/21/91 48 FT.		1616 064052 07/09/91 120 FT.		1617 064009 06/10/91 68.5 FT.	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	-	U .1	-	U .1	-	U .1	-
Chloride	3230	-	238	-	195	-	44.8	-
Fluoride	.24	-	.38	-	.68	-	.62	-
Nitrate	U .1	-	55.6	-	438	-	554	-
Phenols	U .01	-	U .01	-	.02	-	U .01	-
Phosphorus	.07	-	U .02	-	2.55	-	.55	-
Sulfate	102	-	190	-	450	-	1287	-
Sulfide	U .5	-	U .5	-	U .5	-	U .5	-
Total Organic Carbon	3.05	-	3.46	-	2.62	-	U .01	-
Total Organic Halides	.015	-	.031	-	U .01	-	U .01	-
Total Organic Nitrogen	.167	-	.327	-	.598	-	.167	-

a = lab qualifier
b = validated qualifier

-4048

OU4 PERCHED WATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064152 08/08/91 130 FT.		1619 064090 07/31/91 110 FT.	
	a	b	a	b
GENERAL CHEMISTRY				
Ammonia	U .1	-	.6	-
Chloride	79.4	-	23	-
Fluoride	.26	-	.2	-
Nitrate	18.5	-	13	-
Phenols	U .01	-	U .02	-
Phosphorus	66	-	.06	-
Sulfate	2200	-	190	-
Sulfide	U .5	-	U .5	-
Total Organic Carbon	3.28	-	1	-
Total Organic Halides	.054	-	U .01	-
Total Organic Nitrogen	.33	-	NA	-

a = lab qualifier
b = validated qualifier

-4948

-4948

OU4 PERCHED WATER HSL RESULTS

637

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 064007 05/29/91 57.5 FT.		1616 064021 06/21/91 48 FT.		1616 064052 07/09/91 120 FT.		1617 064009 06/10/91 68.5 FT.	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	B .141	-	* 74.6	J	13.8	J	2.46	-
Antimony	.0947	J	N .149	J	N .0898	J	.0827	J
Arsenic	U .002	-	+N .0569	J	BN .0061	-	BW .005	J
Barium	E .293	J	N .552	J	N .702	J	BE .0326	J
Beryllium	U .002	-	.0064	-	U .002	-	U .002	-
Cadmium	.0251	J	.0114	-	.0139	-	.0164	-
Calcium	516	-	220	-	258	-	194	-
Chromium	.0218	-	* .31	J	.114	-	.0987	-
Cobalt	B .018	J	.0973	-	B .0264	-	B .0254	-
Copper	* .0618	J	.385	-	.0422	-	* .0917	J
Cyanide	.0118	-	.005388	-	U .002	-	B .0067	-
Iron	E 5.61	J	*221	J	35.9	-	E 40.5	J
Lead	UW .002	UJ	SN .0779	J	SN .0111	J	W .0068	J
Magnesium	158	-	83.9	-	100	-	79.9	-
Manganese	E .584	J	6.25	-	.713	-	E .839	J
Mercury	U .0002	-	U .0002	-	U .0002	J	U .0002	J
Molybdenum	.0234	-	* .149	-	.063	-	.259	-
Nickel	.0702	J	.369	-	.0942	-	.136	-
Potassium	B 2.43	-	* 5.81	-	B 3.83	-	B 2.36	J
Selenium	UWN .002	UJ	+ .0446	J	UWN .002	-	SN .0566	J
Silicon	7.39	-	* 79.4	J	24.3	J	10.5	-
Silver	.0317	J	.0482	-	.0473	-	.0401	-
Sodium	1040	-	139	J	92.7	-	600	-
Thallium	UEN .01	UJ	UWN .002	R	UWN .002	-	UWN .002	UJ
Vanadium	B .0208	J	* .203	J	.0571	-	B .0352	J
Zinc	1.45	J	4.87	-	* .164	J	1.59	-

a = lab qualifier
b = validated qualifier

9 C1 C6

-4948

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064152 08/08/91 130 FT. a	b	1619 064090 07/31/91 110 FT. a	b
METALS				
Aluminum	.313	-	.208	-
Antimony	.0821	J	U .03	-
Arsenic	U .002	-	U .002	J
Barium	B .0187	-	B .0401	-
Beryllium	U .002	-	U .002	-
Cadmium	.0116	-	.0051	-
Calcium	180	-	130	-
Chromium	.0668	-	.019	-
Cobalt	B .018	-	U .01	-
Copper	B .0235	-	U .01	-
Cyanide	N* .0253	J	U .00002	-
Iron	13.9	-	7.89	-
Lead	U .002	-	U .002	-
Magnesium	73.2	-	52	-
Manganese	.497	J	.292	-
Mercury	U .0002	-	U .0002	J
Molybdenum	.0476	-	.0209	-
Nickel	.0585	-	B .029	-
Potassium	B 3.52	-	B 1.49	-
Selenium	.106	-	U .002	-
Silicon	6.05	-	7.26	-
Silver	.0493	-	.0181	J
Sodium	476	-	39.4	-
Thallium	UWN .002	J	UWN .002	J
Vanadium	B .0369	-	B .0101	-
Zinc	1.24	J	.828	-

a = lab qualifier
b = validated qualifier

-4948
659

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 064007 05/29/91 57.5 FT.		1616 064021 06/21/91 48 FT.		1616 064052 07/09/91 120 FT.		1617 064009 06/10/91 68.5 FT.	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
4,4'-DDE	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
4,4'-DDT	.003	-	U .0001	-	U .0002	UJ	U .0001	-
Aldrin	U .0025	-	U .00005	J	U .0001	UJ	U .00005	-
alpha-BHC	U .0025	-	U .00005	J	U .0001	UJ	U .00005	-
alpha-Chlordane	U .0025	-	U .0005	J	U .001	UJ	U .0005	-
Aroclor-1016	U .0025	-	U .0005	-	U .001	UJ	U .0005	-
Aroclor-1221	U .0025	-	U .0005	-	U .001	UJ	U .0005	-
Aroclor-1232	U .0025	-	U .0005	J	U .001	UJ	U .0005	-
Aroclor-1242	U .0025	-	U .0005	-	U .001	UJ	U .0005	-
Aroclor-1248	U .0025	-	U .0005	-	U .001	UJ	U .0005	-
Aroclor-1254	U .005	-	U .001	-	U .002	UJ	U .001	-
Aroclor-1260	U .005	-	U .001	J	U .002	UJ	U .001	-
beta-BHC	U .00025	-	U .00005	J	U .0001	UJ	U .00005	-
delta-BHC	U .0005	-	U .00005	J	U .0001	UJ	U .00005	-
Dieldrin	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
Endosulfan II	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
Endosulfan sulfate	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
Endosulfan-I	U .00025	-	U .00005	J	U .0001	UJ	U .00005	-
Endrin	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
Endrin ketone	U .0005	-	U .0001	J	U .0002	UJ	U .0001	-
gamma-BHC (Lindane)	U .00025	-	U .00005	J	U .0001	UJ	U .00005	-
gamma-Chlordane	U .0025	-	U .0005	J	U .001	UJ	U .0005	-
Heptachlor	U .00025	-	U .00005	J	U .0001	UJ	U .00005	-
Heptachlor epoxide	U .00025	-	U .00005	J	U .0001	UJ	U .00005	-
Methoxychlor	U .0025	-	U .0005	J	U .001	UJ	U .0005	-
Toxaphene	U .005	-	U .001	-	U .002	UJ	U .001	-
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .02	-	U .01	-	U .01	-	U .01	-
1,2-Dichlorobenzene	U .02	-	U .01	-	U .01	-	U .01	-
1,3-Dichlorobenzene	U .02	-	U .01	-	U .01	-	U .01	-
1,4-Dichlorobenzene	U .02	-	U .01	-	U .01	-	U .01	-
2,4,5-Trichlorophenol	U .1	-	U .05	-	U .05	-	U .05	-
2,4,6-Trichlorophenol	U .02	-	U .01	-	U .01	-	U .01	-
2,4-Dichlorophenol	U .02	-	U .01	-	U .01	-	U .01	-
2,4-Dimethylphenol	U .02	-	U .01	-	U .01	-	U .01	-
2,4-Dinitrophenol	U .1	-	U .05	-	U .05	-	U .05	-
2,4-Dinitrotoluene	U .02	-	U .01	-	U .01	-	U .01	-
2,6-Dinitrotoluene	U .02	-	U .01	-	U .01	-	U .01	-
2-Chloronaphthalene	U .02	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4948

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 064007 05/29/91 57.5 FT.		1616 064021 06/21/91 48 FT.		1616 064052 07/09/91 120 FT.		1617 064009 06/10/91 68.5 FT.	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Chlorophenol	U .02	-	U .01	-	U .01	-	U .01	-
2-Methylnaphthalene	U .02	-	U .01	-	U .01	-	U .01	-
2-Methylphenol	U .02	-	U .01	-	U .01	-	U .01	-
2-Nitroaniline	U .1	-	U .05	-	U .05	-	U .05	-
2-Nitrophenol	U .02	-	U .01	-	U .01	-	U .01	-
3,3'-Dichlorobenzidine	U .04	-	U .02	-	U .02	-	U .02	-
3-Nitroaniline	U .1	-	U .05	-	U .05	-	U .05	-
4,6-Dinitro-2-methylphenol	U .1	-	U .05	-	U .05	-	U .05	-
4-Bromophenyl phenyl ether	U .02	-	U .01	-	U .01	-	U .01	-
4-Chloro-3-methylphenol	U .02	-	U .01	-	U .01	-	U .01	-
4-Chloroaniline	U .02	-	U .01	-	U .01	-	U .01	-
4-Chlorophenylphenyl ether	U .02	-	U .01	-	U .01	-	U .01	-
4-Methylphenol	U .02	-	U .01	-	U .01	-	U .01	-
4-Nitroaniline	U .1	-	U .05	-	U .05	-	U .05	-
4-Nitrophenol	U .1	-	U .05	-	U .05	-	U .05	-
Acenaphthene	U .02	-	U .01	-	U .01	-	U .01	-
Acenaphthylene	U .02	-	U .01	-	U .01	-	U .01	-
Anthracene	U .02	-	U .01	-	U .01	-	U .01	-
Benzo(a)anthracene	U .02	-	U .01	-	U .01	-	U .01	-
Benzo(a)pyrene	U .02	-	U .01	-	U .01	-	U .01	-
Benzo(b)fluoranthene	U .02	-	U .01	-	U .01	-	U .01	-
Benzo(g,h,i)perylene	U .02	-	U .01	-	U .01	-	U .01	-
Benzo(k)fluoranthene	U .02	-	U .01	-	U .01	-	U .01	-
Benzoic acid	U .1	UJ	U .05	-	U .05	UJ	U .05	UJ
Benzyl alcohol	U .02	-	U .01	-	U .01	-	U .01	-
bis(2-Chloroethoxy)methane	U .02	-	U .01	-	U .01	-	U .01	-
bis(2-Chloroethyl)ether	U .02	-	U .01	-	U .01	-	U .01	-
bis(2-Chloroisopropyl) ether	U .02	-	U .01	-	U .01	-	U .01	-
bis(2-Ethylhexyl) phthalate	U .02	-	U .01	-	U .01	-	E .35	-
Butyl benzyl phthalate	U .02	-	U .01	-	U .01	-	U .01	-
Chrysene	U .02	-	U .01	-	U .01	-	U .01	-
Di-n-butyl phthalate	U .02	-	U .01	-	U .01	-	U .01	-
Di-n-octyl phthalate	U .02	-	U .01	-	U .01	-	U .01	-
Dibenzo(a,h)anthracene	U .02	-	U .01	-	U .01	-	U .01	-
Dibenzofuran	U .02	-	U .01	-	U .01	-	U .01	-
Diethyl phthalate	U .02	-	U .01	-	U .01	-	J .003	-
Dimethyl phthalate	U .02	-	U .01	-	U .01	-	U .01	-
Fluoranthene	U .02	-	U .01	-	U .01	-	U .01	-
Fluorene	U .02	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4048

651

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 064007 05/29/91 57.5 FT. a	b	1616 064021 06/21/91 48 FT. a	b	1616 064052 07/09/91 120 FT. a	b	1617 064009 06/10/91 68.5 FT. a	b
SEMI-VOLATILE ORGANIC								
Hexachlorobenzene	U .02	-	U .01	-	U .01	-	U .01	-
Hexachlorobutadiene	U .02	UJ	U .01	-	U .01	-	U .01	-
Hexachlorocyclopentadiene	U .02	-	U .01	-	U .01	-	U .01	-
Hexachloroethane	U .02	-	U .01	-	U .01	-	U .01	-
Indeno(1,2,3-cd)pyrene	U .02	-	U .01	-	U .01	-	U .01	-
Isophorone	U .02	-	U .01	-	U .01	-	U .01	-
N-Nitroso-di-n-propylamine	U .02	-	U .01	-	U .01	-	U .01	-
N-Nitrosodiphenylamine	U .02	-	U .01	-	U .01	-	U .01	-
Naphthalene	U .02	-	U .01	-	U .01	-	U .01	-
Nitrobenzene	U .02	-	U .01	-	U .01	-	U .01	-
Pentachlorophenol	U .1	-	U .05	-	U .05	-	U .05	-
Phenanthrene	U .02	-	U .01	-	U .01	-	U .01	-
Phenol	U .02	-	U .01	-	U .01	-	U .01	-
Pyrene	U .02	-	U .01	-	U .01	-	U .01	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	UJ
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	U .005	-	U .005	UJ
1,1,2-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	UJ
1,1-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	UJ
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	UJ
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	UJ
1,2-Dichloroethylene	U .005	-	U .005	-	U .005	-	U .005	UJ
1,2-Dichloropropane	U .005	-	U .005	-	U .005	-	U .005	UJ
2-Butanone	U .01	-	U .01	-	U .01	R	U .01	R
2-Hexanone	J .001	J	U .01	-	U .01	UJ	U .01	UJ
4-Methyl-2-pentanone	U .01	-	U .01	-	U .01	-	U .01	UJ
Acetone	U .01	UJ	BJ .01	U	B .041	J	J .006	UJ
Benzene	U .005	UJ	U .005	-	U .005	UJ	U .005	UJ
Bromodichloromethane	U .005	-	U .005	-	U .005	-	U .005	UJ
Bromoform	U .005	-	U .005	-	U .005	-	U .005	UJ
Bromomethane	U .01	-	U .01	-	U .01	UJ	U .01	UJ
Carbon disulfide	.009	-	U .005	-	U .005	-	U .005	UJ
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .005	UJ
Chlorobenzene	U .005	UJ	U .005	-	U .005	UJ	U .005	UJ
Chloroethane	U .01	-	U .01	-	U .01	-	U .01	UJ
Chloroform	U .005	-	U .005	-	U .005	-	U .005	UJ
Chloromethane	U .01	-	U .01	-	U .01	UJ	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	UJ
Dibromochloromethane	U .005	-	U .005	-	U .005	-	U .005	UJ
Ethylbenzene	U .005	UJ	U .005	-	U .005	UJ	U .005	UJ

a = lab qualifier
b = validated qualifier

6 5 2

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1615 064007 05/29/91 57.5 FT.		1616 064021 06/21/91 48 FT.		1616 064052 07/09/91 120 FT.		1617 064009 06/10/91 68.5 FT.	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Methylene chloride	U .005	UJ	U .005	-	BJ .005	UJ	BJ .002	UJ
Styrene	U .005	UJ	U .005	-	U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	-	U .005	-	U .005	-	U .005	UJ
Toluene	U .005	UJ	U .005	-	U .005	UJ	U .005	UJ
Total xylenes	U .005	UJ	U .005	-	U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	UJ
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	UJ
Vinyl Acetate	U .01	-	U .01	-	U .01	-	U .01	UJ
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	UJ

a = lab qualifier
b = validated qualifier

1-4948

633

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064152 08/08/91 130 FT. a	b	1618 064154 08/20/91 130 FT. a	b	1619 064090 07/31/91 110 FT. a	b
PESTICIDES/PCB						
4,4'-DDD	NA		U .0001	-	U .0001	-
4,4'-DDE	NA		U .0001	-	U .0001	-
4,4'-DDT	NA		U .0001	-	U .0001	-
Aldrin	NA		U .00005	-	U .00005	-
alpha-BHC	NA		U .00005	-	U .00005	-
alpha-Chlordane	NA		U .0005	-	U .0005	-
Aroclor-1016	NA		U .0005	-	U .0005	-
Aroclor-1221	NA		U .0005	-	U .0005	-
Aroclor-1232	NA		U .0005	-	U .0005	-
Aroclor-1242	NA		U .0005	-	U .0005	-
Aroclor-1248	NA		U .0005	-	U .0005	-
Aroclor-1254	NA		U .001	-	U .001	-
Aroclor-1260	NA		U .001	-	U .001	-
beta-BHC	NA		U .00005	-	U .00005	-
delta-BHC	NA		U .00005	-	U .00005	-
Dieldrin	NA		U .0001	-	U .0001	-
Endosulfan II	NA		U .0001	-	U .0001	-
Endosulfan sulfate	NA		U .0001	-	U .0001	-
Endosulfan-I	NA		U .00005	-	U .00005	-
Endrin	NA		U .0001	-	U .0001	-
Endrin ketone	NA		U .0001	-	U .0001	-
gamma-BHC (Lindane)	NA		U .00005	-	U .00005	-
gamma-Chlordane	NA		U .0005	-	U .0005	-
Heptachlor	NA		U .00005	-	U .00005	-
Heptachlor epoxide	NA		U .00005	-	U .00005	-
Methoxychlor	NA		U .0005	-	U .0005	-
Toxaphene	NA		U .001	-	U .001	-
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene	NA		U .01	-	U .01	-
1,2-Dichlorobenzene	NA		U .01	-	U .01	-
1,3-Dichlorobenzene	NA		U .01	-	U .01	-
1,4-Dichlorobenzene	NA		U .01	-	U .01	-
2,4,5-Trichlorophenol	NA		U .05	R	U .05	-
2,4,6-Trichlorophenol	NA		U .01	R	U .01	-
2,4-Dichlorophenol	NA		U .01	R	U .01	-
2,4-Dimethylphenol	NA		U .01	R	U .01	-
2,4-Dinitrophenol	NA		U .05	R	U .05	-
2,4-Dinitrotoluene	NA		U .01	-	U .01	-
2,6-Dinitrotoluene	NA		U .01	-	U .01	-
2-Chloronaphthalene	NA		U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4948

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064152 08/08/91 130 FT.		1618 064154 08/20/91 130 FT.		1619 064090 07/31/91 110 FT.	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANIC						
2-Chlorophenol	NA		U .01	R	U .01	-
2-Methylnaphthalene	NA		U .01	-	U .01	-
2-Methylphenol	NA		U .01	R	U .01	-
2-Nitroaniline	NA		U .05	-	U .05	-
2-Nitrophenol	NA		U .01	R	U .01	-
3,3'-Dichlorobenzidine	NA		U .02	-	U .02	UJ
3-Nitroaniline	NA		U .05	-	U .05	UJ
4,6-Dinitro-2-methylphenol	NA		U .05	R	U .05	-
4-Bromophenyl phenyl ether	NA		U .01	-	U .01	-
4-Chloro-3-methylphenol	NA		U .01	R	U .01	-
4-Chloroaniline	NA		U .01	-	U .01	-
4-Chlorophenylphenyl ether	NA		U .01	-	U .01	-
4-Methylphenol	NA		U .01	R	U .01	-
4-Nitroaniline	NA		U .05	-	U .05	UJ
4-Nitrophenol	NA		U .05	R	U .05	-
Acenaphthene	NA		U .01	-	U .01	-
Acenaphthylene	NA		U .01	-	U .01	-
Anthracene	NA		U .01	-	U .01	-
Benzo(a)anthracene	NA		U .01	-	U .01	-
Benzo(a)pyrene	NA		U .01	-	U .01	-
Benzo(b)fluoranthene	NA		U .01	-	U .01	-
Benzo(g,h,i)perylene	NA		U .01	-	U .01	-
Benzo(k)fluoranthene	NA		U .01	-	U .01	-
Benzoic acid	NA		U .05	R	U .05	UJ
Benzyl alcohol	NA		U .01	-	U .01	-
bis(2-Chloroethoxy)methane	NA		U .01	-	U .01	-
bis(2-Chloroethyl)ether	NA		U .01	-	U .01	-
bis(2-Chloroisopropyl) ether	NA		U .01	-	U .01	-
bis(2-Ethylhexyl) phthalate	NA		U .01	-	U .01	-
Butyl benzyl phthalate	NA		U .01	-	U .01	-
Chrysene	NA		U .01	-	U .01	-
Di-n-butyl phthalate	NA		U .01	-	U .01	-
Di-n-octyl phthalate	NA		U .01	-	U .01	-
Dibenzo(a,h)anthracene	NA		U .01	-	U .01	-
Dibenzofuran	NA		U .01	-	U .01	-
Diethyl phthalate	NA		U .01	-	U .01	-
Dimethyl phthalate	NA		U .01	-	U .01	-
Fluoranthene	NA		U .01	-	U .01	-
Fluorene	NA		U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

9 C 3

8 4 8 4

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064152 08/08/91 130 FT. a	b	1618 064154 08/20/91 130 FT. a	b	1619 064090 07/31/91 110 FT. a	b
SEMI-VOLATILE ORGANICS						
Hexachlorobenzene	NA		U .01	-	U .01	-
Hexachlorobutadiene	NA		U .01	-	U .01	-
Hexachlorocyclopentadiene	NA		U .01	-	U .01	-
Hexachloroethane	NA		U .01	-	U .01	UJ
Indeno(1,2,3-cd)pyrene	NA		U .01	-	U .01	-
Isophorone	NA		U .01	-	U .01	-
N-Nitroso-di-n-propylamine	NA		J .008	J	U .01	-
N-Nitrosodiphenylamine	NA		U .01	-	U .01	-
Naphthalene	NA		U .01	-	U .01	-
Nitrobenzene	NA		U .01	-	U .01	-
Pentachlorophenol	NA		U .05	R	U .05	-
Phenanthrene	NA		U .01	-	U .01	-
Phenol	NA		U .01	R	U .01	-
Pyrene	NA		U .01	-	U .01	-
Tributyl Phosphate	NA		U .01	-	NA	
VOLATILE ORGANICS						
1,1,1-Trichloroethane	U .005	-	NA		U .005	UJ
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	UJ
1,1,2-Trichloroethane	U .005	-	NA		U .005	UJ
1,1-Dichloroethane	U .005	-	NA		U .005	UJ
1,1-Dichloroethene	U .005	-	NA		U .005	UJ
1,2-Dichloroethane	U .005	-	NA		U .005	UJ
1,2-Dichloroethylene	U .005	-	NA		U .005	UJ
1,2-Dichloropropane	U .005	-	NA		U .005	UJ
2-Butanone	BJ .01	U	NA		U .01	UJ
2-Hexanone	U .01	UJ	NA		U .01	UJ
4-Methyl-2-pentanone	U .01	-	NA		U .01	UJ
Acetone	BJ .01	U	NA		BJ .01	UJ
Benzene	U .005	UJ	NA		U .005	UJ
Bromodichloromethane	U .005	-	NA		U .005	UJ
Bromoform	U .005	UJ	NA		U .005	UJ
Bromomethane	U .01	-	NA		U .01	UJ
Carbon disulfide	U .005	-	NA		U .005	UJ
Carbon Tetrachloride	U .005	-	NA		U .005	UJ
Chlorobenzene	U .005	UJ	NA		U .005	UJ
Chloroethane	U .01	-	NA		U .01	UJ
Chloroform	U .005	-	NA		U .005	UJ
Chloromethane	U .01	-	NA		U .01	UJ
cis-1,3-Dichloropropene	U .005	-	NA		U .005	UJ
Dibromochloromethane	U .005	-	NA		U .005	UJ
Ethylbenzene	U .005	UJ	NA		U .005	UJ

a = lab qualifier
b = validated qualifier

OU4 PERCHED WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date and length in feet.
NA indicates not analyzed.

Chemical Parameters	1618 064152 08/08/91 130 FT.		1618 064154 08/20/91 130 FT.		1619 064090 07/31/91 110 FT.	
	a	b	a	b	a	b
VOLATILE ORGANICS						
Methylene chloride	B .009	U	NA		U .005	UJ
Styrene	U .005	UJ	NA		U .005	UJ
Tetrachlorethene	U .005	-	NA		U .005	UJ
Toluene	BJ .005	UJ	NA		BJ .005	UJ
Total xylenes	U .005	UJ	NA		U .005	UJ
trans-1,3-Dichloropropene	U .005	-	NA		U .005	UJ
Trichloroethene	U .005	-	NA		U .005	UJ
Vinyl Acetate	U .01	-	NA		U .01	UJ
Vinyl chloride	U .01	-	NA		U .01	UJ

a = lab qualifier
b = validated qualifier

-4048

667

OU4 SURFACE WATER RADIOLOGICAL RESULTS

OU4 SURFACE WATER RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by location number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	ASIT-010 1047 06/28/88		ASIT-010 1117 03/10/89		ASIT-010 1118 03/10/89		ASIT-023 1150 02/21/89	
	a	b	a	b	a	b	a	b
Cesium 137	NA		NA		NA		< 20.0	R
Neptunium 237	NA		NA		NA		< 1.0	-
Plutonium 238	NA		NA		NA		< 1.0	-
Plutonium 239/240	NA		NA		NA		< 1.0	-
Radium 226	< 1		< 1		< 1	-	< 1.0	-
Radium 228	< 3		< 3	J	< 3	J	< 3.0	JD
Ruthenium 106	NA		NA		NA		< 150.0	R
Strontium 90	NA		NA		NA		< 5.0	-
Technetium 99	NA		NA		NA		34.9	± 16.5 J
Thorium 228	NA		NA		NA		< 1.0	-
Thorium 230	NA		NA		NA		< 1.0	-
Thorium 232	NA		NA		NA		< 1.0	-
Total Thorium **	NA		NA		NA		NA	-
Total Uranium **	2219	± 349	282	± 46	231	± 38 J	465.0	± 82.0 -
Uranium 234	NA		NA		NA		80.3	± 12.7 -
Uranium 235/236	NA		NA		NA		4.9	± 1.4 -
Uranium 238	NA		NA		NA		165.0	± 25.0 -

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

639

-4048

OU4 SURFACE WATER RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by location number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	ASIT-024 1152 02/21/89		ASIT-025 1114 03/10/89		ASIT-026 1115 03/10/89		W-10 1108 01/12/89	
	a	b	a	b	a	b	a	b
Cesium 137	< 20.0	R	NA		NA		< 20.0	R
Neptunium 237	< 1.0	-	NA		NA		< 1	J
Plutonium 238	< 1.0	-	NA		NA		< 1	-
Plutonium 239/240	< 1.0	-	NA		NA		< 1	-
Radium 226	< 1.0	-	< 1.0		< 1.0	-	< 1	-
Radium 228	< 3.0	JD	< 3.0	J	< 3.0	J	< 3	-
Ruthenium 106	< 150.0	R	NA		NA		< 150	R
Strontium 90	< 5.0	-	NA		NA		< 5	-
Technetium 99	< 30.0	J	NA		NA		< 30	-
Thorium 228	< 1.0	-	NA		NA		< 1	-
Thorium 230	< 1.0	-	NA		NA		< 1	-
Thorium 232	< 1.0	-	NA		NA		< 1	-
Total Thorium **	NA	-	NA		NA		NA	
Total Uranium **	517.0	± 83.0 -	247.0	± 41.0 -	216.0	± 36.0 -	12	± 2 R
Uranium 234	86.4	± 13.8 -	NA		NA		2.8	± .6 -
Uranium 235/236	6.7	± 1.8 -	NA		NA		< 1	-
Uranium 238	205.0	± 32.0 -	NA		NA		4.2	± .7 -

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

OU4 SURFACE WATER RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by location number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	W-10 1216 05/23/89			W-11 1107 01/12/89			W-11 1209 05/14/89			W-10 1249 07/15/90		
	a		b	a		b	a		b	a		b
Cesium 137	< 20.0		J	< 20.0		R	< 20.0		R	< 20.0		R
Neptunium 237	< 1		-	< 1		-	< 1		-	< 1		U
Plutonium 238	< 1		-	< 1		-	< 1		-	< 1		U
Plutonium 239/240	< 1		-	< 1		-	< 1		-	< 1		-
Radium 226	< 1		-	< 1		R	< 1		-	< 1		U
Radium 228	< 3		J	< 3		J	< 3		J	< 3		U
Ruthenium 106	< 150		J	< 150		R	< 150		R	< 150		R
Strontium 90	< 5		-	< 5		-	< 5		-	< 5		U
Technetium 99	< 30		-	< 30		-	< 30		J	< 30		UJ
Thorium 228	< 1		-	< 1		-	< 1		J	< 1		U
Thorium 230	< 1		-	< 1		-	< 1		J	< 2.27	± .71	J
Thorium 232	< 1		J	< 1		-	< 1		J	< 1		UJ
Total Thorium **	< 6.0		D	NA			< 6		JD	< 4.4		U
Total Uranium **	25.0	± 4.0	R	19	± 3	R	9	± 2	-	12.8	± 2.5	R
Uranium 234	1.2	± .5	-	3.2	± .5	-	2.5	± .5	-	3.57	± .72	-
Uranium 235/236	< 1		-	< 1		-	< 1		-	< 1		U
Uranium 238	4.5	± .9	-	6.2	± .9	-	2.6	± .5	-	4.25	± 0.81	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

4048

OU4 SURFACE WATER RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by location number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	W-10 1250 07/15/90	
	a	b
Cesium 137	< 20.0	
Neptunium 237	< 1	
Plutonium 238	< 1	
Plutonium 239/240	< 1	
Radium 226	< 1	
Radium 228	< 3	
Ruthenium 106	< 150	
Strontium 90	< 5	
Technetium 99	< 30	
Thorium 228	3.16	± .69
Thorium 230	1.12	± .37
Thorium 232	< 1	
Total Thorium **	< 2.7	
Total Uranium **	11	± 2.4
Uranium 234	3.29	± .73
Uranium 235/236	< 1	
Uranium 238	3.64	± .78

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l
4SFWRAD.PRN

-4948

OU4 SURFACE WATER CHEMICAL RESULTS

OU4 SURFACE WATER GENERAL CHEMICAL RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1108 01/12/89		W-10 1249 07/15/90		W-11 1107 01/12/89		W-11 1209 05/14/89	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	.1		U .1		U .452		.1	
Chloride	14.5		9.27		16.5		19.99	
Fluoride	.225		.23		.215		U .18	
Nitrate	2.6		8.55		NA		NA	
Phenols	U .01		U .01		U .01		U .01	
Phosphorus	.255		.14		NA		NA	
Sulfate	39.5		46		37		57.36	
Sulfide	NA		U .5		NA		NA	
Total Kjeldahl Nitrogen	1.09		NA		1.81		.347	
Total Organic Carbon	NA		4.11		NA		U 1	
Total Organic Halides	NA		U .01		NA		.01	
Total Organic Nitrogen	.99		.43		1.36		.347	

a = lab qualifier

674

-4948

OU4 SURFACE WATER GENERAL CHEMICAL RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-11 1247 07/15/90	
	a	b
GENERAL CHEMISTRY		
Ammonia	U .1	
Chloride	9.21	
Fluoride	.22	
Nitrate	NA	
Phenols	.02	
Phosphorus	NA	
Sulfate	44.8	
Sulfide	NA	
Total Kjeldahl Nitrogen	NA	
Total Organic Carbon	5.59	
Total Organic Halides	U 0.01	
Total Organic Nitrogen	0.58	

a = lab qualifier

OU4 SURFACE WATER HSL RESULTS

OU4 SURFACE WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1108 01/12/89		W-10 1249 07/15/90		W-11 1107 01/12/89		W-11 1209 05/14/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum		.451		U .06		B .15		.0764
Antimony	B	.0025		NA		U .0005		NA
Arsenic	U	.002		U .002		U .002		U .002
Barium	B	.0658		.047		B .0552		.0313
Beryllium	B	.0012		NA		B .0011		NA
Cadmium	B	.0032		.003		B .0028		U .002
Calcium		56.6		87.4		52.3		71.8
Chromium		.0173		.022		.0139		U .01
Cobalt	U	.01		NA		U .01		NA
Copper	B	.0147		U .01		B .01		U .01
Cyanide	U	.01		NA		NA		NA
Iron		.556		.032		E .20		.0415
Lead	B	.0027		U .002		U 0.002		.0093
Magnesium		13.7		20.4		12.7		20.9
Manganese		.0265		.014		.0199		.0121
Mercury	U	.0002		U .0002		U .0002		.0003
Molybdenum	B	.0205		U .01		U .02		U .01
Nickel	U	.02		U .02		U .02		U .02
Potassium	B	3.19		2.94		B 2.77		1.68
Selenium	U	.002		U .004		U .002		U .002
Silicon		NA		4.47		NA		2.25
Silver	U	.0005		.012		U .0005		U .01
Sodium		9.23		10.4		8.39		9.69
Thallium	U	.002		NA		NA		NA
Vanadium	B	.0177		.011		NA		NA
Zinc		.0368		NA		NA		NA

a = lab qualifier

677

-4048

154048

OU4 SURFACE WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-11 1247 07/15/909	
	a	b
METALS		
Aluminum	U .06	
Antimony	NA	
Arsenic	U .002	
Barium	.047	
Beryllium	NA	
Cadmium	.003	
Calcium	86.9	
Chromium	.026	
Cobalt	NA	
Copper	U .01	
Cyanide	NA	
Iron	.024	
Lead	.006	
Magnesium	20.6	
Manganese	.009	
Mercury	U .0002	
Molybdenum	U .01	
Nickel	.025	
Potassium	3.03	
Selenium	U .002	
Silicon	4.61	
Silver	.013	
Sodium	9.75	
Thallium	NA	
Vanadium	NA	
Zinc	NA	

a = lab qualifier

OU4 SURFACE WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1108 01/12/89 a	b	W-11 1107 01/12/89 a	b	ASIT-021 1161 02/21/89 a	b
ORGANOPHOSPOROUS PESTICIDES						
Azinphosmethyl	U .0025		U .0025		NA	
Demeton	U .00025		U .0003		NA	
Diazinon	U .00025		U .0003		NA	
Disulfoton	U .00025		U .0003		NA	
Ethion	U .00025		U .0003		NA	
Malathion	U .001		U .0003		NA	
Parathion, ethyl	U .00025		U .0003		NA	
Parathion, methyl	U .00025		U .0003		NA	
PESTICIDES/PCB						
4,4'-DDD	U .0001		U .0001		NA	
4,4'-DDE	U .0001		U .0001		NA	
4,4'-DDT	U .0001		U .0001		NA	
Aldrin	U .00005		U .00005		NA	
alpha-BHC	U .00005		U .00005		NA	
alpha-Chlordane	U .0005		U .0005		NA	
Aroclor-1016	U .0005		U .0005		NA	
Aroclor-1221	U .0005		U .0005		NA	
Aroclor-1232	U .0005		U .0005		NA	
Aroclor-1242	U .0005		U .0005		NA	
Aroclor-1248	U .0005		U .0005		NA	
Aroclor-1254	U .001		U .001		NA	
Aroclor-1260	U .001		U .001		NA	
beta-BHC	U .00005		U .00005		NA	
delta-BHC	U .00005		U .00005		NA	
Dieldrin	U .0001		U .0001		NA	
Endosulfan II	U .0001		U .0001		NA	
Endosulfan sulfate	U .0001		U .0001		NA	
Endosulfan-I	U .00005		U .00005		NA	
Endrin	U .0001		U .0001		NA	
Endrin ketone	U .0001		U .0001		NA	
gamma-BHC (Lindane)	U .00005		U .00005		NA	
gamma-Chlordane	U .005		U .005		NA	
Heptachlor	U .00005		U .00005		NA	
Heptachlor epoxide	U .00005		U .00005		NA	
Methoxychlor	U .0005		U .0005		NA	
Toxaphene	U .001		U .001		NA	
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene	U .01		U .01		U .01	
1,2-Dichlorobenzene	U .01		U .01		U .01	
1,3-Dichlorobenzene	U .01		U .01		U .01	
1,4-Dichlorobenzene	U .01		U .01		U .01	
2,4,5-Trichlorophenol	U .05		U .05		U .05	
2,4,6-Trichlorophenol	U .01		U .01		U .01	

a = lab qualifier

-4948

OU4 SURFACE WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1108 01/12/89		W-11 1107 01/12/89		ASIT-021 1161 02/21/89	
	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS						
2,4-Dichlorophenol	U	.01	U	.01	U	.01
2,4-Dimethylphenol	U	.01	U	.01	U	.01
2,4-Dinitrophenol	U	.05	U	.05	U	.05
2,4-Dinitrotoluene	U	.01	U	.01	U	.01
2,6-Dinitrotoluene	U	.01	U	.01	U	.01
2-Chloronaphthalene	U	.01	U	.01	U	.01
2-Chlorophenol	U	.01	U	.01	U	.01
2-Methylnaphthalene	U	.01	U	.01	U	.01
2-Methylphenol	U	.01	U	.01	U	.01
2-Nitroaniline	U	.05	NA		NA	
2-Nitrophenol	U	.01	U	.05	U	.05
3,3'-Dichlorobenzidine	U	.02	U	.01	U	.01
3-Nitroaniline	U	.05	U	.02	U	.02
4,6-Dinitro-2-methylphenol	U	.05	U	.05	U	.05
4-Bromophenyl phenyl ether	U	.01	NA		NA	
4-Chloro-3-methylphenol	U	.01	U	.01	U	.01
4-Chloroaniline	U	.01	U	.01	U	.01
4-Chlorophenylphenyl ether	U	.01	U	NA	NA	
4-Methylphenol	U	.01	U	.01	U	.01
4-Nitroaniline	U	.05	NA		NA	
4-Nitrophenol	U	.05	NA		NA	
Acenaphthene	U	.01	U	.05	U	.05
Acenaphthylene	U	.01	U	.01	U	.01
Anthracene	U	.01	U	.01	U	.01
Benzo(a)anthracene	U	.01	U	.01	U	.01
Benzo(a)pyrene	U	.01	U	.01	U	.01
Benzo(b)fluoranthene	U	.01	U	.01	U	.01
Benzo(g,h,i)perylene	U	.01	U	.01	U	.01
Benzo(k)fluoranthene	U	.01	U	.01	U	.01
Benzoic acid	U	.05	U	.01	U	.01
Benzyl alcohol	U	.01	U	.05	U	.05
bis(2-Chloroethoxy)methane	U	.01	U	.01	U	.01
bis(2-Chloroethyl)ether	U	.01	U	.01	U	.01
bis(2-Chloroisopropyl) ether	U	.01	U	.01	U	.01
bis(2-Ethylhexyl) phthalate	BJ	.004	U	.01	U	.01
Butyl benzyl phthalate	U	.01	U	.01	U	.01
Chrysene	U	.01	U	.01	U	.01
Di-n-butyl phthalate	U	.01	U	.01	U	.01
Di-n-octyl phthalate	U	.01	U	.01	J	.003
Dibenzo(a,h)anthracene	U	.01	U	.01	U	.01
Dibenzofuran	U	.01	U	.01	U	.01

a = lab qualifier

680

-4948

OU4 SURFACE WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1108 01/12/89 a	b	W-11 1107 01/12/89 a	b	ASIT-021 1161 02/21/89 a	b
SEMI-VOLATILE ORGANICS						
Diethyl phthalate	U .01		J .002		U .01	
Dimethyl phthalate	U .01		U .01		U .01	
Fluoranthene	U .01		U .01		U .01	
Fluorene	U .01		U .01		U .01	
Hexachlorobenzene	U .01		U .01		U .01	
Hexachlorobutadiene	U .01		U .01		U .01	
Hexachlorocyclopentadiene	U .01		NA		NA	
Hexachloroethane	U .01		U .01		U .01	
Indeno(1,2,3-cd)pyrene	U .01		U .01		U .01	
Isophorone	U .01		U .01		U .01	
N-Nitroso-di-n-propylamine	U .01		U .01		U .01	
N-Nitrosodiphenylamine	U .004		U .01		U .01	
Naphthalene	U .01		U .01		U .01	
Nitrobenzene	U .01		U .01		U .01	
Pentachlorophenol	U .05		U .05		U .05	
Phenanthrene	U .01		U .01		U .01	
Phenol	U .01		U .01		U .01	
Pyrene	U .01		U .01		U .01	
VOLATILE ORGANICS						
1,1,1-Trichloroethane	U .005		U .005		U .005	
1,1,2,2-Tetrachloroethane	U .005		U .005		U .005	
1,1,2-Trichloroethane	U .005		U .005		U .005	
1,1-Dichloroethane	U .005		U .005		U .005	
1,1-Dichloroethene	U .005		U .005		U .005	
1,2-Dichloroethane	U .005		U .005		U .005	
1,2-Dichloroethylene	U .005		U .005		U .005	
1,2-Dichloropropane	U .005		U .005		U .005	
2-Butanone	U .01		U .01		U .01	
2-Hexanone	U .01		U .01		U .01	
4-Methyl-2-pentanone	U .01		U .01		U .01	
Acetone	U .01		U .01		U .01	
Benzene	U .005		U .005		U .005	
Bromodichloromethane	U .005		U .005		U .005	
Bromoform	U .005		U .005		U .005	
Bromomethane	U .01		U .01		U .01	
Carbon disulfide	U .005		U .005		U .005	
Carbon Tetrachloride	U .005		U .005		U .005	
Chlorobenzene	U .005		U .005		U .005	
Chloroethane	U .01		U .01		U .01	
Chloroform	U .005		U .005		U .005	
Chloromethane	U .01		U .01		U .01	
cis-1,3-Dichloropropene	U .005		U .005		U .005	

a = lab qualifier

-4048

OU4 SURFACE WATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1108 01/12/89		W-11 1107 01/12/89		ASIT-021 1161 02/21/89	
	a	b	a	b	a	b
VOLATILE ORGANICS						
Dibromochloromethane	U .005		U .005		U .005	
Ethylbenzene	U .005		U .005		U .005	
Methylene chloride	U .005		U .005		U .005	
Styrene	U .005		U .005		U .005	
Tetrachlorethene	U .005		U .005		U .005	
Toluene	U .005		U .005		U .005	
Total xylenes	U .005		U .005		U .005	
trans-1,3-Dichloropropene	U .005		U .005		U .005	
Trichloroethene	U .005		U .005		U .005	
Vinyl Acetate	U .01		U .01		U .01	
Vinyl chloride	U .01		U .01		U .01	

a = lab qualifier

OU4 GROUNDWATER RADIOLOGICAL RESULTS

OU4 GROUNDWATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1029 003076 04/05/88		1029 003354 07/20/88		1029 003634 10/23/88		1029 003852 01/22/89	
	a	b	a	b	a	b	a	b
Cesium 137	< 20	R	< 20	R	< 20	R	< 20	R
Neptunium 237	NA		< 1	-	< 1	J	< 1	-
Plutonium 238	NA		< 1	-	< 1	J	< 1	J
Plutonium 239/240	NA		< 1	-	< 1	J	< 1	J
Radium 226	< 1	-	< 1	-	< 1	-	< 1	-
Radium 228	< 3	-	< 3	-	< 3	-	< 3.1	J
Ruthenium 106	<150	R	<150	R	<150	R	<150	R
Strontium 90	< 5	J	< 5	-	< 5	-	< 5	-
Technetium 99	< 30	R	< 30	-	< 30	-	< 30	-
Thorium 228	< 1	J	< 1	-	< 1	J	< 1	-
Thorium 230	< 1	J	< 1	-	< 1	J	< 1	-
Thorium 232	< 1	J	< 1	-	< 1	J	< 1	-
Total Thorium **	NA		< 2	-	< 3	J	< 4	-
Total Uranium **	3 ± 1	R	3 ± 1	-	2 ± 1	-	3 ± 1	-
Uranium 234	1.7 ± .6	J	1.4 ± .3	R	1.2 ± .3	J	1.7 ± .5	-
Uranium 235/236	< 1	J	< 1	-	< 1	J	< 1	-
Uranium 238	1.4 ± .5	J	< 1	R	< 1	J	< 1	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

684

4948

OU4 GROUNDWATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1032 003133 04/27/88			1032 003355 07/20/88			1032 003635 10/23/88			1032 003851 01/22/89		
	a		b	a		b	a		b	a		b
Cesium 137	< 20		R	< 20		R	< 20		R	< 20		R
Neptunium 237	< 1		R	< 1		-	< 1		J	< 1		-
Plutonium 238	< 1		-	< 1		-	< 1		J	< 1		J
Plutonium 239/240	< 1		-	< 1		-	< 1		J	< 1		J
Radium 226	< 1		J	< 1		-	< 1		-	< 1		-
Radium 228	< 3		J	< 3		-	4.8	± 1.8	-	< 3.1		J
Ruthenium 106	<150		R	<150		R	<150		R	<150		R
Strontium 90	< 5		-	6	± 1.3	-	< 5		-	< 5		-
Technetium 99	< 30		J	< 30		-	< 30		-	< 30		-
Thorium 228	< 1		J	< 1		-	< 1		J	< 1		-
Thorium 230	1.6	± .6	J	< 1		-	< 1		J	< 1		-
Thorium 232	< 1		J	< 1		-	< 1		J	< 1		-
Total Thorium **	NA			< 5		-	< 5		J	< 4		-
Total Uranium **	256	± 41	-	196	± 41	-	230	± 44	-	276	± 47	-
Uranium 234	84.9	± 13.9	J	61.3	± 8.7	R	82.4	± 11	J	76.1	± 9.6	-
Uranium 235/236	4.6	± 1.4	J	3.9	± .8	-	3.3	± .8	J	3.2	± .7	-
Uranium 238	96.8	± 15.7	J	70.5	± 9.9	R	92.4	± 12	J	88.8	± 11.1	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

OU4 GROUNDWATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1033 003220 05/22/88		1033 003567 08/24/88		1033 003773 11/20/88		1033 003961 03/10/89	
	a	b	a	b	a	b	a	b
Cesium 137	< 20	R	< 20	R	< 20	R	< 20	R
Neptunium 237	< 1	J	< 1	-	< 1	-	< 1	-
Plutonium 238	< 1	J	< 1	-	< 1	J	< 1	-
Plutonium 239/240	< 1	J	< 1	-	< 1	J	< 1	-
Radium 226	< 1	-	< 1	J	< 1	-	< 1	-
Radium 228	< 3	J	< 3	-	< 3	J	< 3	J
Ruthenium 106	<150	R	<150	R	<150	R	<150	R
Strontium 90	< 5	-	< 5	-	< 5	-	< 5	-
Technetium 99	< 30	J	< 30	-	< 30	J	< 30	J
Thorium 228	< 1	J	< 1	-	< 1	-	< 1	-
Thorium 230	1.4 ± .4	J	< 1	-	< 1	-	< 1	-
Thorium 232	< 1	J	< 1	-	< 1	-	< 1	-
Total Thorium **	NA		3 ± 2	-	< 2	-	< 2	-
Total Uranium **	11 ± 1	R	9 ± 1	-	15 ± 3	-	23 ± 4	-
Uranium 234	3.7 ± .6	J	3.3 ± .6	-	4.9 ± .8	-	7.1 ± 1.1	-
Uranium 235/236	< 1	J	< 1	-	< 1	-	< 1	-
Uranium 238	3.5 ± .6	J	3 ± .6	-	5 ± .8	-	8.2 ± 1.2	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

-4948
686

OU4 GROUNDWATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1034 003122 04/25/88			1034 003356 07/20/88			1034 003636 10/23/88			1034 003850 01/22/89		
	a		b	a		b	a		b	a		b
Cesium 137	< 20		R	< 20		-	< 20		R	< 20		R
Neptunium 237	< 1		J	< 1		-	< 1		J	< 1		-
Plutonium 238	< 1		R	< 1		-	< 1		J	< 1		J
Plutonium 239/240	< 1		R	< 1		-	< 1		J	< 1		J
Radium 226	< 1		J	< 1		-	< 1		-	< 1		-
Radium 228	< 3		J	< 3.0		-	< 3		-	< 3.2		J
Ruthenium 106	<150		R	<150		-	<150		R	<150		-
Strontium 90	< 5		-	< 5		-	< 5		-	< 5		-
Technetium 99	< 30		-	< 30		-	< 30		-	< 30		-
Thorium 228	< 1		J	< 1		-	< 1		J	< 1		-
Thorium 230	< 1		J	2.4	± 0.6	-	< 1		J	< 1		-
Thorium 232	< 1		J	< 1		-	< 1		J	< 1		-
Total Thorium **	NA			< 4		-	< 2.0		J	< 3		-
Total Uranium **	4	± 1	R	10.0	± 2.0	-	7.0	± 1.0	-	3	± 1	-
Uranium 234	1.3	± .5	J	2.6	± .5	R	2.9	± 0.4	J	1.2	± .3	-
Uranium 235/236	< 1		J	< 1		-	< 1.0		J	< 1		-
Uranium 238	1.1	± .5	J	1.8	± .4	R	3.4	± 0.6	J	1.1	± .3	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

OU4 GROUNDWATER [illegible]LOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2032 004299 06/29/90			2033 004208 06/19/90			2033 004334 08/27/90			2034 003223 05/23/88		
	a		b	a		b	a		b	a		b
Cesium 137	< 20		R	< 20		R	< 20		R	< 20		R
Neptunium 237	< 1		J	< 1		-	< 1		J	< 1		J
Plutonium 238	< 1		J	< 1		-	< 1		-	< 1		J
Plutonium 239/240	< 1		J	< 1		-	< 1		-	< 1		J
Radium 226	< 1		J	< 1		-	< 1		J	< 1		-
Radium 228	< 3		-	< 3		J	< 3		J	< 3		J
Ruthenium 106	<150		R	< 150		R	<150		R	<150		R
Strontium 90	< 5		-	< 5		-	< 5		-	< 5		-
Technetium 99	< 30		J	< 35.1		DJ	36.6	± 19	J	< 30		J
Thorium 228	4.29	± 1.33	J	< 1		J	1.69	± .5	-	< 1		J
Thorium 230	14.7	± 3.3	-	< 1		J	< 1		-	< 1		J
Thorium 232	< 1		-	< 1		J	< 1		-	< 1		J
Total Thorium **	< 7.2		D	5.85	± 2.29	J	< 3.1		-	NA		
Total Uranium **	39.9	± 6.1	J	39.8	± .53	-	40.3	± 5.7	J	15	± 3	R
Uranium 234	13.6	± 1.8	J	14	± 1.8	-	11.9	± 1.5	-	4.5	± .6	J
Uranium 235/236	1.42	± .36	E	< 1		-	< 1		-	< 1		J
Uranium 238	14.4	± 1.9	-	14.5	± 1.8	-	12.3	± 1.6	-	5.5	± .8	J

688

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

-4948

OU4 GROUNDWATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	2034 003224 05/23/88			2034 003367 07/24/88			2034 003646 10/24/88			2034 003835 01/19/89		
	a		b	a		b	a		b	a		b
Cesium 137	< 20		R	< 20		R	< 20		R	< 20		R
Neptunium 237	< 1		J	< 1		J	< 1		J	< 1		-
Plutonium 238	< 1		J	< 1		J	< 1		J	< 1		-
Plutonium 239/240	< 1		J	< 1		J	< 1		J	< 1		-
Radium 226	< 1		-	< 1		-	< 1		-	< 1		-
Radium 228	< 3		J	< 3		-	< 3		-	< 3		-
Ruthenium 106	<150		R	<150		R	<150		R	<150		R
Strontium 90	< 5		-	< 5		-	< 5		-	< 5		-
Technetium 99	< 30		J	< 30		-	< 30		-	< 30		-
Thorium 228	< 1		J	< 1		J	< 1		J	< 1		-
Thorium 230	< 1		J	< 1		J	< 1		J	< 1		-
Thorium 232	< 1		J	< 1		J	< 1		J	< 1		-
Total Thorium **	NA			< 3		J	< 3		J	< 3		-
Total Uranium **	15	± 2	R	24	± 4	-	24	± 5	-	19	± 3	-
Uranium 234	5.2	± .8	J	9.1	± 1.3	J	8	± 1.2	J	5.4	± .8	-
Uranium 235/236	< 1		J	1.1	± .3	J	< 1		J	< 1		-
Uranium 238	5.7	± .8	J	9.3	± 1.3	J	8.3	± 1.2	J	6.7	± 1	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

OU4 GROUNDWATER [illegible]OLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	3032 004346 10/17/90			3032 004377 02/04/91			3034 003116 04/24/88			3034 003366 07/24/88		
	a		b	a		b	a		b	a		b
Cesium 137	< 20		R	< 20		R	< 20		R	< 20		R
Neptunium 237	< 1		J	< 1		J	< 1		J	< 1		J
Plutonium 238	< 1		J	< 1		J	< 1		R	< 1		J
Plutonium 239/240	< 1		J	< 1		J	< 1		R	< 1		J
Radium 226	< 1		-	< 1		-	< 1		J	< 1		-
Radium 228	< 3		-	< 3		J	< 3		R	< 3		-
Ruthenium 106	<150		R	<150		R	<150		R	<150		R
Strontium 90	< 5		-	< 5		J	< 5		-	< 5		-
Technetium 99	< 39		JD	< 30		R	36.4	± 12.4	-	< 30		-
Thorium 228	< 1		-	< 1		-	< 1		J	< 1		J
Thorium 230	< 1		-	< 1		-	< 1		J	< 1		J
Thorium 232	< 1		-	< 1		-	< 1		J	< 1		J
Total Thorium **	< 2.8		-	< 1.7		-	NA			< 3		J
Total Uranium **	15	± 2.4	J	11.5	± 2.2	-	3	± 1	R	1	± 1	J
Uranium 234	4.34	± .69	-	4.49	± .67	-	1.3	± .6	J	< 1		J
Uranium 235/236	< 1		-	< 1		-	< 1		J	< 1		J
Uranium 238	5	± .77	-	4.05	± .63	-	1.3	± .6	J	< 1		J

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

690

-4948

OU4 GROUNDWATER RADIOLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	3034 003645 10/24/88		3034 003836 01/19/89		4018 03/22/89		4108 05/31/89	
	a	b	a	b	a	b	a	b
Cesium 137	< 20	R	< 20	R	< 20	R	< 20	R
Neptunium 237	< 1	J	< 1	-	< 1	-	< 1	-
Plutonium 238	< 1	J	< 1	-	NA		NA	
Plutonium 239/240	< 1	J	< 1	-	< 1	-	< 1	-
Radium 226	< 1	-	< 1	-	< 1	-	< 1	-
Radium 228	< 3	-	< 3	-	< 3	J	< 3	-
Ruthenium 106	<150	R	<150	-	<150	R	<150	R
Strontium 90	< 5	-	< 5	-	< 5	J	< 5	-
Technetium 99	< 30	-	< 30	-	< 30	-	< 30	-
Thorium 228	< 1	J	< 1	-	< 1	-	< 1	-
Thorium 230	< 1	J	< 1	-	< 1	-	< 1	-
Thorium 232	< 1	J	< 1	-	< 1	-	< 1	-
Total Thorium **	< 2	J	< 5	-	< 3	-	< 2	-
Total Uranium **	< 1	-	< 1	-	< 32	-	< 37	-
Uranium 234	< 1	J	< 1	-	< 11	-	< 13.2	-
Uranium 235/236	< 1	J	< 1	-	< 1	-	< 1	-
Uranium 238	< 1	J	< 1	-	< 10.4	-	< 13.2	-

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

OU4 GROUNDWATER [illegible]OLOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	6852 12/13/89 a	b
Cesium 137	NA	-
Neptunium 237	NA	-
Plutonium 238	NA	-
Plutonium 239/240	NA	-
Radium 226	NA	-
Radium 228	NA	-
Ruthenium 106	NA	-
Strontium 90	NA	-
Technetium 99	30 NA	-
Thorium 228	1 NA	-
Thorium 230	1 NA	-
Thorium 232	NA	-
Total Thorium **	NA	-
Total Uranium **	29.1	-
Uranium 234	8.81	-
Uranium 235/236	1 NA	-
Uranium 238	10.4	-

692

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

-4048

OU4 GROUNDWATER CHEMICAL RESULTS

OU4 GROUNDWATER GEN[illegible] CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 003076 04/05/88		1029 003354 07/20/88		1029 003634 10/23/88		1029 003852 01/22/89	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	.1	-	U .1	-	U .1	-	U .1	-
Chloride	7.1	-	1.5	-	12.5	-	2	-
Fluoride	1.5	-	1.1	-	1.1	-	1.3	-
Nitrate	U 5	-	.173	-	U .1	-	U .05	-
Phenols	U .01	-	U .01	-	.03	-	U .01	-
Phosphate	.1	-	NA		NA		NA	
Phosphorus	NA		.15	-	.238	J	.4	-
Sulfate	210	-	124	-	81	-	140	-
Sulfide	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		NA		U .1	J	.1	-
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Halides	NA		NA		U .05	-	U .01	J
Total Organic Nitrogen	.8	-	.024	-	U .1	-	.1	-

a = lab qualifier
b = validated qualifier

694

-4948

OU4 GROUNDWATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1032 003133 04/27/88		1032 003851 01/22/89		1033 003220 05/22/88		1033 003567 08/24/88	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	-	U .1	-	U .5	-	U .1	-
Chloride	616	-	310	-	11	-	29.5	-
Fluoride	.28	-	.2	-	.63	-	.66	-
Nitrate	.14	-	8.3	-	.1	-	U .1	R
Phenols	.02	-	U .01	-	.02	-	.02	-
Phosphate	NA		NA		NA		NA	
Phosphorus	.145	-	.6	-	.28	-	.31	-
Sulfate	375	-	280	-	109	-	75	-
Sulfide	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	NA		.2	-	NA		NA	
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Halides	NA		.024	J	NA		U .05	-
Total Organic Nitrogen	.1	-	.2	-	U .5	-	.4	-

a = lab qualifier
b = validated qualifier

695

-4048

OU4 GROUNDWATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1033 003773 11/20/88		1033 003961 03/10/89		1034 003122 04/25/88		1034 003850 01/22/89	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	U	.2	-	U .1	-	U .1	-
Chloride	1.25	-	9.2	-	4.6	-	6.8	-
Fluoride	.48	-	.4	-	.4	-	.4	-
Nitrate	.148	-	.64	-	1.4	-	.55	-
Phenols	U .01	-	U .005	-	.01	-	U .01	-
Phosphate	NA		NA		NA		NA	
Phosphorus	.09	-	.06	-	.355	-	.1	-
Sulfate	116	-	97	-	197	-	210	-
Sulfide	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	.49	U	.3	-	NA		.1	-
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Halides	U .05	U	U .05	-	NA		.016	J
Total Organic Nitrogen	.49	-	.1	-	U .1	-	.1	-

a = lab qualifier
b = validated qualifier

69
-4048

OU4 GROUNDWATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2032 004299 06/29/90		2033 004208 06/19/90		2033 004334 08/27/90		2034 003223 05/23/88	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	-	U .1	-	.1	-	U .5	U
Chloride	11.7	-	28	-	25.2	-	24	-
Fluoride	.21	-	.3	-	.25	-	.13	-
Nitrate	3.32	-	1.9	-	2.27	-	3.96	-
Phenols	.012	-	.058	-	U .01	-	U .05	-
Phosphate	NA		NA		NA		NA	
Phosphorus	.13	-	1	-	U .02	-	NA	
Sulfate	46.4	-	91	-	67.1	-	63.9	-
Sulfide	U .5	-	8	-	U .5	-	NA	
Total Kjeldahl Nitrogen	NA		NA		NA		U .5	-
Total Organic Carbon	3.17	-	2	-	2.43	-	NA	
Total Organic Halides	U .01	-	U .05	-	U .01	-	NA	
Total Organic Nitrogen	.31	-	1	-	U .1	-	U .5	UJ

a = lab qualifier
b = validated qualifier

-4048
697

OU4 GROUNDWATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2034 003224 05/23/88		2034 003367 07/24/88		2034 003646 10/24/88		2034 003835 01/19/89	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .5	UJ	U .02	-	U .1	-	U .1	-
Chloride	23.6	-	51	-	30	-	21	-
Fluoride	.11	-	.26	-	.32	-	.16	-
Nitrate	3.28	-	2.02	-	11.8	-	2.2	-
Phenols	.05	-	U .002	-	U .01	-	U .01	-
Phosphate	NA		NA		NA		NA	
Phosphorus	NA		.1	-	.044	J	523	-
Sulfate	63.9	-	62	-	39	-	59.5	-
Sulfide	NA		NA		NA		NA	
Total Kjeldahl Nitrogen	1.55	J	NA		.25	J	.473	-
Total Organic Carbon	NA		NA		NA		NA	
Total Organic Halides	NA		NA		U .05	-	.02	-
Total Organic Nitrogen	1.55	J	U .05	-	.25	-	.473	-

a = lab qualifier
b = validated qualifier

698

-4948

OU4 GROUNDWATER GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	3032 004346 10/17/90		3032 004377 02/04/91		3034 003116 04/24/88		3034 003366 07/24/88	
	a	b	a	b	a	b	a	b
GENERAL CHEMISTRY								
Ammonia	U .1	-	U .1	-	.1	-	.04	-
Chloride	27	-	22.1	-	23.9	-	35	-
Fluoride	.27	-	.58	-	.43	-	.2	-
Nitrate	3.03	J	3.2	J	1.1	-	2.11	J
Phenols	.011	-	.02	-	U .01	-	.009	-
Phosphate	NA		NA		NA		NA	
Phosphorus	.39	-	.14	-	.395	-	.12	-
Sulfate	54.4	-	54.5	-	70	-	70	-
Sulfide	U .5	-	U .5	-	NA		NA	
Total Kjeldahl Nitrogen	NA		NA		NA		NA	
Total Organic Carbon	3.64	-	1.18	-	NA		NA	
Total Organic Halides	U .01	-	U .01	-	NA		NA	
Total Organic Nitrogen	.25	-	.14	-	.3	-	U .05	R

a = lab qualifier
b = validated qualifier

699

1948

OU4 GROUNDWATER GEN[illegible] CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	3034 003645 10/24/88		3034 003836 01/19/89	
	a	b	a	b
GENERAL CHEMISTRY				
Ammonia	U .1	-	U .1	-
Chloride	21	-	19	-
Fluoride	.23	-	.12	-
Nitrate	9.98	-	2	-
Phenols	.01	-	.096	-
Phosphate	NA		NA	
Phosphorus	U .02	J	555	-
Sulfate	27	-	50.7	-
Sulfide	NA		NA	
Total Kjeldahl Nitrogen	.1	J	.291	-
Total Organic Carbon	NA		NA	
Total Organic Halides	U .05	-	.01	-
Total Organic Nitrogen	.1	-	.291	-

a = lab qualifier
b = validated qualifier

700

-4948

54048

OU4 GROUNDWATER HSL RESULTS

700A

OU4 GROUNDWATER HA[illegible]US SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 003076 04/05/88		1029 003354 07/20/88		1029 003634 10/23/88		1029 003852 01/22/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	B .041	J	NA		NA		NA	
Antimony	U .03	-	NA		NA		NA	
Arsenic	UW .003	J	U .2	-	U .002	-	U .002	U
Barium	B .182	J	.159	-	.163	-	.15	-
Beryllium	U .001	-	NA		NA		NA	
Cadmium	U .005	-	U .002	-	U .002	-	.008	-
Calcium	96.8	-	95.2	-	101	-	95.8	-
Chromium	U .01	-	U .02	-	U .02	-	.022	-
Cobalt	U .02	-	NA		NA		NA	
Copper	B .024	UJ	U .01	-	U .01	-	.014	-
Cyanide	U .02	-	NA		NA		NA	
Iron	B .043	J	U .005	-	.103	-	.04	U
Lead	UE .03	J	U .05	-	.015	-	U .002	-
Magnesium	43.9	-	43.9	-	44.4	-	43.2	U
Manganese	.056	-	.07	-	.126	-	.052	-
Mercury	U .0002	-	U .0002	-	U .0002	-	U .0002	-
Molybdenum	.02	-	.03	-	U .02	-	U .02	-
Nickel	U .02	-	U .02	-	U .02	-	.025	-
Potassium	B 1.19	J	1.65	J	3.6	-	1.94	-
Selenium	UW .004	J	U .2	-	U .002	-	.004	U
Silicon	NA		NA		NA		NA	
Silver	U .005	-	U .01	-	U .0005	-	U .0005	-
Sodium	62.8	-	31.9	-	27.6	-	32.2	-
Thallium	UW .004	J	NA		NA		NA	
Vanadium	U .01	-	NA		NA		NA	
Zinc	.042	U	NA		NA		NA	

a = lab qualifier
b = validated qualifier

701

-4948

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1032 003133 04/27/88		1032 003851 01/22/89		1033 003220 05/22/88		1033 003567 08/24/88	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	U .2	-	U .002	U	U .002	-	U .002	-
Barium	.083	-	.076	-	.075	-	.093	-
Beryllium	NA		NA		NA		NA	
Cadmium	U .005	-	.008	-	U .002	-	U .002	-
Calcium	233	-	215	-	110	-	120	-
Chromium	U .02	-	.038	-	U .02	-	U .02	-
Cobalt	NA		NA		NA		NA	
Copper	U .01	UJ	.019	-	.012	-	U .01	-
Cyanide	NA		NA		NA		NA	
Iron	U .05	-	.085	U	.018	-	.007	-
Lead	U .05	-	U .002	-	U .002	-	.002	J
Magnesium	68.2	-	51.6	U	43.8	-	58.8	-
Manganese	.013	-	.013	-	.051	-	.21	-
Mercury	U .0002	-	U .0002	-	U .0002	-	U .0002	-
Molybdenum	U .02	-	U .02	-	.033	-	U .02	-
Nickel	U .02	-	.024	-	U .02	-	.021	-
Potassium	1.3	-	1.43	-	.527	-	1.9	J
Selenium	U .2	-	.016	U	U .002	-	U .002	J
Silicon	NA		NA		NA		NA	
Silver	.03	UJ	U .0005	-	U .01	-	U .01	-
Sodium	282	-	189	-	11.5	-	11.4	-
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948
702

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1033 003773 11/20/88		1033 003961 03/10/89		1034 003122 04/25/88		1034 003850 01/22/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	NA		NA		NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	U .002	UJ	U .003	-	U .2	-	U .002	U
Barium	.066	-	.057	-	.038	-	.044	-
Beryllium	NA		NA		NA		NA	
Cadmium	U .002	U	U .005	-	U .005	-	.01	-
Calcium	89.3	-	100	-	118	-	128	-
Chromium	U .02	U	.03	-	U .02	-	.028	-
Cobalt	NA		NA		NA		NA	
Copper	U .01	U	.01	-	U .01	-	.015	-
Cyanide	NA		NA		NA		NA	
Iron	.113	-	.94	-	U .005	-	.073	U
Lead	U .002	UJ	.002	-	U .05	-	U .002	-
Magnesium	35.3	-	37	-	53.1	-	57.3	U
Manganese	.028	-	.026	-	.111	-	.009	-
Mercury	U .0002	U	U .0002	-	.0004	-	U .0002	-
Molybdenum	U .02	U	.01	-	U .02	-	U .02	-
Nickel	U .02	U	U .03	-	U .02	-	.026	-
Potassium	7.63	-	.75	-	1.56	-	U .1	-
Selenium	U .002	UJ	U .002	-	U .2	-	.004	U
Silicon	NA		NA		NA		NA	
Silver	U .0005	U	U .01	-	U .01	-	U .0005	-
Sodium	14.6	-	24	-	34.9	-	45.5	-
Thallium	NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA	
Zinc	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2032 004299 06/29/90		2033 004208 06/19/90		2033 004334 08/27/90		2034 003223 05/23/88	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	U .06	-	U .04	-	U .06	-	B .0761	J
Antimony	NA		NA		NA		U .0467	J
Arsenic	U .002	-	.003	-	U .002	-	U .0019	J
Barium	.036	-	.044	-	.046	-	B .0405	J
Beryllium	NA		NA		NA		U .0024	J
Cadmium	.003	-	U .005	-	.003	-	U .0007	J
Calcium	82.6	-	92.8	-	92.2	-	98.7	J
Chromium	.03	-	U .01	-	.012	-	U .0017	J
Cobalt	NA		NA		NA		U .0052	J
Copper	U .01	-	U .01	-	U .01	-	U .0067	J
Cyanide	NA		NA		NA		U .02	J
Iron	.031	-	.06	-	.019	-	.214	J
Lead	U .002	-	.003	J	U .002	-	UWN .0021	J
Magnesium	23	-	23.1	-	23.2	-	234	J
Manganese	.012	-	.022	-	.011	-	.025	J
Mercury	U .0002	-	U .001	-	U .0002	-	U .00029	R
Molybdenum	U .01	-	U .01	-	U .01	-	U .0333	J
Nickel	U .02	-	U .02	-	U .02	-	U .0123	J
Potassium	1.66	-	U 1	-	2.61	-	B 2.83	J
Selenium	U .002	-	U .002	UJ	U .002	-	BWN .0019	J
Silicon	3.76	-	2.6	-	3.48	-	NA	
Silver	.015	-	U .005	UJ	.01	-	U .0043	J
Sodium	13.2	-	14.7	-	14.8	-	12.1	J
Thallium	NA		NA		NA		UWN .0041	J
Vanadium	.013	-	U .01	-	U .01	-	U .0034	J
Zinc	NA		NA		NA		B .0119	J

a = lab qualifier
b = validated qualifier

704

-4948

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	2034 003224 05/23/88		2034 003367 07/24/88		2034 003646 10/24/88		2034 003835 01/19/89	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	B .117	J	NA		NA		NA	
Antimony	U .0467	J	NA		NA		NA	
Arsenic	U .0019	J	U .01	-	U .002	-	U .002	-
Barium	B .0409	J	U .5	-	.041	-	.043	-
Beryllium	U .0024	J	NA		NA		NA	
Cadmium	U .0007	J	U .005	-	.002	-	.004	-
Calcium	98.9	J	99	-	87.7	-	88	-
Chromium	U .0017	J	U .01	-	U .02	-	.022	-
Cobalt	U .0052	J	NA		NA		NA	
Copper	U .0067	J	U .01	-	U .01	-	.012	-
Cyanide	U .02	J	NA		NA		NA	
Iron	.319	J	U .1	-	.261	-	.047	-
Lead	UWN .0021	J	U .005	-	.024	-	U .002	-
Magnesium	23.4	J	25	-	22.2	-	22.4	-
Manganese	.0286	J	U .01	-	.026	-	.006	-
Mercury	U .00029	R	U .0002	-	U .0002	-	U .0002	-
Molybdenum	U .0333	J	U .05	-	U .02	-	U .02	-
Nickel	U .0123	J	U .03	-	U .02	-	.021	-
Potassium	B 2.77	J	2.5	-	2.58	-	2.84	-
Selenium	UWN .0018	J	U .005	-	U .002	-	U .002	-
Silicon	NA		NA		NA		NA	
Silver	U .0043	J	U .01	-	U .0005	-	U .0005	-
Sodium	12.1	J	18	-	12.6	-	12.8	-
Thallium	UWN .0041	J	NA		NA		NA	
Vanadium	U .0034	J	NA		NA		NA	
Zinc	B .0194	J	NA		NA		NA	

a = lab qualifier
b = validated qualifier

705

4048

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	3032 004346 10/17/90		3032 004377 02/04/91		3034 003116 04/24/88		3034 003366 07/24/88	
	a	b	a	b	a	b	a	b
METALS								
Aluminum	.068	-	U .04	-	NA		NA	
Antimony	NA		NA		NA		NA	
Arsenic	.002	-	U .002	-	U .2	-	U .01	-
Barium	.04	-	.037	-	.006	-	U .5	-
Beryllium	NA		NA		NA		NA	
Cadmium	.004	-	U .005	-	U .005	-	.032	-
Calcium	81.9	-	85	-	74.4	-	92	-
Chromium	.014	-	U .01	-	U .02	-	U .01	-
Cobalt	NA		NA		NA		NA	
Copper	U .01	-	.01	-	U .01	-	U .01	-
Cyanide	NA		NA		NA		NA	
Iron	.03	-	.04	-	U .005	-	U .1	-
Lead	.006	-	U .002	-	U .05	-	U .005	-
Magnesium	22.3	-	20.1	-	23.7	-	24	-
Manganese	.036	-	.016	-	.041	-	.04	-
Mercury	U .0002	-	U .001	-	.0008	-	U .0002	-
Molybdenum	.01	-	U .01	-	U .02	-	U .05	-
Nickel	U .02	-	.02	-	U .02	-	U .03	-
Potassium	3.06	-	3	-	3.2	-	2.4	-
Selenium	U .002	-	U .002	-	U .2	-	U .005	-
Silicon	2.95	-	3	-	NA		NA	
Silver	.013	-	U .005	-	.024	-	U .01	-
Sodium	15.5	-	14	-	29.6	-	16	-
Thallium	NA		NA		NA		NA	
Vanadium	U .01	-	U .01	-	NA		NA	
Zinc								

a = lab qualifier
b = validated qualifier

706

E-4948

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	3034 003645 10/24/88		3034 003836 01/19/89	
	a	b	a	b
METALS				
Aluminum	NA		NA	
Antimony	NA		NA	
Arsenic	U .002	-	U .002	-
Barium	.039	-	.045	-
Beryllium	NA		NA	
Cadmium	U .002	-	.004	-
Calcium	83.9	-	90.1	-
Chromium	U .02	-	.023	-
Cobalt	NA		NA	
Copper	U .01	-	.011	-
Cyanide	NA		NA	
Iron	U .005	-	.071	-
Lead	.013	-	U .002	-
Magnesium	21.8	-	23.5	-
Manganese	.029	-	.036	-
Mercury	U .0002	-	U .0002	-
Molybdenum	U .02	-	U .02	-
Nickel	U .02	-	.034	-
Potassium	2.2	-	2.53	-
Selenium	U .002	-	U .002	-
Silicon	NA		NA	
Silver	U .0005	-	U .0005	-
Sodium	10.6	-	11.3	-
Thallium	NA		NA	
Vanadium	NA		NA	
Zinc	NA		NA	

a = lab qualifier
b = validated qualifier

701

-4948

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 003076 04/05/88		1029 004061 03/31/89		2034 003223 05/23/88		2034 003224 05/23/88	
	a	b	a	b	a	b	a	b
ORGANOPHOSPOROUS PESTICIDES								
Azinphosmethyl	NA		U .0005	-	U .005	-	U .005	-
Demeton	NA		U .0004	-	U .001	-	U .001	-
Diazinon	NA		U .0002	-	U .0005	-	U .0005	-
Disulfoton	NA		U .0002	-	U .0005	-	U .0005	-
Ethion	NA		U .0002	-	U .0005	-	U .0005	-
Malathion	NA		U .0002	-	U .001	-	U .001	-
Parathion, ethyl	NA		U .0002	-	U .0005	-	U .0005	-
Parathion, methyl	NA		U .0002	-	U .001	-	U .001	-
PESTICIDES/PCB								
4,4'-DDD	U .0001	-	NA		U .0001	-	U .0001	-
4,4'-DDE	U .0001	-	NA		U .0001	-	U .0001	-
4,4'-DDT	U .0001	-	NA		U .0001	-	U .0001	-
Aldrin	U .00005	-	NA		U .00005	-	U .00005	-
alpha-BHC	U .00005	-	NA		U .00005	-	U .00005	-
alpha-Chlordane	U .0005	-	NA		U .0005	-	U .0005	-
Aroclor-1016	U .0005	-	NA		U .0005	-	U .0005	-
Aroclor-1221	U .0005	-	NA		U .0005	-	U .0005	-
Aroclor-1232	U .0005	-	NA		U .0005	-	U .0005	-
Aroclor-1242	U .0005	-	NA		U .0005	-	U .0005	-
Aroclor-1248	U .0005	-	NA		U .0005	-	U .0005	-
Aroclor-1254	U .001	-	NA		U .001	-	U .001	-
Aroclor-1260	U .001	-	NA		U .001	-	U .001	-
beta-BHC	U .00005	-	NA		U .00005	-	U .00005	-
delta-BHC	U .00005	-	NA		U .00005	-	U .00005	-
Dieldrin	U .0001	-	NA		U .00005	-	U .00005	-
Endosulfan II	U .0001	-	NA		U .0001	-	U .0001	-
Endosulfan sulfate	U .0001	-	NA		U .0001	-	U .0001	-
Endosulfan-I	U .00005	-	NA		U .00005	-	U .00005	-
Endrin	U .0001	-	NA		U .00005	-	U .00005	-
Endrin ketone	U .0001	-	NA		U .0001	-	U .0001	-
gamma-BHC (Lindane)	U .00005	-	NA		U .00005	-	U .00005	-
gamma-Chlordane	U .0005	-	NA		U .0005	-	U .0005	-
Heptachlor	U .00005	-	NA		U .00005	-	U .00005	-
Heptachlor epoxide	U .00005	-	NA		U .00005	-	U .00005	-
Methoxychlor	U .0005	-	NA		U .0005	-	U .0005	-
Toxaphene	U .001	-	NA		U .001	-	U .001	-
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	U .01	-	NA		U .01	-	U .01	-
1,2-Dichlorobenzene	U .01	-	NA		U .01	-	U .01	-
1,3-Dichlorobenzene	U .01	-	NA		U .01	-	U .01	-
1,4-Dichlorobenzene	U .01	-	NA		U .01	-	U .01	-
2,4,5-Trichlorophenol	U .05	-	NA		U .05	-	U .05	-

-4948

703

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 003076 04/05/88		1029 004061 03/31/89		2034 003223 05/23/88		2034 003224 05/23/88	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2,4,6-Trichlorophenol	U .01	-	NA		U .01	-	U .01	-
2,4-Dichlorophenol	U .01	-	NA		U .01	-	U .01	-
2,4-Dimethylphenol	U .01	-	NA		U .01	-	U .01	-
2,4-Dinitrophenol	U .05	-	NA		U .05	UJ	U .05	UJ
2,4-Dinitrotoluene	U .01	-	NA		U .01	-	U .01	-
2,6-Dinitrotoluene	U .01	-	NA		U .01	-	U .01	-
2-Chloronaphthalene	U .01	-	NA		U .01	-	U .01	-
2-Chlorophenol	U .01	-	NA		U .01	-	U .01	-
2-Methylnaphthalene	U .01	-	NA		U .01	-	U .01	-
2-Methylphenol	U .01	-	NA		U .01	-	U .01	-
2-Nitroaniline	U .05	-	NA		U .05	-	U .05	-
2-Nitrophenol	U .01	-	NA		U .01	-	U .01	-
3,3'-Dichlorobenzidine	U .02	-	NA		U .02	-	U .02	-
3-Nitroaniline	U .05	-	NA		U .05	-	U .05	-
4,6-Dinitro-2-methylphenol	U .05	-	NA		U .05	UJ	U .05	UJ
4-Bromophenyl phenyl ether	U .01	-	NA		U .01	UJ	U .01	UJ
4-Chloro-3-methylphenol	U .01	-	NA		U .01	-	U .01	-
4-Chloroaniline	U .01	-	NA		U .01	-	U .01	-
4-Chlorophenylphenyl ether	U .01	-	NA		U .01	-	U .01	-
4-Methylphenol	U .01	-	NA		U .01	-	U .01	-
4-Nitroaniline	U .05	-	NA		U .05	-	U .05	-
4-Nitrophenol	U .05	-	NA		U .05	UJ	U .05	UJ
Acenaphthene	U .01	-	NA		U .01	-	U .01	-
Acenaphthylene	U .01	-	NA		U .01	-	U .01	-
Anthracene	U .01	-	NA		U .01	-	U .01	-
Benzo(a)anthracene	U .01	-	NA		U .01	-	U .01	-
Benzo(a)pyrene	U .01	-	NA		U .01	-	U .01	-
Benzo(b)fluoranthene	U .01	-	NA		U .01	-	U .01	-
Benzo(g,h,i)perylene	U .01	-	NA		U .01	-	U .01	-
Benzo(k)fluoranthene	U .01	-	NA		U .01	-	U .01	-
Benzoic acid	U .05	-	NA		U .05	-	U .05	-
Benzyl alcohol	U .01	-	NA		U .01	UJ	U .01	UJ
bis(2-Chloroethoxy)methane	U .01	-	NA		U .01	-	U .01	-
bis(2-Chloroethyl)ether	U .01	-	NA		U .01	-	U .01	-
bis(2-Chloroisopropyl) ether	U .01	-	NA		U .01	-	U .01	-
bis(2-Ethylhexyl) phthalate	U .01	-	NA		U .01	UJ	U .01	UJ
Butyl benzyl phthalate	U .01	-	NA		J .001	-	J .001	-
Chrysene	U .01	-	NA		U .01	-	U .01	-
Di-n-butyl phthalate	U .01	-	NA		BJ .006	-	BJ .006	-
Di-n-octyl phthalate	U .01	-	NA		U .01	UJ	U .01	UJ

a = lab qualifier
b = validated qualifier

709

-4948

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 003076 04/05/88		1029 004061 03/31/89		2034 003223 05/23/88		2034 003224 05/23/88	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Dibenzo(a,h)anthracene	U .01	-	NA		U .01	-	U .01	-
Dibenzofuran	U .01	-	NA		U .01	-	U .01	-
Diethyl phthalate	U .01	-	NA		U .01	-	U .01	-
Dimethyl phthalate	U .01	-	NA		U .01	-	U .01	-
Fluoranthene	U .01	-	NA		U .01	-	U .01	-
Fluorene	U .01	-	NA		U .01	-	U .01	-
Hexachlorobenzene	U .01	-	NA		U .01	UJ	U .01	UJ
Hexachlorobutadiene	U .01	-	NA		U .01	-	U .01	-
Hexachlorocyclopentadiene	U .01	-	NA		U .01	-	U .01	-
Hexachloroethane	U .01	-	NA		U .01	-	U .01	-
Indeno(1,2,3-cd)pyrene	U .01	-	NA		U .01	-	U .01	-
Isophorone	U .01	-	NA		U .01	-	U .01	-
N-Nitroso-di-n-propylamine	U .01	-	NA		U .01	-	U .01	-
N-Nitrosodiphenylamine	U .01	-	NA		U .05	-	U .05	-
Naphthalene	U .01	-	NA		U .01	-	U .01	-
Nitrobenzene	U .01	-	NA		U .01	-	U .01	-
Pentachlorophenol	U .05	-	NA		U .05	UJ	U .05	UJ
Phenanthrene	U .01	-	NA		U .01	-	U .01	-
Phenol	U .01	-	NA		U .01	-	U .01	-
Pyrene	U .01	-	NA		U .01	-	U .01	-
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	NA		U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	NA		U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	NA		U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	NA		U .005	UJ	U .005	UJ
1,2-Dichloroethylene	U .005	-	NA		U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	NA		U .005	-	U .005	-
2-Butanone	U .01	-	NA		U .01	R	U .01	R
2-Hexanone	U .01	-	NA		U .01	-	U .01	-
4-Methyl-2-pentanone	U .01	-	NA		U .01	-	U .01	-
Acetone	U .01	-	NA		BJ .006	-	BJ .002	-
Benzene	U .005	-	NA		U .005	UJ	U .005	UJ
Bromodichloromethane	U .005	-	NA		U .005	-	U .005	-
Bromoform	U .005	-	NA		U .005	-	U .005	-
Bromomethane	U .01	-	NA		U .01	-	U .01	-
Carbon disulfide	U .005	-	NA		U .005	UJ	U .005	UJ
Carbon Tetrachloride	U .005	-	NA		U .005	-	U .005	-
Chlorobenzene	U .005	-	NA		U .005	UJ	U .005	UJ
Chloroethane	U .01	-	NA		U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4948
710

OU4 GROUNDWATER HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1029 003076 04/05/88		1029 004061 03/31/89		2034 003223 05/23/88		2034 003224 05/23/88	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Chloroform	U .005	-	NA		U .005	-	U .005	-
Chloromethane	U .01	-	NA		U .01	-	U .01	-
cis-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Dibromochloromethane	U .005	-	NA		U .005	-	U .005	-
Ethylbenzene	U .005	-	NA		J .002	UJ	U .005	UJ
Methylene chloride	U .005	-	NA		BJ .002	UJ	BJ .002	UJ
Styrene	U .005	-	NA		U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	-	NA		U .005	-	U .005	-
Toluene	U .005	-	NA		U .005	UJ	U .005	UJ
Total xylenes	U .005	-	NA		J .003	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	NA		U .005	-	U .005	-
Trichloroethene	U .005	-	NA		U .005	-	U .005	-
Vinyl Acetate	U .01	-	NA		U .01	UJ	U .01	UJ
Vinyl chloride	U .01	-	NA		U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

4048
4848
7111

-4948

OU4 FEMP GROUNDWATER RADIOLOGICAL RESULTS

712

FEMP GROUNDWATER RADIOLOGICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter analytical results, duplicate results, trip blank results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Result	Trip Blank Result	Field Blank Result	Concentration Units
1029	B90	19910719	04-19-90	GROSS ALPHA	29.900	N/A	< 4.28E-3	N/A	pCi/l
1029	B90	19910719	04-19-90	GROSS BETA	28.000	N/A	< 2.44E-2	N/A	pCi/l
1029	B90	19910719	04-19-90	RA-226	0.7550	N/A	< 1.3E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	RA-228	< 0.3700	N/A	< 7.2E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	TH-228	< 0.6700	N/A	2.73E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	TH-230	< 0.6700	N/A	< 2.4E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	TH-232	< 0.6700	N/A	< 2.4E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	TH-TOTAL	< 6.0000	N/A	< 2.2E+0	N/A	ug/l
1029	B90	19910719	04-19-90	U-234	2.3200	N/A	< 1.7E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	U-235/236	0.5290	N/A	< 1.7E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	U-238	1.7300	N/A	< 1.7E-1	N/A	pCi/l
1029	B90	19910719	04-19-90	U-TOTAL	3.6400	N/A	< 1.0E+0	N/A	ug/l
1032	B90	19910719	04-18-90	GROSS ALPHA	261.00	N/A	< 1.0E+0	N/A	ug/l
1032	B90	19910719	04-18-90	GROSS BETA	74.600	N/A	< 4.35E-2	N/A	pCi/l
1032	B90	19910719	04-18-90	RA-226	< 0.4900	N/A	< 3.7E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	RA-228	65.600	N/A	< 1.7E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	TH-228	< 0.4900	N/A	< 3.7E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	TH-230	131.00	N/A	< 7.44E-3	N/A	pCi/l
1032	B90	19910719	04-18-90	TH-232	< 0.5000	N/A	< 7.2E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	TH-TOTAL	73.100	N/A	< 1.7E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	U-234	0.2270	N/A	< 1.5E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	U-235/236	< 4.4000	N/A	< 3.3E+0	N/A	ug/l
1032	B90	19910719	04-18-90	U-238	< 0.4900	N/A	< 3.7E-1	N/A	pCi/l
1032	B90	19910719	04-18-90	U-TOTAL	3.8000	N/A	< 1.7E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	GROSS ALPHA	147.00	N/A	< 3.8E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	GROSS BETA	68.300	N/A	2.85E+0	N/A	pCi/l
1032	D90	19910816	10-24-90	RA-226	0.5200	N/A	< 8.2E-2	N/A	pCi/l
1032	D90	19910816	10-24-90	RA-228	< 0.8400	N/A	< 9.2E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	TH-228	1.1400	N/A	< 4.4E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	TH-230	0.2710	N/A	< 4.4E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	TH-232	< 0.2600	N/A	< 4.4E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	TH-TOTAL	< 2.3000	N/A	< 4.0E+0	N/A	ug/l
1032	D90	19910816	10-24-90	U-234	62.700	N/A	< 2.9E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	U-235/236	3.4900	N/A	< 2.9E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	U-238	69.800	N/A	< 2.9E-1	N/A	pCi/l
1032	D90	19910816	10-24-90	U-TOTAL	209.00	N/A	< 1.0E+0	N/A	ug/l
1032	D90	19920604	11-01-90	CS-137	< 20.000	N/A	N/A	< 1.2E+1	pCi/l
1032	D90	19920604	11-01-90	GROSS ALPHA	104.00	N/A	N/A	N/A	pCi/l
1032	D90	19920604	11-01-90	GROSS BETA	99.400	N/A	N/A	N/A	pCi/l
1032	D90	19920604	11-01-90	NP-237	< 0.0520	N/A	N/A	< 2.2E-1	pCi/l
1032	D90	19920604	11-01-90	PU-238	0.0375	N/A	N/A	1.16E-1	pCi/l

713

-49048

FEMP GROUNDWATER RADIOLOGICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter analytical results, duplicate results, trip blank results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Result	Trip Blank Result	Field Blank Result	Concentration Units
1032	D90	19920604	11-01-90	PU-239/240	0.2250	N/A	N/A	< 1.8E-1	pCi/l
1032	D90	19920604	11-01-90	RA-226	< 0.1600	N/A	N/A	< 1.2E-1	pCi/l
1032	D90	19920604	11-01-90	RA-228	< 1.6000	N/A	N/A	< 1.3E+0	pCi/l
1032	D90	19920604	11-01-90	RU-106	< 94.000	N/A	N/A	< 7.5E+1	pCi/l
1032	D90	19920604	11-01-90	SR-90	0.2350	N/A	N/A	< 1.5E-1	pCi/l
1032	D90	19920604	11-01-90	TC-99	< 17.000	N/A	N/A	< 1.9E+1	pCi/l
1032	D90	19920604	11-01-90	TH-228	0.2880	N/A	N/A	2.22E+0	pCi/l
1032	D90	19920604	11-01-90	TH-230	< 0.2800	N/A	N/A	6.29E-1	pCi/l
1032	D90	19920604	11-01-90	TH-232	< 0.2800	N/A	N/A	< 1.6E-1	pCi/l
1032	D90	19920604	11-01-90	TH-TOTAL	< 2.5000	N/A	N/A	< 1.4E+0	ug/l
1032	D90	19920604	11-01-90	U-234	71.600	N/A	N/A	7.91E-1	pCi/l
1032	D90	19920604	11-01-90	U-235/236	4.5800	N/A	N/A	3.95E-1	pCi/l
1032	D90	19920604	11-01-90	U-238	77.300	N/A	N/A	5.02E-1	pCi/l
1032	D90	19920604	11-01-90	U-TOTAL	237.00	N/A	N/A	N/A	ug/l
1033	B90	19910719	04-23-90	GROSS ALPHA	54.400	5.82E-	< 1.01E-2	N/A	pCi/l
1033	B90	19910719	04-23-90	GROSS BETA	45.400	3.58E-	< 4.21E-2	N/A	pCi/l
1033	B90	19910719	04-23-90	RA-226	0.4740	3.67E-	< 2.1E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	RA-228	< 0.6100	9.7E-1	< 2.4E+0	N/A	pCi/l
1033	B90	19910719	04-23-90	TH-228	0.6540	3.68E-	< 1.9E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	TH-230	0.8720	1.26E+	3.07E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	TH-232	< 0.3300	3.48E-	< 1.9E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	TH-TOTAL	< 2.9000	3.14E+	< 1.7E+0	N/A	ug/l
1033	B90	19910719	04-23-90	U-234	6.0800	5.95E+	< 1.7E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	U-235/236	0.6100	3.21E-	< 1.7E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	U-238	7.5400	7.14E+	< 1.7E-1	N/A	pCi/l
1033	B90	19910719	04-23-90	U-TOTAL	21.500	2.35E+	< 1.0E+0	N/A	ug/l
1034	B90	19910719	04-16-90	RA-226	1.4400	N/A	< 1.7E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	RA-228	< 0.6500	N/A	< 2.1E+0	N/A	pCi/l
1034	B90	19910719	04-16-90	TH-228	< 0.8100	N/A	2.95E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	TH-230	3.6100	N/A	< 2.2E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	TH-232	1.8100	N/A	< 2.2E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	TH-TOTAL	16.300	N/A	< 2.0E+0	N/A	ug/l
1034	B90	19910719	04-16-90	U-234	2.4500	N/A	< 2.6E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	U-235/236	< 0.2800	N/A	< 2.6E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	U-238	2.2000	N/A	< 2.6E-1	N/A	pCi/l
1034	B90	19910719	04-16-90	U-TOTAL	6.5900	N/A	< 8.9E-1	N/A	ug/l
2034	B90	19910719	04-19-90	GROSS ALPHA	21.800	N/A	< 4.28E-3	N/A	pCi/l
2034	B90	19910719	04-19-90	GROSS BETA	30.800	N/A	< 2.44E-2	N/A	pCi/l
2034	B90	19910719	04-19-90	RA-226	0.6350	N/A	< 1.3E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	RA-228	0.4470	N/A	< 7.2E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	TH-228	< 0.4900	N/A	2.73E-1	N/A	[illegible]

714

948

FEMP GROUNDWATER RADIOLOGICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter analytical results, duplicate results, trip blank results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Result	Trip Blank Result	Field Blank Result	Concentration Units
2034	B90	19910719	04-19-90	TH-230	0.5130	N/A	< 2.4E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	TH-232	< 0.4900	N/A	< 2.4E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	TH-TOTAL	< 4.4000	N/A	< 2.2E+0	N/A	ug/l
2034	B90	19910719	04-19-90	U-234	5.0700	N/A	< 1.7E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	U-235/236	0.3030	N/A	< 1.7E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	U-238	5.5400	N/A	< 1.7E-1	N/A	pCi/l
2034	B90	19910719	04-19-90	U-TOTAL	18.200	N/A	< 1.0E+0	N/A	ug/l
3032	A92	19920605	03-18-92	U-TOTAL	11.100	N/A	N/A	N/A	ug/l
3034	A90	19910719	03-27-90	U-234	0.3540	N/A	< 2.5E-1	N/A	pCi/l
3034	A90	19910719	03-27-90	U-235/236	< 0.1600	N/A	< 2.5E-1	N/A	pCi/l
3034	A90	19910719	03-27-90	U-238	< 0.1600	N/A	< 2.5E-1	N/A	pCi/l
3034	A90	19910719	03-27-90	U-TOTAL	< 0.5400	N/A	< 8.6E-1	N/A	ug/l
3034	A92	19920605	03-18-92	U-TOTAL	0.5000	N/A	N/A	N/A	ug/l

715

1-4948

OU4 FEMP GROUNDWATER CHEMICAL RESULTS

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1029	B90	19910718	04-19-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	2-Chloroethyl vinyl ether	< 60.000	N/A	< 60.	N/A	ug/l
1029	B90	19910718	04-19-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Bromodichloromethane	< 1.0000	N/A	6.5	N/A	ug/l
1029	B90	19910718	04-19-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Chloroform	< 1.0000	N/A	15.8	N/A	ug/l
1029	B90	19910718	04-19-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Dibromochloromethane	< 1.0000	N/A	2.2	N/A	ug/l
1029	B90	19910718	04-19-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Trichlorofluoromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	Chloride	3.0000	N/A	< 1.	N/A	mg/l
1029	B90	19910718	04-19-90	Nitrogen, Nitrate	0.0800	N/A	< 0.02	N/A	mg/l
1029	B90	19910718	04-19-90	Sulfate	64.000	N/A	3.	N/A	mg/l
1029	B90	19910718	04-19-90	TOC	1.0000	N/A	< 1.	N/A	mg/l
1029	B90	19910718	04-19-90	TOX	15.000	N/A	20.	N/A	ug/l Cl-
1029	B90	19910718	04-19-90	m-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	o-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	B90	19910718	04-19-90	p-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	2-Chloroethyl vinyl ether	< 10.000	N/A	< 10.	N/A	ug/l

711

8 4 9 0

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program.
Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units.
N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1029	D90	19910718	10-18-90	2-Hexanone	< 2.0000	N/A	< 2.	N/A	ug/l
1029	D90	19910718	10-18-90	4-Methyl-2-pentanone	< 2.0000	N/A	< 2.	N/A	ug/l
1029	D90	19910718	10-18-90	Acetone	< 2.0000	N/A	< 2.	N/A	ug/l
1029	D90	19910718	10-18-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Carbon disulfide	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Chloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Chloroform	< 1.0000	N/A	15.7	N/A	ug/l
1029	D90	19910718	10-18-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Dibromochloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Methyl ethyl ketone	< 2.0000	N/A	< 2.	N/A	ug/l
1029	D90	19910718	10-18-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Styrene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Vinyl acetate	< 2.0000	N/A	< 2.	N/A	ug/l
1029	D90	19910718	10-18-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Xylenes, Total	< 1.0000	N/A	< 1.	N/A	ug/l
1029	D90	19910718	10-18-90	Alkalinity at CaCO3	345.00	N/A	< 1.	< 1.	mg/l
1029	D90	19910718	10-18-90	Ammonia, as nitrogen	0.0500	N/A	0.07	< 0.02	mg/l
1029	D90	19910718	10-18-90	Chloride	3.0000	N/A	< 1.	< 1.	mg/l
1029	D90	19910718	10-18-90	Cyanide	< 0.0050	N/A	< 0.005	< 0.005	mg/l
1029	D90	19910718	10-18-90	Fluoride	0.8600	N/A	0.08	< 0.05	mg/l
1029	D90	19910718	10-18-90	Nitrogen, Nitrate+Nitrite	0.0300	N/A	< 0.02	< 0.02	mg/l
1029	D90	19910718	10-18-90	pH	7.3100	N/A	7.74	N/A	S.U.
1029	D90	19910718	10-18-90	Phenols	< 0.0050	N/A	< 0.005	< 0.005	mg/l
1029	D90	19910718	10-18-90	Phosphorus, Total	2.5300	N/A	0.11	< 0.10	mg/l
1029	D90	19910718	10-18-90	Specific conductance	723.00	N/A	1.40	< 1.	umhos/cm
1029	D90	19910718	10-18-90	Sulfate	56.000	N/A	< 1.	< 1.	mg/l
1029	D90	19910718	10-18-90	TOC	3.0000	N/A	< 1.	< 1.	mg/l
1029	D90	19910718	10-18-90	Total dissolved solids	462.00	N/A	< 5.	< 5.	mg/l
1029	D90	19910718	10-18-90	TOX	< 10.000	N/A	18.	< 10.	ug/l Cl-
1032	B90	19910718	04-18-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	1,1,2,2-Tetrachlo[illegible]ane	< 1.0000	N/A	< 1.	N/A	[illegible]/l
[illegible]	B90	19910718	04-18-90	1,1,2-Trichloroet[illegible]	< 1.0000	N/A	< 1.	N/A	[illegible]/l

718

4048

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1032	B90	19910718	04-18-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	2-Chloroethyl vinyl ether	< 60.000	N/A	< 60.	N/A	ug/l
1032	B90	19910718	04-18-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Bromodichloromethane	< 1.0000	N/A	6.7	N/A	ug/l
1032	B90	19910718	04-18-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Chloroform	< 1.0000	N/A	14.5	N/A	ug/l
1032	B90	19910718	04-18-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Dibromochloromethane	< 1.0000	N/A	2.3	N/A	ug/l
1032	B90	19910718	04-18-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Trichlorofluoromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	Chloride	295.00	N/A	< 1.	N/A	mg/l
1032	B90	19910718	04-18-90	Nitrogen, Nitrate	25.200	N/A	< 0.02	N/A	mg/l
1032	B90	19910718	04-18-90	Sulfate	268.00	N/A	3.	N/A	mg/l
1032	B90	19910718	04-18-90	TOC	2.0000	N/A	< 1.	N/A	mg/l
1032	B90	19910718	04-18-90	TOX	41.000	N/A	< 10.	N/A	ug/l Cl-
1032	B90	19910718	04-18-90	m-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	o-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	B90	19910718	04-18-90	p-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	2-Chloroethyl vinyl ether	< 10.000	N/A	< 10.	N/A	ug/l
1032	D90	19910718	10-24-90	2-Hexanone	< 2.0000	N/A	< 2.	N/A	ug/l
1032	D90	19910718	10-24-90	4-Methyl-2-pentanone	< 2.0000	N/A	< 2.	N/A	ug/l
1032	D90	19910718	10-24-90	Acetone	< 2.0000	N/A	< 2.	N/A	ug/l

719

4048

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program.
Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units.
N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1032	D90	19910718	10-24-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Carbon disulfide	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Chloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Chloroform	< 1.0000	N/A	14.3	N/A	ug/l
1032	D90	19910718	10-24-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Dibromochloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Methyl ethyl ketone	< 2.0000	N/A	< 2.	N/A	ug/l
1032	D90	19910718	10-24-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Styrene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Vinyl acetate	< 2.0000	N/A	< 2.	N/A	ug/l
1032	D90	19910718	10-24-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Xylenes, Total	< 1.0000	N/A	< 1.	N/A	ug/l
1032	D90	19910718	10-24-90	Alkalinity at CaCO3	440.00	N/A	< 1.	< 1.	mg/l
1032	D90	19910718	10-24-90	Ammonia, as nitrogen	< 0.0200	N/A	< 0.02	< 0.02	mg/l
1032	D90	19910718	10-24-90	Chloride	64.000	N/A	< 1.	< 1.	mg/l
1032	D90	19910718	10-24-90	Cyanide	0.0540	N/A	< 0.005	< 0.005	mg/l
1032	D90	19910718	10-24-90	Fluoride	0.2600	N/A	0.05	< 0.05	mg/l
1032	D90	19910718	10-24-90	Nitrogen, Nitrate+Nitrite	22.400	N/A	< 0.02	< 0.02	mg/l
1032	D90	19910718	10-24-90	pH	6.8900	N/A	6.60	N/A	S.U.
1032	D90	19910718	10-24-90	Phenols	< 0.0050	N/A	< 0.005	< 0.005	mg/l
1032	D90	19910718	10-24-90	Phosphorus, Total	< 0.0200	N/A	< 0.02	< 0.02	mg/l
1032	D90	19910718	10-24-90	Specific conductance	1990.0	N/A	1.20	< 1.	umhos/cm
1032	D90	19910718	10-24-90	Sulfate	176.00	N/A	< 1.	< 1.	mg/l
1032	D90	19910718	10-24-90	TOC	5.0000	N/A	< 1.	< 1.	mg/l
1032	D90	19910718	10-24-90	Total dissolved solids	1410.0	N/A	42.	< 10.	mg/l
1032	D90	19910718	10-24-90	TOX	526.00	N/A	< 10.	< 10.	ug/l Cl-
1033	B90	19910718	04-23-90	1,1,1-Trichloroethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	1,1,2,2-Tetrachloroethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	1,1,2-Trichloroethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	1,1-Dichloroethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	1,1-Dichloroethene	< 1.0000	1	< 1.	N/A	[illegible]g/l
[illegible]3	B90	19910718	04-23-90	1,2-Dichloroethe[illegible]	< 1.0000	1	< 1.	N/A	[illegible]g/l

4948

720

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1033	B90	19910718	04-23-90	1,2-Dichloropropane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	2-Chloroethyl vinyl ether	< 60.000	60	< 60.	N/A	ug/l
1033	B90	19910718	04-23-90	Benzene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Bromodichloromethane	< 1.0000	1	7.2	N/A	ug/l
1033	B90	19910718	04-23-90	Bromoform	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Bromomethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Carbon tetrachloride	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Chlorobenzene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Chloroform	< 1.0000	1	17.3	N/A	ug/l
1033	B90	19910718	04-23-90	Chloromethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	cis-1,3-Dichloropropene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Dibromochloromethane	< 1.0000	1	2.6	N/A	ug/l
1033	B90	19910718	04-23-90	Ethyl benzene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Methylene chloride	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Tetrachloroethene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Toluene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	trans-1,2-Dichloroethene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	trans-1,3-Dichloropropene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Trichloroethene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Trichlorofluoromethane	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Vinyl chloride	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	Chloride	6.0000	6	< 1.	N/A	mg/l
1033	B90	19910718	04-23-90	Nitrogen, Nitrate	0.2400	0	< 0.02	N/A	mg/l
1033	B90	19910718	04-23-90	Sulfate	113.00	86	3.	N/A	mg/l
1033	B90	19910718	04-23-90	TOC	2.0000	2	< 1.	N/A	mg/l
1033	B90	19910718	04-23-90	TOX	< 10.000	10	< 10.	N/A	ug/l Cl-
1033	B90	19910718	04-23-90	m-Dichlorobenzene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	o-Dichlorobenzene	< 1.0000	1	< 1.	N/A	ug/l
1033	B90	19910718	04-23-90	p-Dichlorobenzene	< 1.0000	1	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	2-Chloroethyl vinyl ether	< 60.000	N/A	< 60.	N/A	ug/l
1034	B90	19910718	04-16-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Chloroform	< 1.0000	N/A	< 1.	N/A	ug/l

4948

721

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program.
Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units.
N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1034	B90	19910718	04-16-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Dibromochloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Trichlorofluoromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	Chloride	8.0000	N/A	< 1.	N/A	mg/l
1034	B90	19910718	04-16-90	Nitrogen, Nitrate	0.3900	N/A	< 0.02	N/A	mg/l
1034	B90	19910718	04-16-90	Sulfate	191.00	N/A	3.	N/A	mg/l
1034	B90	19910718	04-16-90	TOC	2.0000	N/A	< 1.	N/A	mg/l
1034	B90	19910718	04-16-90	TOX	15.000	N/A	19.	N/A	ug/l Cl-
1034	B90	19910718	04-16-90	m-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	o-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	B90	19910718	04-16-90	p-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	2-Chloroethyl vinyl ether	< 10.000	N/A	< 10.	N/A	ug/l
1034	D90	19910718	10-18-90	2-Hexanone	< 2.0000	N/A	< 2.	N/A	ug/l
1034	D90	19910718	10-18-90	4-Methyl-2-pentanone	< 2.0000	N/A	< 2.	N/A	ug/l
1034	D90	19910718	10-18-90	Acetone	< 2.0000	N/A	< 2.	N/A	ug/l
1034	D90	19910718	10-18-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Carbon disulfide	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Chloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Chloroform	< 1.0000	N/A	15.7	N/A	ug/l
1034	D90	19910718	10-18-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Dibromochlorom[illegible]	< 1.0000	N/A	< 1.	N/A	[illegible]g/l

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
1034	D90	19910718	10-18-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Methyl ethyl ketone	< 2.0000	N/A	< 2.	N/A	ug/l
1034	D90	19910718	10-18-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Styrene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Vinyl acetate	< 2.0000	N/A	< 2.	N/A	ug/l
1034	D90	19910718	10-18-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Xylenes, Total	< 1.0000	N/A	< 1.	N/A	ug/l
1034	D90	19910718	10-18-90	Alkalinity at CaCO3	337.00	N/A	< 1.	< 1.	mg/l
1034	D90	19910718	10-18-90	Ammonia, as nitrogen	0.1200	N/A	0.07	< 0.02	mg/l
1034	D90	19910718	10-18-90	Chloride	9.0000	N/A	< 1.	< 1.	mg/l
1034	D90	19910718	10-18-90	Cyanide	< 0.0050	N/A	< 0.005	< 0.005	mg/l
1034	D90	19910718	10-18-90	Fluoride	0.4100	N/A	0.08	< 0.05	mg/l
1034	D90	19910718	10-18-90	Nitrogen, Nitrate+Nitrite	0.3000	N/A	< 0.02	< 0.02	mg/l
1034	D90	19910718	10-18-90	pH	7.2500	N/A	7.74	N/A	S.U.
1034	D90	19910718	10-18-90	Phenols	0.0110	N/A	< 0.005	< 0.005	mg/l
1034	D90	19910718	10-18-90	Phosphorus, Total	1.7200	N/A	0.11	< 0.10	mg/l
1034	D90	19910718	10-18-90	Specific conductance	978.00	N/A	1.40	< 1.	umhos/cm
1034	D90	19910718	10-18-90	Sulfate	160.00	N/A	< 1.	< 1.	mg/l
1034	D90	19910718	10-18-90	TOC	3.0000	N/A	< 1.	< 1.	mg/l
1034	D90	19910718	10-18-90	Total dissolved solids	702.00	N/A	< 5.	< 5.	mg/l
1034	D90	19910718	10-18-90	TOX	< 10.000	N/A	18.	< 10.	ug/l Cl-
2034	B90	19910718	04-19-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	2-Chloroethyl vinyl ether	< 60.000	N/A	< 60.	N/A	ug/l
2034	B90	19910718	04-19-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Bromodichloromethane	< 1.0000	N/A	6.5	N/A	ug/l
2034	B90	19910718	04-19-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Chloroform	< 1.0000	N/A	15.8	N/A	ug/l
2034	B90	19910718	04-19-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Dibromochloromethane	< 1.0000	N/A	2.2	N/A	ug/l

-4948

723

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program.
Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units.
N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
2034	B90	19910718	04-19-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Trichlorofluoromethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	Chloride	25.000	N/A	< 1.	N/A	mg/l
2034	B90	19910718	04-19-90	Nitrogen, Nitrate	2.6300	N/A	< 0.02	N/A	mg/l
2034	B90	19910718	04-19-90	Sulfate	80.000	N/A	3.	N/A	mg/l
2034	B90	19910718	04-19-90	TOC	1.0000	N/A	< 1.	N/A	mg/l
2034	B90	19910718	04-19-90	TOX	< 10.000	N/A	20.	N/A	ug/l Cl-
2034	B90	19910718	04-19-90	m-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	o-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	B90	19910718	04-19-90	p-Dichlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	2-Chloroethyl vinyl ether	< 10.000	N/A	< 10.	N/A	ug/l
2034	D90	19910718	10-18-90	2-Hexanone	< 2.0000	N/A	< 2.	N/A	ug/l
2034	D90	19910718	10-18-90	4-Methyl-2-pentanone	< 2.0000	N/A	< 2.	N/A	ug/l
2034	D90	19910718	10-18-90	Acetone	< 2.0000	N/A	< 2.	N/A	ug/l
2034	D90	19910718	10-18-90	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Carbon disulfide	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Chloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Chloroform	< 1.0000	N/A	15.7	N/A	ug/l
2034	D90	19910718	10-18-90	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Dibromochloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Methyl ethyl ketone	< 2.0000	N/A	< 2.	N/A	[illegible]/l
[illegible]	D90	19910718	10-18-90	Methylene chlorid[illegible]	< 1.0000	N/A	< 1.	N/A	[illegible]/l

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
2034	D90	19910718	10-18-90	Styrene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Vinyl acetate	< 2.0000	N/A	< 2.	N/A	ug/l
2034	D90	19910718	10-18-90	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Xylenes, Total	< 1.0000	N/A	< 1.	N/A	ug/l
2034	D90	19910718	10-18-90	Alkalinity at CaCO3	224.00	N/A	< 1.	< 1.	mg/l
2034	D90	19910718	10-18-90	Ammonia, as nitrogen	0.0900	N/A	0.07	< 0.02	mg/l
2034	D90	19910718	10-18-90	Chloride	24.000	N/A	< 1.	< 1.	mg/l
2034	D90	19910718	10-18-90	Cyanide	< 0.0050	N/A	< 0.005	< 0.005	mg/l
2034	D90	19910718	10-18-90	Fluoride	0.1900	N/A	0.08	< 0.05	mg/l
2034	D90	19910718	10-18-90	Nitrogen, Nitrate+Nitrite	2.2400	N/A	< 0.02	< 0.02	mg/l
2034	D90	19910718	10-18-90	pH	7.4000	N/A	7.74	N/A	S.U.
2034	D90	19910718	10-18-90	Phenols	< 0.0050	N/A	< 0.005	< 0.005	mg/l
2034	D90	19910718	10-18-90	Phosphorus, Total	0.8900	N/A	0.11	< 0.10	mg/l
2034	D90	19910718	10-18-90	Specific conductance	612.00	N/A	1.40	< 1.	umhos/cm
2034	D90	19910718	10-18-90	Sulfate	63.000	N/A	< 1.	< 1.	mg/l
2034	D90	19910718	10-18-90	TOC	2.0000	N/A	< 1.	< 1.	mg/l
2034	D90	19910718	10-18-90	Total dissolved solids	406.00	N/A	< 5.	< 5.	mg/l
2034	D90	19910718	10-18-90	TOX	62.000	N/A	18.	< 10.	ug/l Cl-
3032	A92	19920514	03-18-92	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,2-Dichloroethene (Total)	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	2-Chloroethyl vinyl ether	< 10.000	N/A	< 10.	N/A	ug/l
3032	A92	19920514	03-18-92	2-Hexanone	< 2.0000	N/A	< 2.	N/A	ug/l
3032	A92	19920514	03-18-92	4-Methyl-2-pentanone	< 2.0000	N/A	< 2.	N/A	ug/l
3032	A92	19920514	03-18-92	Acetone	< 2.0000	N/A	< 2.	N/A	ug/l
3032	A92	19920514	03-18-92	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Carbon disulfide	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Chloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Chloroform	< 1.0000	N/A	< 1.	N/A	ug/l

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
3032	A92	19920514	03-18-92	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Dibromochloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Methyl ethyl ketone	< 2.0000	N/A	< 2.	N/A	ug/l
3032	A92	19920514	03-18-92	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Styrene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Vinyl acetate	< 2.0000	N/A	< 2.	N/A	ug/l
3032	A92	19920514	03-18-92	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Xylenes, Total	< 1.0000	N/A	< 1.	N/A	ug/l
3032	A92	19920514	03-18-92	Alkalinity at CaCO3	232.00	N/A	< 1.	< 1.	mg/l
3032	A92	19920514	03-18-92	Ammonia, as nitrogen	< 0.0200	N/A	< 0.02	< 0.02	mg/l
3032	A92	19920514	03-18-92	Chloride	21.000	N/A	< 1.	< 1.	mg/l
3032	A92	19920514	03-18-92	Fluoride	0.2700	N/A	< 0.05	< 0.05	mg/l
3032	A92	19920514	03-18-92	Nitrogen, Nitrate	1.9400	N/A	< 0.02	< 0.02	mg/l
3032	A92	19920514	03-18-92	pH	8.1100	N/A	7.18	N/A	S.U.
3032	A92	19920514	03-18-92	Phosphorus, Total	0.6400	N/A	< 0.10	< 0.10	mg/l
3032	A92	19920514	03-18-92	Specific conductance	661.00	N/A	< 1.	< 1.	umhos/cm
3032	A92	19920514	03-18-92	Sulfate	52.000	N/A	< 1.	< 1.	mg/l
3032	A92	19920514	03-18-92	TOC	9.0000	N/A	< 1.	< 1.	mg/l
3032	A92	19920514	03-18-92	Total dissolved solids	311.00	N/A	< 50.	< 50.	mg/l
3032	A92	19920514	03-18-92	TOX	< 10.000	N/A	< 10.	< 10.	ug/l Cl-
3032	A92	19920514	03-18-92	Aluminum, (Dissd.)	< 0.2000	N/A	< 0.20	N/A	mg/l
3032	A92	19920514	03-18-92	Antimony, (Dissd.)	< 0.0200	N/A	< 0.020	N/A	mg/l
3032	A92	19920514	03-18-92	Arsenic, (Dissd.)	< 0.0050	N/A	< 0.0050	< 0.0050	mg/l
3032	A92	19920514	03-18-92	Barium, (Dissd.)	< 0.2000	N/A	< 0.20	N/A	mg/l
3032	A92	19920514	03-18-92	Beryllium, (Dissd.)	< 0.0050	N/A	< 0.0050	N/A	mg/l
3032	A92	19920514	03-18-92	Cadmium, (Dissd.)	< 0.0010	N/A	< 0.0010	N/A	mg/l
3032	A92	19920514	03-18-92	Calcium, (Dissd.)	86.500	N/A	< 1.0	N/A	mg/l
3032	A92	19920514	03-18-92	Chromium, Total (Dissd.)	< 0.0020	N/A	< 0.0020	N/A	mg/l
3032	A92	19920514	03-18-92	Cobalt, (Dissd.)	< 0.0050	N/A	< 0.0050	N/A	mg/l
3032	A92	19920514	03-18-92	Copper, (Dissd.)	< 0.0200	N/A	< 0.020	N/A	mg/l
3032	A92	19920514	03-18-92	Iron, (Dissd.)	< 0.1000	N/A	< 0.10	N/A	mg/l
3032	A92	19920514	03-18-92	Lead, (Dissd.)	< 0.0030	N/A	< 0.0030	N/A	mg/l
3032	A92	19920514	03-18-92	Magnesium, (Dissd.)	16.900	N/A	< 1.0	N/A	mg/l
3032	A92	19920514	03-18-92	Manganese, (Dissd.)	< 0.0150	N/A	< 0.015	N/A	mg/l
3032	A92	19920514	03-18-92	Mercury, (Dissd.)	< 0.0002	N/A	< 0.0002	< 0.0002	mg/l
3032	A92	19920514	03-18-92	Molybdenum, (Dissd.)	< 0.0100	N/A	< 0.010	N/A	mg/l
3032	A92	19920514	03-18-92	Nickel, (Dissd.)	< 0.0100	N/A	< 0.010	N/A	mg/l
3032	A92	19920514	03-18-92	Potassium, (Diss[illegible]	2.6000	N/A	< 1.0	N/A	[illegible]g/l

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS
OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
3032	A92	19920514	03-18-92	Selenium, (Dissd.)	< 0.0050	N/A	< 0.0050	< 0.0050	mg/l
3032	A92	19920514	03-18-92	Silver, (Dissd.)	< 0.0010	N/A	< 0.0010	N/A	mg/l
3032	A92	19920514	03-18-92	Sodium, (Dissd.)	10.700	N/A	< 1.0	N/A	mg/l
3032	A92	19920514	03-18-92	Thallium, (Dissd.)	< 0.0100	N/A	< 0.010	N/A	mg/l
3032	A92	19920514	03-18-92	Vanadium, (Dissd.)	< 0.0500	N/A	< 0.050	N/A	mg/l
3032	A92	19920514	03-18-92	Zinc, (Dissd.)	< 0.0200	N/A	0.027	N/A	mg/l
3034	A92	19920514	03-18-92	1,1,1-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,1,2,2-Tetrachloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,1,2-Trichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,1-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,1-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,2-Dichloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,2-Dichloroethene (Total)	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	1,2-Dichloropropane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	2-Chloroethyl vinyl ether	< 10.000	N/A	< 10.	N/A	ug/l
3034	A92	19920514	03-18-92	2-Hexanone	< 2.0000	N/A	< 2.	N/A	ug/l
3034	A92	19920514	03-18-92	4-Methyl-2-pentanone	< 2.0000	N/A	< 2.	N/A	ug/l
3034	A92	19920514	03-18-92	Acetone	< 2.0000	N/A	< 2.	N/A	ug/l
3034	A92	19920514	03-18-92	Benzene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Bromodichloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Bromoform	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Bromomethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Carbon disulfide	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Carbon tetrachloride	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Chlorobenzene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Chloroethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Chloroform	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Chloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	cis-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Dibromochloromethane	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Ethyl benzene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Methyl ethyl ketone	< 2.0000	N/A	< 2.	N/A	ug/l
3034	A92	19920514	03-18-92	Methylene chloride	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Styrene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Tetrachloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Toluene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	trans-1,2-Dichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	trans-1,3-Dichloropropene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Trichloroethene	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Vinyl acetate	< 2.0000	N/A	< 2.	N/A	ug/l
3034	A92	19920514	03-18-92	Vinyl chloride	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Xylenes, Total	< 1.0000	N/A	< 1.	N/A	ug/l
3034	A92	19920514	03-18-92	Alkalinity at CaCO3	229.00	N/A	< 1.	< 1.	mg/l
3034	A92	19920514	03-18-92	Ammonia, as nitrogen	< 0.0200	N/A	< 0.02	< 0.02	mg/l

72-1

C4048

FEMP GROUNDWATER GENERAL CHEMICAL RESULTS

OU4 RI/FS Support Data

The data presented has been collected by FEMP as part of the Environmental Monitoring Program. Data is presented by well number, round number, sample number, date collected, analytical parameter, analytical results, duplicate results, field blank results, and sample concentration units. N/A signifies the parameter was not tested.

Well Number	Sample Round	Sample Number	Date Collected	Analytical Parameter	Analytical Result	Duplicate Record	Trip Blank Result	Field Blank Result	Concentration Units
3034	A92	19920514	03-18-92	Chloride	19.000	N/A	< 1.	< 1.	mg/l
3034	A92	19920514	03-18-92	Fluoride	0.1900	N/A	< 0.05	< 0.05	mg/l
3034	A92	19920514	03-18-92	Nitrogen, Nitrate	2.0500	N/A	< 0.02	< 0.02	mg/l
3034	A92	19920514	03-18-92	pH	7.4500	N/A	7.18	N/A	S.U.
3034	A92	19920514	03-18-92	Phosphorus, Total	< 0.1000	N/A	< 0.10	< 0.10	mg/l
3034	A92	19920514	03-18-92	Specific conductance	624.00	N/A	< 1.	< 1.	umhos/cm
3034	A92	19920514	03-18-92	Sulfate	52.000	N/A	< 1.	< 1.	mg/l
3034	A92	19920514	03-18-92	TOC	9.0000	N/A	< 1.	< 1.	mg/l
3034	A92	19920514	03-18-92	Total dissolved solids	301.00	N/A	< 50.	< 50.	mg/l
3034	A92	19920514	03-18-92	TOX	< 10.000	N/A	< 10.	< 10.	ug/l Cl-
3034	A92	19920514	03-18-92	Aluminum, (Dissd.)	< 0.2000	N/A	< 0.20	N/A	mg/l
3034	A92	19920514	03-18-92	Antimony, (Dissd.)	< 0.0200	N/A	< 0.020	N/A	mg/l
3034	A92	19920514	03-18-92	Arsenic, (Dissd.)	< 0.0050	N/A	< 0.0050	< 0.0050	mg/l
3034	A92	19920514	03-18-92	Barium, (Dissd.)	< 0.2000	N/A	< 0.20	N/A	mg/l
3034	A92	19920514	03-18-92	Beryllium, (Dissd.)	< 0.0050	N/A	< 0.0050	N/A	mg/l
3034	A92	19920514	03-18-92	Cadmium, (Dissd.)	< 0.0010	N/A	< 0.0010	N/A	mg/l
3034	A92	19920514	03-18-92	Calcium, (Dissd.)	82.600	N/A	< 1.0	N/A	mg/l
3034	A92	19920514	03-18-92	Chromium, Total (Dissd.)	< 0.0020	N/A	< 0.0020	N/A	mg/l
3034	A92	19920514	03-18-92	Cobalt, (Dissd.)	< 0.0050	N/A	< 0.0050	N/A	mg/l
3034	A92	19920514	03-18-92	Copper, (Dissd.)	< 0.0200	N/A	< 0.020	N/A	mg/l
3034	A92	19920514	03-18-92	Iron, (Dissd.)	< 0.1000	N/A	< 0.10	N/A	mg/l
3034	A92	19920514	03-18-92	Lead, (Dissd.)	< 0.0030	N/A	< 0.0030	N/A	mg/l
3034	A92	19920514	03-18-92	Magnesium, (Dissd.)	20.000	N/A	< 1.0	N/A	mg/l
3034	A92	19920514	03-18-92	Manganese, (Dissd.)	< 0.0150	N/A	< 0.015	N/A	mg/l
3034	A92	19920514	03-18-92	Mercury, (Dissd.)	< 0.0002	N/A	< 0.0002	< 0.0002	mg/l
3034	A92	19920514	03-18-92	Molybdenum, (Dissd.)	< 0.0100	N/A	< 0.010	N/A	mg/l
3034	A92	19920514	03-18-92	Nickel, (Dissd.)	< 0.0100	N/A	< 0.010	N/A	mg/l
3034	A92	19920514	03-18-92	Potassium, (Dissd.)	2.8000	N/A	< 1.0	N/A	mg/l
3034	A92	19920514	03-18-92	Selenium, (Dissd.)	< 0.0050	N/A	< 0.0050	< 0.0050	mg/l
3034	A92	19920514	03-18-92	Silver, (Dissd.)	< 0.0010	N/A	< 0.0010	N/A	mg/l
3034	A92	19920514	03-18-92	Sodium, (Dissd.)	12.200	N/A	< 1.0	N/A	mg/l
3034	A92	19920514	03-18-92	Thallium, (Dissd.)	< 0.0100	N/A	< 0.010	N/A	mg/l
3034	A92	19920514	03-18-92	Vanadium, (Dissd.)	< 0.0500	N/A	< 0.050	N/A	mg/l
3034	A92	19920514	03-18-92	Zinc, (Dissd.)	< 0.0200	N/A	0.027	N/A	mg/l

728

-4948-

RI/FS MONITORING WELL ELEVATION DATA

RI/FS WATER ELEVATION REPORT FOR 01/09/88 – 11/17/92
REPORT DATE 04/06/93

RI/FS WELL ID	NORTH COORDINATE	EAST COORDINATE	TOP OF WELL (MSL)	TOP OF CASING (MSL)	GROUND LEVEL (MSL)	CONCRETE LEVEL (MSL)	READING R=REPEAT	WATER ELEVATION (MSL)	REFERENCE POINT	DATE READ	LOCATION OF WELL (*)
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	25.02	553.68	TOW	09-JAN-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	23.20	555.50	TOW	10-FEB-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	23.09 R	555.61	TOW	11-FEB-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.38	557.32	TOW	09-MAR-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.34 R	557.36	TOW	09-MAR-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	27.71	550.99	TOW	11-APR-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	27.70 R	551.00	TOW	11-APR-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	24.02	554.68	TOW	10-MAY-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	24.00 R	554.70	TOW	10-MAY-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.98	566.72	TOW	08-JUN-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.98 R	566.72	TOW	09-JUN-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.52	577.18	TOW	08-JUL-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.44 R	557.26	TOW	09-JUL-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	25.00	553.70	TOW	06-AUG-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	24.97 R	553.73	TOW	06-AUG-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	24.05	554.65	TOW	09-SEP-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	23.78	554.92	TOW	08-OCT-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	23.62 R	555.08	TOW	09-OCT-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	26.22	552.48	TOW	08-NOV-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	24.22	554.48	TOW	12-DEC-88	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	22.44	556.26	TOW	09-JAN-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	22.32 R	556.38	TOW	10-JAN-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	23.39	555.31	TOW	09-FEB-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	23.03 R	555.67	TOW	10-FEB-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	20.17	558.53	TOW	10-MAR-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	20.10 R	558.60	TOW	11-MAR-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	25.88	552.82	TOW	15-APR-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	19.56	559.14	TOW	13-MAY-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	16.24	562.46	TOW	15-JUN-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	15.78	562.92	TOW	14-JUL-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	16.71	561.99	TOW	15-AUG-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	16.91	561.79	TOW	17-AUG-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	17.54	561.16	TOW	11-SEP-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	17.66	561.04	TOW	11-OCT-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	17.66	561.04	TOW	16-NOV-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	22.60	556.10	TOW	15-DEC-89	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	17.72	560.98	TOW	21-JAN-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	16.47	562.23	TOW	14-FEB-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.04	564.66	TOW	02-APR-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	21.71	556.99	TOW	21-APR-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	15.02	563.68	TOW	18-MAY-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	13.83	564.87	TOW	18-JUN-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.31	546.39	TOW	18-JUN-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.34	564.36	TOW	08-AUG-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	15.51	563.19	TOW	18-SEP-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	24.34	554.36	TOW	19-OCT-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	16.83	561.87	TOW	16-NOV-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.98	564.08	TOW	14-DEC-90	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	16-JAN-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	19-MAR-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	13.90	564.80	TOW	04-JUN-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	29-AUG-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	17.25	561.45	TOW	15-OCT-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	18.52	560.18	TOW	03-NOV-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	18.45	560.25	TOW	14-DEC-91	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	05-JAN-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	20-FEB-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	16-MAR-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	07-APR-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	12-MAY-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	N/A	N/A	N/A	09-JUN-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.05	564.65	TOW	20-JUL-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	13.64	565.06	TOW	17-AUG-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.20	564.50	TOW	22-SEP-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.98	563.72	TOW	19-OCT-92	3
1029	480826.11	1378398.38	578.70	579.06	577.30	577.38	14.54	564.16	TOW	17-NOV-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.46	560.29	TOW	09-JAN-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.31	561.44	TOW	10-FEB-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.38 R	561.37	TOW	11-FEB-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.32	562.43	TOW	09-MAR-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.76	561.99	TOW	11-APR-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.74 R	562.01	TOW	11-APR-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.53	560.22	TOW	10-MAY-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.24	559.51	TOW	08-JUN-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.46	559.29	TOW	08-JUL-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.15	559.60	TOW	06-AUG-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.06	559.69	TOW	09-SEP-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.52	559.23	TOW	09-OCT-88	3

730

-4948

RI/FS WATER ELEVATION REPORT FOR 01/09/88 – 11/17/92
REPORT DATE 04/06/93

RI/FS WELL ID	NORTH COORDINATE	EAST COORDINATE	TOP OF WELL (MSL)	TOP OF CASING (MSL)	GROUND LEVEL (MSL)	CONCRETE LEVEL (MSL)	READING R=REPEAT	WATER ELEVATION (MSL)	REFERENCE POINT	DATE READ	LOCATION OF WELL (*)
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.62	560.13	TOW	08-NOV-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.42	559.33	TOW	12-DEC-88	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.89	561.86	TOW	09-JAN-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.22	560.53	TOW	09-FEB-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	7.77	562.98	TOW	10-MAR-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.91	561.84	TOW	15-APR-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.33	561.42	TOW	13-MAY-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.60	560.15	TOW	15-JUN-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.52	559.23	TOW	14-JUL-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.55	559.20	TOW	15-AUG-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.49	559.26	TOW	11-SEP-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	13.10	557.65	TOW	11-OCT-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.77	560.98	TOW	16-NOV-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.52	559.23	TOW	15-DEC-89	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.60	561.15	TOW	21-JAN-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	N/A	N/A	N/A	14-FEB-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.88	561.87	TOW	19-FEB-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.01	560.74	TOW	02-APR-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.55	560.20	TOW	21-APR-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	8.56	562.19	TOW	18-MAY-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.46	559.29	TOW	18-JUN-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.63	560.12	TOW	18-JUL-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.58	559.17	TOW	08-AUG-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.58	560.17	TOW	18-SEP-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.13	560.62	TOW	19-OCT-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.45	559.30	TOW	16-NOV-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.92	560.33	TOW	14-DEC-90	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.64	561.11	TOW	16-JAN-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	N/A	N/A	N/A	19-MAR-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	12.10	558.65	TOW	04-JUN-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	N/A	N/A	N/A	29-AUG-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.64	559.11	TOW	15-OCT-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.65	559.10	TOW	03-NOV-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.26	559.49	TOW	14-DEC-91	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.73	561.02	TOW	05-JAN-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.70	559.05	TOW	20-FEB-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.66	559.09	TOW	16-MAR-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.25	559.50	TOW	07-APR-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.64	559.11	TOW	12-MAY-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.26	560.49	TOW	08-JUN-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.70	561.05	TOW	20-JUL-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.58	559.17	TOW	17-AUG-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	11.29	559.46	TOW	22-SEP-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	10.58	560.17	TOW	19-OCT-92	3
1032	480515.31	1378296.81	570.75	571.25	569.30	N/A	9.87	560.88	TOW	17-NOV-92	3
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	7.21	571.76	TOW	10-MAY-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	8.68	570.29	TOW	08-JUN-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	9.97	569.00	TOW	09-JUL-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	10.57	568.40	TOW	07-AUG-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	10.99	567.98	TOW	09-SEP-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	11.25	567.72	TOW	08-OCT-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	10.69	568.28	TOW	09-NOV-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	8.88	570.09	TOW	13-DEC-88	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	3.02	575.95	TOW	10-JAN-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	4.94	574.03	TOW	10-FEB-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	2.22	576.75	TOW	11-MAR-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	4.12	574.85	TOW	15-APR-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	3.66	575.31	TOW	14-MAY-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	3.00	575.97	TOW	14-JUN-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	14-JUL-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	8.90	570.07	TOW	16-AUG-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	8.23	570.74	TOW	12-SEP-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	10.43	568.54	TOW	11-OCT-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	3.21	575.76	TOW	17-NOV-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	19-DEC-89	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	2.42	576.55	TOW	22-JAN-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	2.17	576.80	TOW	16-FEB-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	4.09	574.88	TOW	03-APR-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	23-APR-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	19-MAY-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	6.17	572.80	TOW	19-JUN-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	6.45	572.52	TOW	24-JUL-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	8.04	570.93	TOW	13-AUG-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	6.43	572.54	TOW	24-SEP-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	23-OCT-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	17-NOV-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	13-DEC-90	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	3.69	575.28	TOW	19-JAN-91	2

RI/FS WATER ELEVATION REPORT FOR 01/09/88 – 11/17/92
REPORT DATE 04/06/93

RI/FS WELL ID	NORTH COORDINATE	EAST COORDINATE	TOP OF WELL (MSL)	TOP OF CASING (MSL)	GROUND LEVEL (MSL)	CONCRETE LEVEL (MSL)	READING R=REPEAT	WATER ELEVATION (MSL)	REFERENCE POINT	DATE READ	LOCATION OF WELL (*)
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	21-FEB-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	7.59	571.38	TOW	04-JUN-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	29-AUG-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	8.54	570.43	TOW	19-SEP-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	9.24	569.73	TOW	05-OCT-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	9.45	569.52	TOW	02-NOV-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	4.98	573.99	TOW	14-DEC-91	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	2.32	576.65	TOW	05-JAN-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	26-FEB-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	16-MAR-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	02-APR-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	6.29	572.68	TOW	07-MAY-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	5.44	573.53	TOW	08-JUN-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	N/A	N/A	N/A	20-JUL-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	6.20	572.77	TOW	17-AUG-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	4.01	574.96	TOW	22-SEP-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	6.32	572.65	TOW	19-OCT-92	2
1033	480412.89	1378675.14	578.97	579.49	577.00	N/A	4.32	574.73	TOW	17-NOV-92	2
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.10	568.19	TOW	11-APR-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.35	568.19	TOW	10-MAY-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	N/A R	N/A	N/A	08-JUN-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	7.26	564.03	TOW	08-JUN-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	8.95	562.34	TOW	08-JUL-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	9.80	561.49	TOW	06-AUG-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	10.50	560.79	TOW	09-SEP-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	10.46 R	560.83	TOW	10-SEP-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	10.86	560.43	TOW	09-OCT-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	12.49	558.80	TOW	08-NOV-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	7.02	564.27	TOW	12-DEC-88	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.47	567.82	TOW	09-JAN-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.09	569.20	TOW	10-MAR-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.07	568.22	TOW	15-APR-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.60	568.69	TOW	13-MAY-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.90	568.39	TOW	15-JUN-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.16	566.13	TOW	14-JUL-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	6.54	546.75	TOW	15-AUG-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.13	566.16	TOW	11-SEP-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	7.77	563.52	TOW	11-OCT-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.20	568.09	TOW	17-NOV-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	12.37	558.92	TOW	15-DEC-89	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.41	568.88	TOW	21-JAN-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.39	568.40	TOW	14-FEB-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.32	568.97	TOW	02-APR-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.46	568.83	TOW	21-APR-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	1.90	569.39	TOW	18-MAY-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	4.47	566.82	TOW	18-JUN-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	4.18	567.11	TOW	18-JUL-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.96	565.33	TOW	08-AUG-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.80	565.49	TOW	18-SEP-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.07	569.22	TOW	19-OCT-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.62	567.67	TOW	16-NOV-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.05	568.24	TOW	14-DEC-90	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.00	569.29	TOW	16-JAN-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	N/A	N/A	N/A	19-MAR-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.01	566.28	TOW	04-JUN-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	N/A	N/A	N/A	29-AUG-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	7.56	563.93	TOW	15-OCT-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	7.09	564.20	TOW	03-NOV-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	4.25	567.04	TOW	14-DEC-91	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.35	568.94	TOW	05-JAN-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.28	568.01	TOW	20-FEB-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	5.37	565.95	TOW	16-MAR-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	N/A	N/A	N/A	07-APR-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.64	567.65	TOW	12-MAY-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.67	567.62	TOW	08-JUN-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.30	567.99	TOW	20-JUL-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	4.24	567.05	TOW	17-AUG-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	3.83	567.46	TOW	22-SEP-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	4.25	567.04	TOW	19-OCT-92	3
1034	480240.85	1378410.28	571.29	571.74	569.20	N/A	2.99	568.30	TOW	17-NOV-92	3
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	11-APR-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	10-MAY-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	08-JUN-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	09-JUL-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	09-SEP-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	08-OCT-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	09-NOV-88	2

RI/FS WATER ELEVATION REPORT FOR 01/09/88 – 11/17/92
REPORT DATE 04/06/93

RI/FS WELL ID	NORTH COORDINATE	EAST COORDINATE	TOP OF WELL (MSL)	TOP OF CASING (MSL)	GROUND LEVEL (MSL)	CONCRETE LEVEL (MSL)	READING R=REPEAT	WATER ELEVATION (MSL)	REFERENCE POINT	DATE READ	LOCATI OF WELL (*)
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	13-DEC-88	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	10-JAN-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	10-FEB-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	11-MAR-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	15-APR-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	14-MAY-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	14-JUN-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	14-JUL-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	16-AUG-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	12-SEP-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	11-OCT-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	17-NOV-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	19-DEC-89	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	22-JAN-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	16-FEB-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	03-APR-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	24-APR-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	19-MAY-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	19-JUN-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	24-JUL-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	14-AUG-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	24-SEP-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	24-OCT-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	17-NOV-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	13-DEC-90	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	19-JAN-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	21-FEB-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.94	544.78	TOW	04-JUN-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	30-JUL-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	29-AUG-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.92	544.80	TOW	19-SEP-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	05-OCT-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	02-NOV-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	14-DEC-91	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	04-JAN-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	18-FEB-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	16-MAR-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.88	544.84	TOW	07-APR-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.88	544.84	TOW	12-MAY-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.89	544.83	TOW	08-JUN-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	20-JUL-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.86	544.86	TOW	17-AUG-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	N/A	N/A	N/A	22-SEP-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.85	544.87	TOW	19-OCT-92	2
1072	481025.93	1378476.33	577.72	578.18	575.90	N/A	32.82	544.90	TOW	17-NOV-92	2
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	46.09	524.71	TOW	19-FEB-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	45.64	525.16	TOW	02-APR-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	45.44	525.36	TOW	21-APR-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	43.35	527.45	TOW	18-MAY-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	42.98	527.82	TOW	18-JUN-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	44.44	526.36	TOW	18-JUL-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	45.47	525.33	TOW	08-AUG-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	45.89	524.91	TOW	18-SEP-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	45.22	525.58	TOW	19-OCT-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	45.15	525.65	TOW	16-NOV-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	44.44	526.36	TOW	14-DEC-90	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	N/A	N/A	N/A	16-JAN-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	N/A	N/A	N/A	19-MAR-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	43.84	526.96	TOW	04-JUN-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	N/A	N/A	N/A	29-AUG-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.16	522.64	TOW	15-OCT-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.67	522.13	TOW	03-NOV-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.40	521.40	TOW	14-DEC-91	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.03	521.77	TOW	05-JAN-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.01	521.79	TOW	20-FEB-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.96	521.84	TOW	16-MAR-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.85	521.95	TOW	07-APR-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.32	522.06	TOW	12-MAY-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.82	521.98	TOW	08-JUN-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	48.93	521.87	TOW	20-JUL-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.18	521.62	TOW	17-AUG-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.77	521.03	TOW	22-SEP-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.86	520.94	TOW	19-OCT-92	3
2032	480503.68	1378298.59	570.80	571.20	568.80	N/A	49.38	521.42	TOW	17-NOV-92	3
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	56.30	522.42	TOW	19-JUN-90	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	53.29	525.43	TOW	24-JUL-90	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	54.02	524.70	TOW	13-AUG-90	2

733

RI/FS WATER ELEVATION REPORT FOR 01/09/88 – 11/17/92
REPORT DATE 04/06/93

RI/FS WELL ID	NORTH COORDINATE	EAST COORDINATE	TOP OF WELL (MSL)	TOP OF CASING (MSL)	GROUND LEVEL (MSL)	CONCRETE LEVEL (MSL)	READING R=REPEAT	WATER ELEVATION (MSL)	REFERENCE POINT	DATE READ	LOCATION OF WELL (*)
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	54.52	524.20	TOW	24-SEP-90	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	23-OCT-90	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	17-NOV-90	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	13-DEC-90	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	53.12	525.60	TOW	19-JAN-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	21-FEB-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	52.54	526.18	TOW	04-JUN-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	29-AUG-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	55.96	522.76	TOW	19-SEP-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	56.99	522.24	TOC	05-OCT-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.16	522.07	TOC	02-NOV-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.98	521.25	TOC	14-DEC-91	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	58.41	520.82	TOC	05-JAN-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	26-FEB-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	N/A	N/A	N/A	16-MAR-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.77	520.95	TOW	02-APR-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.64	521.08	TOW	07-MAY-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.80	520.92	TOW	08-JUN-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.62	521.10	TOW	20-JUL-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.58	521.14	TOW	17-AUG-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	58.05	520.67	TOW	22-SEP-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	58.24	520.48	TOW	19-OCT-92	2
2033	480411.10	1378687.33	578.72	579.23	577.00	N/A	57.90	520.82	TOW	17-NOV-92	2
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	48.50	522.94	TOW	11-APR-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	48.37	522.97	TOW	10-MAY-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.54	521.90	TOW	08-JUN-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.34	521.10	TOW	08-JUL-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.90	520.54	TOW	06-AUG-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	51.48	519.96	TOW	09-SEP-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	51.52 R	519.92	TOW	10-SEP-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	51.99	519.45	TOW	09-OCT-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	52.27	519.17	TOW	08-NOV-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	52.29	519.15	TOW	12-DEC-88	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	51.62	519.82	TOW	09-JAN-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.74	520.70	TOW	09-FEB-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.97	521.47	TOW	10-MAR-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	47.28	524.16	TOW	15-APR-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.60	524.84	TOW	13-MAY-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	45.62	525.82	TOW	15-JUN-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.88	524.56	TOW	14-JUL-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	47.82	523.62	TOW	15-AUG-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	48.14	523.30	TOW	11-SEP-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.36	521.08	TOW	11-OCT-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	48.44	523.00	TOW	17-NOV-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	48.59	522.85	TOW	15-DEC-89	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	47.71	523.73	TOW	21-JAN-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	47.29	524.15	TOW	14-FEB-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.53	524.91	TOW	02-APR-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.32	525.13	TOW	21-APR-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	44.92	526.52	TOW	18-MAY-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	44.31	527.13	TOW	18-JUN-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	45.53	525.91	TOW	18-JUL-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.30	525.14	TOW	08-AUG-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.92	524.52	TOW	18-SEP-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.36	525.08	TOW	19-OCT-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.10	525.34	TOW	16-NOV-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	46.38	525.06	TOW	14-DEC-90	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	45.42	526.02	TOW	16-JAN-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	N/A	N/A	N/A	19-MAR-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	44.78	526.66	TOW	04-JUN-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	N/A	N/A	N/A	29-AUG-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	48.94	522.50	TOW	15-OCT-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.50	521.94	TOW	03-NOV-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.30	521.14	TOW	14-DEC-91	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.97	521.47	TOW	05-JAN-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.95	521.49	TOW	20-FEB-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.85	521.59	TOW	16-MAR-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	N/A	N/A	N/A	07-APR-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.67	521.77	TOW	12-MAY-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.87	521.57	TOW	08-JUN-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.86	521.58	TOW	20-JUL-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	49.80	521.64	TOW	17-AUG-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.53	520.91	TOW	22-SEP-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.64	520.80	TOW	19-OCT-92	3
2034	480240.05	1378419.45	571.44	571.90	569.70	N/A	50.24	521.20	TOW	17-NOV-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	45.75	525.58	TOW	19-OCT-90	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	45.67	525.66	TOW	16-NOV-90	3

734

RI/FS WATER ELEVATION REPORT FOR 01/09/88 – 11/17/92
REPORT DATE 04/06/93

RI/FS WELL ID	NORTH COORDINATE	EAST COORDINATE	TOP OF WELL (MSL)	TOP OF CASING (MSL)	GROUND LEVEL (MSL)	CONCRETE LEVEL (MSL)	READING R=REPEAT	WATER ELEVATION (MSL)	REFERENCE POINT	DATE READ	LOCATI OF WELL (*)
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	45.96	525.37	TOW	14-DEC-90	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	45.12	526.21	TOW	16-JAN-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	N/A	N/A	N/A	19-MAR-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	44.36	526.69	TOW	04-JUN-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	N/A	N/A	N/A	29-AUG-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	48.64	522.69	TOW	15-OCT-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.15	522.18	TOW	03-NOV-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.90	521.43	TOW	14-DEC-91	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.55	521.78	TOW	05-JAN-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.52	521.81	TOW	20-FEB-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.50	521.83	TOW	16-MAR-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.37	521.96	TOW	07-APR-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.28	522.05	TOW	12-MAY-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.33	522.00	TOW	08-JUN-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.45	521.88	TOW	20-JUL-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	49.70	521.63	TOW	17-AUG-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	50.26	521.07	TOW	22-SEP-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	50.35	520.98	TOW	19-OCT-92	3
3032	480492.78	1378296.62	571.33	571.80	569.10	N/A	50.33	521.47	TOW	17-NOV-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	49.21	522.52	TOW	11-APR-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	48.80	522.93	TOW	10-MAY-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	49.85	521.88	TOW	08-JUN-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.65	521.08	TOW	08-JUL-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.20	520.53	TOW	06-AUG-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.79	519.94	TOW	09-SEP-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.84 R	519.89	TOW	10-SEP-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	52.30	519.43	TOW	09-OCT-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	52.60	519.13	TOW	08-NOV-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	52.60	519.13	TOW	12-DEC-88	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.96	519.77	TOW	09-JAN-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.08	520.65	TOW	09-FEB-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.30	521.43	TOW	10-MAR-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	47.64	524.09	TOW	15-APR-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.95	524.78	TOW	13-MAY-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.00	525.73	TOW	15-JUN-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	47.20	524.53	TOW	14-JUL-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	48.14	523.59	TOW	15-AUG-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	48.44	523.29	TOW	11-SEP-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.68	521.05	TOW	11-OCT-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	48.77	522.96	TOW	16-NOV-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	48.93	522.80	TOW	15-DEC-89	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	48.06	523.67	TOW	21-JAN-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	47.64	524.09	TOW	14-FEB-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.87	524.86	TOW	02-APR-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.65	525.08	TOW	21-APR-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	45.30	526.43	TOW	18-MAY-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	44.63	527.10	TOW	18-JUN-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	45.84	525.89	TOW	18-JUL-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.61	525.13	TOW	08-AUG-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	47.25	524.48	TOW	18-SEP-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.68	525.05	TOW	19-OCT-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.41	525.32	TOW	16-NOV-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	46.70	525.03	TOW	14-DEC-90	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	45.75	525.98	TOW	16-JAN-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	N/A	N/A	N/A	19-MAR-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	45.10	526.63	TOW	04-JUN-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	N/A	N/A	N/A	29-AUG-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	49.24	522.49	TOW	15-OCT-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	49.81	521.92	TOW	03-NOV-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.62	521.11	TOW	14-DEC-91	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.28	521.45	TOW	05-JAN-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.28	521.45	TOW	20-FEB-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.60	521.57	TOC	16-MAR-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	N/A	N/A	N/A	07-APR-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.43	521.74	TOC	12-MAY-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.62	521.55	TOC	08-JUN-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.80	521.37	TOC	20-JUL-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	57.40	514.77	TOC	17-AUG-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.32	520.85	TOC	22-SEP-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	51.40	521.77	TOC	19-OCT-92	3
3034	480240.23	1378431.39	571.73	572.17	569.90	N/A	50.80	521.37	TOC	17-NOV-92	3

4948

MONITORING WELL INSTALLATION RECORDS

MONITORING WELL INSTALLATION RECORD
04/11/90

PROJECT NAME: FERNALD RI/FS
PROJECT NO. : 602.3.2
BORING NO. : 1029
WELL NO. : 1029

FIELD ENG./GEO. : D. OAKLEY
CHECKED BY : NOT NOTED
N,E COORDINATES : 480826.11, 1378398.3
DATE OF INSTAL. : 10/28/87

DATE: 10/28/87
DATE: N/A

BOREHOLE DRILLING

DRILLING METHOD: CABLE TOOL	TYPE OF BIT : FLAT HEAD HAMMER
DRILLING FLUID (S) USED: (in feet)	IS CASING TEMPORARY ? : NO
FLUID : WATER FROM : 2 to 34	CASING TYPE : MONITORING WELL
FLUID : N/A FROM : N/A to N/A	CASING DIAM. : 4 in.
NOTES/COMMENTS: NONE	CASING SIZE (S) USED : (Units N/A)
	SIZE : 10 FROM : 0 to 30
	SIZE : N/A FROM : N/A to N/A

WELL DESCRIPTION

TYPE : MONITORING WELL	RISER PIPE MATERIAL : Stainless Steel
DIAMETER OF PERFORATED SECTION :	RISER PIPE DIAMETERS :
PERFORATION TYPE : Screen	O.D. : 4 3/8 in. I.D. : 4 in.
AVG. SIZE OF PERFORATIONS : 0.010 in.	LENGTH OF 1st PIPE SECTION : 10 ft.
TOTAL PERFORATED AREA : 10 ft.	2nd PIPE SECTION : Not Noted
NOTES/COMMENTS : NONE	3rd PIPE SECTION : Not Noted
	COMMENTS : NONE
RISER JOINT METHOD : THREAD AND COUPLE	

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH : 5.0 ft.	OTHER PROTECTION NOTED BELOW
PROTECTIVE PIPE O.D. : 10 in.	
* LOCKABLE CAP AND LOCK	

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE		ELEVATION MSL	
TOP OF RISER PIPE	2.0 ft.		578.70	
GROUND SURFACE	0.0		577.30	
BOTTOM OF PROTECTIVE PIPE	2.5 ft.			
BOREHOLE FILL MATERIALS	TOP	BOTTOM	TOP	BOTTOM
GROUT/SLURRY	0.0	11.0	N/A	N/A
BENTONITE PELLETS	11.0	16.2	N/A	N/A
SAND	16.2	31.0	N/A	N/A
BENTONITE PELLETS	31.0	33.0	N/A	N/A
SAND	33.0	36.0	N/A	N/A
PERFORATED SECTION	18.4	28.4	N/A	N/A
WELL TIP	31.0		N/A	
BOTTOM OF BOREHOLE	36.0		N/A	
GWL AFTER INSTALLATION	N/A		N/A	

WAS THE WELL FLUSHED AFTER INSTALLATION ? : NO
WAS A SENSITIVITY TEST PERFORMED ON THE WELL : NO
REMARKS : THIS FORM DID NOT RERESENT THE INSTALLED MONITORING WELL.
THEREFORE, IT HAS BEEN MODIFIED BY D. OAKLEY.

MONITORING WELL INSTALLATION RECORD
04/11/90

PROJECT NAME: FERNALD RI/FS
PROJECT NO. : 602.3.2
BORING NO. : 1032
WELL NO. : 1032

FIELD ENG./GEO. : D. OAKLEY
CHECKED BY : NOT NOTED
N,E COORDINATES : 480515.31, 1378296.8
DATE OF INSTAL. : 10/31/87

DATE: 10/31/87
DATE: N/A

BOREHOLE DRILLING

DRILLING METHOD: CABLE TOOL	TYPE OF BIT : FLAT HEAD HAMMER
DRILLING FLUID (S) USED: (in feet)	IS CASING TEMPORARY ? : NO
FLUID : WATER FROM : 2 to 24	CASING TYPE : MONITORING WELL
FLUID : N/A FROM : N/A to N/A	CASING DIAM. : 4 in.
NOTES/COMMENTS: NONE	CASING SIZE (S) USED : (Units N/A)
	SIZE : 10 FROM : 0 to 20
	SIZE : N/A FROM : N/A to N/A

WELL DESCRIPTION

TYPE : MONITORING WELL	RISER PIPE MATERIAL : Stainless Steel
DIAMETER OF PERFORATED SECTION :	RISER PIPE DIAMETERS :
PERFORATION TYPE : Screen	O.D. : 4 3/8 in. I.D. : 4 in.
AVG. SIZE OF PERFORATIONS : 0.010 in.	LENGTH OF 1st PIPE SECTION : 10 ft.
TOTAL PERFORATED AREA : 2 ft.	2nd PIPE SECTION : 2 ft.
NOTES/COMMENTS : NONE	3rd PIPE SECTION : Not Noted
	COMMENTS : NONE
RISER JOINT METHOD : THREAD AND COUPLE	

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH : 5.0 ft.	OTHER PROTECTION NOTED BELOW
PROTECTIVE PIPE O.D. : 10 in.	
• LOCKABLE CAP AND LOCK	

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE		ELEVATION MSL	
TOP OF RISER PIPE	2.0 ft.		570.75	
GROUND SURFACE	0.0		569.30	
BOTTOM OF PROTECTIVE PIPE	2.5 ft.			
BOREHOLE FILL MATERIALS	TOP	BOTTOM	TOP	BOTTOM
BENTONITE PELLETS	0.5	5.5	N/A	N/A
SAND	5.5	17.0	N/A	N/A
BENTONITE PELLETS	17.0	24.0	N/A	N/A
PERFORATED SECTION	7.5	9.5	N/A	N/A
WELL TIP	12.4		N/A	
BOTTOM OF BOREHOLE	24.0		N/A	
GWL AFTER INSTALLATION	N/A		N/A	

WAS THE WELL FLUSHED AFTER INSTALLATION ? : NO
WAS A SENSITIVITY TEST PERFORMED ON THE WELL : NO

MONITORING WELL INSTALLATION RECORD
04/11/90

PROJECT NAME: FERNALD RI/FS
PROJECT NO. : 602.3.2
BORING NO. : 1033
WELL NO. : 1033

FIELD ENG./GEO. : M. GOLDBERG
CHECKED BY : NOT NOTED
N,E COORDINATES : 480412.89, 1378675.1
DATE OF INSTAL. : 04/10/88

DATE: 04/10/88
DATE: N/A

BOREHOLE DRILLING

DRILLING METHOD: CABLE TOOL	TYPE OF BIT : FLAT HEAD HAMMER
DRILLING FLUID (S) USED: (in feet)	IS CASING TEMPORARY ? : NO
FLUID : WATER FROM : 3 to 21	CASING TYPE : MONITORING WELL
FLUID : N/A FROM : N/A to N/A	CASING DIAM. : 4 in.
NOTES/COMMENTS: NONE	CASING SIZE (S) USED : (Units N/A)
	SIZE : 10 FROM : 3 to 21
	SIZE : N/A FROM : N/A to N/A

WELL DESCRIPTION

TYPE : MONITORING WELL	RISER PIPE MATERIAL : Stainless Steel
DIAMETER OF PERFORATED SECTION :	RISER PIPE DIAMETERS :
PERFORATION TYPE : Screen	O.D. : 4 3/8 in. I.D. : 4 in.
AVG. SIZE OF PERFORATIONS : 0.010 in.	LENGTH OF 1st PIPE SECTION : 10 ft.
TOTAL PERFORATED AREA : 10 ft.	2nd PIPE SECTION : Not Noted
NOTES/COMMENTS : NONE	3rd PIPE SECTION : Not Noted
	COMMENTS : NONE
RISER JOINT METHOD : THREAD AND COUPLE	

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH : 5.0 ft.	OTHER PROTECTION NOTED BELOW
PROTECTIVE PIPE O.D. : 10 in.	
* LOCKABLE CAP AND LOCK	

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE		ELEVATION MSL	
TOP OF RISER PIPE	2.0 ft.		578.97	
GROUND SURFACE	0.0		577.00	
BOTTOM OF PROTECTIVE PIPE	2.5 ft.			
BOREHOLE FILL MATERIALS	TOP	BOTTOM	TOP	BOTTOM
BENTONITE PELLETS	0.0	5.0	N/A	N/A
GRAVEL	5.0	21.0	N/A	N/A
PERFORATED SECTION	9.0	19.0	N/A	N/A
WELL TIP	21.0		N/A	
BOTTOM OF BOREHOLE	21.0		N/A	
GWL AFTER INSTALLATION	N/A		N/A	

WAS THE WELL FLUSHED AFTER INSTALLATION ? : NO
WAS A SENSITIVITY TEST PERFORMED ON THE WELL : NO

-4948

MONITORING WELL INSTALLATION RECORD
04/11/90

PROJECT NAME: FERNALD RI/FS
PROJECT NO. : 602.3.2
BORING NO. : 1034
WELL NO. : 1034

FIELD ENG./GEO. : W. MONTGOMERY
CHECKED BY : NOT NOTED
N,E COORDINATES : 480240.85, 1378410.2
DATE OF INSTAL. : 04/07/88

DATE: 04/06/88
DATE: N/A

BOREHOLE DRILLING

DRILLING METHOD: CABLE TOOL	TYPE OF BIT : FLAT HEAD HAMMER
DRILLING FLUID (S) USED: (in feet)	IS CASING TEMPORARY ? : N/A
FLUID : WATER FROM : 0 to 20	CASING TYPE : MONITORING WELL
FLUID : N/A FROM : N/A to N/A	CASING DIAM. : 4 in.
NOTES/COMMENTS: NONE	CASING SIZE (S) USED : (Units N/A)
	SIZE : N/A FROM : N/A to N/A
	SIZE : N/A FROM : N/A to N/A

WELL DESCRIPTION

TYPE : MONITORING WELL	RISER PIPE MATERIAL : Stainless Steel
DIAMETER OF PERFORATED SECTION :	RISER PIPE DIAMETERS :
PERFORATION TYPE : Screen	O.D. : 4 3/8 in. I.D. : 4 in.
AVG. SIZE OF PERFORATIONS : 0.010 in.	LENGTH OF 1st PIPE SECTION : 2 ft.
TOTAL PERFORATED AREA : 10 ft.	2nd PIPE SECTION : 10 ft.
NOTES/COMMENTS : NONE	3rd PIPE SECTION : Not Noted
	COMMENTS : NONE
RISER JOINT METHOD : THREAD AND COUPLE	

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH : 5.0 ft.	OTHER PROTECTION NOTED BELOW
PROTECTIVE PIPE O.D. : 10.3 in.	
• LOCKABLE CAP AND LOCK	

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE		ELEVATION MSL	
TOP OF RISER PIPE	N/A		571.29	
GROUND SURFACE	0.0		569.20	
BOTTOM OF PROTECTIVE PIPE	2.5 ft.			
BOREHOLE FILL MATERIALS	TOP	BOTTOM	TOP	BOTTOM
BENTONITE PELLETS	0.0	5.0	N/A	N/A
SAND	5.0	20.0	N/A	N/A
PERFORATED SECTION	8.0	18.0	N/A	N/A
WELL TIP	20.0		N/A	
BOTTOM OF BOREHOLE	20.0		N/A	
GWL AFTER INSTALLATION	N/A		N/A	

WAS THE WELL FLUSHED AFTER INSTALLATION ? : NO
WAS A SENSITIVITY TEST PERFORMED ON THE WELL : NO

-4948

MONITORING WELL INSTALLATION RECORD
04/11/90

PROJECT NAME: FERNALD RI/FS
PROJECT NO. : 602.3.2
BORING NO. : 2034
WELL NO. : 2034

FIELD ENG./GEO. : F. MARKERT/ L. WILLE
CHECKED BY : NOT NOTED
N,E COORDINATES : 480240.05, 1378419.4
DATE OF INSTAL. : 04/05/88

DATE: 04/05/88
DATE: N/A

BOREHOLE DRILLING

DRILLING METHOD: CABLE TOOL	TYPE OF BIT : FLAT HEAD HAMMER
DRILLING FLUID (S) USED: (in feet)	IS CASING TEMPORARY ? : NO
FLUID : WATER FROM : 0 to 65	CASING TYPE : MONITORING WELL
FLUID : N/A FROM : N/A to N/A	CASING DIAM. : 4 in.
NOTES/COMMENTS: NONE	CASING SIZE (S) USED : (in Feet)
	SIZE : 10 FROM : 0 to 65
	SIZE : N/A FROM : N/A to N/A

WELL DESCRIPTION

TYPE : MONITORING WELL	RISER PIPE MATERIAL : Stainless Steel
DIAMETER OF PERFORATED SECTION :	RISER PIPE DIAMETERS :
PERFORATION TYPE : Screen	O.D. : 4 3/8 in. I.D. : 4 in.
AVG. SIZE OF PERFORATIONS : 0.010 in.	LENGTH OF 1st PIPE SECTION : 10 ft.
TOTAL PERFORATED AREA : 15 ft.	2nd PIPE SECTION : Not Noted
NOTES/COMMENTS : NONE	3rd PIPE SECTION : Not Noted
	COMMENTS : NONE
RISER JOINT METHOD : THREAD AND COUPLE	

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH : 5.0 ft.	OTHER PROTECTION NOTED BELOW
PROTECTIVE PIPE O.D. : 10.3 in.	
* LOCKABLE CAP AND LOCK	

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE		ELEVATION MSL	
TOP OF RISER PIPE	2.5		571.34	
GROUND SURFACE	0.0		569.70	
BOTTOM OF PROTECTIVE PIPE	2.5			
BOREHOLE FILL MATERIALS	TOP	BOTTOM	TOP	BOTTOM
GROUT/ SLURRY	0.0	34.0	N/A	N/A
BENTONITE PELLETS	34.0	40.5	N/A	N/A
SAND	40.5	65.0	N/A	N/A
PERFORATED SECTION	45.0	60.0	N/A	N/A
WELL TIP	62.5		N/A	
BOTTOM OF BOREHOLE	65.0		N/A	
GWL AFTER INSTALLATION	49.0		N/A	

WAS THE WELL FLUSHED AFTER INSTALLATION ? : NO
WAS A SENSITIVITY TEST PERFORMED ON THE WELL : NO

-4948

MONITORING WELL INSTALLATION RECORD
04/11/90

PROJECT NAME: FERNALD RI/FS
PROJECT NO. : 602.3.2
BORING NO. : 3034
WELL NO. : 3034

FIELD ENG./GEO. : F. MARKERT
CHECKED BY : NOT NOTED
N,E COORDINATES : 480240.23, 1378431.3
DATE OF INSTAL. : 03/29/88

DATE: 03/30/88
DATE: N/A

BOREHOLE DRILLING

DRILLING METHOD: CABLE TOOL	TYPE OF BIT : FLAT HEAD HAMMER
DRILLING FLUID (S) USED: (in feet)	IS CASING TEMPORARY ? : NO
FLUID : WATER FROM : 0 to 60	CASING TYPE : MONITORING WELL
FLUID : N/A FROM : N/A to N/A	CASING DIAM. : 4 in.
NOTES/COMMENTS: NONE	CASING SIZE (S) USED : (in Feet)
	SIZE : 10 FROM : 0 to 140
	SIZE : N/A FROM : N/A to N/A

WELL DESCRIPTION

TYPE : MONITORING WELL	RISER PIPE MATERIAL : Stainless Steel
DIAMETER OF PERFORATED SECTION :	RISER PIPE DIAMETERS :
PERFORATION TYPE : Screen	O.D. : 4 3/8 in. I.D. : 4 in.
AVG. SIZE OF PERFORATIONS : 0.010 in.	LENGTH OF 1st PIPE SECTION : 10 ft.
TOTAL PERFORATED AREA : 10 ft.	2nd PIPE SECTION : 2 ft.
NOTES/COMMENTS : NONE	3rd PIPE SECTION : Not Noted
	COMMENTS : NONE
RISER JOINT METHOD : THREAD AND COUPLE	

PROTECTION SYSTEM

RISER PROTECTIVE PIPE LENGTH : 5.0 ft.	OTHER PROTECTION NOTED BELOW
PROTECTIVE PIPE O.D. : 10.3 in.	
• LOCKABLE CAP AND LOCK	

ITEM	DISTANCE ABOVE/BELOW GROUND SURFACE		ELEVATION MSL	
TOP OF RISER PIPE	2.0		571.73	
GROUND SURFACE	0.0		569.90	
BOTTOM OF PROTECTIVE PIPE	2.7			
BOREHOLE FILL MATERIALS	TOP	BOTTOM	TOP	BOTTOM
GROUT/ SLURRY	0.0	95.0	N/A	N/A
GRAVEL	95.0	112.5	N/A	N/A
PERFORATED SECTION	100.0	110.0	N/A	N/A
WELL TIP	112.0		N/A	
BOTTOM OF BOREHOLE	140.0		N/A	
GWL AFTER INSTALLATION	50.14		N/A	

WAS THE WELL FLUSHED AFTER INSTALLATION ? : NO
WAS A SENSITIVITY TEST PERFORMED ON THE WELL : NO

REMARKS : BOTTOM OF BOREHOLE FILLED TO 112.5 FT. BENTONITE: 112.5 TO 114.0 FT., GROUT/ SLURRY: 114.0 TO 140.0 FT.

OU4 PERCHED QA/QC RADIOLOGICAL RESULTS

OU4 PERCHED QA/QC R[illegible]LOGICAL RESULTS
RI/FS DATA
Results in picoCuries per liter (pCi/l).
Data presented by boring number, sample number, sample date and depth in feet.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	1615 066951 04/23/91 4 ft. a	b	1619 064129 07/31/91 95 ft. a	b
Actinium 227	NA		< 1	R
Cesium 137	< 20	J	NA	
Lead 210	NA		< 1	J
Neptunium 237	< 1	J	NA	
Plutonium 238	< 1	-	NA	
Plutonium 239/240	< 1	-	NA	
Polonium 210	NA		< 1	J
Protactinium 231	NA		<350	-
Radium 224	NA		< 18	-
Radium 224 (GAMMA)	NA		NA	
Radium 226	< 1	-	< 1	-
Radium 226 (GAMMA)	NA		< 19	D
Radium 228	< 3	-	< 6.4	-
Radium 228 (GAMMA)	NA		< 46	D
Ruthenium 106	<150	J	NA	
Strontium 90	< 5	J	NA	
Technetium 99	< 30	-	NA	
Thorium 228	< 1	-	< 1	R
Thorium 230	< 1	-	< 1	R
Thorium 232	< 1	-	< 1	R
Total Thorium **	< 2.4	-	< 2.2	R
Total Uranium **	< 1	R	1.28 ± .7	J
Uranium 234	< 1	-	< 1	R
Uranium 235/236	< 1	-	< 1	R
Uranium 238	< 1	-	< 1	R

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

744

-4948

OU4 PERCHED QA/QC CHEMICAL RESULTS

OU4 PERCHED QA/QC GENERAL CHEMICAL RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1615 066951 04/23/91 a	b	1619 064129 07/31/91 a	b
GENERAL CHEMISTRY				
Ammonia	U .1	-	NA	
Chloride	U .5	-	NA	
Fluoride	U .1	-	NA	
Nitrate	.151	-	NA	
Phenols	U .01	-	NA	
Phosphorus	.04	-	NA	
Sulfate	U2	-	NA	
Sulfide	NA		U .5	-
Total Organic Carbon	1.7	-	NA	
Total Organic Halides	.0166	-	U .01	-
Total Organic Nitrogen	.23	-	NA	

a = lab qualifier
b = validated qualifier

7495
4048

OU4 PERCHED QA/QC HSL RESULTS

OU4 PERCHED QA/QC HAZARDOUS [illegible]TANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	1615 066951 04/23/91 a	b	1619 064129 07/31/91 a	b
METALS				
Aluminum	U .06	-	U .06	-
Antimony	U .03	-	U .03	-
Arsenic	U .002	-	U .002	J
Barium	UN .002	R	U .002	-
Beryllium	U .002	-	U .002	-
Cadmium	U .002	-	U .002	-
Calcium	BE .139	UJ	B .0816	U
Chromium	U .01	-	U .01	-
Cobalt	U .01	-	U .01	-
Copper	U .01	-	U .01	-
Cyanide	U .002	-	NA	
Iron	B .018	-	1.3	-
Lead	U .002	-	U .002	-
Magnesium	UE .05	J	U .05	-
Manganese	U .002	-	B .0086	-
Mercury	U .0002	J	U .0002	J
Molybdenum	UE .01	J	U .01	-
Nickel	U .02	-	U .02	-
Potassium	U .1	-	U .1	-
Selenium	U .002	-	U .002	-
Silicon	.0555	J	.0514	J
Silver	U .01	-	U .01	J
Sodium	U .1	-	B .311	-
Thallium	U .002	-	UN .002	J
Vanadium	U .01	-	U .01	-
Zinc	.0216	J	.0357	-

a = lab qualifier
b = validated qualifier

748

-4048

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1615 064008 05/28/91		1615 066951 04/23/91		1616 064022 06/21/91		1616 064053 07/09/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		U .0001	-	NA		NA	
4,4'-DDE	NA		U .0001	-	NA		NA	
4,4'-DDT	NA		U .0001	-	NA		NA	
Aldrin	NA		U .00005	-	NA		NA	
alpha-BHC	NA		U .00005	-	NA		NA	
alpha-Chlordane	NA		U .0005	-	NA		NA	
Aroclor-1016	NA		U .0005	-	NA		NA	
Aroclor-1221	NA		U .0005	-	NA		NA	
Aroclor-1232	NA		U .0005	-	NA		NA	
Aroclor-1242	NA		U .0005	-	NA		NA	
Aroclor-1248	NA		U .0005	-	NA		NA	
Aroclor-1254	NA		U .001	-	NA		NA	
Aroclor-1260	NA		U .001	-	NA		NA	
beta-BHC	NA		U .00005	-	NA		NA	
delta-BHC	NA		U .00005	-	NA		NA	
Dieldrin	NA		U .0001	-	NA		NA	
Endosulfan II	NA		U .0001	-	NA		NA	
Endosulfan sulfate	NA		U .0001	-	NA		NA	
Endosulfan-I	NA		U .00005	-	NA		NA	
Endrin	NA		U .0001	-	NA		NA	
Endrin ketone	NA		U .0001	-	NA		NA	
gamma-BHC (Lindane)	NA		U .00005	-	NA		NA	
gamma-Chlordane	NA		U .0005	-	NA		NA	
Heptachlor	NA		U .00005	-	NA		NA	
Heptachlor epoxide	NA		U .00005	-	NA		NA	
Methoxychlor	NA		U .0005	-	NA		NA	
Toxaphene	NA		U .001	-	NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		U .02	-	NA		NA	
1,2-Dichlorobenzene	NA		U .02	-	NA		NA	
1,3-Dichlorobenzene	NA		U .02	-	NA		NA	
1,4-Dichlorobenzene	NA		U .02	-	NA		NA	
2,4,5-Trichlorophenol	NA		U .1	-	NA		NA	
2,4,6-Trichlorophenol	NA		U .02	-	NA		NA	
2,4-Dichlorophenol	NA		U .02	-	NA		NA	
2,4-Dimethylphenol	NA		U .02	-	NA		NA	
2,4-Dinitrophenol	NA		U .1	-	NA		NA	
2,4-Dinitrotoluene	NA		U .02	-	NA		NA	
2,6-Dinitrotoluene	NA		U .02	-	NA		NA	
2-Chloronaphthalene	NA		U .02	-	NA		NA	
2-Chlorophenol	NA		U .02	-	NA		NA	

a = lab qualifier
b = validated qualifier

-4948
749

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1615 064008 05/28/91		1615 066951 04/23/91		1616 064022 06/21/91		1616 064053 07/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		U .02	-	NA		NA	
2-Methylphenol	NA		U .02	-	NA		NA	
2-Nitroaniline	NA		U .1	-	NA		NA	
2-Nitrophenol	NA		U .02	-	NA		NA	
3,3'-Dichlorobenzidine	NA		U .04	-	NA		NA	
3-Nitroaniline	NA		U .1	-	NA		NA	
4,6-Dinitro-2-methylphenol	NA		U .1	-	NA		NA	
4-Bromophenyl phenyl ether	NA		U .02	-	NA		NA	
4-Chloro-3-methylphenol	NA		U .02	-	NA		NA	
4-Chloroaniline	NA		U .02	-	NA		NA	
4-Chlorophenylphenyl ether	NA		U .02	-	NA		NA	
4-Methylphenol	NA		U .02	-	NA		NA	
4-Nitroaniline	NA		U .1	-	NA		NA	
4-Nitrophenol	NA		U .1	-	NA		NA	
Acenaphthene	NA		U .02	-	NA		NA	
Acenaphthylene	NA		U .02	-	NA		NA	
Anthracene	NA		U .02	-	NA		NA	
Benzo(a)anthracene	NA		U .02	-	NA		NA	
Benzo(a)pyrene	NA		U .02	-	NA		NA	
Benzo(b)fluoranthene	NA		U .02	-	NA		NA	
Benzo(g,h,i)perylene	NA		U .02	-	NA		NA	
Benzo(k)fluoranthene	NA		U .02	-	NA		NA	
Benzoic acid	NA		U .1	UJ	NA		NA	
Benzyl alcohol	NA		U .02	-	NA		NA	
bis(2-Chloroethoxy)methane	NA		U .02	-	NA		NA	
bis(2-Chloroethyl)ether	NA		U .02	-	NA		NA	
bis(2-Chloroisopropyl) ether	NA		U .02	-	NA		NA	
bis(2-Ethylhexyl) phthalate	NA		U .02	-	NA		NA	
Butyl benzyl phthalate	NA		U .02	-	NA		NA	
Chrysene	NA		U .02	-	NA		NA	
Di-n-butyl phthalate	NA		U .02	-	NA		NA	
Di-n-octyl phthalate	NA		U .02	-	NA		NA	
Dibenzo(a,h)anthracene	NA		U .02	UJ	NA		NA	
Dibenzofuran	NA		U .02	-	NA		NA	
Diethyl phthalate	NA		U .02	-	NA		NA	
Dimethyl phthalate	NA		U .02	-	NA		NA	
Fluoranthene	NA		U .02	-	NA		NA	
Fluorene	NA		U .02	-	NA		NA	
Hexachlorobenzene	NA		U .02	-	NA		NA	
Hexachlorobutadiene	NA		U .02	-	NA		NA	

a = lab qualifier
b = validated qualifier

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1615 064008 05/28/91		1615 066951 04/23/91		1616 064022 06/21/91		1616 064053 07/09/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		U .02	-	NA		NA	
Hexachloroethane	NA		U .02	-	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		U .02	UJ	NA		NA	
Isophorone	NA		U .02	-	NA		NA	
N-Nitroso-di-n-propylamine	NA		U .02	-	NA		NA	
N-Nitrosodiphenylamine	NA		U .02	-	NA		NA	
Naphthalene	NA		U .02	-	NA		NA	
Nitrobenzene	NA		U .02	-	NA		NA	
Pentachlorophenol	NA		U .1	-	NA		NA	
Phenanthrene	NA		U .02	-	NA		NA	
Phenol	NA		U .02	-	NA		NA	
Pyrene	NA		U .02	-	NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	-	U .005	-	U .005	-
2-Butanone	U .01	-	U .01	R	U .01	-	U .01	R
2-Hexanone	U .01	-	BJ .002	J	U .01	-	U .01	UJ
4-Methyl-2-pentanone	U .01	-	U .01	-	U .01	-	U .01	-
Acetone	J .001	J	BJ .009	J	U .01	-	BJ .002	J
Benzene	UJ .005	UJ	U .005	UJ	U .005	-	J .001	J
Bromodichloromethane	J .002	-	J .001	J	J .002	-	U .005	-
Bromoform	U .005	-	U .005	-	U .005	-	U .005	-
Bromomethane	U .01	-	U .01	-	U .01	-	U .01	UJ
Carbon disulfide	U .005	-	U .005	-	U .005	-	U .005	-
Carbon Tetrachloride	U .005	-	U .005	-	U .005	-	U .005	-
Chlorobenzene	UJ .005	UJ	U .005	UJ	U .005	-	U .005	UJ
Chloroethane	U .01	-	U .01	-	U .01	-	U .01	-
Chloroform	.018	-	.015	-	.016	-	U .005	-
Chloromethane	U .01	-	U .01	-	U .01	-	U .01	UJ
cis-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Ethylbenzene	UJ .005	-	U .005	UJ	U .005	-	U .005	UJ
Methylene chloride	U .005	-	BJ .002	J	U .005	-	U .005	UJ
Styrene	UJ .005	-	U .005	UJ	U .005	-	U .005	UJ
Tetrachlorethene	U .005	-	U .005	-	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

-4048

751

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1615 064008 05/28/91		1615 066951 04/23/91		1616 064022 06/21/91		1616 064053 07/09/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .001	-	U .005	UJ	J .001	-	J .002	J
Total xylenes	UJ .005	-	U .005	UJ	U .005	-	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Vinyl Acetate	U .01	-	U .01	-	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

-4848

753

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1616 064054 07/09/91		1617 064010 06/10/91		1618 064153 08/08/91		1618 064155 08/20/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		NA		NA	
4,4'-DDE	NA		NA		NA		NA	
4,4'-DDT	NA		NA		NA		NA	
Aldrin	NA		NA		NA		NA	
alpha-BHC	NA		NA		NA		NA	
alpha-Chlordane	NA		NA		NA		NA	
Aroclor-1016	NA		NA		NA		NA	
Aroclor-1221	NA		NA		NA		NA	
Aroclor-1232	NA		NA		NA		NA	
Aroclor-1242	NA		NA		NA		NA	
Aroclor-1248	NA		NA		NA		NA	
Aroclor-1254	NA		NA		NA		NA	
Aroclor-1260	NA		NA		NA		NA	
beta-BHC	NA		NA		NA		NA	
delta-BHC	NA		NA		NA		NA	
Dieldrin	NA		NA		NA		NA	
Endosulfan II	NA		NA		NA		NA	
Endosulfan sulfate	NA		NA		NA		NA	
Endosulfan-I	NA		NA		NA		NA	
Endrin	NA		NA		NA		NA	
Endrin ketone	NA		NA		NA		NA	
gamma-BHC (Lindane)	NA		NA		NA		NA	
gamma-Chlordane	NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA	
Heptachlor epoxide	NA		NA		NA		NA	
Methoxychlor	NA		NA		NA		NA	
Toxaphene	NA		NA		NA		NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

-4948

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1616 064054 07/09/91		1617 064010 06/10/91		1618 064153 08/08/91		1618 064155 08/20/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		NA		NA	
2-Methylphenol	NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA	
3-Nitroaniline	NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Bromophenyl phenyl ether	NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA	
4-Chlorophenylphenyl ether	NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA	
Benzo(a)anthracene	NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA	
Benzoic acid	NA		NA		NA		NA	
Benzyl alcohol	NA		NA		NA		NA	
bis(2-Chloroethoxy)methane	NA		NA		NA		NA	
bis(2-Chloroethyl)ether	NA		NA		NA		NA	
bis(2-Chloroisopropyl) ether	NA		NA		NA		NA	
bis(2-Ethylhexyl) phthalate	NA		NA		NA		NA	
Butyl benzyl phthalate	NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA	
Di-n-butyl phthalate	NA		NA		NA		NA	
Di-n-octyl phthalate	NA		NA		NA		NA	
Dibenzo(a,h)anthracene	NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		NA	
Diethyl phthalate	NA		NA		NA		NA	
Dimethyl phthalate	NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA	
Hexachlorobenzene	NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA	

a = lab qualifier
b = validated qualifier

754

-4948

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1616 064054 07/09/91		1617 064010 06/10/91		1618 064153 08/08/91		1618 064155 08/20/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA	
Isophorone	NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA	
N-Nitrosodiphenylamine	NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA	
Nitrobenzene	NA		NA		NA		NA	
Pentachlorophenol	NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA	
Phenol	NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	UJ	U .005	UJ	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	UJ	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	UJ	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	UJ	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	UJ	U .005	-	U .005	-
2-Butanone	U .01	R	U .01	R	BJ .006	J	BJ .005	J
2-Hexanone	U .01	UJ	U .01	UJ	U .01	UJ	U .01	-
4-Methyl-2-pentanone	U .01	UJ	U .01	UJ	U .01	-	U .01	-
Acetone	U .01	UJ	.015	J	BJ .004	J	BJ .003	J
Benzene	J .001	J	U .005	UJ	U .005	UJ	U .005	UJ
Bromodichloromethane	U .005	-	U .005	UJ	U .005	-	U .005	-
Bromoform	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Bromomethane	U .01	UJ	U .01	UJ	U .01	-	U .01	UJ
Carbon disulfide	U .005	-	U .005	UJ	U .005	-	U .005	-
Carbon Tetrachloride	U .005	-	U .005	UJ	U .005	-	U .005	-
Chlorobenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Chloroethane	U .01	-	U .01	UJ	U .01	-	U .01	-
Chloroform	U .005	-	.022	J	U .005	-	U .005	-
Chloromethane	U .01	UJ	U .01	UJ	U .01	-	U .01	-
cis-1,3-Dichloropropene	U .005	-	U .005	UJ	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	UJ	U .005	-	U .005	-
Ethylbenzene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Methylene chloride	U .005	UJ	BJ .002	UJ	BJ .002	J	BJ .001	J
Styrene	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
Tetrachlorethene	U .005	-	U .005	UJ	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

-4048

75

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1616 064054 07/09/91		1617 064010 06/10/91		1618 064153 08/08/91		1618 064155 08/20/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	J .002	J	J .001	J	BJ .001	J	U .005	UJ
Total xylenes	U .005	UJ	U .005	UJ	U .005	UJ	U .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	UJ	U .005	-	U .005	-
Trichloroethene	U .005	UJ	U .005	UJ	U .005	-	U .005	-
Vinyl Acetate	U .01	-	U .01	UJ	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	UJ	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

1-4948

756

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1618 064156 08/20/91		1619 064091 07/31/91		1619 064129 07/31/91		1619 064131 07/31/91	
	a	b	a	b	a	b	a	b
PESTICIDES/PCB								
4,4'-DDD	NA		NA		U .0001	-	NA	
4,4'-DDE	NA		NA		U .0001	-	NA	
4,4'-DDT	NA		NA		U .0001	-	NA	
Aldrin	NA		NA		U .00005	-	NA	
alpha-BHC	NA		NA		U .00005	-	NA	
alpha-Chlordane	NA		NA		U .0005	-	NA	
Aroclor-1016	NA		NA		U .0005	-	NA	
Aroclor-1221	NA		NA		U .0005	-	NA	
Aroclor-1232	NA		NA		U .0005	-	NA	
Aroclor-1242	NA		NA		U .0005	-	NA	
Aroclor-1248	NA		NA		U .0005	-	NA	
Aroclor-1254	NA		NA		U .001	-	NA	
Aroclor-1260	NA		NA		U .001	-	NA	
beta-BHC	NA		NA		U .00005	-	NA	
delta-BHC	NA		NA		U .00005	-	NA	
Dieldrin	NA		NA		U .0001	-	NA	
Endosulfan II	NA		NA		U .0001	-	NA	
Endosulfan sulfate	NA		NA		U .0001	-	NA	
Endosulfan-I	NA		NA		U .00005	-	NA	
Endrin	NA		NA		U .0001	-	NA	
Endrin ketone	NA		NA		U .0001	-	NA	
gamma-BHC (Lindane)	NA		NA		U .00005	-	NA	
gamma-Chlordane	NA		NA		U .0005	-	NA	
Heptachlor	NA		NA		U .00005	-	NA	
Heptachlor epoxide	NA		NA		U .00005	-	NA	
Methoxychlor	NA		NA		U .0005	-	NA	
Toxaphene	NA		NA		U .001	-	NA	
SEMI-VOLATILE ORGANICS								
1,2,4-Trichlorobenzene	NA		NA		U .01	-	NA	
1,2-Dichlorobenzene	NA		NA		U .01	-	NA	
1,3-Dichlorobenzene	NA		NA		U .01	-	NA	
1,4-Dichlorobenzene	NA		NA		U .01	-	NA	
2,4,5-Trichlorophenol	NA		NA		U .05	-	NA	
2,4,6-Trichlorophenol	NA		NA		U .01	-	NA	
2,4-Dichlorophenol	NA		NA		U .01	-	NA	
2,4-Dimethylphenol	NA		NA		U .01	-	NA	
2,4-Dinitrophenol	NA		NA		U .05	-	NA	
2,4-Dinitrotoluene	NA		NA		U .01	-	NA	
2,6-Dinitrotoluene	NA		NA		U .01	-	NA	
2-Chloronaphthalene	NA		NA		U .01	-	NA	
2-Chlorophenol	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

4948

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1618 064156 08/20/91		1619 064091 07/31/91		1619 064129 07/31/91		1619 064131 07/31/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
2-Methylnaphthalene	NA		NA		U .01	-	NA	
2-Methylphenol	NA		NA		U .01	-	NA	
2-Nitroaniline	NA		NA		U .05	-	NA	
2-Nitrophenol	NA		NA		U .01	-	NA	
3,3'-Dichlorobenzidine	NA		NA		U .02	UJ	NA	
3-Nitroaniline	NA		NA		U .05	UJ	NA	
4,6-Dinitro-2-methylphenol	NA		NA		U .05	-	NA	
4-Bromophenyl phenyl ether	NA		NA		U .01	-	NA	
4-Chloro-3-methylphenol	NA		NA		U .01	-	NA	
4-Chloroaniline	NA		NA		U .01	-	NA	
4-Chlorophenylphenyl ether	NA		NA		U .01	-	NA	
4-Methylphenol	NA		NA		U .01	-	NA	
4-Nitroaniline	NA		NA		U .05	UJ	NA	
4-Nitrophenol	NA		NA		U .05	-	NA	
Acenaphthene	NA		NA		U .01	-	NA	
Acenaphthylene	NA		NA		U .01	-	NA	
Anthracene	NA		NA		U .01	-	NA	
Benzo(a)anthracene	NA		NA		U .01	-	NA	
Benzo(a)pyrene	NA		NA		U .01	-	NA	
Benzo(b)fluoranthene	NA		NA		U .01	-	NA	
Benzo(g,h,i)perylene	NA		NA		U .01	-	NA	
Benzo(k)fluoranthene	NA		NA		U .01	-	NA	
Benzoic acid	NA		NA		U .05	UJ	NA	
Benzyl alcohol	NA		NA		U .01	-	NA	
bis(2-Chloroethoxy)methane	NA		NA		U .01	-	NA	
bis(2-Chloroethyl)ether	NA		NA		U .01	-	NA	
bis(2-Chloroisopropyl) ether	NA		NA		U .01	-	NA	
bis(2-Ethylhexyl) phthalate	NA		NA		U .01	-	NA	
Butyl benzyl phthalate	NA		NA		U .01	-	NA	
Chrysene	NA		NA		U .01	-	NA	
Di-n-butyl phthalate	NA		NA		U .01	-	NA	
Di-n-octyl phthalate	NA		NA		U .01	-	NA	
Dibenzo(a,h)anthracene	NA		NA		U .01	-	NA	
Dibenzofuran	NA		NA		U .01	-	NA	
Diethyl phthalate	NA		NA		U .01	-	NA	
Dimethyl phthalate	NA		NA		U .01	-	NA	
Fluoranthene	NA		NA		U .01	-	NA	
Fluorene	NA		NA		U .01	-	NA	
Hexachlorobenzene	NA		NA		U .01	-	NA	
Hexachlorobutadiene	NA		NA		U .01	-	NA	

a = lab qualifier
b = validated qualifier

-4948

7580

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1618 064156 08/20/91		1619 064091 07/31/91		1619 064129 07/31/91		1619 064131 07/31/91	
	a	b	a	b	a	b	a	b
SEMI-VOLATILE ORGANICS								
Hexachlorocyclopentadiene	NA		NA		U .01	-	NA	
Hexachloroethane	NA		NA		U .01	UJ	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		U .01	-	NA	
Isophorone	NA		NA		U .01	-	NA	
N-Nitroso-di-n-propylamine	NA		NA		U .01	-	NA	
N-Nitrosodiphenylamine	NA		NA		U .01	-	NA	
Naphthalene	NA		NA		U .01	-	NA	
Nitrobenzene	NA		NA		U .01	-	NA	
Pentachlorophenol	NA		NA		U .05	-	NA	
Phenanthrene	NA		NA		U .01	-	NA	
Phenol	NA		NA		U .01	-	NA	
Pyrene	NA		NA		U .01	-	NA	
VOLATILE ORGANICS								
1,1,1-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2,2-Tetrachloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1,2-Trichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,1-Dichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethane	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloroethylene	U .005	-	U .005	-	U .005	-	U .005	-
1,2-Dichloropropane	U .005	-	U .005	-	U .005	-	U .005	-
2-Butanone	U .01	-	U .01	UJ	J .01	-	J .01	-
2-Hexanone	U .01	-	U .01	UJ	J .01	-	J .01	-
4-Methyl-2-pentanone	U .01	-	U .01	-	U .01	-	U .01	-
Acetone	BJ .004	J	U .01	UJ	J .01	-	J .006	-
Benzene	UJ .005	-	U .005	UJ	J .005	UJ	J .005	UJ
Bromodichloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Bromoform	UJ .005	-	U .005	-	U .005	-	U .005	-
Bromomethane	U .01	UJ	U .01	-	U .01	-	U .01	-
Carbon disulfide	U .005	-	U .005	-	U .005	-	U .005	-
Carbon Tetrachloride	U .005	-	U .005	-	UJ .005	-	U .005	-
Chlorobenzene	UJ .005	-	U .005	UJ	UJ .005	UJ	UJ .005	UJ
Chloroethane	U .01	-	U .01	-	U .01	-	U .01	-
Chloroform	U .005	-	J .002	-	J .003	-	U .005	-
Chloromethane	U .01	-	U .01	UJ	J .01	-	J .01	-
cis-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Dibromochloromethane	U .005	-	U .005	-	U .005	-	U .005	-
Ethylbenzene	UJ .005	-	U .005	UJ	UJ .005	UJ	UJ .005	UJ
Methylene chloride	U .005	-	U .005	-	U .005	-	U .005	-
Styrene	UJ .005	-	U .005	UJ	UJ .005	UJ	UJ .005	UJ
Tetrachlorethene	U .005	-	U .005	-	U .005	-	U .005	-

a = lab qualifier
b = validated qualifier

-4948

759

OU4 PERCHED QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS DATA
Results in milligrams per liter (MG/L).
Data presented by boring number, sample number, collection date.
NA indicates not analyzed.

Chemical Parameters	1618 064156 08/20/91		1619 064091 07/31/91		1619 064129 07/31/91		1619 064131 07/31/91	
	a	b	a	b	a	b	a	b
VOLATILE ORGANICS								
Toluene	UJ .005	-	BJ .001	J	J .002	UJ	BJ .002	UJ
Total xylenes	UJ .005	-	U .005	UJ	UJ .005	UJ	UJ .005	UJ
trans-1,3-Dichloropropene	U .005	-	U .005	-	U .005	-	U .005	-
Trichloroethene	U .005	-	U .005	-	U .005	-	U .005	-
Vinyl Acetate	U .01	-	U .01	-	U .01	-	U .01	-
Vinyl chloride	U .01	-	U .01	-	U .01	-	U .01	-

a = lab qualifier
b = validated qualifier

750

-4048

OU4 SURFACE WATER QA/QC RADIOLOGICAL RESULTS

OU4 SURFACE WATER [illegible]C RADIOLOGICAL RESULTS
RI/FS SUPPORT DATA
Results in picoCuries per liter (pCi/l).
Data presented by location number, sample number and sample date.
NA indicates not analyzed; a number preceeded by a "less than" symbol indicates that the compound was not present above the detection limit of the analytical instrument.

Radiological Parameters	W-10 1217 05/23/89 duplicate		ASIT-023 1151 02/21/89 duplicate		ASIT-024 1153 02/21/89 duplicate		ASIT-026 1116 03/10/89 duplicate	
	a	b	a	b	a	b	a	b
Cesium 137	< 20.0		< 20.0		< 20.0		NA	
Neptunium 237	< 1		< 1.0		< 1.0		NA	
Plutonium 238	< 1		< 1.0		< 1.0		NA	
Plutonium 239/240	< 1		< 1.0		< 1.0		NA	
Radium 226	< 1		< 1.0		< 1.0		NA	
Radium 228	< 3		< 3.0		< 3.0		< 1.0	
Ruthenium 106	150		< 150.0		< 150.0		< 3.0	
Strontium 90	5		< 5.0		< 5.0		NA	
Technetium 99	30		< 30.0		36.9	± 18.6	NA	
Thorium 228	1		< 1.0		< 1.0		NA	
Thorium 230	1		< 1.0		< 1.0		NA	
Thorium 232	1		< 1.0		< 1.0		NA	
Total Thorium **	3		NA		NA		NA	
Total Uranium **	5	± 1	433.0	± 72.09	576.0	± 93.0	201.0	± 33.0
Uranium 234	1.3	± .3	76.9	± 11.8	85.8	± 13.7	NA	
Uranium 235/236	< 1		6.0	± 1.5	6.7	± 1.8	NA	
Uranium 238	2	± .4	165.0	± 24.0	195.0	± 30.0	NA	

a = lab qualifier
b = validated qualifiers
** = Results reported in ug/l

762

-4948

OU4 SURFACE WATER QA/QC CHEMICAL RESULTS

OU4 SURFACE WATER GENERAL CHEMICAL RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1217 05/23/89 a	b
GENERAL CHEMISTRY		
Ammonia	.409	
Chloride	12	
Fluoride	.2	
Nitrate	2.12	
Phenols	U .01	
Phosphorus	.482	
Sulfate	52.2	
Sulfide	NA	
Total Kjeldahl Nitrogen	1.68	
Total Organic Carbon	U 1	
Total Organic Halides	.031	
Total Organic Nitrogen	1.27	

a = lab qualifier

754

-4048

OU4 SURFACE WATER QA/QC HSL RESULTS

OU4 SURFACE WATER QA/QC HAZARDOUS SUBSTANCE LIST RESULTS
RI/FS SUPPORT DATA
Results in milligrams per liter (MG/L).
Data presented by location number, sample number and collection date.
NA indicates not analyzed.

Chemical Parameters	W-10 1217 05/23/89	
	a	b
METALS		
Aluminum	NA	
Antimony	NA	
Arsenic	.0188	
Barium	.0288	
Beryllium	NA	
Cadmium	.0032	
Calcium	45.2	
Chromium	.0243	
Cobalt	NA	
Copper	U .01	
Cyanide	NA	
Iron	.464	
Lead	.0021	
Magnesium	9.97	
Manganese	.0278	
Mercury	.00029	
Molybdenum	U .01	
Nickel	U .02	
Potassium	2.72	
Selenium	.0169	
Silicon	NA	
Silver	U .01	
Sodium	5.903	
Thallium	NA	
Vanadium	NA	
Zinc	NA	

766

a = lab qualifier

-4948